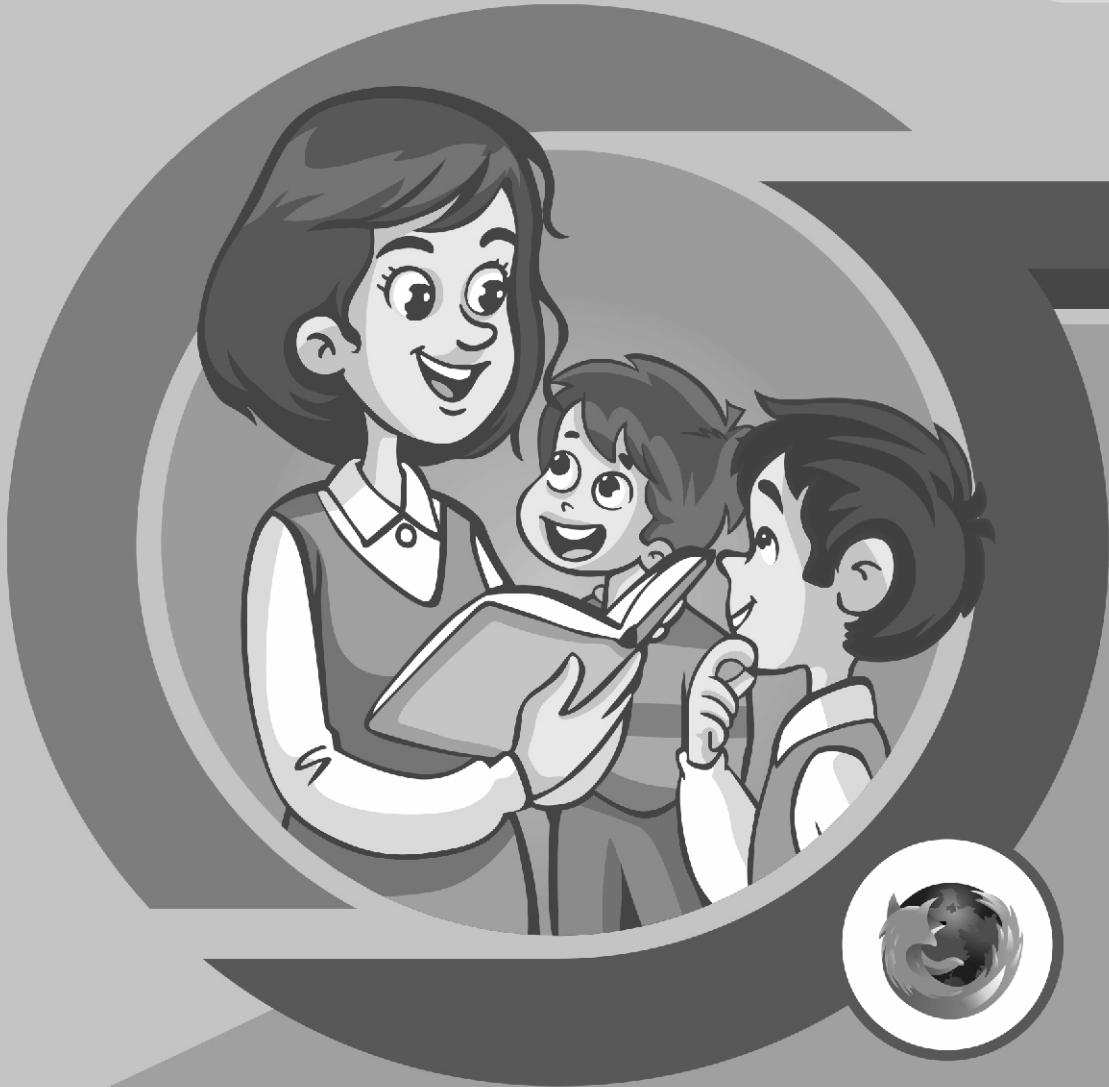




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# TECHIE TOTS TEACHER'S HANDBOOK



Dear Sir / Madam,

Welcome to the Teacher's Handbook for "Techie Tots" – an innovative IT textbook designed to equip students from Grades 1 to 8 with essential digital literacy skills. This handbook is designed to support teachers in delivering engaging and effective IT instruction by providing:

- Clear learning objectives for each grade level.
- Curriculum-aligned lesson plans and activities.
- Assessment strategies to measure student progress.
- Tips for integrating technology into classroom instruction.
- Access to our Learning Management System (LMS) platform.

