



LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)

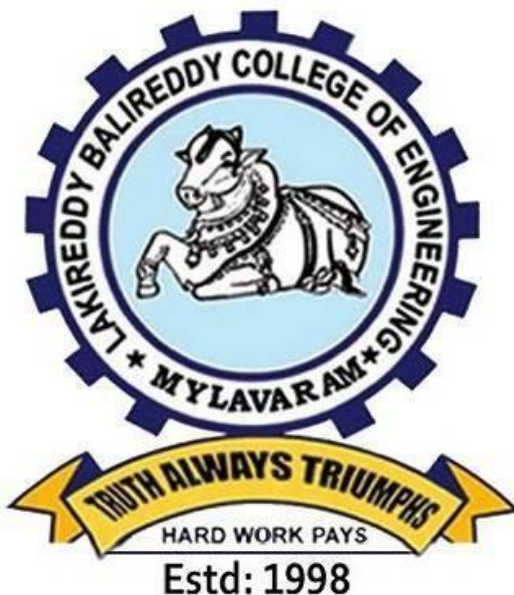
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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

IT WORKSHOP LAB MANUAL

I.B.TECH I.SEM (R23)



DEPARTMENT

OF

COMPUTER SCIENCE & ENGINEERING

23IT51-IT WORKSHOP
(Common to all branches of Engineering)

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Course Objectives:

- To introduce the internal parts of a computer, peripherals, I/O ports, connecting cables
- To demonstrate configuring the system as Dual boot both Windows and other Operating Systems Viz. Linux, BOSS.
- To teach basic command line interface commands on Linux.
- To teach the usage of Internet for productivity and self-paced life-long learning
- To introduce Compression, Multimedia and Antivirus tools and Office Tools such as Word processors, Spread sheets and Presentation tools.

Course Outcomes:

- CO1: Identify the components of a PC and Assemble & disassemble the same. (Understand)
- CO2: Experiment with installation of Operating System and Secure a computer from Cyber threats.(Apply)
- CO3:Develop presentation /documentation using Office tools and LaTeX (Apply)
- CO4: Build dialogs and documents using ChatGPT. (Apply)
- CO5: Improve individual / teamwork skills, communication and report writing skills with ethical values

PC Hardware & Software Installation

Task 1: Identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor.

Task 2: Every student should disassemble and assemble the PC back to working condition. Lab instructors should verify the work and follow it up with a Viva. Also, students need to go through the video which shows the process of assembling a PC. A video would be given as part of the course content.

Task 3: Every student should individually install MS windows on the personal computer. Lab instructor should verify the installation and follow it up with a Viva.

Task 4: Every student should install Linux on the computer. This computer should have windows installed. The system should be configured as dual boot (VMWare)with both Windows and Linux.

Lab instructors should verify the installation and follow it up with a Viva

Task 5: Every student should install BOSS on the computer. The system should be configured as dual boot (VMWare) with both Windows and BOSS. Lab instructors should verify the installation and follow it up with a Viva.

Internet & World Wide Web

Task1: Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally, students should demonstrate, to the instructor, how to access the websites and email. If there is no internet connectivity preparations need to be made by the instructors to simulate the WWW on the LAN.

Task 2: Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop-up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

Task 3: Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. A few topics would be given to the students for which they need to search on Google. This should be demonstrated to the instructors by the student.

Task 4: Cyber Hygiene: Students would be exposed to the various threats on the internet and would be asked to configure their computer to be safe on the internet. They need to customize their browsers to block pop ups, block active x downloads to avoid viruses and/or worms.

LaTeX and WORD

Task 1 : Word Orientation: The mentor needs to give an overview of La TeX and Microsoft (MS) office or equivalent (FOSS) tool word: Importance of La TeX and MS office or equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using LaTeX and word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

Task 2: Using La TeX and Word to create a project certificate. Features to be covered:- Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

Task 3: Creating project abstract Features to be covered: -Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

Task 4: Creating a Newsletter: Features to be covered:- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs and Mail Merge in word.

EXCEL

Excel Orientation: The mentor needs to tell the importance of MS office or equivalent (FOSS) tool Excel as a Spreadsheet tool, give the details of the four tasks and features that would be covered in each. Using **Excel** :Accessing, overview of toolbars, saving excel files, Using help and resources.

Task 1: Creating a Scheduler - Features to be covered: Gridlines, Format Cells, Summation, auto fill, Formatting Text

Task 2: Calculating GPA -. Features to be covered:- Cell Referencing, Formulae in excel – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, LOOKUP/VLOOKUP

Task 3: Split cells, freeze panes, group and outline, Sorting, Boolean and logical operators, Conditional Formatting

POWER POINT

Task 1: Students will be working on basic power point utilities and tools which help them create basic power point presentations. PPT Orientation, Slide Layouts, Inserting Text, Word Art, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows in PowerPoint.

Task 2: Interactive presentations - Hyperlinks, Inserting –Images, Clip Art, Audio, Video, Objects, Tables and Charts.

Task 3: Master Layouts (slide, template, and notes), Types of views (basic, presentation, slide slotter, notes etc.), and Inserting – Background, textures, Design Templates, Hidden slides.

AI TOOLS – ChatGPT

Task 1: Prompt Engineering: Experiment with different types of prompts to see how the model responds.

Try asking questions, starting conversations, or even providing incomplete sentences to see how the model completes them.

- Ex: Prompt: "You are a knowledgeable AI. Please answer the following question: What is the capital of France?"

Task 2: Creative Writing: Use the model as a writing assistant. Provide the beginning of a story or a description of a scene, and let the model generate the rest of the content. This can be a fun way to brainstorm creative ideas

- Ex: Prompt: "In a world where gravity suddenly stopped working, people started floating upwards. Write a story about how society adapted to this new reality."

Task 3: Language Translation: Experiment with translation tasks by providing a sentence in one language and asking the model to translate it into another language. Compare the output to see how accurate and fluent the translations are.

- Ex: Prompt: "Translate the following English sentence to French: 'Hello, how are you doing today?'"

Reference Books:

1. Comdex Information Technology course tool kit, Vikas Gupta, WILEY Dream tech, 2003
2. The Complete Computer upgrade and repair book, Cheryl A Schmidt, WILEY Dream tech, 2013, 3rd edition
3. Introduction to Information Technology, ITL Education Solutions limited, Pearson Education, 2012, 2nd edition
4. PC Hardware - A Handbook, Kate J. Chase, PHI (Microsoft)
5. LaTeX Companion, Leslie Lamport, PHI/Pearson.
6. IT Essentials PC Hardware and Software Companion Guide, David Anfinson and Ken Quamme. – CISCO Press, Pearson Education, 3rd edition

TASK 1:

Every student should identify the peripherals of a computer, components in a CPU and its functions. Draw the block diagram of the CPU along with the configuration of each peripheral and submit to your instructor. Every student should disassemble and assemble the PC back to working condition.

AIM: To identify the peripherals of a computer, assemble and disassemble the system.

Software Requirement: No Software Required.

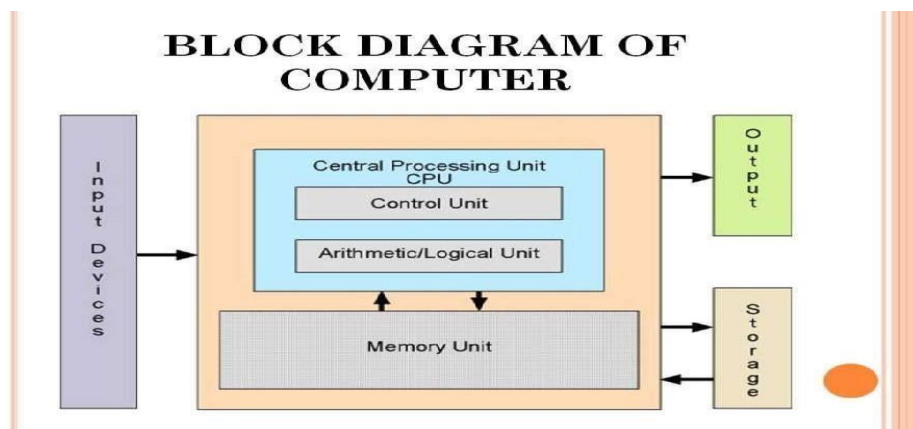
Hardware Requirement: Desired Configuration for the above task is

- System unit
- CPU
- Mother Board
- FDD
- CD ROM Drive
- HDD
- Ethernet Card
- Monitor, Keyboard, Mouse & Speakers

Safety Precautions:

1. Beware of electrostatic discharge (ESO)
2. Build computer on a hard surface, away from concepts.
3. Wear shoes and the short sleeved cotton wear.
4. Use Phillips, head screw driver.
5. Keep the components away from moisture.
6. Avoid using pressure while installing.

BLOCK DIAGRAM OF COMPUTER



Peripherals of a computer:

1. Cabinet:

- ☐ It is used to install all hardware devices like(mother board, SMPS,HDD, CD Rom, FDD)
- ☐ It has Start, Restart Button, Led's, Audio and USB Connectors are available at front side.



2. Monitor:

- ☐ Monitor of a computer is like a television screen.
- ☐ It displays text characters and graphics in colors or in shades of grey.
- ☐ The monitor is also called as screen or display or CRT (cathode ray tube). In the monitor the screen will be displayed in pixels format.

- i. 800 by 600 pixels
- ii. 1024 by 768 pixels



3. Key Board:

- Key board is like a type writer, which contains keys to feed the data or information into the computer
- Keyboards are available in two modules. These are
 - ❖ standard key board with 83-88 keys
 - ❖ enhanced key board with 104 keys or above



4. Mouse:

- ☐ Every mouse has one primary button (left button) and one secondary button (right button).
- ☐ The primary button is used to carry out most tasks, where as secondary button is used in special cases you can select commands and options



5. Printer:

- ☐ A device that prints images (numbers, alphabets, graphs, etc...) on paper is known as Printer.
- ☐ We have different types of printers to take printouts. These are as follows:
 - i. Dot matrix printer
 - ii. Inkjet printer



6. Speakers:

- ☐ Speakers make your system much more delightful to use entertain you while you are working on computer

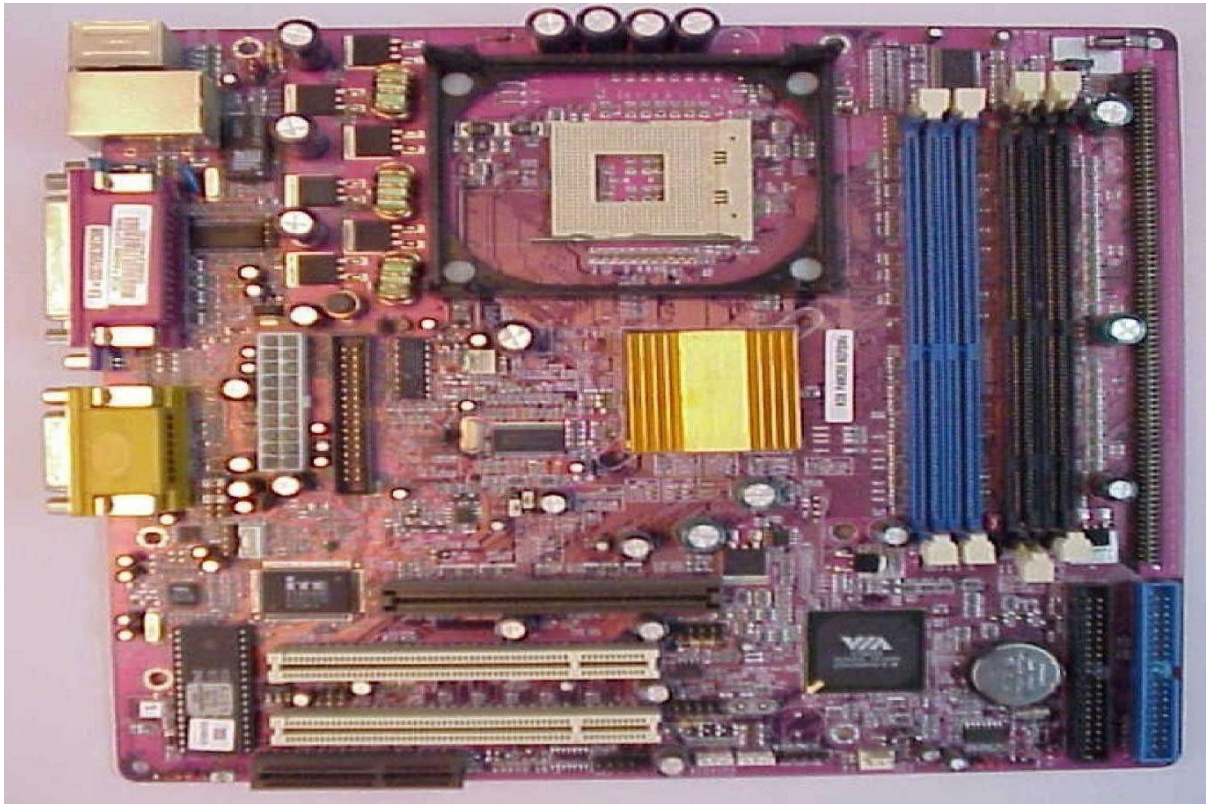


7. Scanner: Scanner used to scan images and text.



8. System board/Motherboard

- ☐ This is the major part of the PC hardware
- ☐ It manages all transactions of data between CPU peripherals.
- ☐ which holds the Processor, Random Access Memory and other parts, & has slots for expansion cards
- ☐ It is rectangle shape



9. Socket 478:

It use 478 – PIN MICROPGA package it is used installing CPU
It is square type design.



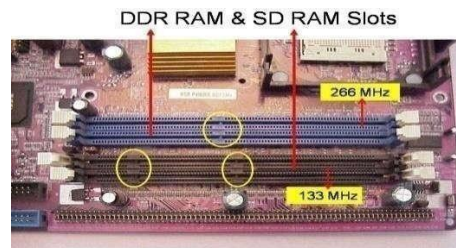
10. CPU

- ☐ The central processing unit contains the heart of any computer, the processor. The processor is fitted on to a Mother Board. The Mother Board contains various components, which support the functioning of a PC.
- ☐ It is brain of the computer
- ☐ It is square shape



11. Ram Slots:

- ❑ Ram slots are used to install the rams
- ❑ It is large rectangle shape and each ending has small clips.
- ❑ There two type ram slots
- ❑ SD Ram -----Two Gaps (synchronous DRAM) is a generic name for various kinds of dynamic random access memory (DRAM) that are synchronized with the clock speed that the microprocessor is optimized for. This tends to increase the number of instructions that the processor can perform in a given time.
- ❑ DDR Ram ----- One Gap (Double Data Rate Synchronous DRAM: A clock is used to read data from a DRAM. DDR memory reads data on both the rising and falling edge of the clock, achieving a faster data rate.)



12. North Bridge:

- ❑ It is also called as controller
- ❑ It is nearby socket 478
- ❑ It placed middle of the mother board
- ❑ It converts electronic signals to binary values and binary values to electronic signals



13. South Bridge:

- ❑ It controls major components mother board and it back bone of the input out devices
- ❑ It communicates PCI slots, IDE-1, IDE-2, floppy connector, BIOS chip.
- ❑ It nearby CMOS battery



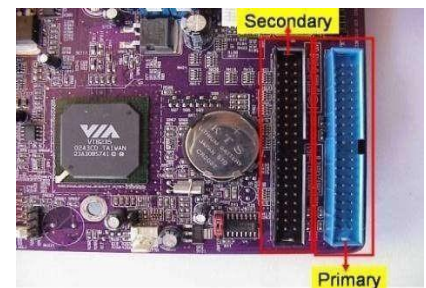
14. CMOS Battery:

- ❑ Computer is using a coin shape battery
- ❑ It generates the clock signal and it manage system continues time.



