



**SNJB**

**KKHA Arts, SMGL Commerce & SPHJ Science College,  
Neminagar, Chandwad.**

**DEPARTMENT OF ELECTRONIC SCIENCE**

---

**PRACTICAL JOURNAL**

---

**LAB COURSE ON FUNDAMENTALS OF INFORMATION TECHNOLOGY**

*(Course Code: OE-251-ELS)*

**Course Type:** Open Elective (OE)

---

**SUBMITTED BY**

**Name of Student:**

**Class / Year:**

**Semester: IV**

**Roll Number:**

**Date:**

**SUBMITTED TO**

**Dr. Tushar S. Salve**

Associate Professor

Department of Electronic Science

**Signature**

---

## INDEX

Sr. No.	Experiment Title	Page No.
1	Differentiation between System Software and Application Software	1
2	To Perform Document Creation, Editing and Formatting using MS Word	3
3	Data Manipulation using MS Excel	8
4	To create a Presentation Design using MS PowerPoint	13
5	Explore antivirus software for maintaining computer security	16
6	To Prepare a report or presentation on how Information Technology is applied in various sectors such as healthcare, education, banking, and governance.	21
7	Access and explore features of government digital platforms: DigiLocker	24
8	Hosting Online Meeting using Zoom/Google Meet	28
9	To Explore educational platforms LMS (Moodle/Gnomio)	32
10	Use an AI-based assistant like ChatGPT & Gemini to perform tasks	36
11	To Explore cloud computing by uploading, sharing, and collaborating on documents using Google Drive	40
12	To Explore different social media apps (e.g., Facebook, Instagram, Twitter) and analyze their features, benefits, and digital safety practices.	44

# Experiment No. 1

**Title:** Differentiation between System Software and Application Software

---

## **Aim:**

To understand the concept of system software and application software and to differentiate between them based on their functions, features, and usage.

---

## **Theory:**

A computer system requires different types of software to function properly. Software can be broadly classified into **system software** and **application software**.

**System Software** is a type of software designed to manage and control the hardware components of a computer. It acts as an interface between the user and the hardware. It provides a platform for running application software. Examples include operating systems, device drivers, and utility programs.

**Application Software** is designed to help users perform specific tasks such as writing documents, making calculations, browsing the internet, etc. These programs run on top of system software and depend on it for execution.

---

## **Procedure:**

1. Studied the definitions of system software and application software from textbooks and online resources.
  2. Identified different types of system software such as operating systems, device drivers, and utility programs.
  3. Listed examples of system software like Windows, Linux, antivirus software, and disk management tools.
  4. Identified various types of application software used for daily tasks.
  5. Listed examples of application software such as MS Word, MS Excel, web browsers, media players, etc.
  6. Compared both types of software based on parameters like purpose, functionality, dependency, and user interaction.
  7. Prepared a comparison table to clearly show the differences.
-

## Observation / Comparison Table:

<b>Basis</b>	<b>System Software</b>	<b>Application Software</b>
Definition	Controls and manages hardware	Performs specific user tasks
Purpose	Provides platform for applications	Helps user perform tasks
Dependency	Independent of application software	Depends on system software
Interaction	Works in background	Directly interacts with user
Examples	Windows, Linux, Device Drivers	MS Word, Excel, Chrome
Installation	Installed before application software	Installed after system software

---

## Result:

The difference between system software and application software was successfully studied and understood. A clear comparison was made based on their functions, purpose, and examples.

---

## Conclusion:

System software is essential for the functioning of a computer as it manages hardware and provides a platform for application software. Application software, on the other hand, helps users perform specific tasks. Both types of software are important and work together for efficient computer operation.

---

# Experiment No. 2

**Title: To Perform Document Creation, Editing and formatting using MS Word**

---

## **Aim**

1. Getting used to the Graphical User Interface (GUI) of Windows Operating Systems.
  2. Understanding how word processors work and developing the ability to create various types of documents using Microsoft Word 2007.
- 

## **Preliminary Explanations**

Word processors are the programs that are used to create, edit, print and save documents. It is possible to create reports, papers, announcements or even books using a word processor. This week we will be experimenting with Microsoft Word 2007. Since this program has many features, it is not possible to cover all topics. However, after this experiment, you will be able to use most required functionality. Other features can be learned using the “Help” menu.

---

## **Writing Text**

When you open Microsoft Word, a new blank document will be ready for you. You may write whatever you like on this page. Anything you write will be displayed on the screen. Note: Use the enter key to create new paragraphs; not to end sentences or lines.

## **Text Selection**

### **Using Mouse**

1. Position your mouse cursor over the beginning of the text you want to select.
2. Holding the left mouse button, move the mouse button to the end of the text
3. Release the left mouse button

### **Using Keyboard**

1. Position the text cursor (blinking line) to the beginning of the text using direction keys on your keyboard,
2. Holding the Shift button, go to the end of the text you want to select, again use direction keys to move.

3. Release the Shift key. After text selection, you may perform various operations. For instance, you may copy the text and paste it somewhere, make it bold, change its size, font or color.