We understand that each classroom is unique, and the resources provided in this handbook can be adapted to meet the specific needs of your students and school environment. By fostering curiosity, creativity, and critical thinking skills, we aim to empower students to become confident users and creators of technology.

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Jaffer Khan Colony Road, Kozhikode, Kerala, India-673004  
www.edufypublications.com, edufypublishers@gmail.com  
Tel: +918086511165

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# TECHIE TOTS

## SCHEME OF EXAMINATION

### TWO TERM SCHEME

<b>BOOKS</b>	<b>TERM I</b>	<b>TERM II</b>
<b>BOOK 8</b>	<b>LESSONS</b> 1, 2, 3,4	<b>LESSONS</b> 5, 6,7,8

### THREE TERM SCHEME

<b>BOOKS</b>	<b>TERM I</b>	<b>TERM II</b>	<b>TERM III</b>
<b>BOOK 8</b>	<b>LESSONS</b> 1, 2, 3	<b>LESSONS</b> 4, 5, 6	<b>LESSONS</b> 7, 8

Note: Questions for each terminal examination cover only the portions prescribed for it.

**General Objectives:**

- To introduce students to the concept of hacking and its various forms.
- To raise awareness about the ethical implications of hacking activities.
- To familiarize students with the potential consequences of cyberattacks.
- To explore the importance and applications of ethical hacking in cyber security.
- To understand the different types of hackers and their motivations.

**Learning Outcomes:**

- Students can define computer hacking and identify different types of hacking activities.
- Students can recognize the ethical implications of hacking and differentiate between ethical and unethical hacking practices.
- Students can describe the potential consequences of cyberattacks on individuals, organizations, and nations.
- Students can explain the concept of ethical hacking and its role in testing and improving cyber security measures.
- Students can identify various types of hackers based on their intentions and methods.

**Methodology:**

**Aim:** To provide students with a comprehensive understanding of hacking, including its types, ethical considerations, consequences, and the importance of ethical hacking in cyber security.

**Strategy:** Begin the lesson by defining hacking and providing examples of different types of hacking activities, such as malware attacks, phishing, and ethical hacking. Engage students in discussions about the ethical implications of hacking and its impact on privacy, security, and society. Utilize real-life case studies or examples to illustrate the consequences of cyberattacks and the importance of cybersecurity measures. Introduce the concept of ethical hacking and its role in identifying and addressing security vulnerabilities.

**Expected Skills achieved by the learners:** Critical Thinking, Ethical Awareness & Communication skills.

**Lesson Activities:****A Fill in the blanks**

1. Hacker
2. Blue Hat Hackers
3. Malware
4. White Hat Hackers
5. MitMA - Man in the Middle Attack

**B Multiple choice questions**

1. Cyber attack
2. Hackivist
3. Script kiddie
4. Brute force attack

## C Answer the following

1. Ethical hacking involves finding weaknesses in a computer or network system for testing purpose and finally getting them fixed.
2. a) Data Breaches    b) Financial Losses    c) Service Disruption
3. Malware Attacks: Malicious software, also known as malware, that infects a system and spreads without the user's knowledge or consent, damaging files, stealing data, or gaining unauthorized access.

Ransomware Attacks: Ransomware is an advanced form of malware that encrypts the victim's data and demands a ransom payment to effectively release and restore access to the files or system.

Phishing Attacks: Phishing is the fraudulent attempt to capture sensitive information (such as passwords, login credentials, or financial data) by pretending to be a legitimate or trustworthy entity via email, phone, or website.

4. A person doing something illegal with a computer belonging to someone else without asking for permission from the owner is called a hacker.
5. a) White Hat Hackers      b) Black Hat Hackers      c) Grey Hat Hackers

TT-8

2

## DYNAMIC WEB PAGE IN HTML 5

### General Objectives:

- To introduce students to the concept of dynamic web pages.
- To familiarize students with embedding audio, video, and frames in HTML 5.
- To provide students with basic skills in JavaScript for creating interactive web pages.