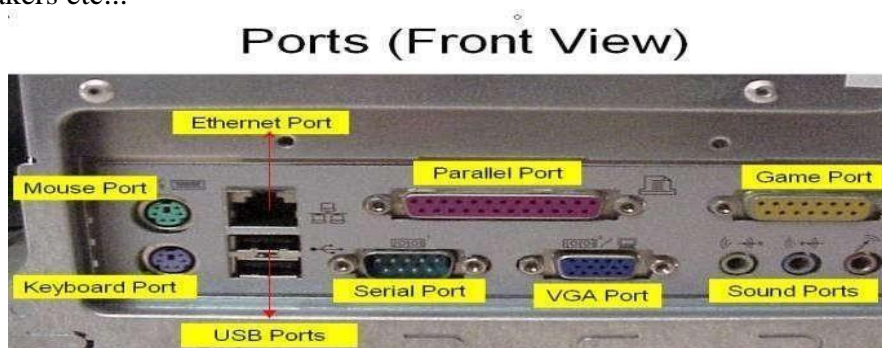
15. Primary & Secondary (IDE-1 & IDE-2):

- ❑ It is also called as IDE-1, IDE-2.
- ❑ It used to connecting Hard Disk Drive, CD ROM, DVD ROM.



16. Input & Output ports:

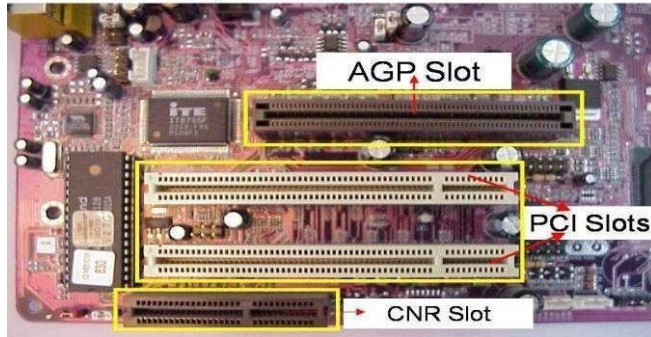
- ❑ IO ports are used to connecting IO device such as key boards, mouse, monitor, printer, scanner, speakers etc...



17. AGP Slot & AGP Card:

- ❑ AGP Slot is used install the AGP card.
- ❑ AGP back view same as VGA port (15-female pins) and used to connecting the monitor's c. This slot is above PCI slots and its color is Black or Brown

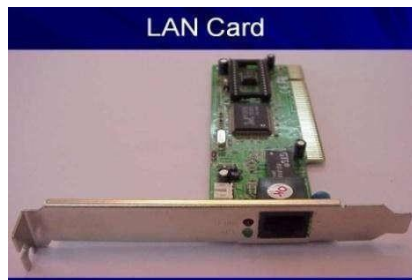
CNR, PCI, AGP Slots



18. CI Slots & PCI (Expansion) Cards:

- PCI slots are used to install the PCI cards such as

i. LAN (Ethernet) Card---Back view Ethernet port



ii. Sound Card- Back view Audio pin connectors)



iii. TV Tuner (Internal) Card - Dish Pin connector

iv. PCI Slots are white or yellow color

v. PCI Card has Single gap only



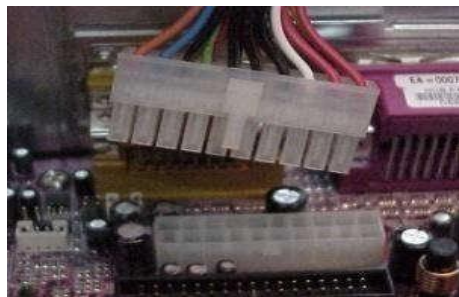
19. BIOS Chip:

- ☐ BIOS controls how the operating system and hardware work together
- ☐ BIOS identification is BIOS name is available on chip or mother board



20. ATX Power connector:

- ☐ ATX power connector is used to connect ATX power plug (This is from SMPS)
- ☐ It is white color and it has ATX Name is available on Mother Board
- ☐ ATX Power connector has 20/24 pins available.



- ☐ Typical ATX 1.3 power supply. From left to right, the connectors are 20-pin motherboard, 4-pin "P4connector", fan RPM monitor (note the lack of a power wire), SATA power connector (black), "Molex connector" and floppy connector.

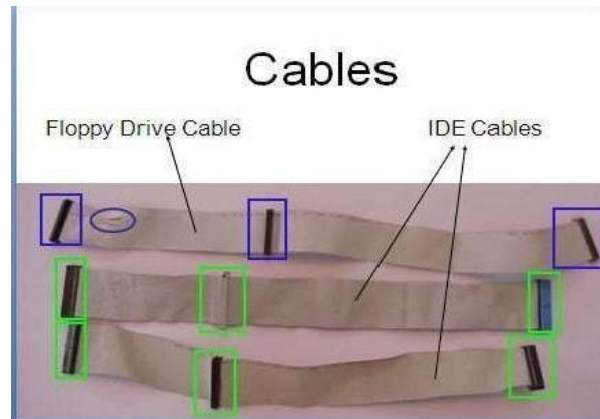
21. Floppy connector:

- ☐ Floppy connector is used to connect Floppy Disk Drive.
- ☐ This is beside of ATX power connector and Name FDD is available on the mother board.



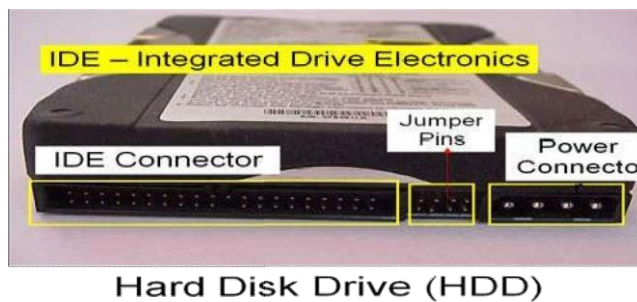
22. Bus Cables or Data cables:

- ❑ A Bus is a collection of wires through which data is transmitted from one device to another device cables are two types
- ❑ IDE cable: it used to connect HDD, CD ROM, DVD ROM
- ❑ FDD cable: it used to connect FDD (braking or manufacture defecting)



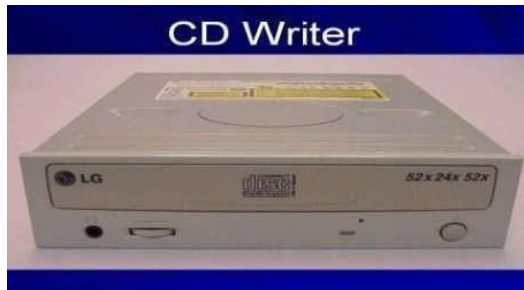
23. Hard Disk Drive:

- ❑ The hard disk drive is the main, and usually largest, data storage device in a computer
- ❑ The operating system, software titles and most other files are stored in the hard disk drive
- ❑ Identifications is the panel name is Hard Disk drive



24. CD ROM Drive & CD-Writer:

- ❑ CD-Rom (Compact Disk Read only Memory) Drive is a device that reads the information from Compact Disks (CD).
- ❑ CD-Writer is used to write the data into Compact Disks.
- ❑ Identification is the panel name is CD Writer



25. Floppy Disk Drive:

- ☐ The floppy disk drive is used to read the information stored in floppy disks.
- ☐ Floppy disks also called as a diskette.
- ☐ Identification is smaller than CD Writer.



26. SMPS:

- ☐ SMPS is used to supply the power to Mother Board HDD,CD ROM, FDD
- ☐ In SMPS holds a transformer, voltage control and fan
- ☐ Identification is the rectangular box shape and panel name is switching mode power supply.



Assembling & Disassembling the System Hardware Components of the Personal Computer

1. Setting the Cabinet ready:-

- Check how to open the cabinet and determine where to fix the components.
- Determine if the case has the appropriate risers installed.

2. Fitting the Mother board.

- Line up the patch on the motherboard (ps/1, USB, etc) with the appropriate holes in the block panel I/O shield of the case.
- Check the points where you and to install
- Install them and make the mother board sit on them and fix screws if required.

3. Installing the CPU

- Raise the small lever at the side of the socket.
- Notice that there is a pin missing at one corner, determine the direction to fit in the processor.
- You should not force the CPU. When inserting it. All pins should slide smoothly into the socket.
- Lock the lever back down.

4. Installing CPU fan

- Install the heat sink over it (Different type for each processor). Heat sink /CPU fan.

5. Fitting the RAM:

- The RAM must be suitable for motherboard.
- There are currently 3 types of RAM available.
 - a) SD RAM.
 - b) DDR SD RAM.
 - c) RD RAM.
- The mother board's chipset determines which type of RAM may be used.

6. Installing SMPS

7. Installing the ATX Power Connector

ATX Connectors:

- PS, Mouse.
- Key board.
- USB.
- Parallel (Prints)
- Serial COM1.
- Serial COM 2.
- Joystick.
- Sound.

8. Installing the HDD and Floppy disk:

1. Place the floppy and hard disks in their slots.
2. Leave some space above HDD to prevent heat building.
3. Check the jumper configuration.
4. Fix the screws.

9. CD ROM Drive :

- CD-ROM drive is similar to installing a hard disk.
- 1st check that the jumper configuration is correct.
- Fix the screw.

10. LAN Card

11. Connecting the ribbon Cables and Front panel connections

- Attach the long end of the cable to the IDEU connector on the motherboard first. The red stripe on the IDE cable should be facing the CD Power.

12. Final Check:

- Mother board jumper configurations are the settings for the processor operator.
- Drive jumper settings, master/ slave correct?
- Is the processor, RAM modules and plug in cards finally seated in their sockets?
- Did you plug all the cables in? Do they all fit really?
- Have you tightened all the screws in plug- in cards or fitted the clips?

- Are the drive secure?
- Have u connected the power cables to all driver?

Powering up for the first time:

1. Ensure that no wires are touching the CPU heat sink fan.
2. Plug your monitor, mouse and keyboard.
3. Plug in power card and switch the power supply.
4. If everything is connected as it should be
 - All systems, fans should start spinning
 - U should hear a single beep and after about 5-10 sec
 - Amber light on monitor should go green
 - You will see computer start to boot with a memory check
 - Now check front LED'S to see if u plugged them in correctly
 - Check all other buttons
 - Power afford change any wrong settings

Why should one learn about hardware?

1. Troubleshoot you and save time.
2. Knowing about system internals and components.
3. Very easy installation for modern hardware.
4. Install extra memory.
5. Removing components.

TEST DATA: No Test Data for This Experiment.

ERROR: No Errors for this Experiment.

RESULT: Assembling and disassembling the system is completed.

TASK 2:

Every student should individually install operating system like Linux or MS windows on the personal computer. The system should be configured as dual boot with both windows and Linux.

AIM: To install Windows XP

Software Requirement: Windows XP Compact Disc **Hardware Requirement:**

Personal computer

PROCEDURE:

1. Keep on press the delete button and go to advanced BIOS feature [BIOS- Basic Input Output System]
2. And go to boot sequence. Select first boot drivers. CD ROM and press F10 to save the bios feature. Yes and then enter. Press any key to boot from CD. Press enter to setup windows XP.
F8 = To agree the license.
3. Press ESC to don't repair the windows XP setup.
4. Press p to delete the previous partitions. Then press enter.
5. Press L to delete the partition.
6. Press C to create the partition in the UN partition space.
7. Press enter to setup windows XP on the selected items.

BASIC FILE SYSTEMS:

FAT: File Allocation Table.

NTFS: New Technology File System.

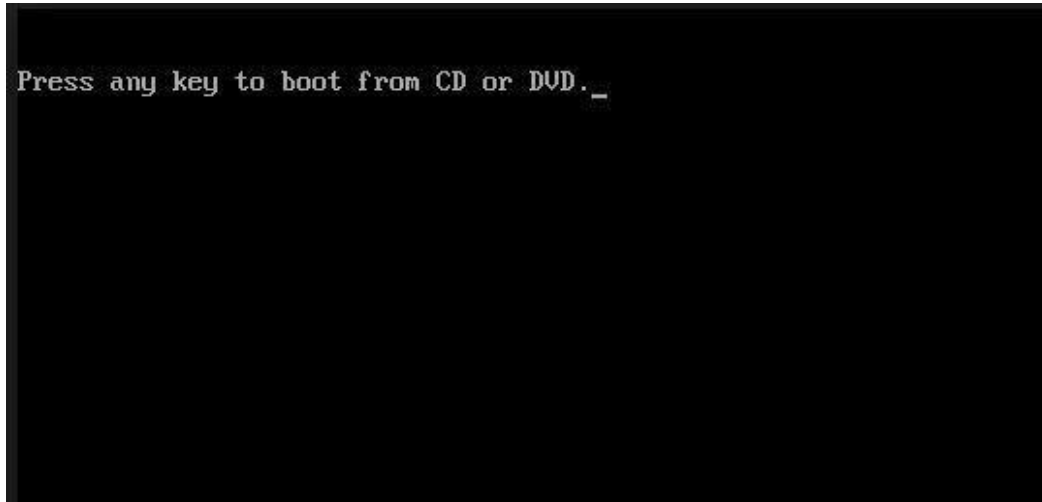
Format the create using NTFS partition.

BASIC STEPS IN INSTALLATION:-

1. Collecting information.
2. Dynamic update
3. Preparing installation
4. Installing windows.
5. Tracking installation

Screen shots of windows XP Installation

1. Insert the Windows XP CD into your computer and restart your computer. If prompted to start from the CD, press SPACEBAR. If you miss the prompt (it only appears for a few seconds), restart your computer to try again.



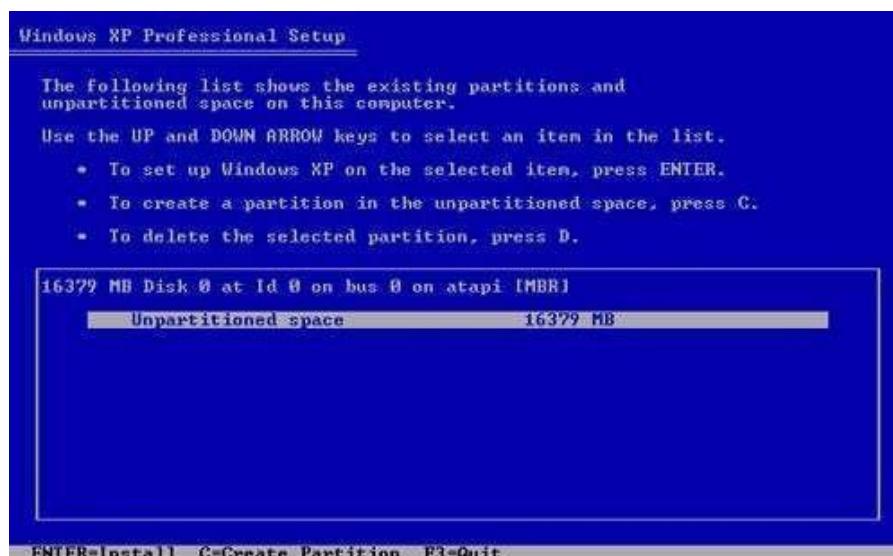
2. Windows XP Setup begins. During this portion of setup, your mouse will not work, so you must use the keyboard. On the **Welcome to Setup** page, press ENTER.