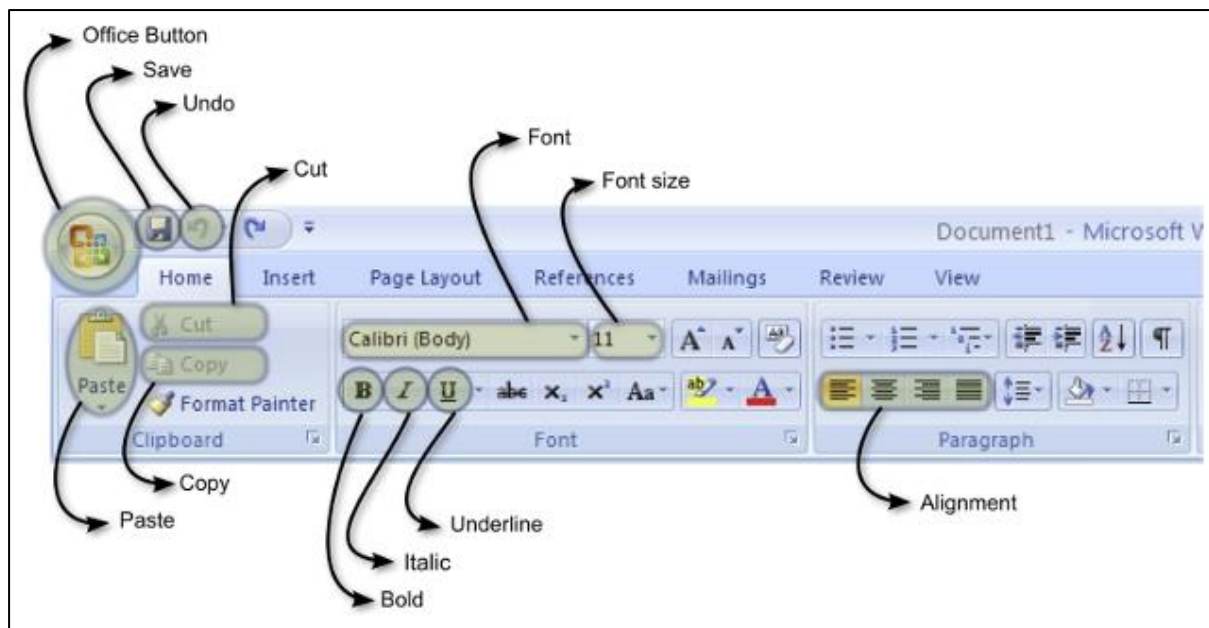
## Cut, Copy and Paste

You should select a text to copy or cut it. After selection you can use either “Copy” (CTRL + C) or “Cut” (CTRL + X) command. You can access these commands from the menu shown in Figure 1 You may use cut operation to move the text and copy to duplicate it. After issuing one of these commands, place text cursor to the place you want and issue “Paste” (CTRL + V) command.

Note: You may paste a copied text as much as you like.

## Use of Menus



In the figure below the main menu commands are shown. Details of these commands are given in the following chapters.



**Figure 1:** Main menu

On the top of the screen, there is a bar where the menus (Home, Insert, Page layout, etc...) are located. You may perform many operations using these menus. It is impossible to cover all menu functionality in one experiment; however, you may try to learn these uncovered functionality in your free time. **Help Menu** is the best source of information. You may access to help menu using symbol (🔍) located on the menu bar.

You may access File menu from the top left corner of the screen using (📁) symbol. The “New” command in this menu creates a new empty document. You may load a previously saved document using “Open” command. “Save” command is used to save your document. You may use “Save as” command to save your document with a different name. “Close”

command will close active document. While the office menu is open, recently used files will be listed on the right. You may also open the document you want from this list by clicking on it. You can also save your document using the disk  button. To undo an operation that you do, you can use back arrow icon() which is located next to disk icon.

### Changing Font Type and Font Size

In Microsoft Word 2007 starting font is Calibri with the size of 11 points. You can change the font type and size using the “Font type” and “Font size” sections, which are shown in Figure 1 Ready to use styles are located on the right side of the main menu and can be helpful for this matter. In fact, its advised to use these styles for headers.

#### Example:

This sentence is written with size 8. This sentence is written with size 16.

Usually “Times New Roman” is preferred in academic papers. This document is also written in “Times New Roman” font type. If you wish to place program codes in your document, using “Courier New” type fonts will make them more readable:

#### Example

```
int main() {  
    return 0;  
}
```

When necessary, you may make a part of you text bold, italic or underline. In general you should make keywords in your document bold. Italic is used emphasize the importance of words. In English underline is not commonly used. These styles can be used together as well.

#### Example:

Which of the following is **not** an *input/output* unit.

***This text is both italic and bold.***

Using alignment buttons shown in Figure 1 you may change the alignments of paragraphs. The alignment types are “Left aligned”, “Right Aligned”, “Centered”, and “Justified”. Justified aligns both sides of the text to the document.

You may use “Margins” button from the “Page layout” menu to adjust margins of your document. There some ready options in this list, however, you are allowed to customize margins using “Customize margins” option. If you are required to divide your document into columns, you may use “Columns” button from the “Page layout” menu. You may select a ready option or design your own column system using “More columns” option.

---

## Using Shortcut and Access Keys

Many of the menu commands can be accessed using a keyboard shortcut. Shortcuts can be used instead of clicking to speed up your work. For instance, instead of using save button from the toolbar, you can use CTRL + S key combination. To do that, press S key while pressing Ctrl key.

The following is the list of most used shortcuts:

CTRL + C: Copy

CTRL + X: Cut

CTRL + V: Paste

CTRL + Z: Undo

CTRL + S: Save

CTRL + P: Print

When you press Alt key, some letters will be shown on menu items. You may press these keys while holding Alt key to perform the operation you want.

---

## Tables

To insert a table you can use “Table” button from the Insert menu. After clicking this button select number of rows and columns. This operation will create a new table. You may use TAB key to move between the cells of your table. If you press TAB in the last line, a new line will automatically be inserted for you. You may exercise by creating the table below.

**Example:**

Student No	Name	Surname	City	Country
107305	Gabriel	Vazquez	Riverside	Liechtenstein
103170	Iris	Hutchinson	Kearns	Angola
109510	Kuame	Phelps	Jordan Valley	Virgin Islands
100833	Rajah	Gamble	North Charleston	Hungary

You can use “Design” menu to adjust a table. You must select a table to see Design menu. Similarly you can change row and column data using “Layout” menu.

---

## Experimental Work

1. Start the Microsoft Word by finding it from the Start menu. Please type in the first paragraph of Preliminary Explanations section and duplicate this paragraph for five times. You should make copies in separate paragraphs.

- Use “Times New Roman” sized 12 points.
  - Underline all “word processor” texts
  - Make all “this” and “and” words bold
  - Change font type of “Microsoft Word 2007” to “Courier new”.
  - Change the size of “help” word to 16 points.
2. Change the alignments of these paragraphs.
  3. Create a table containing student number, name, surname and age. These headers should be in the first row, make them bold. Enter your own information to second, and information of your friend to the third.
  4. Recreate all the equations within this document.
-

# Experiment No. 3

**Title: Data Manipulation using MS Excel**

---

## Preliminary Explanations

Spreadsheets help us with poll results analyzing, statistical summary creation, financial decision making, and accounting. This week will be working on Microsoft Excel 2007. Since this application has many functionalities, it is not possible to cover all in a single experiment; however, after this lab session, you will be completed most common tasks. More importantly, you will be able to learn other features using the help menu.

After you start Excel, a new worksheet will be waiting for you. This worksheet is divided into cells like a table. Columns are addressed by numbers (1, 2, 3...) while columns are addressed by letters (A, B, C...). On the other hand, cells are address with a letter and a number (A1, B7, Z44). You may enter, text, numeric value or formulas to these cells. The text you have entered will act as labels whereas the numbers will be your data. The formula you have entered will calculate the result you wanted.

---

## Ranges

In Microsoft Excel, a range is a rectangular region. A range is defined using its cell addresses of their opposing cells. Ranges are used in operations such as summation and averaging.

### Example:

A1:A5 Addresses the first five cells of A column and it contains A1, A2, A3, A4 and A5 B2:E3 contains B2, B3, C2, C3, D2, D3, E2, E3

---

## Formatting

You may need to change the format of the worksheets you have prepared for printing or viewing.