### Learning Outcomes:

- Students can embed audio and video elements into HTML documents.
- Students can create dynamic web pages using JavaScript.
- Students can utilize input and output functionalities in JavaScript.
- Students can understand the concept and implementation of frames in HTML.

### Methodology:

**Aim:** To engage students in hands-on activities to explore and understand the concepts of embedding multimedia elements and frames in web pages, as well as to introduce them to JavaScript for enhancing web page interactivity.

**Strategy:** Begin the lesson with an interactive lecture explaining the importance of multimedia elements and frames in web design, and introduce the basic syntax and usage of <audio>, <video>, and <frame> tags. Demonstrate how to embed audio, video, and frames in an HTML document using code examples. Provide students with exercises to practice embedding audio, video, and

frames in HTML documents. Encourage experimentation with different attributes and settings.

**Expected Skills achieved by the learners:** Cognitive Skills, Creative skills and Practical skills.

**Lesson Activities:**

**A Fill in the blanks**

1. Brendan Eich
2. text based programming
3. Src
4. Frames
5. expression

**B Multiple choice questions**

1. JavaScript
2. ALIGN=TOP
3. <Script>
4. //

**C Write T for True and F for False**

1. F
2. T
3. T
4. T
5. F
6. F

**D Answer the following**

1. JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive and Dynamic.
2. The programming instructions written in a program in a JavaScript are known as statements, and a collection of statements is called a script or a program.
3. Src, Align, Hspace, Vspace and Width.
4. JavaScript is used as both- client side and server- side application.  
JavaScript gives the user enhanced control over the browser.  
It is used with HTML code and run on web browsers.  
JavaScript is an interpreter based scripting language.  
JavaScript is case sensitive.
5. Operators are used to perform specific mathematical and logical computations on operands. In other words, we can say that an operator operates the operands. In JavaScript operators are used to compare values, perform arithmetic operations etc.  
There are various operators supported by JavaScript. Some of the examples of operators are +(Addition), -(Subtraction), \*(Multiplication), /( Division) etc.
6. Hspace: This attribute specifies the horizontal space around the image. That means hspace attribute is used to leave a fixed space on left and right side of an image.  
<IMG SRC="F:\dance.jpeg" HSPACE=20>  
Vspace: This attribute specifies the vertical space around the image. That means, vspace attribute is used to leave a fixed space on top and bottom side of an image.  
<IMG SRC="F:\dance.jpeg" VSPACE=25 HSPACE=20 >

## Assessment 1

(Based on chapters 1 and 2)

**A Fill in the blanks**

1. White hat
2. Hspace
3. Brendan Eich.
4. Malicious software also known as ..... ans) Malware

**B Write T for True and F for False**

1. T
2. T
3. F

**C Multiple choice question**

1. JavaScript
2. <Script>

**D Answer the following questions**

1. JavaScript is used as both- client side and server- side application.

JavaScript gives the user enhanced control over the browser.

It is used with HTML code and run on web browsers.

JavaScript is an interpreter based scripting language.

JavaScript is case sensitive.

2. Malware Attacks: Malicious software, also known as malware, that infects a system and spreads without the user's knowledge or consent, damaging files, stealing data, or gaining unauthorized access.

Ransomware Attacks: Ransomware is an advanced form of malware that encrypts the victim's data and demands a ransom payment to effectively release and restore access to the files or system.

Phishing Attacks: Phishing is the fraudulent attempt to capture sensitive information (such as passwords, login credentials, or financial data) by pretending to be a legitimate or trustworthy entity via email, phone, or website.

3. Src, Align, Hspace, Vspace and Width.

**TT-8**

**3**

**ADOBE PHOTOSHOP CC 2014**

**General Objectives:**

- Familiarize students with Adobe Photoshop CC 2014 and its features.
- Introduce students to the Photoshop workspace and its components.
- Enable students to understand the basics of setting up documents and saving files in Photoshop.
- Introduce students to various selection tools and their functionalities.
- Provide students with an overview of essential Photoshop tools for image editing and creation.