3. On the **Windows XP Licensing Agreement** page, read the licensing agreement. Press the PAGEDOWN key to scroll to the bottom of the agreement. Then press F8.



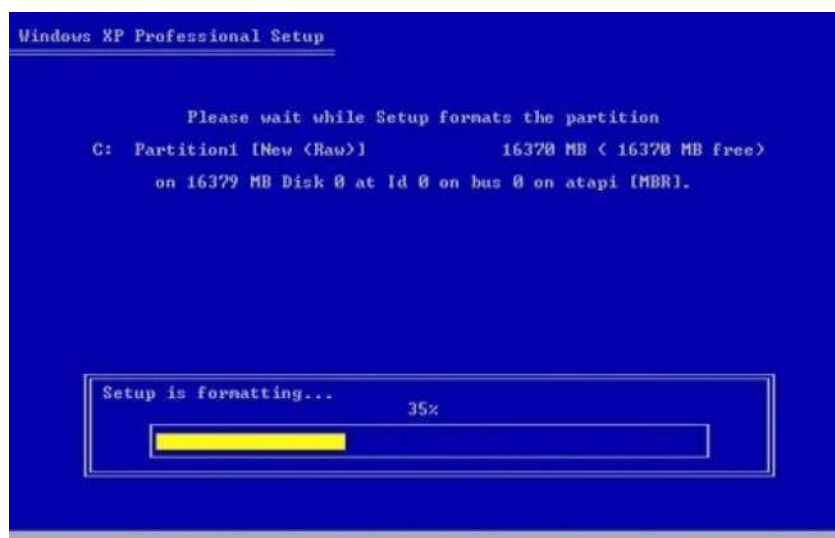
4. This page enables you to select the hard disk drive on which Windows XP will be installed. Once you complete this step, all data on your hard disk drive will be removed and cannot be recovered. It is extremely important that you have a recent backup copy of your files before continuing. When you have a backup copy, press D, and then press L when prompted. This deletes your existing data. Press ENTER to select **Unpartitioned space**, which appears by default.



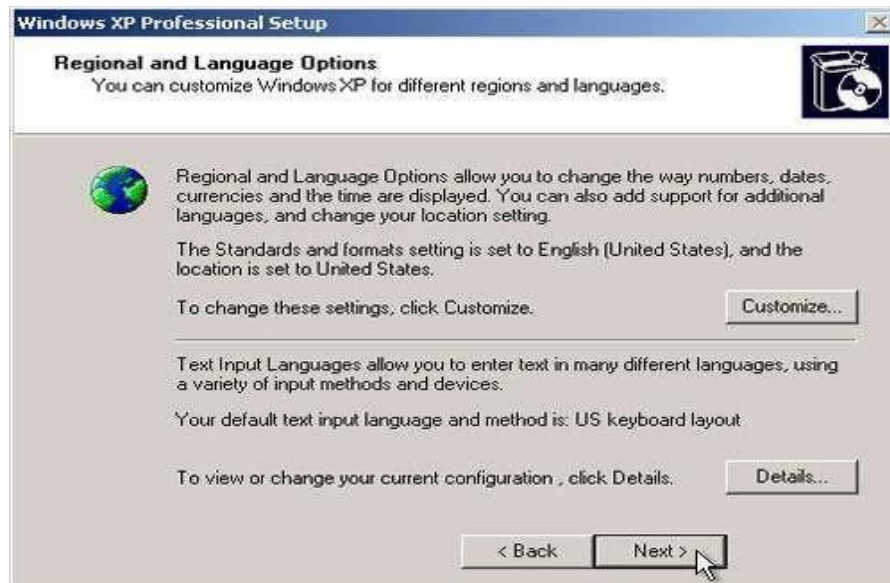
5. Press ENTER again to select **Format the partition using the NTFS file system**, which appears by default.



6. Windows XP erases your hard disk drive using a process called formatting and then copies the setup files. You can leave your computer and return in 20 to 30 minutes.



7. Windows XP restarts and then continues with the installation process. From this point forward, you can use your mouse. Eventually, the **Regional and Language Options** page appears. Click **next** to accept the default settings. If you are multilingual or prefer a language other than English, you can change language settings after setup is complete



8. On the **Personalize Your Software** page, type your name and your organization name. Some programs use this information to automatically fill in your name when required. Then, click **Next**.



9. On the **Your Product Key** page, type your product key as it appears on your indows XP CD case. The product key is unique for every Windows XP installation.

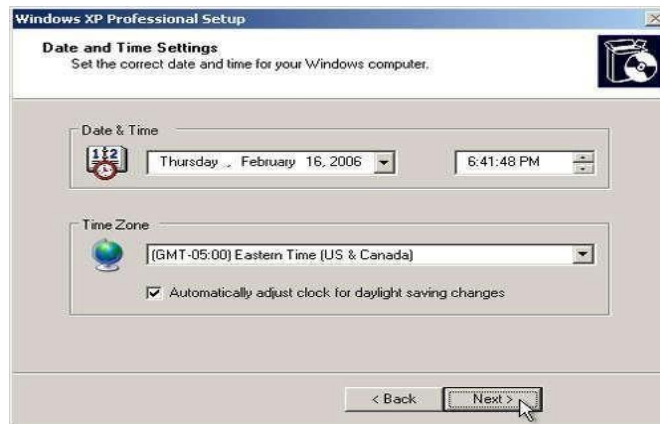


10. On the **Computer Name and Administrator Password** page, in the Computer name box, type a name that uniquely identifies your computer in your house, such as FAMILYROOM or TOMS. You cannot use spaces or punctuation. If you connect your computer to a network, you will use this computer name to find shared files and printers. Type a strong password that you can remember in the **Administrator password** box, and then retype it in the **Confirm password** box. Write the password down and store it in a secure place. Click **Next**.

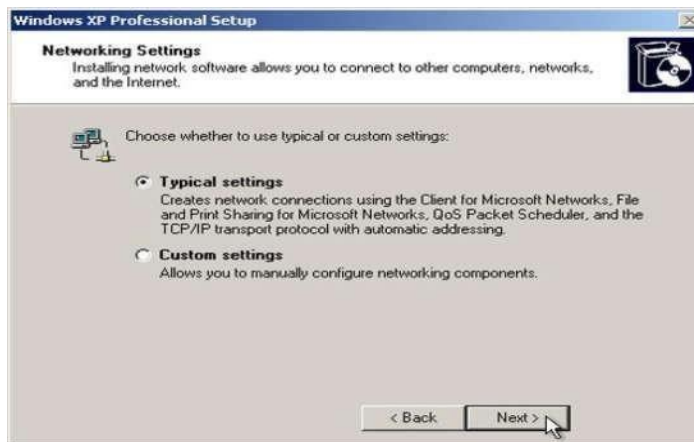


11. On the **Date and Time Settings** page, set your computer's clock. Then, click the

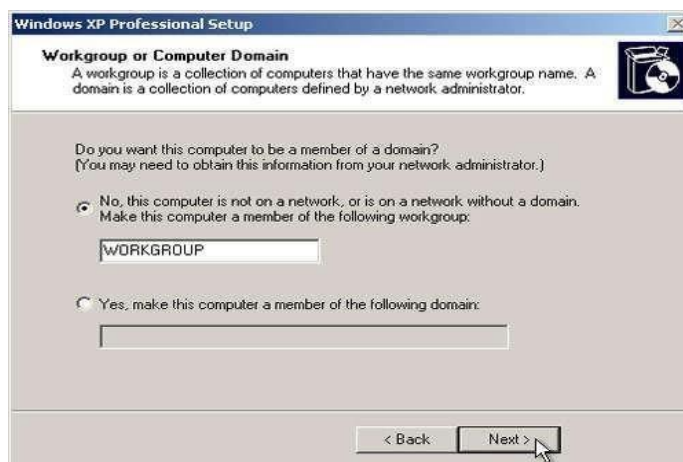
Time Zone down arrow, and select your time zone. Click **Next**.



12. Windows XP will spend about a minute configuring your computer. On the **Networking Settings** page, click **Next**.

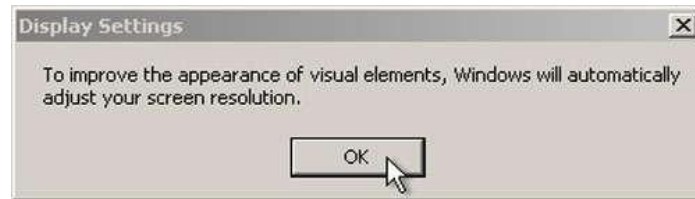


13. On the **Workgroup or Computer Domain** page, click **Next**.



14. Windows XP will spend 20 or 30 minutes configuring your computer and will

Automatically restart when finished. When the **Display Settings** dialog appears, click **OK**



15. When the **Monitor Settings** dialog box appears, click **OK**.



16. The final stage of setup begins. On the **Welcome to Microsoft Windows** page, click **next**.



17. On the **Help protect your PC** page, click **Help protect my PC by turning on Automatic Updates now**. Then, click



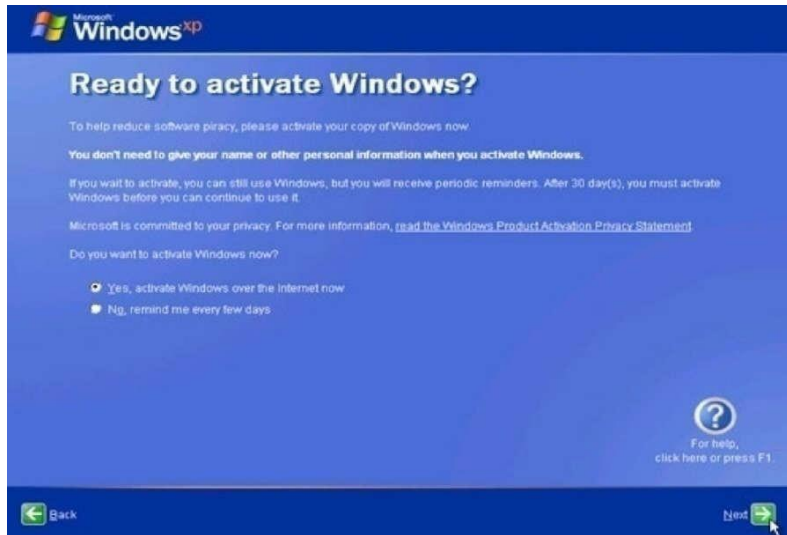
18. Windows XP will then check if you are connected to the Internet: If you are connected to the Internet, select the choice that describes your network connection on the **Will this computer connect to the Internet directly, or through a network?** Page. If you're not sure, accept the default selection, and click **Next**



19. If you use dial-up Internet access, or if Windows XP cannot connect to the Internet, you can connect to [the Internet](#) after setup is complete. On the **How will this computer connect to the Internet?** Page, click **Skip**.



20. Windows XP Setup displays the **Ready to activate Windows?** Page. If you are connected to the Internet, click **Yes**, and then click **Next**. If you are not yet connected to the Internet, click **No**, click **Next**, and then skip to step 24. After setup is complete, Windows XP will automatically remind you to activate and register your copy of Windows XP



21. On the **Ready to register with Microsoft?** Page, click **Yes**, and then click **Next**.



22. On the **collecting registration information page**, complete the form. Then, click Next.

Microsoft Windows XP

Collecting Registration Information

To move to the next box, press TAB on your keyboard.

First name:

Last name:

Address:

City:

State/Province:

Postal or ZIP code:

Country/Region:

E-mail address:

☐ Send me promotions and offers from Microsoft.

☐ Send me promotions and offers from Microsoft's partners.

For help, click here or press F1.

Back Next

23. On the **Who will use this computer?** page, type the name of each person who will use the computer. You can use first names only, nicknames, or full names. Then click **Next**. To add users after setup is complete or to specify a password to keep your account private, read Create and customize user accounts.

Microsoft Windows XP

Who will use this computer?

Type the name of each person who will use this computer. Windows will create a separate user account for each person so you can personalize the way you want Windows to organize and display information, protect your files and computer settings, and customize the desktop.

1st User:

2nd User:

3rd User:

4th User:

5th User:

These names will appear on the Welcome screen in alphabetical order. When you start Windows, simply click your name on the Welcome screen to begin. If you want to set passwords and limit permissions for each user, or add more user accounts after you finish setting up Windows, just click **Control Panel** on the **Start** menu, and then click **User Accounts**.

For help, click here or press F1.

Back Next

24. On the **Thank you!** Page, click **Finish**.



Congratulations! Windows XP setup is complete.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: Installation of Windows XP is completed.

(B) AIM: To install Linux in system

Software Requirement: Linux Compact Discs

Hardware Requirement: Personal computer

PROCEDURE:

1. Language Selection

- ☐ Using your mouse select the language you would prefer to use for the installation
- ☐ Click next to continue.

2. Key Board Configuration:

- ☐ Using your mouse select the correct layout type for the keyboard you would prefer to use for the installation and as the system default.
- ☐ Once you have made the selection click next to continue.

3. Mouse Configuration:

- ☐ If you have a PS/2, USB or Bus mouse you do not need to pick a port and device. If you have a serial mouse, you should choose the correct port and device that your serial mouse is on.
- ☐ The Emulate 3 buttons checkbox allows you to use a two-button mouse as if it had three buttons. If you select this check box you can emulate a third —middle button by pressing both mouse buttons simultaneously.

4. Installation Type:

- ☐ Choose the type of installation you would like to perform.
- ☐ Your options are **Personal desktop, Workstation, Server, Custom and upgrade**

5. Disk partition Setup:

- ☐ You can chose automatic partitioning or manual partitioning using **Disk Druid** of **fdisk**.

- ☐ Automatic partitioning allows you to perform an installation without having to partition your drives yourself.
- ☐ Automatic partitioning allows you to have some control concerning what data is removed from your system.
- ☐ Your options are:
 - ☐ Remove all Linux partitions on this system.
 - ☐ Remove all partitions on this system
 - ☐ Keep all partitions and use existing free space.
- ☐ To partition manually choose either Disk druid or fdisk partitioning tool.
- ☐ Click next once you have made your selections.

6. Partitioning your system:

- ☐ If you chose automatic partitioning and did not select **Review** skip ahead
- ☐ If you choose automatic partitioning and selected **review** you can either accept the current partition settings (click next) or modify the setup using **Disk Druid**, the manual partition tool.
 - ☐ If you choose manual partition with disk skip ahead.
- At this point you must tell the installation program where to install Linux. This is done by defining mount points for one or more disk partitions in which Linux will be installed.

7. Adding Partitions:

To add a new partition select **new** button, a dialogue box appears.
Select the options and click **ok**

8. Boot Loader Configuration:

Boot loader is the first software program that runs when a computer starts. The installation program provides two boot loaders **GRUB (GR and Unified Boot Loader)** which is the default and **LILO**

If you do not want GRUB as your boot loader click Change Boot Loader.

☐

☐

You can then choose to install LILO or choose not to install boot loader at all by clicking **Do not install boot loader** on the **change boot loader** button.