There are two types of formatting: cell formatting and data formatting. To begin formatting you should select the cells you wish to format. There are ready-to-use cell formats located in the "Home" menu, under the "Cell styles" section, you can either use these or create your own style using "Font" section. If you wish to change the size of columns or rows, you can use the ruler that shows column and row addresses. Position your mouse cursor between two row or columns and hold left mouse button, moving the mouse will change the width or height of the cell. Release the mouse button after you are done. "Home" menu contains "Number" section for you to change number format. You may use the list on this section to choose an item from

it. In this list, previews of the number formats are shown below. If the formatting you require does not exist in the list, you may click “More number formats” item to form the format you wish. Moreover, this number section contains buttons to control the decimal digits to be shown



---

## Formulas

In Excel, you can assign formulas to cells instead of simple values. The result of a formula is dynamically calculated and shown in the cell you have entered the formula in. For instance: you may sum the value of cells F1, F2, and F3 and display in F4 using the formula **=F1+F2+F3**. You only need to start with “=” symbol to create a formula.

---

## Functions

You may use functions in your formula. Some of these functions work with ranges. If we want to rewrite the previously given sample we can use SUM function to obtain same result using **=SUM(F1:F3)**. If you want to see the list of all defined functions you can use the “Insert function” button (*fx*). The following is the list of most commonly used functions.

- **SUM**: Sums all the values in the given range
- **AVERAGE**: Takes the average of the numbers in the given range
- **MIN, MAX**: Finds maximum or minimum value in the given range.
- **SUBSTITUTE**: Substitutes all occurrences of the second parameter with the third parameter in the first parameter. Ex: **SUBSTITUTE(F1, "one", "two")**
- **POWER**: Finds the power of the first parameter to the second one. Ex: **POWER(F1, 2)**

---

## Moving and Copying Formulas

If you move or copy a formula, the addresses or range information inside the formula is also changed. For instance, if you move **=SUM(F1:F3)** formula in the F4 to cell E6, the formula will automatically become **=SUM(E3:E5)**.

If you do not want the formulas you copy to change, you can use “\$” symbol in your cell or range addresses. You can use this symbol either for column, row or for both. If you alter the previous formula to **=SUM(\$F\$1:\$F\$3)** it will not change when you move it.

---

## Data

In Microsoft Excel, there are tools that help you to work with data sets. These tools are located in “Data” menu. The most basic functionality in here is sorting and filtering. Using these tools, you can easily find the record you search, even in crowded documents. For instance, you can easily filter your customers to see who is living in “Magusa”. Similarly you can sort your customers by the products they buy to see who are buying more. These operations treat your data in rows, therefore you need to organize your data as such.

To sort the data you have, you can use the sort button located in “Data” menu. After selecting your data, click on one of these buttons. A dialog will appear which allows you to choose how to sort the selected data.

Filtering data requires data processing mode to be activated. You can activate this mode by selecting your data and clicking “Filter” button. This operation will consider first row you have selected as captions. If you do not have a header row, you should add one before starting data processing mode. The captions located in the header row defines your column information (Customer name, sales, etc...). When data processing mode starts, Excel will assign drop down icons to each column. When you click on this symbol a menu containing filtering and sorting tools will appear. You may filter your data using this column operations menu. Microsoft Excel will produce some automatic filters for you. These filters are generated with regards to the data entered to that column. For instance, if your column contains date information, generated filters will contain years, months and days in a tree fashion. From this list you can easily select a month or the days you want to see. If this list does not contain the filter that you want to use, you can also create the filter you want. You may learn the details of this operation from the help menu. Apart from filtering, its possible to sort data in data processing mode.

---

## Charts

To insert a chart, first select the data you need. You need to select a caption row and a caption column. For instance, let’s assume that column A contains dates and column B contains the sales in those dates. To create the sales chart, firstly add “Dates” to the top of column A and “Sales” to the top of column B. Then, select both columns. If it is desired, multiple columns can be shown in the same chart. Total price can be added to the previous sample. Similarly, this column should have a caption and should be selected. After selecting data go to “Insert” menu, click the chart type you want to add and select the subtype from the list, your chart will be placed on your worksheet.

After adding the chart, you may select it to access its properties. Selecting the chart will activate “Design”, “Layout” and “Format” menus. In “Design” menu, “Chart layout” section contains presets that changes the legend and location of the data labels. The “Chart design” section contains preset formats that change chart options such as color and shades. You may also use “Layout” and “Format” menus control layout and format options by yourself. **Note:** To select non-sequential data, select the first area then hold CTRL button and select the second area.

## Experimental Work

1. Prepare the following table, try to modify your table to look like the given sample below.

Course	Credits	Degree	Value	Credits earned
CMPE 101	4	A	4	
PHY 101	4	B	3	
CMPE 102	4	B+	3.3	
MAT 151	4	B-	2.7	
MAT 163	3	A-	3.7	
Total credits earned				
Total credits				
GPA				

2. In the row containing CMPE 101, add the formula that calculates the multiplication of “Credits” and “Value” columns to the “Credits earned” column. The result should be **16**.

3. Copy the formula you have prepared in step 2 to other course rows. The values displayed should be: **12, 13.2, 10.8** and **11.1**

4. Write the formula that calculates the total credits earned next to the “Total credits earned” label. The value should be **63.1**.

5. Write the formula that calculates the total credits of the courses to the respected cell. This value should be **19**.

6. Use the following formula to calculate the average. The correct result of this formula should be **3,3210526**.

$$GPA = \frac{\text{Totalcreditsearned}}{\text{Totalcredits}}$$

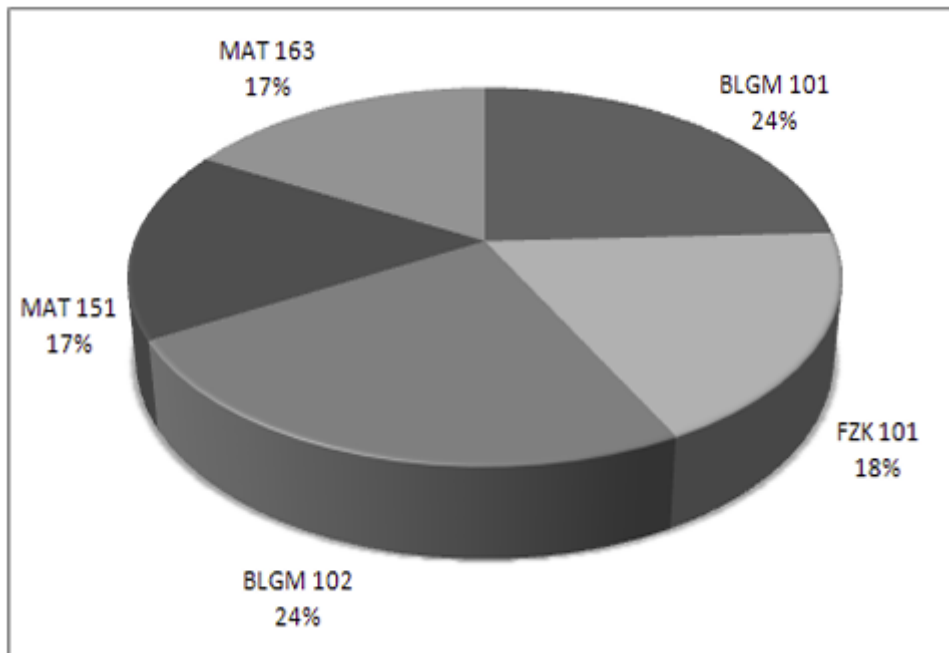
7. Adjust the GPA cell to show only two digits after decimal separator (**result: 3.32**)

8. Change CMPE 101 to A and its value to 4, and follow the changes.

9. Sort the courses table according to value column. You may refer to Section named.

10. Add a pie chart to your worksheet that shows the contribution ratio of every course. To do this you have to create your chart from course names (including the header) and credits earned column. Modify your chart to look like the one given on the next page.

