ASSIGNMENT - 1

1. The four fundamental parts of a computer are the central processing unit (CPU), memory, input devices, and output devices. Here's an explanation of each component along with a simple diagram.

a. Central processing Unit →.

The CPU is often considered the brain of the computer. It performs most of the processing inside the computer. and executes instructions of a program. It consists of two main components: the control unit and the arithmetic logic unit (ALU). The control unit fetches instructions from memory, decodes them, and co-ordinates the execution of those instructions. The ALU performs mathematical and logical operation.

b. Memory →

Memory refers to the storage space in a computer where data instructions are stored temporarily. It can be divided into two main types: Primary memory (RAM and Secondary memory (Hard Drives). RAM stores data that the CPU needs to access quickly while Secondary memory provides long term storage of files. and programs. The diagram can show memory modules connected to the motherboard.

c. Input Devices :—

Input Devices allow users to interact with the computer and provided it with data. Examples of input devices include keyboard, mice, touchscreens, Scanners, and microphones. The devices convert user input into digital Signals that can be processed by the CPU. In the diagram, you can represent input devices such as a keyboard and Mouse.

d. Output Devices —

Output devices display or present information processed by the computer to the user. Common output devices include monitor, printer, speakers, and headphones. They convert digital Signals into a format that humans can understand. The diagram can include a monitor or display to the represent the Output device.

2. The computer can be classified based on their size, and capacity into four main categories:-

Supercomputers, main frame computers, mini computers, and micro computers.

a. Super computers →

Super computers are the most powerfull and fastest computer available. They are desined to handle complex calculations and process vast amount of data at incredible speeds. Super computers are used for Scientific research, weather forecasting, molecular modeling, simulations, and other computationally intensive tasks. They are extremly large in size, often requiring Specialized facilities to house them due to their high power and cooling requirements.

b. Main-frame Computers →

Mainframe computers are large and robust machines designed for high performance computing in enterprise - level app. They have the capability to process the large amount of data and support multiple users simultaneously. Mainframes are commonly used in industries such as banking, finance, airlines and Govt. agencies, where reliability, security and data processing power are critical. They have high level of redundancy can handel massive transaction volume and data storage.

c. Mini-Computers:

Mini computers, also known as mid range computers, are smaller in size compared to mainframes but larger than micro-computers. They offer moderate processing power and storage capacity. Mini computers were popular in the 1960s and 1970s, serving as multi-user systems for small to medium-sized businesses. However, with advancements in technology, the distinction between mini-computers and micro-computers has become less prominent.

d. Micro-computers:

Micro-computers, also called personal computers or PCs, are the smallest and most common type of computers. They are designed for individual use and are affordable and portable. Micro-computers can be further categorized into desktop computers, laptops, tablets and smartphones. They provide sufficient processing power and storage capacity for everyday computing tasks, such as web browsing, document editing, multimedia playback, and gaming. Micro-computers have become ubiquitous in homes, offices and educational institute.

3. There are typically 5 computer generations that have been defined -

First generation (1940 – 1950s) -

- Vacuum tube technology was used.
- computers were large, bulky and used a lot of electricity.
- Examples include ENIAC and UNIVAC.

Second Generation (1950 – 1960s) -

- Transistors replaced vacuum tubes resulting in smaller and more reliable computers.
- Magnetic core memory was used for data storage.
- Examples include IBM 1401 and DEC 1604.

Third Generation (1960 – 1970s) -

- Integrated circuits (ICs) were introduced allowing for even smaller and more powerful computers.
- computers became commercially available.
- High-level programming Language like FORTRAN and COBOL were developed.
- Examples include IBM System/360 and DEC PDP-11.

Fourth Generation. (1970-1980s):

- Microprocessors were invented, enabling the integration of entire central processing units (CPUs) on a single chip.
- Personal computers (PCs) become popular.
- Graphical user interfaces (GUIs) and Operating Systems Like MS-DOS and windows were developed.
- Examples include Apple II, IBM PC, and commodore 64.