• **Learning Outcomes:**

- Students can understand the basic functions and features of Adobe Photoshop CC 2014.
- Students can navigate and identify key components of the Photoshop workspace.
- Students can recognize and utilize various tools available in Photoshop for image editing and creation.
- Students can demonstrate the ability to set up documents correctly and save files using appropriate file formats.
- Students can utilize selection tools effectively to select and manipulate portions of an image.
- Students can apply basic editing techniques using tools such as the Brush Tool, Eraser Tool, and Type Tool.

**Methodology:**

**Aim:** To introduce students to Adobe Photoshop CC 2014 and its fundamental tools and features.

**Strategy:** Begin the lesson by providing an overview of Adobe Photoshop CC 2014 and its significance in image editing and creation. Demonstrate the process of starting Adobe Photoshop CC 2014, navigating the workspace, and identifying key components such as the Document Window, Panels, Menu Bar, and Tools Panel/Option Bar. Introduce students to setting up documents and saving files in Photoshop, emphasizing the importance of proper planning and file formats. Discuss various selection tools available in Photoshop, including Marquee Tools, Lasso Tools, Quick Selection Tool, Magic Wand Tool, and Crop Tool, and demonstrate their usage through practical examples.

**Expected Skills achieved by the learners:** Digital Literacy, Creativity Skills, Critical Thinking and Problem-Solving Skills.

**Lesson Activities:**

**A Fill in the blanks**

1. Thomas and John Knoll    2. Tools    3. Lasso    4. Selection    5. Wrapping

**B Multiple choice questions**

1. Marquee    2. Type    3. psd    4. Ctrl+D

**C State T for True and F for False**

1. F    2. F    3. T    4. F

**D Identify the following tools**

1. Type tool    2. Move tool    3. Brush tool    4. Pen tool

## E Answer the Following

1. A user-friendly interface, Advanced image adjustments, Edit motion based material, Produce multiple or complex images and Create graphics with reduced file size.
2. Marquee Tools, Lasso Tools, Quick Selection Tool, Magic Wand Tool and Crop Tool.
3. Option bar provides options related to the tool currently selected in the Tools panel. For example, to choose the thickness of the Brush Tool selected in the Tools panel, we use the Options bar.
4. Rectangle Marquee Tool, Elliptical Marquee Tool, Single Row Marquee Tool and Single Column Marquee Tool.

TT-8

4

**MORE ON ADOBE PHOTOSHOP CC 2014**

### General Objectives:

- Introduce students to additional tools available in Adobe Photoshop for image editing.
- Provide an understanding of the concept of layers and their significance in image composition.

### Learning Outcomes:

- Students can identify and explain the functions of various tools in Adobe Photoshop, such as the Spot Healing Brush, Clone Stamp, Art History Brush, Gradient Tool, Blur Tool, Sharpen Tool, Smudge Tool, Dodge Tool, Burn Tool, Sponge Tool, Hand Tool, Magnify Tool, and Colour Replacement Tool.
- Students can demonstrate proficiency in using these tools to manipulate and enhance images effectively.
- Students can describe the purpose and utility of layers in Photoshop and understand how to create, manipulate, and organize them to compose images.

### Methodology:

**Aim:** To deepen students' understanding of image editing tools in Adobe Photoshop and introduce them to the concept of layers.

**Strategy:** Begin the lesson by revisiting the previous chapter on image editing features and tools in Adobe Photoshop. Introduce new tools such as the Spot Healing Brush, Clone Stamp, Art History Brush, Gradient Tool, etc., explaining their functions and demonstrating their usage through practical examples. Provide hands-on practice opportunities for students to use these tools on sample images or projects. Transition to the concept of layers, explaining their importance in image composition and demonstrating how to create, manipulate, and organize layers effectively.

**Expected Skills achieved by the learners:** Digital Literacy, Creativity Skills, Critical Thinking and Problem-solving Skills.