11. Filter your courses table to show courses that have credit value of 4. You may refer to the section .



# Experiment No. 4

**Title:** Presentation Design using MS PowerPoint

---

## **Aim:**

To create an effective and visually appealing presentation using MS PowerPoint and understand its features.

---

## **Theory:**

**Microsoft PowerPoint** is a widely used application for creating visual presentations. It allows users to present information in the form of slides, which can include text, images, charts, audio, and video.

PowerPoint provides various tools such as themes, templates, slide layouts, animations, and transitions that enhance the visual appeal and effectiveness of presentations. It is commonly used in education, business meetings, seminars, and conferences to communicate ideas clearly and professionally.

---

## **Procedure:**

1. Switched on the computer and opened Microsoft PowerPoint.
  2. Selected **Blank Presentation** or a suitable template.
  3. Created a title slide by adding presentation title and subtitle.
  4. Inserted new slides and added relevant content (headings, bullet points).
  5. Applied suitable themes and slide layouts.
  6. Inserted images, shapes, and SmartArt.
  7. Added charts or graphs if required.
  8. Inserted multimedia elements (audio/video).
  9. Applied animations and slide transitions.
  10. Previewed the presentation using Slide Show.
  11. Saved the presentation.
-

# Sample Slide Content:

## Slide 1: Title Slide

- **Title:** Importance of Information Technology
  - **Subtitle:** Presented by [Student Name]
  - **Class/Roll No.:** [Details]
- 

## Slide 2: Introduction

- Information Technology (IT) refers to the use of computers and software to manage information.
  - IT plays a vital role in modern society.
- 

## Slide 3: Uses of IT

- Communication (Email, Video Calls)
  - Education (Online Learning)
  - Banking (Online Transactions)
  - Healthcare (Digital Records)
- 

## Slide 4: Advantages of IT

- Fast communication
  - Easy data storage
  - Improved efficiency
  - Global connectivity
- 

## Slide 5: Disadvantages of IT

- Cybersecurity risks
  - Privacy concerns
  - Dependency on technology
- 

## Slide 6: Conclusion

- IT is essential in today's world.
  - It improves productivity but must be used responsibly.
-

## **Observation:**

- Themes improved visual consistency.
  - Multimedia made slides engaging.
  - Animations enhanced presentation quality.
- 

## **Result:**

An effective and well-designed presentation was successfully created.

---

## **Conclusion:**

MS PowerPoint helps in presenting information clearly and attractively using visual elements and multimedia tools.

---

# Experiment No. 5

**Title:** Explore antivirus software for maintaining computer security.

---

## Understanding Antivirus Software:

Antivirus software, also known as anti-malware, is a fundamental security tool that acts as a guardian for your digital information. It shields your devices from a wide range of malicious threats, including viruses, malware, ransomware, and other cyberattacks. By proactively preventing these threats from infiltrating your system, antivirus software plays a crucial role in maintaining the safety and integrity of your data.

What is Antivirus Software?

Antivirus software, as we saw in the introduction, acts as a digital shield, safeguarding your devices and data from a constantly evolving landscape of malicious threats. Let's delve deeper into its core functionalities and how it accomplishes this critical task.

Components and Functionalities:

**Virus Scanners:** These scan your system for malicious code patterns based on definitions stored in a virus database. Regularly updated databases are essential for antivirus software to stay effective against new threats.

**Real-time Protection:** This monitors system activity in real-time, scrutinizing files, applications, and network traffic to identify and block potential attacks before they can harm your device.

**Behavior-Based Detection:** Modern antivirus programs go beyond simple pattern matching and employ behavior-based detection to identify suspicious activities, even if the specific malware is unknown. This helps combat zero-day attacks, which exploit previously undiscovered vulnerabilities.

**Quarantine and Removal:** If malware is detected, the antivirus software can quarantine it, preventing it from spreading or causing damage. In some cases, it may also attempt to remove the malware entirely.

---

## Importance in Cybersecurity:

The internet can be a minefield of security threats. Malicious software, often shortened to malware, encompasses a broad spectrum of harmful programs, including viruses, worms, Trojan horses, ransomware, and spyware. These programs can steal your personal information, encrypt your data for ransom, damage your system, or even spy on your online activity.

Antivirus software plays a vital role in your cybersecurity defense by:

**Preventing Infections:** By proactively scanning for and blocking malware, it stops threats before they can establish a foothold in your system.

**Minimizing Damage:** Even if an infection occurs, real-time protection can limit the damage by catching it early and containing the spread.

**Safeguarding Data:** Antivirus software helps protect your sensitive information, such as financial data, passwords, and personal documents, from theft or corruption.

---

## **Evolution and Importance in Security Strategy:**

Antivirus software has come a long way since its initial focus on simple virus detection. Today, it's a constantly evolving shield adapting to new threats and employing advanced techniques. This ongoing evolution underscores the importance of antivirus software as a foundational component of a comprehensive security strategy.

In the next section, we'll explore the different types of antivirus software available and how to choose the right one for your needs.

### **What Does Antivirus Software Do?**

Antivirus software acts as a vigilant guardian for your digital life, offering a multi-pronged approach to protect your devices and data from malicious threats. Let's explore its core functions in detail:

#### **1. Malware Removal and Prevention:**

**Scanning:** Antivirus software scans your system for malware, including viruses, worms, Trojan horses, spyware, and ransomware. These scans can be:

**Scheduled Scans:** Run automatically at regular intervals to proactively identify threats.

**On-Demand Scans:** Initiated manually by the user to scan specific files or folders.

**Real-time Scans:** Continuously monitor system activity, scrutinizing files, applications, and network traffic to identify threats in real-time.

**Detection:** Antivirus software uses two primary methods to detect malware:

**Signature-based Detection:** Compares file patterns to a database of known malware signatures. This method is highly effective against established threats.