Fifth. Generation (1980 - present) -

- VLSI technology allowed for the creation of powerful micro processors with millions of transistors on a single chip.
- Advancements in artificial intelligence (AI) and expert systems.
- Introduction of parallel processing and Super computers.
- Examples include IBM Watson, Deep Blue, and ~~Advanced~~ Modern Smartphones.

4. Data Retention:

Volatile memory loses data when power is interrupted, while non-volatile memory retains data even without power.

Persistence:

Volatile memory is temporary, whereas non-volatile memory is permanent.

usage:

Volatile memory is used for temporary storage and quick access to data actively being processed, while non-volatile memory is used for long-term storage and retrieval of data.

---

5. System Software -

System Software refers to a collection of programs that manage and control the computer hardware and provide a platform for running application software.

- Runs in the background and responsible for the overall functioning and management of the computer system.
- Typically developed by professional software development companies.

Application Software -

Application Software refers to program designed to perform specific tasks or provide specific functionality to users.

- User-friendly interfaces and functionalities tailored to specific purposes.
- Developed by software companies or individual developers.

Open Source Software -

Open Source Software refers to software that is freely available and provides access to its source code, allowing users to view, modify and distribute it.

- Relies on collaborative development and community involvement.
- Encourages transparency, innovation, and sharing of knowledge.
- Can be both System Software and application Software.

6. a) Steps to create a file in MS-Word and insert a paragraph about "yourself".

- Open Microsoft Word —
Launch Microsoft Word on your computer. You can typically find it in your list of installed applications or use the search function to locate it.
- create a new document —
click on "Blank Document" or select "New" to create a new blank document.
- Type your paragraph —
Start typing the paragraph about yourself in the blank document. Provide relevant info. and details according to your preference.
- Save the document —
click on the "file" tab in the top left corner of the word window. Select "Save As". from the drop down menu.
- choose a file name —
In the Save As dialog box, enter "yourself" as the file name without any file extension. choose a location on your computer where you want to save the file.
- Save the document —
click the "Save" button to save the document with the specified file name.

6.6) Steps to perform formatting

To change the font style :-

Select the text :
Highlight the text whose font style you want to change by clicking and dragging over it.

Open the font options :
Go to the "Home" tab in the top menu. Locate the "Font" section. which usually has drop-down menu displaying the current font name.

choose a new font style :
click the font name drop-down menu and select a different font style from the available options. The selected text will automatically update to the new font style.

To change the font size :-

Select the text :
Highlight the text you want to resize by clicking and dragging over it.
Open the font size options :
Locate the "Font size" section in the "Home" tab. which usually has a drop-down menu displaying the current font size.
choose a new font size :
click the font size drop-down menu and select a desired font size from the available options. The text will be resized accordingly.

To change the font color:—

Select the text:
Highlight the text want to change the color of by clicking and dragging over it.
Open the font color options:
Locate the "Font color" section in the "Home" tab, which usually has a small colored square or a letter 'A' with a colored underline.

choose a new font color:
Click the font color button and select a desired color from the available Palette or choose "More colors" for additional options. The selected text will change to the new font color.

To highlight (in yellow) a Specific Line:
Select the Line:
click and drag to highlight the entire Line that reads "need to get IMS's address".
Open the highlight options:
Go to the "Home" tab and find the "Text Highlight color" section, usually represented by a highlighter pen icon.
choose the yellow highlight:
Click the highlight color button and select the yellow color. The selected Line will be highlighted in yellow.

7. a) Launch MS. Word :—

Open the MS. Word application on your computer. you can typically find it in your List of installed program or use the Search function to Locate it.

b) create new document ;—

Once MS. word is open, click on the blank document option. to create new blank doc. A new blank doc. displayed on the Screen.

c) Enter the document content :—

MS. Wood.

MS. Word is a widely used commercial word processor developed by Microsoft.

MS. Word is application software, which is capable of creating, editing, saving, and printing, any type of document.

d). Format the document : —

You can format the text. adjust the font, apply Styles, add heading, insert images or tables.

e) Save the document :—

Once you have entered the document content and performed any desired formatting it's time to save the document. click on the 'File' tab in the top left corner of the MS. word.

f) choose the Save Location :—

In the File menu. Select the 'Save as' option. and choose the Save Location.