Network devices are automatically detected and displayed in **Network Devices** list,

Select a network device and click **Edit**

Here you can configure IP address and net mask of the device.

9. Firewall configuration:

- ☐ Offers firewall protection for enhanced protection.
- ☐ A properly configured firewall can greatly increase the security of the system.

10. Time zone configuration:

You can set your time zone by selecting your computers physical location or by specifying your time zones offset from Universal Time.

11. Account Configuration:

- ☐ Allows to set Root password or user accounts
- ☐ Root count is similar to the administrator password that you set up in Win NT.
- ☐ Click **add** button to add a new non-root user.
- ☐ Enter the details and click **OK**.

12. Packing group selection:

You can select package groups which groups components together or individual packages or a combination of the two.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: Installing the OS of Linux is completed

TASK 3:

Hardware Troubleshooting: Students have to be given a PC which does not boot due to improper assembly or defective peripherals. They should identify the problem and fix it to get the computer back to working condition.

AIM: Hardware troubleshooting

Software Requirement: No software required

Hardware Requirement: Personal computer

Troubleshoot:-

1. If you hit the power button & nothing happened.
 - ☐ Check all power connections.
 - ☐ Check for power on mother board.
2. If the system turns on but does not beep or begin to boot up.
 - ☐ Remove all components except motherboard/ cpu / monitor check by giving power to them

Computer error beeps codes:

No beep: short, no power, bad CPU/ MD, loose peripherals.

One beep: everything is normal & computer posted tax.

Two beeps: post / CMOS error.

One long beep One short beep: Motherboard problem.

One long beep two short beep: video problem.

One long beep 3 short beeps: video problem.

3 long beeps: keyboard error.

Repeated long beep: memory error.

Continuous high- low beeps: CPU overheating

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: Doing the Hardware troubleshooting is completed

TASK4:

Software Troubleshooting: Students have to be given a malfunctioning CPU due to system software problems. They should identify the problem and fix it to get the computer back to working condition.

AIM: Software troubleshooting

Software Requirement: Malfunctioning CPU due to system software

Hardware Requirement: Personal computer

PROCEDURE:

Error messages encountered during boot before Windows loads

Ensure that your computer BIOS settings are correctly configured to the hardware that is installed in your computer

Error messages while windows loading

1. If you have recently installed or changed something that could have caused normal windows to stop loading, try loading the last known good configuration
2. If you are unable to get into Normal windows and believe that removing or uninstalling a program or changing a setting may help enable you to get into windows, boot the computer into windows XP safe mode
3. If your computer has worked fine in the past but recently has been experiencing the issue you are encountering run the system restore option to restore the computer to an earlier date

Other error messages that occur while windows is loading or after windows is loaded

1. If error occurs but windows still loads, verify no issues or conflict exists in device manager
2. Ensure that if programs are loading automatically that these errors are not associated with these programs
3. Make sure Windows XP is up to date by checking Microsoft windows update page
4. If your computer has virus protection installed make sure that it is up to date and that no virus are being detected
5. If your computer has worked fine in the past but recently has been experiencing the issue you are encountering run the system restore option to restore the computer to an earlier date

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: Malfunctioning CPU due to system software is done

INTERNET AND WORLD WIDE WEB

TASK 1:

Orientation & Connectivity Boot Camp: Students should get connected to their Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate how to access the websites and email.

AIM: To learn Local Area Network and access the Internet. In the process they configure the TCP/IP setting. Finally students should demonstrate, to the instructor, how to access the websites and email

Software Requirement: Local Area Network to access the Internet

Hardware Requirement: Personal computer

THEORY:

The internet is a worldwide, publicly network of interconnected computer networks

LOCAL AREA NETWORK:

LANs are privately owned networks within a single building or campus of up to few kilometers in size.

WIDE AREA NETWORK:

A WAN is a network that connects computers across a large geographic area such as a city or country

TCP/IP (Transmission Control Protocol/Internet Protocol):

Collection of methods used to connect servers on the internet and to exchange data.

HTML (Hyper Text Markup Language):

The coding used to control the look of documents on the web

HTTP (Hyper Text Transfer Protocol):

Part of a url that identifies the location as one that uses HTML

IP (Internet Protocol):

A format for contents and addresses of packets of information sent over the internet

IP ADDRESS:

An identifier for a computer or device on a TCP/IP network

SEARCH ENGINE:

A program that searches documents located on the Internet for keywords or phrases entered by a person browsing the net.

Internet Connection requirements:

- ☐ TCP/IP protocol
- ☐ Client Software
- ☐ ISP Account

Means of communication to the net:

- ☐ telephone Modem
- ☐ Ethernet
- ☐ ISDN(Integrated Services Digital Network)
- ☐ DSL(Digital Subscriber Line)
- ☐ Satellite.

PROCEDURE:

- 1. Go to start>control Panel**
- 2. open Network Connections**
- 3. Click create a new connection and then click next**
- 4. The new connection wizard window opens , click next to continue**
- 5. Choose one of the options in the next dialog box**

6. Choose one of the three options in the next dialog box

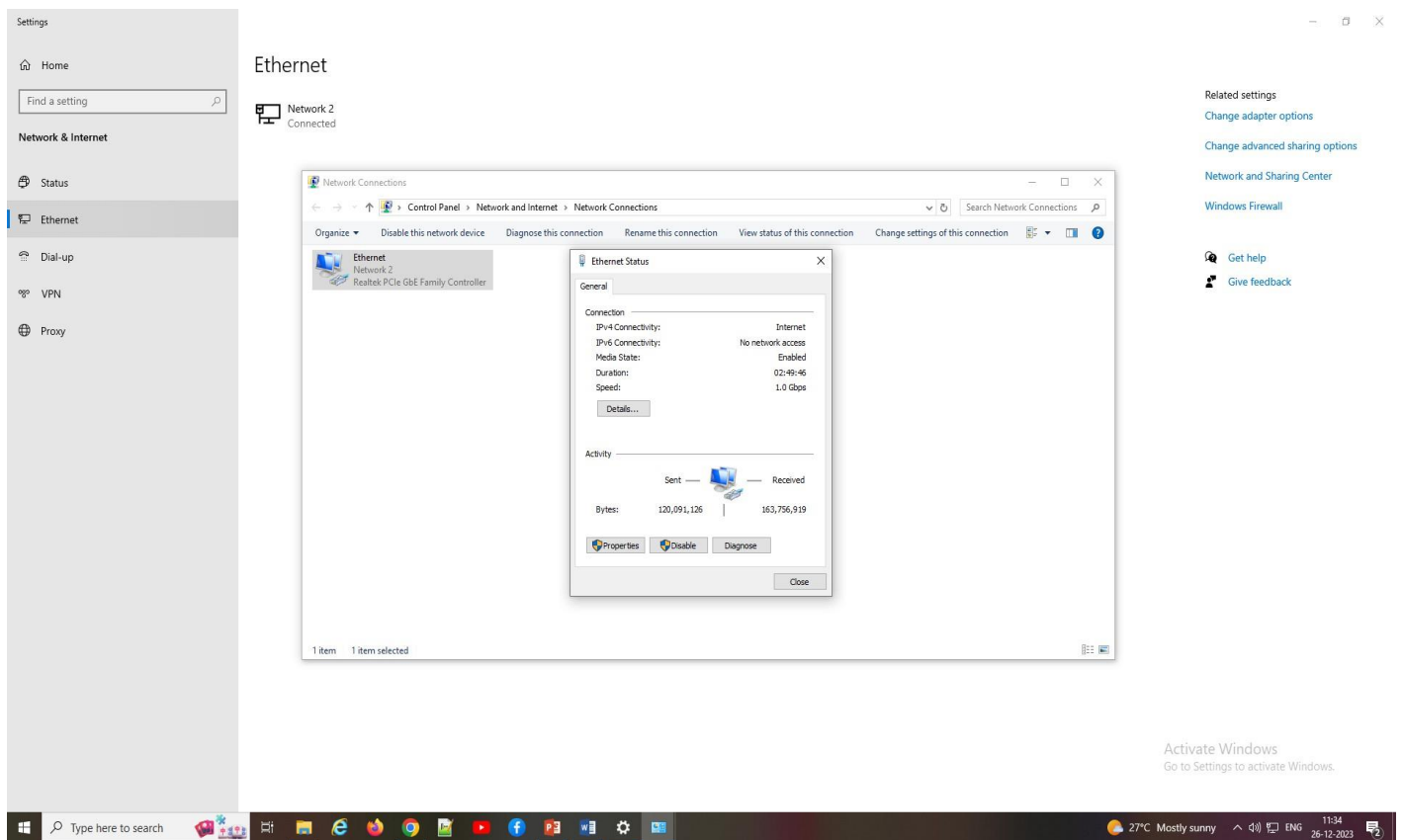
- ☐ If you do not have an internet account click **choose from a list of ISPs** and then click **next**
- ☐ If you have an account click **Set up my connection manually**
- ☐ If you have a CD from the ISP click **use the CD I got from an ISP** and then click **next**

7. Follow the next steps as per the option you selected.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: In this way we can learn surfing the web



TASK 2:

Web Browsers, Surfing the Web: Students customize their web browsers with the LAN proxy settings, bookmarks, search toolbars and pop up blockers. Also, plug-ins like Macromedia Flash and JRE for applets should be configured.

AIM: To learn to surf the web

Software Requirement: Local Area Network to access the Internet

Hardware Requirement: Personal computer

THEORY:

- ☐ Web browser provides the means to the searching and also helps toDownload the web content.
- ☐ Web browsers support most of the famous Internet Protocols like HTTP, FTP.
- ☐ Common file formats a browser accepts are HTML
- ☐ Well known browsers natively support a variety of other formats in addition to HTML such as JPEG,PNG,GIF image formats
- ☐ Different web browsers available in the market are:
 - ☐ Silversmith
 - ☐ Mosaic
 - ☐ Netscape
 - ☐ Mozilla
 - ☐ Opera
 - ☐ Lynx
 - ☐ Safari

Bookmark:

Each web browser is built-in with the support of Internet Bookmarks which serve as a named anchor – primarily to URLs. The primary purpose of this book mark is to

easily catalog and access web pages that the web browser user has visited or plans to visit, without having to navigate the web to get there.

Pop-up Blockers:

Pop-ups are a form of online advertising on the WWW intended to attract the attention of the users. These pop ups are hosted on the web sites which are frequently visited by the netizens. These pop ups are activated when these web sites open a new web browser window and there by displaying the advertisements.

Plug-ins:

A plug-in is a software component program that interacts with a main application to provide a better integration of the media. The basic difference between application programs and plug-ins is that multimedia files are launched in a separate window where as in plug-ins multimedia play in the browser window.

Few famous plug -ins are:

- ☐ Apple Quick Time
- ☐ Macromedia flash
- ☐ Microsoft Media Player
- ☐ Adobe Shockwave
- ☐ Sun Microsystems Java Applet

PROCEDURE: LAN

Proxy Settings:

- ☐ select **tools** menu in Internet Explorer
- ☐ Select **Internet Options**
- ☐ Select **Connections**
- ☐ You end up in two options
☐

Dial-up and virtual network settings

LAN setting

- ☐ The selection at this step is dependent on the kind of connection you are trying to configure. They are:

- ☐ **Dial-up modem connection**

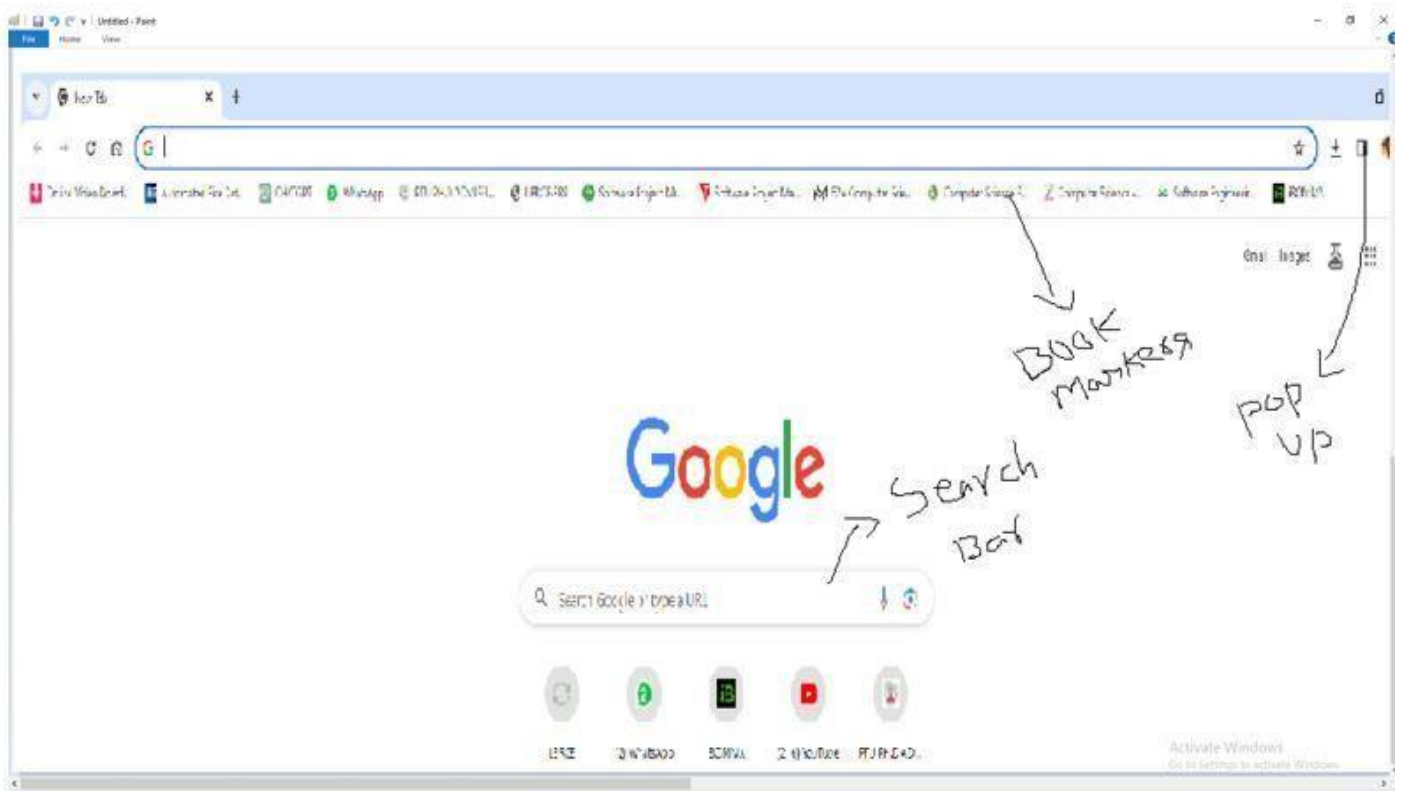
- ☐ **LAN connection**

- ☐ **DSL or Cable modem**

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: In this way we can learn surfing the web



TASK 3:

Search Engines & Netiquette: Students should know what search engines are and how to use the search engines. Usage of search engines like Google, Yahoo, ask.com and others should be demonstrated by student.

AIM: To know what search engines are and how to use the search engines.