**Behavior-based Detection:** Analyzes program behavior to identify suspicious activities, even if the specific malware is unknown. This helps combat zero-day attacks, which exploit previously undiscovered vulnerabilities.

Quarantine and Removal: If malware is detected, the antivirus software can take action by:

Quarantining: Isolating the infected files to prevent them from spreading or causing further damage.

Removal: Attempting to remove the malware entirely from your system. This process can be complex and may require user interaction.

## **2. Threat Detection:**

Email Protection: Scans incoming and outgoing emails for malicious attachments and phishing attempts designed to steal personal information.

Web Protection: Blocks access to known malicious websites and prevents drive-by downloads, where malware is automatically downloaded when you visit an infected website.

Network Intrusion Detection: Monitors network activity for suspicious patterns that might indicate an attempted attack.

## **3. Additional Features (may vary by program):**

VPN Services: Encrypt your internet traffic, providing an extra layer of security when using public Wi-Fi networks.

Password Managers: Securely store and manage your passwords for various online accounts.

Firewall Protection: Monitors incoming and outgoing network traffic, filtering out unauthorized access attempts.

Parental Controls: Help restrict access to inappropriate content and applications for children.

---

## **Importance of a Comprehensive Security Strategy:**

While antivirus software is a vital component of cybersecurity, it's not a foolproof solution. A layered approach is essential. Here are some additional security practices to consider:

Keep Software Updated: Regularly update your operating system, applications, and antivirus software to benefit from the latest security patches.

Practice Safe Browsing: Be cautious when clicking on links or downloading files from unknown sources.

Use Strong Passwords: Avoid easily guessable passwords and consider using a password manager.

Be Wary of Phishing Attempts: Don't click on suspicious links or attachments in emails, even if they appear to be from legitimate sources.

By combining a robust antivirus solution with safe browsing habits and a layered security approach, you can significantly enhance your online defense and protect your valuable digital assets.

---

## **Antivirus Software Examples:**

In today's interconnected world, robust antivirus protection is essential for all your devices. Here's a glimpse into some of the well-known antivirus software options, catering to different platforms and user needs:

### **Windows Antivirus Software:**

**Norton 360:** A comprehensive security suite offering top-notch virus and malware protection, along with features like secure browsing, password management, and parental controls. Ideal for users seeking all-in-one protection.

**Bitdefender Antivirus Plus:** Known for its excellent threat detection capabilities, user-friendly interface, and system performance optimization. A solid choice for users prioritizing core antivirus protection with a lightweight feel.

**McAfee Total Protection:** Provides multi-device protection alongside antivirus features, including identity theft monitoring, safe browsing, and a VPN. Well-suited for users managing security across multiple devices.

---

### **MacOS Antivirus Software:**

**Intego Mac Premium Bundle:** Designed specifically for Macs, offering robust protection against malware, spyware, and phishing attempts. Includes features like data backup and parental controls. A great choice for Mac users seeking comprehensive defense.

**Bitdefender Antivirus for Mac:** Leverages Bitdefender's superior threat detection engine to safeguard Macs against malware threats. Offers a user-friendly interface and minimal system resource usage. A strong option for Mac users prioritizing core antivirus protection.

**McAfee Endpoint Protection for Mac:** Caters to businesses and organizations, offering centralized management for Mac security alongside antivirus and anti-theft features. Ideal for corporate environments.

### **Android Antivirus Software:**

**Avast Mobile Security:** A free and popular option offering malware protection, call blocking, and anti-theft features. Well-suited for casual users seeking basic mobile security.

Bitdefender Mobile Security: Provides excellent malware protection, real-time scanning of apps, and web filtering to safeguard against online threats. A strong choice for users prioritizing comprehensive mobile security.

McAfee Mobile Security: Offers antivirus protection, anti-theft features, and app locking to secure your personal information. A well-rounded option for mobile security needs.

---

# Experiment No. 6

Report on Applications of Information Technology in Various Sectors

## Introduction

Information Technology (IT) has become an integral part of modern society. It refers to the use of computers, software, networks, and digital systems to store, process, and exchange information. Over the past few decades, IT has transformed the way organizations operate and deliver services.

Various sectors such as healthcare, education, banking, and governance have significantly benefited from IT. It has improved efficiency, accuracy, accessibility, and communication. This report highlights the application and impact of IT in these important sectors.

---

## 1. IT in Healthcare Sector

Information Technology plays a crucial role in improving healthcare services and patient care.

### Applications:

- **Electronic Health Records (EHR):** Patient data is stored digitally, making it easy to access and update.
- **Telemedicine:** Doctors can consult patients remotely through video calls.
- **Medical Imaging:** Advanced technologies like MRI and CT scans help in accurate diagnosis.
- **Hospital Management Systems:** Used for managing appointments, billing, and patient records.

### Benefits:

- Faster diagnosis and treatment
- Reduced paperwork
- Improved patient care and safety
- Easy sharing of medical information

### Example:

Online doctor consultations and digital prescriptions have become common, especially after the COVID-19 pandemic.

---

## 2. IT in Education Sector

IT has revolutionized the education system by making learning more interactive and accessible.

### Applications:

- **Online Learning Platforms:** Students can attend classes remotely.
- **Digital Classrooms:** Use of smart boards and multimedia tools.
- **Learning Management Systems (LMS):** Used to manage courses, assignments, and assessments.
- **E-books and Digital Libraries:** Provide easy access to study materials.

### Benefits:

- Learning anytime, anywhere
- Interactive and engaging content
- Easy access to information
- Improved communication between teachers and students

### Example:

Students use online platforms to attend lectures, submit assignments, and take exams digitally.

---

## 3. IT in Banking Sector

The banking sector has undergone major transformation due to IT, making financial services faster and more secure.

### Applications:

- **Online Banking:** Customers can access accounts and perform transactions anytime.
- **Mobile Banking Apps:** Banking services through smartphones.
- **ATM Services:** Cash withdrawal and other services without visiting a bank.
- **Digital Payments:** UPI, credit/debit cards, and e-wallets.

### Benefits:

- 24/7 banking services
- Faster transactions
- Reduced need for physical visits
- Secure financial operations

### Example:

Customers can transfer money instantly using mobile apps without visiting a bank branch.

---

## 4. IT in Governance Sector

IT has improved the functioning of government services through e-governance.

### Applications:

- **Online Government Services:** Application for certificates, licenses, etc.
- **Digital Identity Systems:** Online verification of citizens.
- **E-Voting Systems:** Electronic voting processes.
- **Public Service Portals:** Access to various government schemes and services.

### Benefits:

- Increased transparency
- Reduced corruption
- Faster service delivery
- Easy access to government services

### Example:

Citizens can apply for documents like passports, licenses, and certificates online without visiting government offices.

---

## Conclusion

Information Technology has brought significant improvements in various sectors such as healthcare, education, banking, and governance. It has made processes faster, more efficient, and easily accessible to people.