—

9. a) Launch MS. Word —.
Open the MS. Word application on your computer.

b) Open or create a new document —
Either open an existing document that contains the highlighted text you want to convert to table. or create a new document.

c) Select the text —.
Use your mouse or key board and to highlighted text you want to convert to table.

d) Access the "Insert" tab —.
click on the "Insert" tab in the ribbon at the top of the Word. window. The insert tab contains Various type of comand.

e) Click on the 'table' command —
Within the "Insert" tab click on the table command.

f). Set the number of columns —
In the drop down menu that appers, speecify the desired number of columns for the table.

g) Insert the Table —.
After setting the number of columns, click on the "ok" button. to insert the table on your doc:

h). Save the document —.
As per previous., and enter 'text – to table' as the file name. choose the file format. and save the document.

—

11. a) Launch MS. Excel —.

Open the MS. Excel on your computer.

b). Create a new work.book —.

Upon opening MS. Excel. a new Workbook will be automatically ~~open~~. created. selecting "New" and then choosing "blank document".

c) Enter the data into the cells —.

- cell A1: Roll. No.
- cell B1: Name.
- cell C1: Marks.
- cell A2: 1
- cell B2: n1.
- cell C2: 60
- cell A3: 2
- cell B3: n2.
- cell C3: 70.
- continue entering the remaining data in the same pattern for cells A4 to C10.

d). Save the Workbook ←.

File → Save As → choose location → 'book 1' as the file name. ← Save button ← "Ok".

10. To create a file in MS Word and insert a table in the document, • Here is the following steps -

Open MS Word :
Launch Microsoft Word on your computer. You can typically find it in your list of installed applications or use the search function to locate it.

Create a new document :
Click on "Blank document" or select "New" to create a new blank document.

Insert a table :
Place your cursor at the location in the document where you want to insert the table.

Option 1 : Insert Table command →,
- Click on the "Insert" tab in the top menu.
- Look for the "Table" section and click on the "Table" button.
- A grid will appear where you can specify the number of rows and columns for your table. Click on the desired number of rows and columns to insert the table.

Option 2 : Draw Table command.

- click on the "Insert" tab in the top menu.
- Look for the "Table" section and click on the "Table" button.
- From the drop-down menu, select "Draw Table".
- Use your mouse to draw the table grid by clicking and dragging on the document. Release the mouse button. When the table has the desired number of rows and columns.

Customize the table :

After inserting the table you can customize its properties. Such as the number of rows and columns, cell size, and table borders.

- To add or remove rows/columns : Right click inside a cell and choose the appropriate option from the context menu.
- To adjust cell size : Place the cursor at the edge of a cell until it changes to a resize cursor. then click and drag to adjust the cell size.
- TO Format table borders : Select the table, click on the "Table design" or "Table Format" tab that appears in the top menu, and use the provided options to customize borders, shading and other formatting settings.
- Enter data into the table : click inside a cell and start typing to enter data into the table. use the Tab key to move between cells.
- Save the document : Same as previous que.

12. a) Open the Worksheet —.

Open the Excel File that contains the worksheet created in que. 10.

b) Select the range of cells —.

click on cell c2. and drag the mouse cursor down to the cell c11 to select the range of cells.

c) calculate the Sum —.

Home tab → Editting → Auto Sum → Select the range. will automatically apper.

d). calculate the Avarage →.

Enter the formula. In the cell c13.

"=AVERAGE(c2:c11)". → Enter (The marks will be displayed)

e) Find the Highest Marks →.

Enter the formula In the cell c14.

"=MAX(c2:c11)". → Enter. (The Marks will be displayed).

f). Find the Minimum Marks →.

Enter the formula In the cell c15.

"=MIN(c2:c11)" → Enter (The Marks will be displayed).

—

13. a) Steps to modify column width, row height, and delete rows / columns in a worksheet:

To modify column width of worksheet:—

Open the worksheet:
Open the desired worksheet in the spreadsheet software (MS. Excel)

Select the column(s):
click on the column letter(s) at the top of the worksheet to select the columns whose width you want to modify. You can also select multiple column(s) by clicking and draging across the column letters.