### Lesson Activities:

#### A Fill in the blanks

1. Blur
2. Art History Brush Tool
3. Lasso
4. Sharpen Tool

**B Write T for True and F for False**

1. F 2. T 3. F 4. T 5.

**C Identify the following tools**

1. Dodge Tool 2. Magic Wand tool 3. Hand Tool 4. Crop Tool  
5. Art History Brush Tool 6. Colour Replacement Tool

**D Find the following abbreviations**

1. Photoshop Document 2. Joint Photographic Experts Group  
3. Graphics Interchange Formats 4. Cyan Magenta Yellow and Key  
5. Red Green Blue 6. Tag Image File Format

**E Answer the Following**

1. Smudge tool is used to smear the paint on the canvas. It gives an effect of finger painting. Dodge tool is used to lighten dark areas of the image.
2. Layers are the transparent sheets that can hold objects and are stacked or moved to create the image composition.
3. Step 1: Open an image of a scenery.  
Step 2: Select the Gradient tool from the Toolbox.  
Step 3: Double click on the Gradient Sample box in the Options bar. The Gradient Editor dialog box appears.  
Step 4: Select a Preset gradient fill or create a New gradient fill in the Gradient Editor dialog box.  
Step 5: Click on OK to close.  
Step 6: Choose an appropriate gradient type in the Options bar.

**Semester - 1**

**(Based on chapters 1, 2, 3 and 4 )**

**A Fill in the blanks**

1. Malwarer 2. Selection 3. Text based programming  
4. Sharpen Tool 5. Wrapping text 6. Grey hat hackers

**B Multiple choice questions**

1. Marquee 2. Type 3. Ctrl + D 4. Cyberattack

**C Identify the following tools**

1. Dodge tool 2. Magic tool 3. Type tool 4. Crop tool  
5. Art history brush tool 6. Pen tool

**D Write T for True and F for False**

1. F 2. F 3. T 4. F

**E Answer the following**

1. Step 1: Open an image of a scenery.  
Step 2: Select the Gradient tool from the Toolbox.

Step 3: Double click on the Gradient Sample box in the Options bar. The Gradient Editor dialog box appears.

Step 4: Select a Preset gradient fill or create a New gradient fill in the Gradient Editor dialog box.

Step 5: Click on OK to close.

Step 6: Choose an appropriate gradient type in the Options bar.

2. JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive and Dynamic.
3. Layers are the transparent sheets that can hold objects and are stacked or moved to create the image composition.
4. This tool allows you to duplicate the parts of an image by taking the sample image and apply over another image or a part of the same image.
5. Rectangle Marquee Tool, Elliptical Marquee Tool, Single Row Marquee Tool and Single Column Marquee Tool.
6. a) White Hat Hackers      b) Black Hat Hackers      c) Grey Hat Hackers

**General Objectives:**

- To familiarize students with the latest cyber trends including E-commerce, Blockchain, Artificial Intelligence, Augmented Reality, Virtual Reality, 3D Printing, and Robotic Process Automation.
- To provide an understanding of the applications and significance of these technologies in various fields.
- To equip students with the knowledge necessary to adapt to and thrive in a technology-driven world.

**Learning Outcomes:**

- Students can identify and explain the concepts of E-commerce, Blockchain, Artificial Intelligence, Augmented Reality, Virtual Reality, 3D Printing, and Robotic Process Automation.
- Students can describe the different types and models of E-commerce businesses.
- Students can analyse the applications and benefits of E-commerce, Electronic Fund Transfer, Blockchain, AI, AR, VR, 3D Printing, and RPA in different sectors.
- Students can discuss the potential risks and challenges associated with these technologies.
- Students can appreciate the importance of these technologies in shaping the future of various industries.

**Methodology:**

**Aim:** To engage students actively in learning about cyber trends through a combination of theoretical knowledge, practical examples, and interactive discussions.

**Strategy:** Introduce each cyber trend with a brief explanation and real-life examples. Use

multimedia presentations, videos, and case studies to illustrate the applications and significance of each technology. Encourage active participation through group discussions, brainstorming sessions, and problem-solving activities related to each topic.

**Expected Skills achieved by the learners:** Cognitive Skills & Communication skills.

**Lesson Activities:**

**A Fill in the blanks**

1. M-Commerce      2. Robotics      3. Virtual      4. E-commerce

**B Multiple choice questions**

1. 3D printing      2. Prospector      3. 5G      4. 3D printing      5. Mixed Reality