With continuous advancements in technology, the role of IT will further expand, leading to smarter systems and better services. However, proper security measures and responsible usage are essential to maximize its benefits.

---

# Experiment No. 7

**Title:** Study and Exploration of Government Digital Platform – DigiLocker

---

## **Aim:**

To study and explore the features, functions, and usage of DigiLocker as a government digital platform.

---

## **Theory:**

**DigiLocker** is a flagship initiative under the Digital India program launched by the Government of India. It is a secure cloud-based platform that allows citizens to store, access, and share important documents digitally.

DigiLocker aims to minimize the use of physical documents and provide easy access to official records anytime and anywhere. It is linked with Aadhaar and other government databases, enabling users to fetch verified documents directly from issuing authorities.

The platform ensures security, authenticity, and convenience, making it an essential tool for digital governance and paperless administration.

---

## **Objectives:**

- To understand the concept of digital document storage.
  - To explore the features of DigiLocker.
  - To learn how to access and use government-issued documents online.
- 

## **Requirements:**

- Computer or smartphone
  - Internet connection
  - Valid mobile number / Aadhaar number
-

## Procedure:

1. Open a web browser and visit the official DigiLocker website or install the DigiLocker mobile app.
  2. Click on **Sign Up** to create a new account.
  3. Enter mobile number and verify using OTP.
  4. Set username and password.
  5. Link Aadhaar number (optional but recommended for full access).
  6. After login, explore the dashboard.
  7. Navigate to **Issued Documents** to view documents issued by government authorities.
  8. Use **Upload Documents** option to upload personal files.
  9. Explore **Get Documents** section to fetch documents like Aadhaar, driving license, mark sheets, etc.
  10. Use **Share** option to send documents digitally via link or email.
  11. Log out after completing the session.
- 

## Features of DigiLocker:

### 1. Digital Document Storage

Users can securely store important documents such as Aadhaar card, PAN card, driving license, and educational certificates in digital format.

### 2. Issued Documents

Government departments directly issue verified documents to users, eliminating the need for physical copies.

### 3. Easy Access Anytime

Documents can be accessed anytime from anywhere using internet-enabled devices.

### 4. Secure Platform

DigiLocker uses secure authentication methods like OTP and Aadhaar verification to ensure data safety.

### 5. Paperless Governance

Reduces the use of paper documents and promotes digital transactions.

### 6. Document Sharing

Users can share documents digitally with institutions or authorities without physical submission.

## 7. Integration with Government Services

Connected with multiple government departments like transport, education boards, and UIDAI.

---

### **Advantages:**

- Reduces physical document handling
  - Saves time and effort
  - Provides secure storage
  - Ensures authenticity of documents
  - Supports eco-friendly initiatives
- 

### **Limitations:**

- Requires internet access
  - Limited awareness among users
  - Dependence on digital literacy
- 

### **Applications:**

- Applying for jobs or admissions
  - Identity verification
  - Government service applications
  - Educational document submission
- 

### **Observation:**

- DigiLocker provides a simple and user-friendly interface.
  - Documents are easily accessible and shareable.
  - The platform ensures secure handling of personal data.
- 

### **Result:**

The DigiLocker platform was successfully explored, and its features such as document storage, access, and sharing were understood.

---

## **Conclusion:**

DigiLocker is an effective digital platform that simplifies document management and promotes paperless governance. It enhances convenience, security, and accessibility for citizens. With increasing adoption, it will play a significant role in India's digital transformation.

---

# Experiment No. 8

**Title:** Hosting a Session on an Online Meeting Platform (Zoom / Google Meet)

---

## **Aim:**

To learn how to host and manage an online meeting session using video conferencing platforms.

---

## **Theory:**

Online meeting platforms such as **Zoom** and **Google Meet** are widely used for virtual communication. These platforms allow users to conduct meetings, webinars, online classes, and discussions in real-time over the internet.

They provide features like video conferencing, screen sharing, chat messaging, recording, and participant management. These tools are especially useful in education, business, and remote work environments.

With the advancement of Information Technology, online meeting platforms have become essential for communication without geographical limitations.

---

## **Objectives:**

- To understand the working of online meeting platforms.
  - To learn how to host and manage a meeting session.
  - To explore various features like screen sharing, chat, and recording.
- 

## **Requirements:**

- Computer/Laptop/Smartphone
  - Internet connection
  - Zoom or Google Meet account
  - Webcam and microphone
-

## Procedure:

### Part A: Using Zoom

1. Open the Zoom application or visit its website.
  2. Sign in using your account credentials.
  3. Click on **New Meeting** to start an instant meeting.
  4. Allow access to microphone and camera.
  5. Copy the meeting link and share it with participants.
  6. Admit participants from the waiting room.
  7. Use features like:
    - Mute/Unmute participants
    - Turn video on/off
    - Chat with participants
    - Share screen for presentations
  8. Record the meeting (optional).
  9. End the meeting for all participants.
- 

### Part B: Using Google Meet

1. Open Google Meet in a browser or app.
  2. Sign in using a Google account.
  3. Click on **New Meeting** → Start instant meeting.
  4. Share meeting link with participants.
  5. Allow participants to join.
  6. Use features like:
    - Microphone and camera control
    - Screen sharing (Present Now option)
    - Chat box for communication
  7. End the meeting after completion.
- 

## Features of Online Meeting Platforms:

### 1. Video Conferencing

Allows face-to-face interaction through video calls.

### 2. Audio Communication

Enables clear voice communication among participants.

### 3. Screen Sharing

Users can share their screen to present documents, slides, or applications.

#### 4. Chat Messaging

Participants can send messages during the meeting.

#### 5. Recording Option

Meetings can be recorded for future reference.

#### 6. Participant Management

Host can control participants (mute, remove, admit).

#### 7. Virtual Backgrounds

Allows changing background during meetings.

---

### **Advantages:**

- Saves travel time and cost
  - Enables communication from any location
  - Supports large number of participants
  - Useful for online classes and meetings
  - Easy to use and accessible
- 

### **Limitations:**

- Requires stable internet connection
  - Technical issues may occur
  - Security concerns (unauthorized access)
  - Reduced personal interaction
- 

### **Applications:**

- Online classes and lectures
  - Business meetings
  - Webinars and workshops
  - Remote collaboration
-

## **Observation:**

- The meeting was conducted smoothly with proper audio and video.
  - Screen sharing helped in explaining the content clearly.
  - Chat feature allowed quick communication.
  - Participant management features were effective.
- 

## **Result:**

An online meeting session was successfully hosted and managed using Zoom/Google Meet platform.

---

## **Conclusion:**

Online meeting platforms are powerful tools for virtual communication. They provide multiple features that make communication efficient, interactive, and accessible from anywhere. These platforms are essential in modern education and business environments.