Adjust the column width:
Right click on any selected column letter and choose the "column width" option from the context menu. Enter the desired value for the column width and press Enter.

To modify the row height of a worksheet:—

Open the worksheet:
Open the desired worksheet in the spreadsheet software.

Select the row(s): click on the row numbers on the left ~~right~~ side of the worksheet to select the row(s) whose height you want to modify.

Adjust the row height:-
Right click on any selected row number and choose the "Row Height" option from the context menu. Enter the desired value for the row height and press Enter.

To delete rows and columns of a Worksheet :-

Open the Worksheet :
Open the desired worksheet in the Spreadsheet software.

Select row(s) or column(s) :
Click on the row numbers or column letter(s) to Select row(s) or column(s) you want to delete. To Select multiple row(s) or column(s) by clicking ctrl key.

Delete the row(s) or column(s) :
Right-click on any Selected row number or column letter and choose "delete" or "Delete Rows"/"Delete columns". option from the context menu.

b) Terms in the Worksheet :
Absolute reference and relative reference in formula :-

- Absolute reference :
In formula, an absolute reference refers to a specific cell, donated by a fixed cell address. that does not change when the formula is copied or filled to the other cells. It is represented by a dollar sign ($) before the column letter. and / or row number.

Relative reference :-

In formula, a relative reference refers to a cell relative to the position of the formula. When the formula is copied or filled to other cells, the cell references adjust accordingly based on the relative position.

cell address :-

In a worksheet, a cell address refers to the unique identifier of a cell. It consists of a column letter followed by a row number.

14. a) The following tools are available to customize a powerpoint presentation :-

- Design Tab.
- Format Tab.
- Transitions Tab.
- Animation Tab.
- Slide Show Tab.
- Review Tab.
- View Tab.

b) Setps for the creation of a powerpoint presentation :-

Open a Blank presentation :

- Launch Microsoft powerpoint on your computer.
- Click on "Blank presentation" or select "New" to create a new blank presentation.

Save the presentation as Lab1.pptx:

- Click on the "File" tab in the top left corner of the power point window.
- Select "Save As" from the drop-down menu.
- Choose a location on your computer to save the file.
- Enter "Lab1" as the file name.
- Select the desired file format (.pptx) from the available options.
- Click the "Save" button.

Add a Title to the first Slide:
The name of your college:

- Click on the first Slide in the Slide thumbnail pane on the left side of the power point window.
- In the main Slide area, click on the "click to add title" placeholder.
- Type the name of your college. as the title.

Type your first name and Last name in the Subtitle Section:-

- Click on the Subtitle placeholder below the title on the first Slide.
- Type your first name and Last name in the Subtitle Section.

Add a New Slide which has a Title and Content :-

- Go to the "Home" tab in the top menu.
- Click on the "New Slide" button in the Slides group.
- Select the "Title and Content" Slide layout from the available option.
- A new Slide will be added after the current Slide, featuring a title Placeholder and a content placeholder.

15. To create a Set of powerpoint Slides demonstrating your skills in using various tools :-

Open Microsoft powerpoint :

Launch the powerpoint application on your computer.

Create a New presentation :

Click on "Blank presentation" or Select "New" to create a blank presentation.

Title Slide and Bullet List :-

- Start with the title Slide :

In the first Slide, enter a title that describes the purpose of your presentation. You can use a text box or a predefined title place holder.

- Add a bullet list:
  Use the shortcut key ctrl + Shift + L. Type your list items. pressing Enter after each item to create a new bullet point:

Inserting Excel Sheet:
- Click on the slide where you want to insert the Excel sheet.
- Go to the Insert tab in the top menu.
- Click on the "Table" or "object" button in the text group.
- Choose "Excel Spreadsheet" from the drop-down menu.
- A blank Excel sheet will be inserted into the slide. you can then Enter data, perform calculations, and customize the sheet using Excel functionality.