Software Requirement: Local Area Network to access the Internet

Hardware Requirement: Personal computer

THEORY:

Search engine:

A search engine can be defined as a web site with tools which help you to find information on the internet

Function of a search engine:

You can find anything from a schedule of White house tours to instructions for removing stains from clothes.

Limitations:

Search engines visit web sites only several weeks. Search engines cannot see information in other data bases later on.

On the internet a search engine is a coordinated set of programs that includes: A spider (crawler or bot) that goes to every page or representative pages on every web site that wants to be searchable and reads it , using hypertext links on each page to discover and read site's other pages.

Pros:

- ☐ You can select the search terms
- ☐ You can use the same search terms with multiple search engines
- ☐ You can change search terms as much as you wish
- ☐ You will normally receive numerous links

- ☐ Its fast

Cons:

- ☐ There are so many different search engines it may be difficult to choose
- ☐ You will normally receive too many links often making it difficult to identify the most relevant sites.
- ☐ The vast majority of links may be only marginally relevant or altogether irrelevant

EX:

- ☐ Alta Vista
- ☐ Ask Jeeves
- ☐ Google
- ☐ Lycos

Etc...

Meta Search Engines:

Meta search engines or —metacrawlers‖ don't crawl the web themselves. Instead they search the resources of multiple search engines by sending a search to several search engines at once aggregating the result.

Pros:

- ☐ You only need to use one search tool which is time- efficient
- ☐ You only need to learn how to use one search engine reducing learning curve
- ☐ You benefit from the difference among several search tools at once

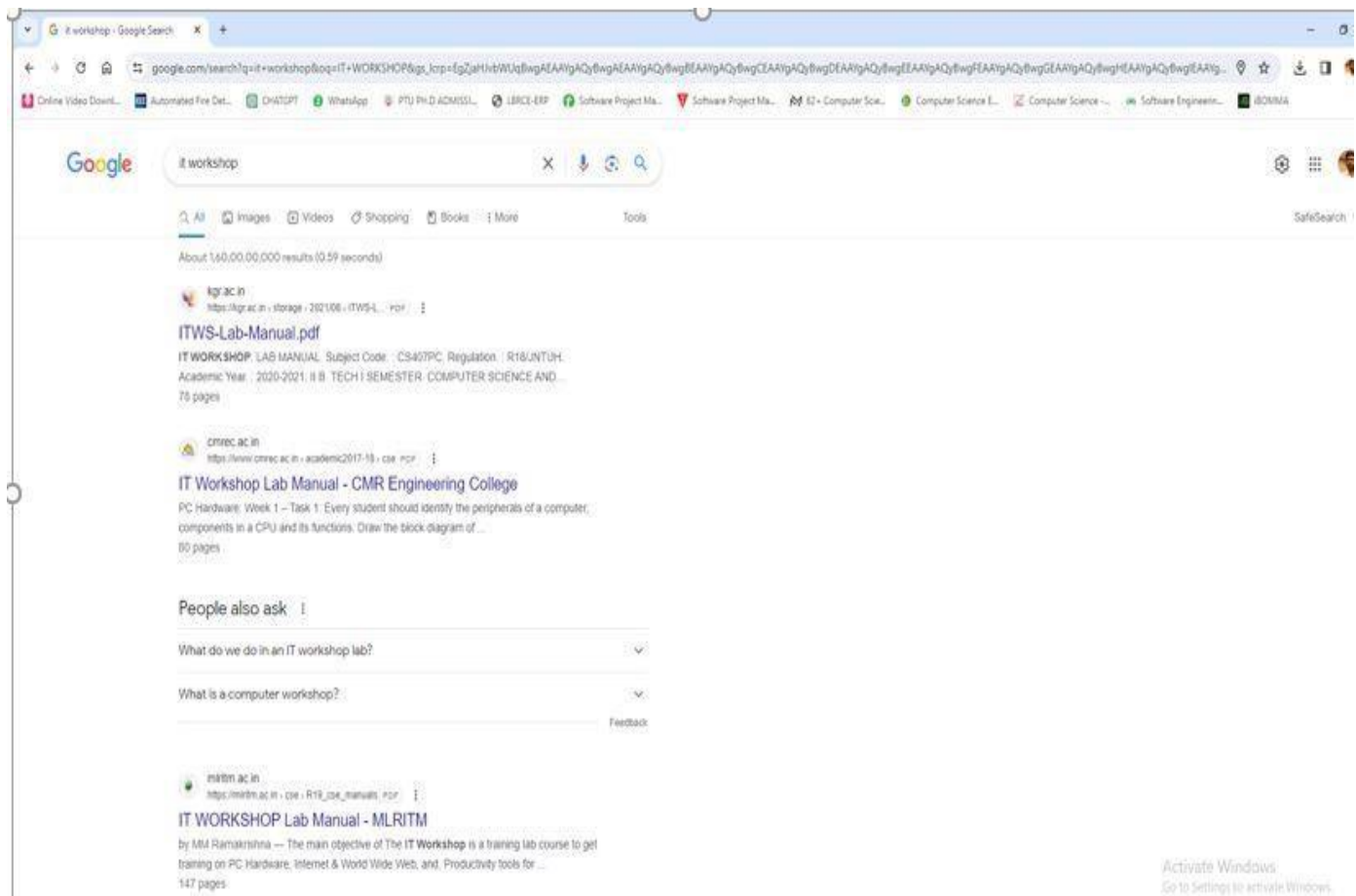
Cons:

- ❑ Meta search services may not be able to leverage each individual search engines full range of query tools resulting in less refined searches
- ❑ You can not personally select the search engines queried by Meta search services.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: In this way we can know what search engines are and how to use the search engines



TASK 4:

Cyber Hygiene: Students should learn about viruses on the internet and install antivirus software. Student should learn to customize the browsers to block pop ups, block active x downloads to avoid viruses and/or worms.

AIM: To learn various threats on the internet and configure the computer to be safe on the internet.

Software Requirement: Antivirus Software

Hardware Requirement: Personal computer

THEORY:

Antivirus:

Antivirus software is a program that either comes installed on your computer or that you purchase and install yourself. It protects your computer against most viruses, worms, Trojan horses and other unwanted invaders that can make your computer sick.

Firewall:

A firewall is a special software or hardware designed to protect a private computer network from unauthorized access. A firewall is a set of related programs located at a network gateway server which protects the resources of the private network from users from other networks.

PROCEDURE:

Installing Symantec antivirus for Windows:

- ☐ Insert Symantec antivirus CD into your CD drive
- ☐ Double click on the Symantec-setup.exe
- ☐ The installer will open

- ☐ Click **next** to proceed
- ☐ License agreement will open. Click **I accept the terms of the license agreement** and then click **next**.
- ☐ Follow the instruction on the screen to complete the installation.

Get Computer Updates:

- ☐ Click **start> settings>control panel**
- ☐ Click **Automatic Updates** icon to open Automatic Updates dialog box
- ☐ Check the box **Keep my computer up to date**
- ☐ Choose a setting
- ☐ Click OK

Block Pop ups:

- ☐ In the IE open **tools>pop-up blocker**
- ☐ Click on **Turn on Pop- up blocker**

Windows Firewall:

- ☐ Go to **Start>control panel>Network and Internet Connections >windows firewall**
- ☐ In the general tab check the **On(recommended)** box
 - ☐ If you don't want any exceptions check on **Don't allow exceptions box**

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: Antivirus is installed in the system

EXCES:

Develop home page: Student should learn to develop his/her home page using HTML consisting of his/her photo, name, address and education details as a table and his/her skill set as a list.

AIM:

To create a your web page using HTML

Software Requirement: Notepad, Any web browser

Hardware Requirement: Personal computer

CODE:

```
<html>
<head>
<title> details</title>
</head>
<body>


<h1> NAME : Radha</h1>
<h1><pre>
Address:
        H.NO.1-241/29,
        Kukatpally,
        Hyderabad-500062
</pre></h1>
<h1> Educational Details</h1>

<table border=1>
  <tr>
    <th>Course </th>
    <th>Name of the Institutation</th>
    <th>Year of Pass</th>
    <th>Percentage</th>
  </tr>
  <tr>
    <td>M.Tech(CSE)</td>

    <td>LBRCE College of Engineering</td>
    <td>2011</td>

    <td>81%</td>
  </tr>
  <tr>
    <td>B.Tech(CSE) </td>
```

```

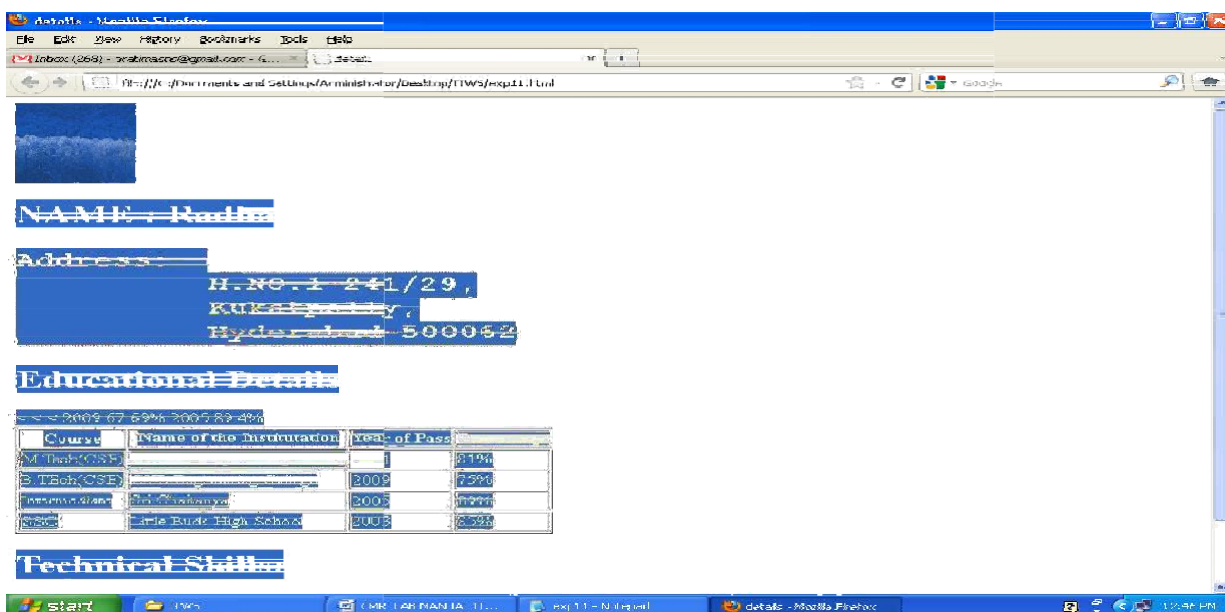
        <td>CVR Engineering College</td>
        <td>2009</td>
        <td>75%</td>
    </tr>
    <<tr>
        <<td>Intermediate </td>
        <td>Sri Chaitanya</td>
        <td>2005</td>
        <td>89%</td>
    </tr>
        <td>SSC</td>
        <td>Little Buds High School</td>
        <td>2003</td>
        <td>85%</td>
    </tr>
</table>
<h1>Technical Skills:</h1>
<ultype=disc>
    <li>Programming Languages : C, JAVA</li>
    <li>Operating Systems    : Windows </li>
    <li>Database Systems      : Oracle</li>
    <li>Web Technologies      : HTML</li>
</ul>
</body>
</html>

```

TEST DATA: Execute the code with any browser

ERROR: No Errors for this Experiment

RESULT: web is developed which consisting of photo, name, address and education details and skill



LATEX AND WORD:

Task 1 – Word Orientation: The mentor needs to give an overview of La TeX and Microsoft (MS) office or equivalent (FOSS) tool word: Importance of La TeX and MS office or equivalent (FOSS) tool Word as word Processors, Details of the four tasks and features that would be covered in each, Using La TeX and word – Accessing, overview of toolbars, saving files, Using help and resources, rulers, format painter in word.

TASK 2:

To create project certificate, Features to be covered:-Formatting Fonts in word, Drop Cap in word, Applying Text effects, Using Character Spacing, Borders and Colors, Inserting Header and Footer, Using Date and Time option in both LaTeX and Word.

AIM:

To create a document applying the above mentioned techniques.

Software Requirement: MS-WORD

Hardware Requirement: Personal computer

THEORY:

Header and Footer:

1. To create a header, enter text or graphics in the header area or click button on the header and footer tool bar.
2. To create footer, click switch between header and footer.
3. Then click exit.

Date and Time:

Insert a date field that automatically updates so that the current date is displayed when you open or print the file.

Insert a time field that automatically updates so that the current time is displayed when you open or print the file.

Border:

- On the format menu, click borders and shadings.
- To specify that the border appears on a particular side of a page, such as only at the top, click custom under setting.
- To specify a particular page or section for the borders to appear, click the option you want to apply.
- To specify the exact position of the border on the page. Finally, click OK.

Color:

- Select the text you want to make a different color.
- To apply the color most recently applied to text, click font color.
- To apply different colors, click the arrow on the right of the font color button, select the color you want and then click the button.

PROCEDURE:

First click start button on the status bar. Then select program and again select Microsoft word. On the menu bar click the file option. Then again click new. Then enter the text not less than 100 words. A header appears at the top and the footer appears at the bottom of each page. On the view menu, click header and footer option. From dialogue box, make the required changes and then click OK. On the format menu, click borders and shading s make required changes and the click OK. Select the text you want and make the different color. Click on right of the font color button, and then select the color you want and then click onthe button.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: A document is created by applying the above mentioned techniques

LAKIREDDY BALI REDDY COLLEGE OF ENGINEERING (AUTONOMOUS)



This is to certify that this is a bonafide record of the practical work done by Mr./Ms..... bearing Regd num:..... Of B.Tech Semester Branch Section in the 23IT51 – **IT WORKSHOP LAB** during the Academic Year: 2023-2024.

No. of Experiments/Modules held : 15

No. of Experiments Done : 15

Date:/...../23

INTERNAL EXAMINER

EXTERNAL EXAMINER

TASK 3:

Creating project abstract Features to be covered:-Formatting Styles, Inserting table, Bullets and Numbering, Changing Text Direction, Cell alignment, Footnote, Hyperlink, Symbols, Spell Check, Track Changes.

AIM:

To create a document applying the above mentioned techniques.

Software Requirement: MS-WORD

Hardware Requirement: Personal computer

THEORY:

Table:

A table consists of rows and columns.

Cell Alignment:

Aligns contents written in a table in the top left corner or top right corner or in the center etc...

Foot Note:

Foot notes are used to comments on, or provide references for text in a document.

Hyperlink:

It is a colored and underlined text or a graphic that you click to go to a file, a location in a file, an HTML page on the World Wide Web, or an HTML page in an intranet.

Symbols:

You may not be able to enter certain symbols into your word document, as there is a limitation on the keys on the key board. Creating these new symbols especially when working with mathematical terms it becomes very difficult .For example we can insert symbols such as \equiv , \approx , ..

Spell check:

It automatically checks for spelling and grammatical errors

Bullets and Numbering:

In Microsoft word we can easily create bulleted or numbered list of items.

Formatting Styles:

- A style is a set of rules to be followed for the effective document.
- Style can be applied to text, paragraph, table or a list.

Changing text direction:

You can change the text orientation in drawing objects, such as text boxes, shapes, and callouts, or in table cells so that the text is displayed vertically or horizontally.

Track changes:

A track change is an excellent feature of Microsoft word as it enables a user or reviewer to keep track of the changes that have taken a period. Changes like insertion, deletion or formatting changes can be kept track of.