---

# Experiment No. 9

**Title:** Exploring Educational Platforms – LMS (Moodle / Gnomio)

---

## **Aim:**

To explore and understand the features and working of Learning Management Systems (LMS) such as Moodle and Gnomio.

---

## **Theory:**

A Learning Management System (LMS) is a software application used to manage, deliver, and track educational courses and training programs. LMS platforms provide a centralized system for teachers and students to interact, share resources, conduct assessments, and monitor progress.

**Moodle** is one of the most widely used open-source LMS platforms. It allows educators to create online courses, upload study materials, assign tasks, and conduct quizzes.

**Gnomio** is a free hosting service for Moodle that enables users to create their own Moodle-based learning environment without installation.

These platforms are widely used in schools, colleges, and organizations for e-learning and distance education.

---

## **Objectives:**

- To understand the concept of LMS.
  - To explore features of Moodle and Gnomio.
  - To learn how to access courses and resources online.
- 

## **Requirements:**

- Computer/Laptop/Smartphone
- Internet connection
- Web browser
- LMS account (Moodle/Gnomio)

---

## Procedure:

### Part A: Exploring Moodle

1. Open a web browser and visit a Moodle-based website.
2. Click on **Login** and enter username and password.
3. After login, observe the dashboard.
4. Browse available courses.
5. Select a course and open it.
6. Access study materials such as notes, PDFs, videos.
7. Attempt quizzes or assignments (if available).
8. Check grades and feedback section.
9. Log out after completion.

---

### Part B: Exploring Gnomio

1. Visit the Gnomio website.
2. Create a free LMS site (if required).
3. Log in to the dashboard.
4. Create or explore courses.
5. Upload learning materials (files, videos).
6. Add assignments or quizzes.
7. Enroll users (students).
8. Monitor progress and performance.

---

## Features of LMS (Moodle / Gnomio):

### 1. Course Management

Allows teachers to create and manage courses online.

### 2. Content Sharing

Supports uploading of study materials like PDFs, videos, and presentations.

### 3. Assignments and Quizzes

Teachers can assign tasks and conduct online tests.

### 4. User Management

Allows enrollment of students and role assignment (teacher/student).

## 5. Communication Tools

Includes forums, messages, and announcements.

## 6. Progress Tracking

Tracks student performance and course completion.

## 7. Accessibility

Students can access courses anytime and anywhere.

---

## Advantages:

- Supports online and distance learning
  - Easy access to study materials
  - Improves student-teacher interaction
  - Tracks performance efficiently
  - Flexible learning environment
- 

## Limitations:

- Requires internet connectivity
  - Needs basic technical knowledge
  - Limited interaction compared to classroom learning
- 

## Applications:

- Online education in schools and colleges
  - Corporate training programs
  - Skill development courses
  - Distance learning programs
- 

## Observation:

- LMS platforms provide a structured learning environment.
- Course materials are easily accessible.
- Assignments and quizzes help in evaluation.
- Dashboard provides clear overview of progress.

---

## **Result:**

The LMS platforms Moodle and Gnomio were successfully explored, and their features such as course management, content sharing, and assessment were understood.

---

## **Conclusion:**

Learning Management Systems like Moodle and Gnomio play an important role in modern education by enabling online learning and efficient course management. They provide flexibility, accessibility, and effective communication between teachers and students.

---

# Experiment No. 10

**Title:** Using AI-Based Assistants (ChatGPT and Gemini) to Perform Tasks

---

## **Aim:**

To explore and use AI-based assistants like ChatGPT and Gemini for performing various tasks such as answering questions, generating content, and problem-solving.

---

## **Theory:**

Artificial Intelligence (AI) refers to the simulation of human intelligence in machines that are programmed to think, learn, and make decisions. AI-based assistants are advanced software tools that use machine learning and natural language processing (NLP) to understand user queries and provide relevant responses.

**ChatGPT** is an AI-powered conversational assistant that can generate text, answer questions, write content, and assist in coding and problem-solving.

**Gemini** (developed by Google) is another AI tool that provides intelligent responses, content generation, and assistance in various domains.

These tools are widely used in education, business, research, and daily tasks due to their speed and accuracy.

---

## **Objectives:**

- To understand the concept of AI-based assistants.
  - To perform different tasks using ChatGPT and Gemini.
  - To analyze the usefulness of AI tools in daily activities.
- 

## **Requirements:**

- Computer/Laptop/Smartphone
- Internet connection
- Web browser
- Access to ChatGPT and Gemini

---

## Procedure:

### Part A: Using ChatGPT

1. Open a web browser and visit ChatGPT.
2. Log in or sign up for an account.
3. Enter a query in the input box (e.g., “Explain Artificial Intelligence”).
4. Observe the response generated by the AI.
5. Perform different tasks such as:
  - Writing a paragraph or essay
  - Solving a simple problem
  - Generating code or ideas
6. Refine queries for better results.
7. Generate images by providing proper prompt
8. Can read and analyse the document when uploaded
9. Save or copy the output.

---

### Part B: Using Gemini

1. Open the Gemini website or app.
2. Sign in using a Google account.
3. Enter queries or tasks in the prompt box.
4. Analyze the responses generated.
5. Compare outputs with ChatGPT.
6. Use it for tasks like summarizing, answering questions, etc.

---

## Tasks Performed:

- Asked questions related to Information Technology
- Generated a short essay on “Importance of Education”
- Solved simple queries and calculations
- Generated ideas for assignments
- Compared responses from both tools

---

## Features of AI Assistants:

### 1. Natural Language Understanding

Understands and responds to human language.

## 2. Content Generation

Generates essays, reports, and creative content.

## 3. Problem Solving

Helps in solving academic and logical problems.

## 4. Quick Response

Provides instant answers to queries.

## 5. Multi-purpose Usage

Can be used for education, coding, writing, and more.

---

## **Advantages:**

- Saves time and effort
  - Provides instant information
  - Helps in learning and research
  - Easy to use
  - Improves productivity
- 

## **Limitations:**

- May provide incorrect or outdated information
  - Requires internet access
  - Cannot fully replace human intelligence
  - Overdependence may reduce critical thinking
- 

## **Applications:**

- Education and learning
  - Content writing
  - Coding assistance
  - Research and data analysis
  - Customer support
-

## **Observation:**

- AI assistants responded quickly to queries.
  - The answers were clear and easy to understand.
  - Different tools provided slightly different responses.
  - Useful for generating ideas and completing tasks efficiently.
- 

## **Result:**

AI-based assistants like ChatGPT and Gemini were successfully used to perform various tasks such as answering questions, generating content, and problem-solving.

---

## **Conclusion:**

AI assistants are powerful tools that enhance productivity and learning. They provide quick and accurate information and assist users in multiple tasks. However, they should be used wisely along with human judgment.