Clip Art and text:
- Select the slide where you want to add clip Art and text.
- Go to the insert tab in the top menu.
- Click on the "clip Art" or "online pictures" button in the Image Group.
- browse and Select the picture.
- Click "insert" to add it to the slide.
- Add text: Click on the slide to insert a text box. Or use the predefined text Placeholders.

Slide Show Effects :-

- Go to the Slide Show tab in the top menu.
- choose "Slide Transition" to add transition effects between slides. Select a transition effect from the available option.
- use the "Animation" feature to add animation effects to individual elements within a slide. and choose the desired animation effect from the option.

Next Save the presentation. by clicking ctrl + S.

16. Machine Language is the Low Level Language understood by computers directly, while high-Level Language is a more human-readable and user-friendly Language that needs to be translated or compiled into machine Language for execution.
High-Level Language provide greater abstraction and ~~probability~~ portability compared to machine Language.

17. C. programming Language provides several data types that allow programmers to define variables. and handle different types of data.
Here some of the commonly used data types in C.

Integer Type —

- char.
- int
- short.
- long
- unsigned.

Floating - point Types. —

- float
- double.

Void Type —

- void.

Enumerated Type —

- enum

Derived Type —

- arrays.
- structures.
- unions.

User - Defined Type —

- typedef.

—

18.

a) $X = 20/5*2 + 30 - 5 = 4*2 + 30 - 5$
(perform division first)

$= 8 + 30 - 5.$
(perform multiplication)

$= 38 - 5$
(perform addition)

$= 33$
(perform Subtraction)

∴ the Output of expression a) is $X = 33.$

b) $Y = 30 - (40/10 + 6) + 10 = 30 - (4+6) + 10$

$= 30 - 10 + 10$

$= 20 + 10$

$= 30$

∴ The output of expression b) is $Y = 30$

c) $Z = 40*2/10 - 2 + 10 = 80/10 - 2 + 10$

$= 8 - 2 + 10$

$= 6 + 10$

$= 16$

∴ The output of expression c) is $Z = 16$

19.

a) If-else :

```
if (condition) {
// code to be executed if the condition is true
} else {
// code to be executed if the condition is false
}
```

The condition is an expression that evaluates to either true or false. If the condition is true, the code inside the if-block will be executed. If the condition is false, the code inside the else block will be executed. The else block is optional, and you can have multiple if-else statements nested inside each other.

b) For Loop :

```
for( initialization ; condition ; increment/decrement ) {
// code to be executed in each iteration.
}
```

The initialization part executed only once at the beginning and is used to initialize the loop control variable. The condition is evaluated before each iteration, and if it is true, the loop body is executed. After iteration, the increment or decrement.

Statement is executed to update the loop control variable. The loop continues until the condition becomes false.

c) While Loop:

```
while (condition) {
// code to be executed in each iteration
}
```

The condition is evaluated before each iteration, and if it is true, the code inside the loop is executed. If the condition is false, the loop is terminated, and the program continues with the next statement after the loop.

d) Do-while Loop:

```
do {
// code to be executed in each iteration
} while (condition);
```

The code inside the loop is executed 1st. and then the condition is evaluated. If the condition is true, the loop continues with the next iteration. If the condition is false, the loop is terminated, and the program continues with the next statement after the loop. The do-while loop guarantees that the loop body is executed at least once, regardless of the initial condition.

20.
a) The output of the 1st program segment is.

IMS Ghaziabad.

This is because the for loop runs only once since the initial value of i is 1, the condition i<2 is true. and the increment i++ increases i to 2. Therefore; the loop body is executed once, printing "IMS Ghaziabad" to the console.

b) The output of the second program segment is —.

IMS Ghaziabad
IMS Ghaziabad

This is because the while loop runs twice. the initial value of i is 1., and the loop continues as long as i<=2. In each iteration "IMS Ghaziabad" is printed, and i is incremented by 1 using i=i+1. After two iterations, the loop terminates.

c) The output of the 3rd program segment is —

Largest number is 100.

This is because the if statement checks the condition a>b, which evaluates to false since 10 is not greater than 100. Therefore, the else block is executed, printing "Largest number is 100" to the console.