Procedure:**Changing Text direction:**

1. Click the drawing object or table cell that contains the text you want to change.
2. On the Format menu, click Text Direction.
3. Click the orientation you want.

Table:

1. Click where you want to create a table.
2. On the Table menu, point to Insert, and then click Table.
3. Under Table size, select the number of columns and rows.
4. Under AutoFit behavior, choose options to adjust table size.
5. To use a built-in table format, click AutoFormat.

Select the options you want

Cell Alignment:

1. Click the cell that contains text you want to align.
2. On the Tables and Borders toolbar, select the option for the horizontal and vertical alignment you want— for example, Align Bottom Center or Align Top Right.

Foot Note:

1. In print layout view, click where you want to insert the note reference mark.
2. On the Insert menu, point to Reference, and then click Footnote.
3. Click Footnotes or Endnotes.

By default, Word places footnotes at the end of each page and endnotes at the end of the document. You can change the placement of footnotes and endnotes by making a selection in the Footnotes or Endnotes box.

4. In the Number format box, click the format you want.
5. Click Insert.

Word inserts the note number and places the insertion point next to the note number.

6. Type the note text.
7. Scroll to your place in the document and continue typing.

As you insert additional footnotes or endnotes in the document, Word automatically applies the correct number format.

Hyper link:

Select the text or picture you want to display as the hyperlink, and then click Insert Hyperlink on the Standard toolbar

Do one of the following:

1. Link to an existing file or web page:
 1. Under Link to, click Existing File or Web Page.

2. In the Address box, type the address you want to link to or, in the Look in box, click the down arrow, and navigate to and select the file
2. Link to a file you haven't created yet

Under Link to, click Create New Document.

3. In the Name of new document box, type the name of the new file.
4. Under When to edit, click either Edit the new document later or Edit the new document now

An e-mail address:

1. Select the text or picture you want to display as the hyperlink, and then click Insert Hyperlink on the Standard toolbar
2. Under Link to, click E-mail Address.
3. Either type the e-mail address you want in the E-mail address box, or select an e-mail address in the recently used e-mail addresses box.
4. In the Subject box, type the subject of the e-mail message

A specific location in another document

1. Insert a bookmark in the destination file or Web page.
2. Open the file that you want to link from, and select the text or object you want to display as the hyperlink.
3. On the Standard toolbar, click Insert Hyperlink .
4. Under Link to, click Existing File or Web Page.
5. In the Look in box, click the down arrow, and navigate to and select the file that you want to link to.
6. Click Bookmark, select the bookmark you want, and then click OK.

Symbol:

1. Click where you want to insert the symbol.
2. On the Insert menu, click Symbol, and then click the Symbols tab.
3. In the Font box, click the font that you want.
4. Double-click the symbol that you want to insert.
5. Click Close

Spell check:

1. On the Standard toolbar, click Spelling and Grammar .
2. When Word finds a possible spelling or grammatical problem, make your changes in the Spelling and Grammar dialog box.

Bullets and Numbering:

1. Type 1. to start a numbered list or * (asterisk) to start a bulleted list, and then press SPACEBAR or TAB.
2. Type any text you want.
3. Press ENTER to add the next list item.

Word automatically inserts the next number or bullet.

4. To finish the list, press ENTER twice, or press BACKSPACE to delete the last bullet or number in the list

Formatting Styles:

1. Select the words, paragraph, list, or table you want to change.
2. If the Styles and Formatting task pane is not open, click Styles and Formatting on the Formatting toolbar
3. Click the style you want in the Styles and Formatting task pane. If

the style you want is not listed, click All Styles in the Show box

Track Changes:

1. Open the document you want to revise.
2. On the Tools menu, click Track Changes

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: A document is created by applying the above mentioned techniques

TASK 4:

Creating a Newsletter: Features to be covered:- Table of Content, Newspaper columns, Images from files and clipart, Drawing toolbar and Word Art, Formatting Images, Textboxes, Paragraphs in word.

AIM: Create a news Letter

Software Requirement: MS-WORD

Hardware Requirement: Personal computer

THEORY:

Table of contents:

Table of contents displays a list of headings in a created document. It basically provides an outline of the entire document created

Newspaper columns:

One can create a newspaper columns document by specifying the number of new letter-style column required and then adjust their width , and add vertical lines between columns.

Images from files and clipart:

Inserting a picture (graphic) from a file and clipart may be required for a document. This picture could be a scanned photograph or any other digitally produced one. This pictures can be modified , resized, cropped and enhanced.

Drawing toolbar and Word Art:

One can create his/her own drawings in Microsoft word. Ms word provides a full fledged drawing tool bar.

Word Art in Microsoft word enables you to create special and decorative text.

Formatting Images, Textboxes and Paragraphs:

Formatting an image includes selecting appropriate color, size, layout and cropping.

Generally the text in a document follows a standard orientation (line after line). A text box provides a different orientation to the text with in a document. It can arrange the text in anywhere and can be resized and moreover moved to any section of the document or even outside.

When you are formatting a paragraph, you do not need to highlight the entire paragraph. Placing the cursor anywhere in the paragraph enables you to format it. After you set a paragraph format, subsequent paragraphs will have the same format unless you change the format

PROCEDURE:

Table of contents:

1. Click where you want to insert the table of contents.
2. On the **Insert** menu, point to **Reference**, and click **Index and Tables**.
3. Click the **Table of Contents** tab.
4. To use one of the available designs, click a design in the **Formats** box.
5. Select any other table of contents options you want.

Newspaper columns:

1. Select the entire or part of document to be converted into a newsletter-style
2. Click on format menu , select columns
3. Any desired number of columns are presets-one or two or three or left or right b\can be selected.
4. Width and spacing can be fixed and equal columns width can be checked for uniformity
5. If newspaper columns are to be separated by a line, then check line between
6. Under apply to will be whole document if entire document is selected else we have to select a selected text.
7. Click ok

Inserting images from files and clip art:

1. Click where you want to insert the picture.
2. On the Insert menu, point to Picture, and then click From File.
3. Locate the picture you want to insert.
4. Double-click the picture you want to insert. CLIP ART:
 1. On the Insert menu, point to Picture, and then click Clip Art.

2. In the Clip Art task pane, in the Search for box, type a word or phrase that describes the clip you want or type in all or some of the file name of the clip.
3. To narrow your search, do one or both of the following:
 - To limit search results to a specific collection of clips, in the Search in box, click the arrow and select the collections you want to search.
 - To limit search results to a specific type of media file, in the Results should be box, click the arrow and select the check box next to the types of clips you want to find.
4. Click Go.
5. If you don't know the exact file name, you can substitute wildcard characters for one or more real characters. Use the asterisk (*) as a substitute for zero or more characters in a file name. Use the question mark (?) as a substitute for a single character in a file name.
6. In the Results box, click the clip to insert it.

Drawing Toolbar and Word Art:

1. Click in your document where you want to create the drawing.
2. On the Insert menu, point to Picture, and then click New

Drawing. A drawing canvas is inserted into your document.

3. Use the Drawing toolbar to add any shapes or pictures that you want

WORD ART:

1. On the Drawing toolbar, click Insert WordArt . 2.

Click the WordArt effect you want, and then click OK.

3. In the Edit WordArt Text dialog box, type the text you want.

4. Do any of the following:

- ☐ To change the font type, in the Font list, select a font.
- ☐ To change the font size, in the Size list, select a size.
- ☐ To make text bold, click the **Bold** button.
- ☐ To make text italic, click the Italic button.

Formatting Images:

1. Formatting of the images can be achieved by selecting the image and double click on the picture, format picture dialog box appears.
2. The same can be achieved by selecting the tools menu > customize>tool bars tab>picture and click close.

Basic formatting features of an image

Resize a drawing

1. Select the drawing canvas
2. On the Drawing Canvas toolbar, do one of the following:
 - To make the drawing canvas boundary larger without changing the size of the objects on the canvas, click Expand .
 - To make the drawing canvas boundary fit tightly around the drawing objects or pictures, click Fit .
 - To scale the drawing and make the objects and canvas proportionately smaller or larger, click Scale Drawing, and then drag the edges of the canvas.


Resize a picture or shape

1. Position the mouse pointer over one of the sizing handles
2. Drag the sizing handle until the object is the shape and size you want.


To increase or decrease the size in one or more directions, drag the mouse away from or toward the center, while doing one of the following:

- To keep the center of an object in the same place, hold down CTRL while dragging the mouse.
- To maintain the object's proportions, drag one of the corner sizing handles.
- To maintain the proportions while keeping the center in the same place, hold down CTRL while dragging one of the corner sizing handles.

Crop a picture

1. Select the picture you want to crop.
2. On the Picture toolbar, click Crop .
3. Position the cropping tool over a cropping handle and then do one of the following:
 - To crop one side, drag the center handle on that side inward.
 - To crop equally on two sides at once, hold down CTRL as you drag the center handle on either side inward.
 - To crop equally on all four sides at once, hold down CTRL as you drag a corner handle inward.
4. On the Picture toolbar, click Crop to turn off the Crop command.

Text Box:

1. On the Drawing toolbar, click Text Box .
2. Click or drag in your document where you want to insert the text box
3. You can use the options on the Drawing toolbar to enhance a text box—for example, to change the fill color—just as you can with any other drawing object

Paragraphs: Change line spacing

Select the text you want to change.

1. On the Formatting toolbar, point to Line Spacing, and then do one of the following:
 - To apply a new setting, click the arrow, and then select the number that you want.
 - To apply the most recently used setting, click the button.
 - To set more precise measurements, click the arrow, click More, and then select the options you want under Line Spacing.

Change spacing before or after paragraphs

1. Select the paragraphs in which you want to change spacing.
2. On the Format menu, click Paragraph, and then click the Indents and Spacing tab.
3. Under Spacing, enter the spacing you want in the Before or After box.

Change paragraph direction

1. Place the insertion point in the paragraph that you want to change, or select several paragraphs.

2. Do one of the following:

- To have text begin from the left, click Left-to-Right on the Formatting toolbar.
- To have text begin from the right, click Right-to-Left on the Formatting toolbar.

When you change the paragraph direction, Microsoft Word leaves justified and centered text as it is. In the case of left-aligned or right-aligned text, Word flips the alignment to its opposite. For example, if you have a left-to-right paragraph that is right aligned, such as the date at the top of a letter, clicking Right-to-Left results in a right-to-left paragraph that is left aligned.

Forms:

Using Microsoft word one can create an organized and structured document with a provision to enter the required information into it. A document of such nature is called a form.

Mail Merge:

It helps us to produce from letters mailing labels envelopes catalogs and others types of merged document. It is so found in the tools option on the menu bar. In tools we have letters and mailing. In letters and mailing we have mail merge mail merge tool box envelopes tables and letters wizard. In mail merge select the required document you are working on. A window for customizing the data base structure appears. This file contains the names, address details with contact numbers etc of people you wish to send the letters.

Inserting objects:

Insert an object such as drawing word art text effects or an equation at the inserting point.

Fields:

It inserts a field at the inserting font fields are used to insert a variety of information automatically. Select table in table select insert. In that select insert table a box containing number of rows and columns will appear. Select six columns and four rows and click o.k. Given the first row as date, problem repeated

student's signature action recommended problem status and councilors sign. Insert the objects in the feedback form and apply the text fields in the form.

PROCEDURE:

Mail Merge:

1. Open a document and type the complete body of the letter and format it as required.
2. Create a data source and choose mail merge from tool bar a window is displayed.
3. Click on create button and choose from letter options. Then a window is displayed.
4. Click active window choose currently active document. Click on data and create data source option.
5. A window for customizing the data base structure appears and this file contains the names address details with contact number etc. we can add or remove fields from this file.
6. Once the list of fields is finalized a window of same is displayed and types the required file names and click on save button.
7. A window is displayed. Type the details of 10 candidates. After typing details of one person, click on add menu.
8. Click on the o.k. to finish entering the records mail merge tool bar is displayed.
9. Place the curser at the place where you wish to insert names and click on insert mail merge button. A drop list is displayed all fields created would be shown.
10. By highlighting to desired file and click on it we can insert the field into the main document and go to begin the mail merge click on mail merge.

11. A window is displayed click once on the merge button to generate letters for all records in your data source file.

Forms:

1. Design the form by sketching a layout first, or use an existing form template as a guide. Tables, text boxes, borders, and shading are all design elements that can help you create a well-designed form that's easy to use.
2. On the Standard toolbar, click New Blank Document .
3. Add the text or graphics you want. For example, enter the questions you want answered, and list the available choices.
4. To insert a text box where users can enter their responses, click the document, and then click Text Form Field on the Forms toolbar. If you need more space, you can insert multiple text boxes side by side. To insert check boxes that list choices, such as Yes and No, click the document, and then click Check Box Form Field on the Forms toolbar.
5. Save the form.

Insert line numbers:

1. On the File menu, click Page Setup, and then click the Layout tab.
2. In the Apply to box, click Whole document.
3. Click Line Numbers.
4. Select the Add line numbering check box, and then select the options you want.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: A document is created by applying the above mentioned techniques

MS -EXCEL

TASK 1:

Spreadsheet Orientation: Accessing, overview of toolbars, saving spreadsheet files, Using help and resources. **Creating a Scheduler:-** Gridlines, Format Cells, Summation, auto fill, Formatting Text.

AIM: To maintain a shift schedule with specifications

Software Requirement: MS-EXCEL

Hardware Requirement: Personal computer

THEORY:

Grid lines:

1. Click the worksheet.
2. On the file menu, click page setup and then click the sheet tab.
3. Click gridlines.
4. Select the sheets on which you want to change the gridlines color.
5. On the Tools menu click options click the color you want in the color box.
6. To use the default gridlines color click automatic.
7. Lines you can add to a chart that make it easier to view and evaluate data.

Gridlines extend from the tick marks on an axis across a plot area.

Format Cell:

1. Change the font and font size.
2. Change the text color.
3. Make selected text or numbers bold, italic or underlined.
4. Create a new style.

Auto fit:

1. Combine cells horizontally or vertically to make one large cell.
2. Add borders to cells.
3. Shade cells with colors.

4. Change the column width and row height
5. Change the font, font size or colors of text.
6. Align text vertically at the top, center and bottom of cell.

Formatting the text:

1. Select the text you want to format.
2. On the format menu click cells and then click number tab.
3. In the catalog box click text.
4. Enter the numbers in the formatted cells.
5. Click ok.
6. Then press enter and reenter the data.

PROCEDURE:

First click start button of the screen on status bar. Click on programs and then Microsoft excel. To get a new blank work sheet go to programs and then click on excel sheet. On the file menu click page setup and then click sheet tab click gridlines. In this way do the required changes using format cell, make the required changes using formatting text also make the required changes. Enter the data in the data in the worksheet consisting of week name person name and timings 7 a.m. to 3 p.m. Make all the above changes to the text.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: A Excel Sheet is created by applying the above mentioned techniques

TASK 2:

Calculating GPA - .Features to be covered:- Cell Referencing, Formulae in spreadsheet – average, std. deviation, Charts, Renaming and Inserting worksheets, Hyper linking, Count function, Sorting, Conditional formatting.

AIM:

To maintain a control chart for printing books with given data.

Software Requirement: MS-EXCEL

Hardware Requirement: Personal computer

THEORY:

1. On the chart menu click chart type
2. Text direction.

Click the arrow down next to the text direction button. For right to left click right to left. For left to right reading order, click left to right.