---

# Experiment No. 11

**Title:** Exploring Cloud Computing using Google Drive

---

## **Aim:**

To explore cloud computing by uploading, sharing, and collaborating on documents using Google Drive.

---

## **Theory:**

Cloud computing is a technology that allows users to store, access, and manage data over the internet instead of using local storage devices. It provides on-demand availability of resources such as storage, applications, and services.

**Google Drive** is a popular cloud-based platform that allows users to store files online, access them from any device, and share them with others. It also supports collaboration through tools like Google Docs, Sheets, and Slides, enabling multiple users to work on the same document simultaneously.

Cloud computing eliminates the need for physical storage devices and provides flexibility, scalability, and security for data management.

---

## **Objectives:**

- To understand the concept of cloud computing.
  - To learn how to upload and manage files in Google Drive.
  - To explore sharing and collaboration features.
- 

## **Requirements:**

- Computer/Laptop/Smartphone
  - Internet connection
  - Google account
-

## Procedure:

### Part A: Uploading Files

1. Open a web browser and go to Google Drive.
  2. Sign in using your Google account.
  3. Click on **New** → **File Upload**.
  4. Select a file from your system.
  5. Wait for the upload to complete.
  6. Verify that the file appears in Drive.
- 

### Part B: Creating Documents

1. Click on **New** → **Google Docs**.
  2. Create a new document.
  3. Add text and format it.
  4. Save the document (auto-saved in Drive).
- 

### Part C: Sharing Files

1. Select a file or document.
  2. Click on the **Share** button.
  3. Enter the email address of another user.
  4. Set permission (Viewer/Commenter/Editor).
  5. Click **Send**.
- 

### Part D: Collaboration

1. Open a shared document.
  2. Invite another user to edit.
  3. Both users edit the document simultaneously.
  4. Observe real-time changes.
  5. Use comments and suggestions features.
- 

## Features of Google Drive:

### 1. Cloud Storage

Stores files securely online and allows access anytime.

## 2. File Sharing

Allows easy sharing of files with others using links or email.

## 3. Real-Time Collaboration

Multiple users can edit documents simultaneously.

## 4. Automatic Saving

Changes are saved automatically without manual saving.

## 5. Accessibility

Files can be accessed from any device with internet connection.

## 6. Integration with Tools

Works with Google Docs, Sheets, and Slides.

---

## **Advantages:**

- Access files from anywhere
  - Easy sharing and collaboration
  - No need for physical storage devices
  - Automatic backup and saving
  - Secure and reliable
- 

## **Limitations:**

- Requires internet connection
  - Limited free storage space
  - Data privacy concerns
- 

## **Applications:**

- Storing personal and academic files
- Sharing assignments and projects
- Collaborative work in teams
- Backup of important data

---

## **Observation:**

- Files were uploaded successfully.
  - Sharing was quick and easy.
  - Multiple users were able to edit documents in real time.
  - Changes were saved automatically.
- 

## **Result:**

Cloud computing was successfully explored using Google Drive. Files were uploaded, shared, and collaboratively edited.

---

## **Conclusion:**

Google Drive is an effective cloud computing platform that enables easy storage, sharing, and collaboration of files. It improves productivity and provides flexibility in accessing data from anywhere.

---

# Experiment No. 12

**Title:** Exploring Social Media Applications and Analyzing their Features, Benefits, and Digital Safety Practices

---

## Aim:

To explore different social media applications such as Facebook, Instagram, and Twitter, and analyze their features, benefits, and digital safety practices.

---

## Theory:

Social media platforms are online applications that allow users to create, share, and interact with content and communicate with others globally. These platforms have become an essential part of modern communication, enabling users to connect, express ideas, and access information.

Popular social media applications include **Facebook**, **Instagram**, and **Twitter**. Each platform offers unique features such as messaging, photo/video sharing, live streaming, and news updates.

While social media provides many advantages, it also raises concerns related to privacy, security, and misuse. Therefore, understanding digital safety practices is essential for responsible usage.

---

## Objectives:

- To study the features of popular social media platforms.
  - To understand the benefits of social media usage.
  - To learn digital safety practices while using social media.
- 

## Requirements:

- Computer/Laptop/Smartphone
  - Internet connection
  - Social media accounts (optional)
-

## Procedure:

1. Open a web browser or mobile apps of Facebook, Instagram, and Twitter.
  2. Log in or explore the platforms.
  3. Observe the interface and available features.
  4. Explore options like posting content, messaging, and notifications.
  5. Check privacy and security settings of each platform.
  6. Compare features and usability of different apps.
  7. Note down benefits and possible risks.
  8. Study digital safety practices followed by each platform.
- 

## Features of Social Media Platforms:

### 1. Facebook

- User profiles and friend connections
- Posting text, images, and videos
- Groups and pages for communities
- Messaging through Messenger
- Live streaming

### 2. Instagram

- Photo and video sharing
- Stories and reels feature
- Filters and editing tools
- Direct messaging
- Explore section for trending content

### 3. Twitter

- Short messages (tweets)
  - Trending topics and hashtags
  - Retweets and likes
  - Real-time news updates
  - Following public figures
- 

### Comparison Table:

Feature	Facebook	Instagram	Twitter
Content Type	Text, Media	Photos, Videos	Short Text
Messaging	Yes	Yes	Limited
Popular Use	Networking	Media Sharing	News Updates

## Benefits of Social Media:

- Easy communication with people worldwide
  - Sharing information and ideas
  - Educational and informative content
  - Business promotion and marketing
  - Entertainment and creativity
- 

## Digital Safety Practices:

### 1. Strong Passwords

Use unique and strong passwords for accounts.

### 2. Privacy Settings

Adjust settings to control who can view posts and personal information.

### 3. Avoid Sharing Personal Information

Do not share sensitive details like address, phone number, etc.

### 4. Beware of Fake Accounts

Avoid interacting with unknown or suspicious profiles.

### 5. Two-Factor Authentication

Enable extra security for login.

### 6. Report and Block

Report inappropriate content and block harmful users.

---

## Advantages:

- Global connectivity
  - Quick information sharing
  - Platform for creativity and expression
  - Useful for education and business
-

## **Limitations:**

- Privacy risks
  - Addiction and time wastage
  - Spread of misinformation
  - Cyberbullying
- 

## **Applications:**

- Communication and networking
  - Marketing and advertising
  - News and information sharing
  - Online learning and awareness
- 

## **Observation:**

- Social media platforms are user-friendly and interactive.
  - Each platform has unique features.
  - Privacy settings help protect user data.
  - Digital safety practices are important for secure usage.
- 

## **Result:**

Different social media platforms were explored successfully, and their features, benefits, and safety practices were analyzed.

---

## **Conclusion:**

Social media applications are powerful tools for communication and information sharing. However, they must be used responsibly by following proper digital safety practices to avoid risks and ensure a secure online experience.

---