For reading order that is consistent with the language of the first entered character, click context. For reading order that is inconsistent with the language of the first entered character, click control.

3. In the tools menu click options and then click chart tab.
4. To show all worksheet data in the chart even if some rows and columns are hidden, clear the plot visible cells by check box.
5. To prevent hidden rows and columns from displaying in the chart, select the plot cells only check box.

Hyper Linking:

1. Create a worksheet: On the file menu, click new, and then click blank workbook taskpane.
2. Insert a worksheet: Click worksheet on the insert menu. Right click on sheet tab and then click insert double click the template for the type of sheet you want.

3. Hyperlink: Using hyperlink we can insert one more sheet in the present sheet
4. Count function: Create a blank worksheet press control +c. In the worksheet select cell A and press control +c. On the tools menu point to formula auditing and then click formula auditing menu.

Worksheet:

1. In the file menu go to menu then a new worksheet is created.
- 2 To add a single worksheet, click worksheet on the Insert menu. To add multiple worksheets hold down shift and then click the number of worksheet tasks to add in an open workbook

Sort:

1. Click a cell in the list you want to sort.
2. On the Data menu click sort.
3. Under first key sort click the custom sort order you want and then click ok.
4. Click any other sorting option you want.

PROCEDURE:

Formulae in Excel:

First click on start button at the bottom of the screen on status bar. Click on programs and then on Microsoft excel. Then open a new document. Give the main heading and subheading by changing the size so that they look in block letters. Enter the data. To calculate go to Insert menu in the menu bar and then click on function and then ok. Then select the data to which you want to calculate mean. Then you get the required answer. In same way, sample means standard deviation lower count limit and upper count limit. Go to insert menu and click on function and select the required operation to be done and select the data and calculate. Formulas for all the above are given below.

$$\text{Mean} = (s1 + s2 + s3 + s4 + s5)/5;$$

Sample mean = avg (mean)

Standard deviation = (mean, sample, mean)

Sample standard deviation= avg (Standard deviation)

Lower count limit = sample mean – sample standard deviation.

Upper count limit = Sample mean + Sample Standard deviation

Hyper linking:

First click on start button of the screen on status bar. Click on programs and then Ms-excel. To get a new blank worksheet go to programs and then click on excel sheet. Rename the first sheet as student by right clicking on sheet 1 and renaming. Insert hyperlink insert and click on hyperlink. Then go to sheet 2 and rename as CSE type in particulars of ECE right click on sheet 3. Then go to sheet -4 rename as IT. In this type all the four sheets are created.

WORKSHEET

First click on start button at the bottom of the screen on status bar.

Click on programs and then Ms-excel. Then enter the data as given. Enter the student's names, Subjective wise marks, total and avg. Then calculate the total and avg by using formula. Then go to Data menu and click sort. Under first key sort, click custom sort order needed i.e. ascending order or alphabetical order and then click o.k. Then the required worksheet is prepared.

Count Function

Some of the content in this topic may not be applicable to some languages.

1. To count words in selected text only, select the text you want.

If you don't select any text, Microsoft Word counts the words in the whole document.

On the **Tools** menu, click **Word Count**.

Word displays counts for words, paragraphs, lines, and characters.

2. To add or remove footnotes and endnotes from the count, select or clear they **Include footnotes and endnotes** check box.

VLOOKUP and HLOOKUP Functions

This document explains the functions of VLOOKUP and HLOOKUP and how to use them in a spreadsheet. It can be used in all versions of Microsoft Excel.

VLOOKUP and HLOOKUP are functions in Excel that allow you to search a table of data and based on what the user has supplied and give appropriate information from that table.

If you have a table of Student ID numbers, Student Names and Grades, you can set up Excel so that if a Student ID number is supplied by the user, it will look through the table and output the student's name and grade.

Student ID Number	Student Name	Semester Grade
1234	John Smith	A/B
1689	Jane Jones	B/C
2495	Michelle Schreiner	B
3697	Jack Lepak	A
9228	Rod Arneson	B

	A	B	C
	VLOOKUP		
	Student ID Number	1234	← User supplied
	Student Name	John Smith	← From table
	Semester Grade	A/B	← From table

VLOOKUP allows you to search a table that is set up vertically. That is, all of the data is set up in columns and each column is responsible for one kind of data. In the Student Record example, there would be a separate column of data for Student Names, one for Student ID numbers, etc.

HLOOKUP is the exact same function, but looks up data that has been formatted by rows instead of column.

Student ID Number	1234	1689	2495	3697	9228
Student Name	John Smith	Jane Jones	Michelle Schreiner	Jack Lepak	Rod Arneson
Semester Grade	A/B	B/C	B	A	B

The format of the VLOOKUP function is:

VLOOKUP (lookup _value, table _array, col _index _num, range _lookup)

The **lookup _value** is the user input. This is the value that the function uses to search on. If you are searching a table by the Student ID number, then the lookup _value is the cell that contains the inputted Student ID number being looked up.

The **table _array** is the area of cells in which the table is located. This includes not only the column being searched on, but the data columns for which you are going to get the values that you need. Back to the example, the table_array would not only include the Student ID number column, but the columns for the Student Names and Grades as well.

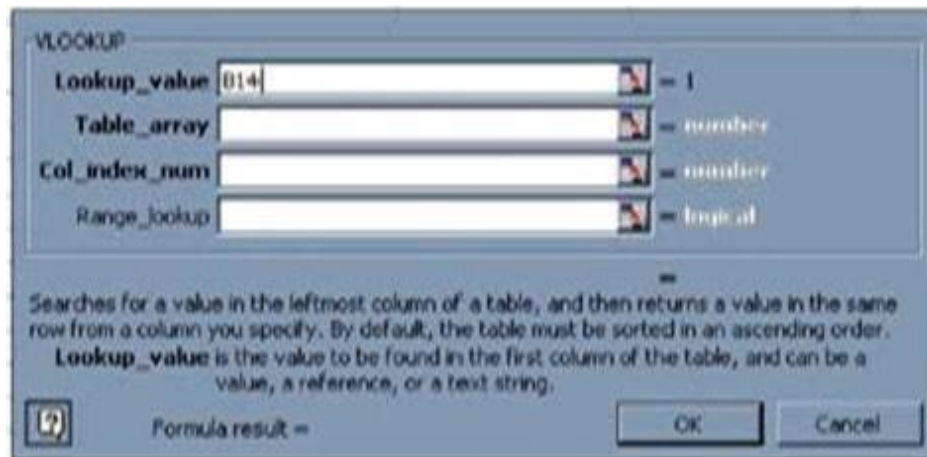
The **col _index _num** is the column of data that contains the answer that you want. If your table is set up as: column 1 - Student ID Number, column 2 - Student Names, column 3 - Grades and you inputted a Student ID Number and you want to retrieve the grade that was received for that person, the col _index _num would be 3. 3 is the column number of the data column for the ANSWER that you are trying to look up.

Range _lookup is a TRUE or FALSE value. When set to TRUE, the

lookup function gives the closest match to the lookup _value without going over the lookup _value. When set to FALSE, an exact match must be found to the lookup _value or the function will return #N/A. Note, this requires that the column containing the lookup _value be formatted in ascending order.

To use the Function Wizard to insert a VLOOKUP function:

1. Select the cell that will contain the answer to the VLOOKUP and select **Insert -> Function...**
2. Under the **Function Category**, choose either **All** or **Lookup & Reference**.
3. Under the **Function Name**, select **VLOOKUP**, and hit **OK**.
4. The Function Wizard for VLOOKUP will then display. The 4 values talked about above (lookup _value, table _array, col _index _num, range_lookup) are required by the function. Each line for each value required. If you put the cursor into the first line for lookup _value, down below it explains what the lookup _value is for your reference. Similar information is displayed when the cursor is in any of the other fields.



5. Enter in the lookup _value either by typing in the number for the cell, or, by selecting the cell on the worksheet.
6. Enter in the table _array by typing in the numbers for the cells, or, by selecting the group of cells on the worksheet.
7. Enter in the number for column which contains the data that you wish to obtain in the col _index _num area.

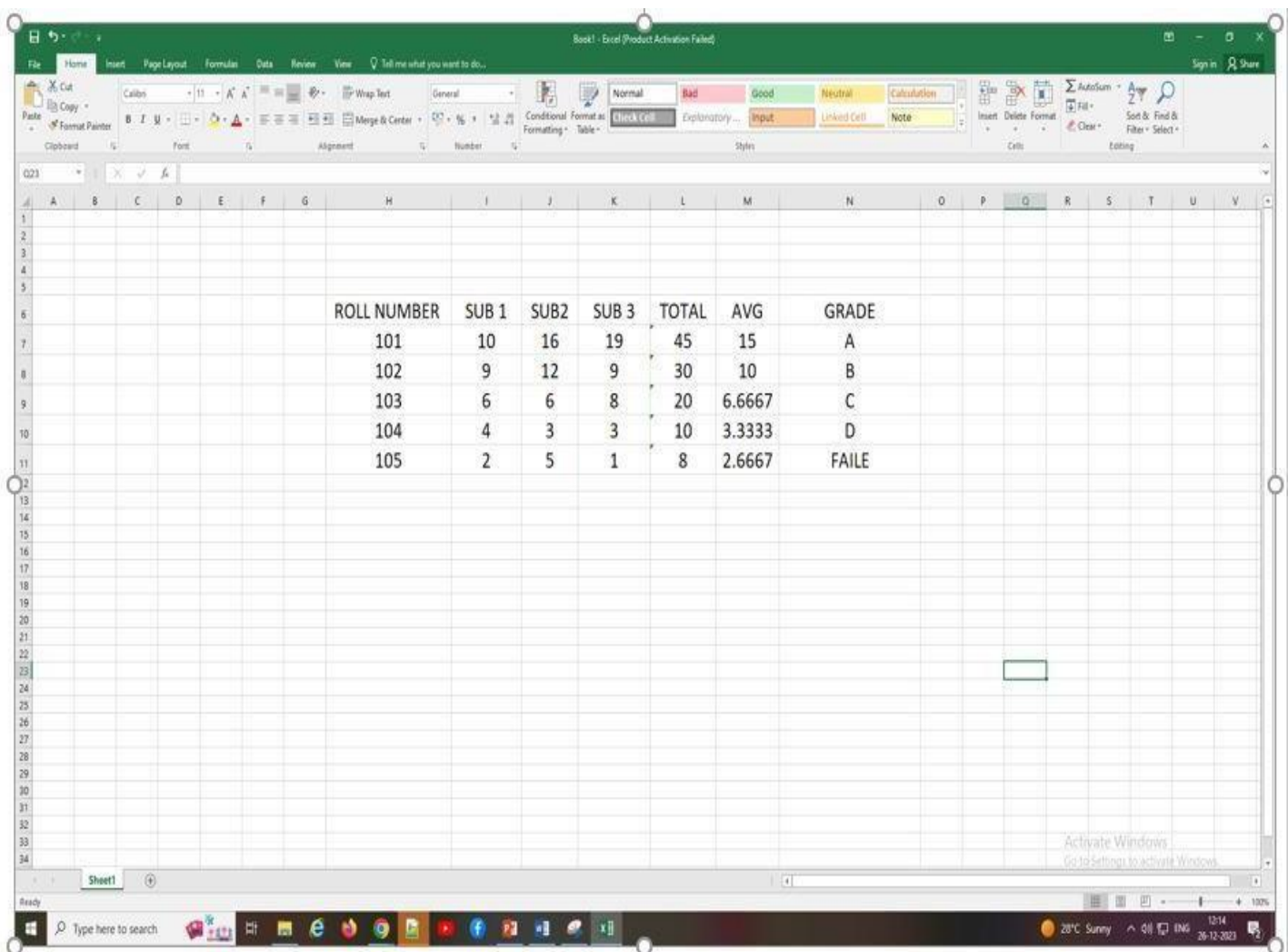
Enter into the range _lookup field the value TRUE if the function should accept the closest value to your lookup _value without going over or FALSE if an exact match is required.

8. Hit **OK** when ready.

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: An Excel Sheet is created by applying the above mentioned techniques



The screenshot shows an Excel spreadsheet with a table containing student performance data. The table has 7 columns: ROLL NUMBER, SUB 1, SUB2, SUB 3, TOTAL, AVG, and GRADE. The data is as follows:

ROLL NUMBER	SUB 1	SUB2	SUB 3	TOTAL	AVG	GRADE
101	10	16	19	45	15	A
102	9	12	9	30	10	B
103	6	6	8	20	6.6667	C
104	4	3	3	10	3.3333	D
105	2	5	1	8	2.6667	FAILE

POWER POINT

TASK 15:

Creating Power Point: Student should work on basic power point utilities and tools in Latex and Ms Office/equivalent (FOSS) which help them create basic power point presentation. PPT Orientation, Slide Layouts, Inserting Text, Formatting Text, Bullets and Numbering, Auto Shapes, Lines and Arrows, Hyperlinks, Inserting Images, Tables and Charts

TITLE:

Create a power point presentation consists of slide layouts inserting text, formatting text, bullets and numbering of five slides with following information's.

Slide 1 – contents

Slide 2 – Name

Slide 3 – Address

Slide 4 – Hobbies

Slide 5 – Friends

AIM:

To maintain a PowerPoint presentation with some specifications

THEORY:

SLIDE LAYOUT:

1. On the format menu, click slide layout.
2. On the slides tab in normal view, select the slides; you want to apply a layout too.
3. In the slide layout task pane, point to layout you and then click it.
4. A new slide can also be inserted within the task pane. Point the layout you want the slide to have, click the arrow and then click the insert new slide.

INSERT TEXT:

1. Text can be added to layout.
2. Align text in the top, middle or bottom of a cell.
3. Align text on the right or left, or in the center of a cell.

4. Change cell margins.
5. Insert a tab in a table.
6. To make the symbol command available, in normal view, place the insertion point on the outbox tab or in a text place holders on the slide.
7. On the insert menu, click symbol.
8. To change fonts, click a name in the font box.

FORMATTING TEXT:

1. Select the text you want to format as superscript or subscript.
2. On the format menu, click font.
3. To show or hide text formatting, on the standard toolbar, click show formatting.

BULLETS AND NUMBERINGS:

1. Select the lines of text that you want to add bullets or numbering to.
2. Click bullets or numbering.

AUTOSHAPES:

1. Select the auto shape that has the text you want to position.
2. Double-click the selection rectangle of the auto shape or text box and then click the text box tab in the format dialog box.
3. In the text anchor point box, click the position you want the text to start in.

LINES AND ARROWS:

1. In Microsoft power point, double click the chart.
2. Double click the chart item you want to change.
3. On the patterns tab, do one or both of the following.
4. To change the colors, patterns or lines, select the options you want.
5. To specify a fill effect, click fill efeect and then select the options you want on the gradient, text patterns or picture tabs.

To return to the slide, click outside the about

PROCEDURE:

First click on start button at the button of the screen on status bar. Click on programs and then Microsoft PowerPoint. Go to file and new. Then you find different pattern of slides on right side of your screen. Then select which is completely empty. Then enter the contents in the first slide as per given information, name in the second slide, Address in the third slide, Hobbies in the fourth slide and friends in the fifth slide. Except first slide, all the second, third, fourth, fifth slides should be inserted. When you select pattern of slide from a new slide, on slide which you selected you will find an arrow towards its right side, click that arrow and then again click insert slide. Then save it. Then adjust the layout. Then format the text then give bullets or numbering to the text if required. Go to auto shapes. Select more auto shapes and insert wherever required. Then again go to insert option and select new slides. And select chart and a chart with datasheet appear. Give the name, roll no, marks in three subjects and calculate the total. Then save the file.

TEST DATA: No Test data for this Experiment **ERROR:**

No Errors for this Experiment

RESULT: A Power point Presentation is created by applying the above mentioned techniques

(B) AIM:

To maintain a PowerPoint presentation using some specifications

THEORY:**HYPERLINK:**

1. Select the text or object that you want to represent the hyperlink.
2. Click insert hyperlink.
3. Under link to, click place in this document.

INSERT IMAGES:

1. Click where you want to insert the picture.
2. On the drawing tool bar, click insert picture.
3. Locate the folder that contains the picture that you want to insert, and then click the picture file.

CLIP ART:

1. On the insert menu, point to structure and then click clipart.
2. In the clipart task pane, in the search for box, type a word or phrase that describes the clip, you want to type in all or some of the file menus of the clip.
3. In the results box, click the clip to insert it.

AUDIO VIDEO OBJECTS:

1. On the slide show menu, click setup show. Under performance check box. If your computer has their capability, office PowerPoint will attempt to use it.
2. Animation performance will be much better with a video card that has Microsoft direct 3D.

CHART:

1. Click the slide where you want to place the embedded object.
2. On the insert menu, click chart.
3. Click a cell on the data sheet and then type the information you want

To return to the slide, click outside the chart

PROCEDURE:

First click on start button at the bottom of the screen on status bar. Click on programs and then Microsoft power point goes to file menu. Then you find different pattern of slides on right side of your screen. Then select which is completely empty. Then enter the name of your college in bold letters. Address of your college in bold letters in the second slide. List of all the available courses in the third slide, extra co-curricular activities in the fourth slide except first slide, all the second, third, fourth slide should be inserted. When you select pattern of slide from a new slide, on slide which you selected, you will find an arrow towards it right side click that arrow and then again click insert slide. Then save it the select the slide show and then select the view show option. Then review the presentation in slide show by selecting next and after completing the slide show then click end show. Click on start button at the bottom of the screen on status bar, click on programs and then Microsoft power point. Go to file menu. On insert menu and select table option and give no. of rows and no. of columns and give the name, Roll no and marks in three subjects and find the total

TEST DATA: No Test data for this Experiment

ERROR: No Errors for this Experiment

RESULT: A Power Point Presentation is created by applying the above mentioned techniques

****Demonstration and practice on LaTeX and produce professional pdf documents.**

LaTeX

The Latex is a high-quality typesetting system, used for the documentation of scientific and technical documents. It is widely used in academia for the communication and the publication of scientific papers popularly in fields such as economics, sociology, mathematics, chemistry, physics, engineering, etc. It also handles the formatting layout of different structures. The name is stylized as LATEX.

What is Latex?

LaTeX is pronounced as 'lah-tech' or 'lay-tech.' which is distributed under the LPPL (Latex Project Public License). It is based on TEX, a typesetting language designed for science and math. Both LATEX and TEX contain a variety of font styles, such as serif, typewriter, and a set of mathematical functions. It is an open- source and powerful document preparation system. It is high-quality typesetting, which can be used for any publishing. It is often used for scientific publications and medium to large technical documents. It is not a word processor or any word document, but it is an efficient way for the publishers and the authors to organize their materials. It gives a unique appearance to the system. It saves the time for designing as well as the efforts used for the documents.

The Latex system handles the layout and formatting of the structures using familiar concepts of the section, table, figure, chapter, etc. It follows the philosophy of separate presentation, i.e., separating the writing contents and the visual appearance so that the authors can focus more on the content rather than its appearance. It is named as the standard for the communication and publication of the technical or scientific documents.

Features of Latex

- o Latex is a markup language and free license software. It includes a set of built-in commands.
- o It is a mode of mathematical and special symbols.
- o LaTeX is generally distributed along with plain TEX, i.e., it provides a set of macros for TEX to interpret. The other macros for TEX are Plain TEX, GNU Texinfo, etc.
- o LaTeX is not compatible with the GNU (General Public License). It is available on most of the operating systems like UNIX, BSD, Linux, Windows, DOS, etc.

TeX

TeX is a typesetting system or the formatting system written and designed by Donald Knuth released in 1978. It is the most used typographical system. It performs many typesetting tasks, especially LaTeX. It is popular in mathematics, computer science, engineering, physics, statistics, economics, etc. It was developed to produce high-quality output. The books published in TEX are Addison Wesley, Cambridge University Press, Oxford University Press, etc. It was primarily designed for typeset mathematics.

History of Latex

Latex was created by the American computer scientist named Leslie Lamport in 1983 when he was working at SRI International. LATEX was created as an addition to the Tex typesetting system and to make it easier to produce books and articles within TEX. Leslie Lamport was writing TEX for his use, while he thought that a little more effort could lead this to use by others as well. A person who convinced Leslie to write LATEX's user manual publication was an editor at the Addison-Wesley named Peter Gordon.

This publication came out in 1986 and sold thousands of copies while its LATEX macros version was released in 1984 and 1985. On August 21, 1989, Lamport turned over his maintenance and development of LATEX to Frank Mittelbach at the TUG (TeX Users Group) meeting at Stanford. The Latex3 team was formed when Mittelbach, along with Chris Rowley and Rainer Schopf, started working together. In 1994, the current standard version LATEX 2e was released while continue working on version Latex3.

The Latex3 is currently under a long term development project. For the Tex system, there are numerous applications, some of which may have extra additional features like telephone support and typefaces.

The first paper of Donald Knuth, The Art of Computer Programming, was published in 1968, which used a Monotype machine for typesetting. After that second edition was published in 1976, the whole book was again typeset because the phototypesetting replaced the Monotype machine. The original fonts were no longer available after this edition.

Donald Knuth was not satisfied with the second edition, so he was motivated to design his typesetting system. He saw the high-quality output of digital typesetting and became interested in it. On May 13, 1977, he had written a memo, which describes the basic features

of TEX. The first version of Tex was written in the SAIL programming language. A new version of Tex called TEX82, which was published in 1982. The current version of TEX is 3.14159265, which was updated on January 12, 2014. The design was frozen after the version 3.0, and all the newer version contains no other additional features, but only contains the bug fixing feature.

AI TOOLS – ChatGPT

ChatGPT refers to a type of language model developed by OpenAI, specifically based on the GPT (Generative Pre-trained Transformer) architecture. The "GPT" in ChatGPT stands for "Generative Pre-trained Transformer," highlighting its key features.

"Generative" implies that the model can generate coherent and contextually relevant text based on the input it receives. "Pre-trained" indicates that the model is initially trained on a large corpus of diverse text data before being fine-tuned or adapted for specific tasks. "Transformer" refers to the underlying neural network architecture, which uses self-attention mechanisms to process input data in parallel, making it highly effective for handling sequential data like language.

ChatGPT is designed to understand and generate human-like text, making it suitable for various natural language processing (NLP) tasks, including but not limited to chatbots, conversational agents, and text-based applications. It can understand context, generate responses, and provide valuable information based on its training data.

The features of ChatGPT, or any model based on the GPT architecture, include:

1. Generative Text: ChatGPT is capable of generating human-like text responses given a prompt or input. It can be used for a variety of natural language generation tasks.
2. Pre-trained: Before fine-tuning for specific tasks, ChatGPT is pre-trained on a large and diverse dataset to learn the nuances of language and context.
3. Context Understanding: The model has the ability to understand context over a certain window of text, allowing it to generate coherent and contextually relevant responses.
4. Large-scale Training Data: ChatGPT is trained on a vast amount of text data, which helps it capture a broad range of topics, styles, and linguistic patterns.
5. Transfer Learning: Because it's pre-trained, ChatGPT can be fine-tuned for specific tasks with smaller, task-specific datasets. This allows the model to adapt to particular use cases.
6. Flexibility: ChatGPT is versatile and can be applied to various natural language processing tasks, including chatbots, question answering, summarization, and more.
7. Parameter Size: The number of parameters in the model contributes to its capacity to learn and generalize. Larger models, like GPT-3, have billions of parameters, enabling them to capture complex patterns in data.

8. Attention Mechanism: The Transformer architecture, which ChatGPT is based on, utilizes attention mechanisms to give different weights to different parts of the input sequence, allowing the model to focus on relevant information.

9. Multi-Head Attention: ChatGPT employs multi-head attention, allowing it to attend to different positions in the input sequence independently, capturing different aspects of the context.

10. Fine-Tuning: While pre-trained, ChatGPT can be fine-tuned on specific datasets for better performance on particular tasks or domains.

It's important to note that these features are general characteristics of models based on the GPT architecture, and specific implementations or versions may have additional capabilities or improvements.

Task 1: Prompt Engineering: Experiment with different types of prompts to see how the model responds. Try asking questions, starting conversations, or even providing incomplete sentences to see how the model completes them.

Certainly! Prompt engineering involves crafting input prompts to elicit specific types of responses from the model. Here are some examples across different styles of prompts:

1. Informational Prompt:

Prompt: "Provide a brief explanation of how photosynthesis works."

Expected Response: A detailed and informative explanation of the process of photosynthesis.

2. Creative Prompt:

Prompt: "Imagine a world where humans can communicate with animals. Describe a day in the life of someone with this extraordinary ability."

Expected Response: A creative and imaginative narrative about a person's experiences in a world where interspecies communication is possible.

3. Conversational Prompt:

Prompt: "What are your thoughts on the impact of artificial intelligence on society?"

Expected Response: An opinion or discussion on the societal implications of artificial intelligence, reflecting the model's "perspective."

4. Problem-Solving Prompt:

Prompt: "You are a virtual assistant. Help the user troubleshoot a common computer problem, like a slow performance issue."

Expected Response: Step-by-step guidance on diagnosing and addressing a computer's slow performance.

5. Personal Reflection Prompt:

Prompt: "Share a personal experience or story that has left a lasting impact on you."

Expected Response: A reflective and personal account of a significant event or experience.

6. Humorous Prompt:

Prompt: "Tell me a joke that involves both technology and animals."

Expected Response: A light-hearted and humorous joke combining elements of technology and animals.

7. Comparison Prompt:

Prompt: "Compare and contrast the advantages and disadvantages of traditional education versus online learning."

Expected Response: An analysis highlighting the pros and cons of both traditional and online learning methods.

8. Prediction Prompt:

Prompt: "What do you think will be the most significant technological advancement in the next decade?"

Expected Response: A speculative response predicting a major technological breakthrough in the coming years.

QUESTION:

• **Ex: Prompt:** "You are a knowledgeable AI. Please answer the following question: What is the capital of France?"

Answer: The capital of France is Paris.

Task 2: Creative Writing: Use the model as a writing assistant. Provide the beginning of a story or a description of a scene, and let the model generate the rest of the content. This can be a fun way to brainstorm creative ideas

Creative writing is a form of expression that goes beyond the mere conveyance of information or facts. It is the art of crafting original and imaginative content, often in the form of stories, poems, or essays, to evoke emotions, engage the reader's imagination, and convey ideas in a unique and artistic manner. Creative writing allows writers to explore and experiment with language, style, and structure to create a literary work that is not only informative but also aesthetically pleasing.

Key elements of creative writing include:

1. Imagination: Creative writing often involves the use of imagination to invent characters, settings, and plots that may be entirely fictional or inspired by real-life experiences.

2. Emotion: Writers aim to evoke emotional responses from readers by infusing their work with feelings, whether it be joy, sadness, excitement, or introspection.

3. Originality: Creative writing encourages original thought and unique expression. Writers strive to bring fresh perspectives to familiar topics or to create entirely new and innovative narratives.

4. Language Play: Creative writing allows for the exploration of language, including the use of metaphor, simile, symbolism, and other literary devices to enhance the aesthetic quality of the writing.

5. Storytelling: Narrative structure is often a fundamental aspect of creative writing, with a

focus on creating compelling plots, characters, and settings that captivate and engage the audience.

6. Expression of Personal Voice: Creative writing enables writers to develop and express their personal voice, allowing for a distinct and individualized style.

QUESTION:

• **Ex: Prompt: "In a world where gravity suddenly stopped working, people started floating upwards. Write a story about how society adapted to this new reality."**

ANSWER:

In an instant, the laws of nature betrayed the unsuspecting inhabitants of Earth. Gravity, the invisible force that had grounded humanity for eons, abruptly ceased its hold. Panic spread like wildfire as people, cars, and even trees lifted off the ground, ascending into the sky.

In a stroke of genius, engineers and scientists developed specialized suits with built-in thrusters, allowing individuals to control their movements. These suits became a symbol of adaptation and survival. Schools shifted their focus to zero-gravity physics, teaching children how to manoeuvre gracefully through the air.

Cities transformed into intricate networks of floating structures, connected by transparent walkways and airborne transportation. Parks became suspended gardens, and offices converted into levitating workspaces. Everyday activities required a new set of skills, from cooking in mid-air kitchens to playing sports with a newfound sense of freedom.

As society adapted to its weightless existence, a sense of unity emerged. Collaborative efforts became the norm as people discovered the importance of working together to navigate this uncharted territory. Community events took on a surreal charm, with floating festivals and airborne celebrations lighting up the night sky.

At first, the fear of drifting into space lingered in the collective consciousness. However, engineers soon developed safety measures, creating invisible barriers that surrounded habitable zones. These protective fields prevented accidental journeys into the cosmic unknown and allowed society to flourish within its floating confines.

In this extraordinary world, where the ground was no longer an anchor, humanity found resilience, innovation, and a shared purpose. As the sun set on a horizon that was now a canvas of suspended dreams, the floating society embraced the limitless possibilities of their weightless existence, forever bound by the indomitable spirit of adaptation.

Task 3: Language Translation: Experiment with translation tasks by providing a sentence in one language and asking the model to translate it into another language. Compare the output to see how accurate and fluent the translations are.

Language translation refers to the process of converting written or spoken text from one language into another while preserving the meaning and intent of the original content. This task is commonly performed by individuals known as translators or by automated systems, such as machine translation tools.

There are two primary types of language translation:

1. Human Translation:

Professional Translators: Skilled individuals who translate text manually, taking into account the cultural nuances, idioms, and context of the source and target languages.

Interpreters: Individuals who specialize in translating spoken language in real-time, facilitating communication between people who speak different languages.

2. Machine Translation (MT):

Automated Systems: Computer-based systems or software that use algorithms and linguistic rules to translate text from one language to another.

Neural Machine Translation (NMT): A type of machine translation that uses artificial neural networks to improve translation quality by considering the context and meaning of entire sentences.

Language translation is crucial for breaking down language barriers in various domains, including international business, diplomacy, literature, academic research, and everyday communication. It plays a vital role in fostering global understanding, enabling people from different linguistic backgrounds to access information and communicate effectively. Advances in machine translation technologies have led to significant improvements in translation speed and accuracy, although human translators often remain essential for handling complex or context-sensitive content.

QUESTION:

• Ex: Prompt: "Translate the following English sentence to French: 'Hello, how are you doing today?'"

The English sentence "Hello, how are you doing today?" can be translated to French as:

ANSWER:

"Bonjour, comment ça va aujourd'hui ?"