**C Match the following**

1. NLP      2. Bio-printing      3. E-shopping      4. Chatbot      5. E-cash

**D Answer the following**

1. AI is the branch of computer science that aims at creating expert and intelligent computer systems which stimulates certain human qualities such as learning, reasoning, communicating, seeing, hearing and sensation.
2. IoT is a network in which all physical objects are connected to the internet through network devices or routers and exchange data. IoT allows objects to be controlled remotely across existing network infrastructure. IoT is a very good and intelligent technique which reduces human effort as well as easy access to physical devices.
3. Blockchain refers to the system of recording information which makes it difficult or impossible to change, hack or cheat the system. This record of every transaction is updated and added to the participant's ledger.
4. E-commerce is the buying and selling of goods and services, or the transmission of funds or data, over an electronic network, primarily the Internet.
5. Augmented reality (AR) is an enhanced version of the real physical world that is achieved through the use of digital visual elements, sound or other sensory stimuli and delivered via technology. Images are created by developers within applications that blend in with content in the real world.  
Virtual Reality (VR) is a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings.
6. Education, Prototyping and Manufacturing, Medicine, Construction, Automotive and Art and Jewellery.
7. RPA is the technology used for software tools that automate human tasks, which are manual, rule-based or repetitive. Typically, it is like a bot that performs such tasks at a much higher rate than a human alone.
8. This type of software comprises of camera and connections between the patterns stored

in the database and the perceived patterns. Facial recognition software, video surveillance cameras, fingerprint identification and automatic voice recognition software are some examples of pattern recognition software.

**General Objectives:**

- To understand the concept of databases and database management systems (DBMS).
- To comprehend the importance and advantages of using a DBMS.
- To learn about SQL and its role in managing data within a database.
- To explore the structure of a relational database and its components.
- To gain practical skills in creating, modifying, and retrieving data from a database.

**Learning Outcomes:**

- Students can define what a database and a DBMS are and explain their significance.
- Students can enumerate the advantages of using a DBMS over traditional file systems.
- Students can identify common examples of relational database management systems (RDBMS).
- Students can describe the structure of a database and understand the hierarchy of data organization within it.
- Students can demonstrate the ability to create and modify tables in a relational database using SQL.
- Students can retrieve data from a database using SQL queries.
- Students can understand the concepts of primary keys, foreign keys, and alternate keys in the context of RDBMS.
- Students can explain the importance of data integrity and security in database management.
- Students can discuss the role of SQL as a standard language for managing relational databases.

**Methodology:**

**Aim:** To introduce students to the fundamentals of databases, DBMS, and SQL, enabling them to understand the importance of efficient data management in various domains.

**Strategy:** Begin the lesson by engaging students with real-world examples of organizations utilizing databases for data management. Use interactive discussions to elucidate the concept of databases, emphasizing their organization and management through DBMS. Introduce SQL through practical examples and demonstrations, allowing students to create and manipulate databases using SQL commands. Employ hands-on exercises and group activities to reinforce learning and encourage active participation. Provide opportunities for students to apply their knowledge by solving database-related problems.

**Expected Skills achieved by the learners:** Practical skills, Critical Thinking skills and Communication Skills.

**Lesson Activities:****A Fill in the blanks**

1. Data
2. Database
3. Redundancy or duplication
4. Tables
5. Row

## **B Multiple Choice Questions**

1. Attribute
2. Candidate key
3. Foreign
4. data definition language
5. SQL INSERT

## **C State whether true or false**

1. T
2. F
3. T
4. F
5. T

## **D Answer the following**

1. Database Management System is a software program that enables you to create, modify and extract data from a database. DBMS allows user and other software to store and retrieve data in a structure way.

2. Candidate Key: The minimal set of attributes that can uniquely identify a tuple is known as a candidate key. In the following example, the ID, Roll Number, and mail ID column has he candidate key meaning records of these columns do not have any duplicate value and it can be used to identify data of the table.

Primary Key: There can be more than one candidate key in relation out of which one can be chosen as the primary key. In the following example, the ID column has the primary key meaning records of the ID column do not have any duplicate value and it can be used to identify data of the table.

3. a. The basic use of SQL for data professionals and SQL users is to insert, update, and delete the data from the relational database.

b. SQL allows the data professionals and users to retrieve the data from the relational database management systems.

c. It also helps them to describe the structured data.

4. The syntax is as follows:

```
CREATE DATABASE database_name;
```

In this syntax, database\_name specifies the name of the database which we want to create in the system. We have to type the database name in query just after the 'Create Database' keyword. Following are the most important points which are required to learn while creating a database:

The database we want to create should be a simple and unique name, which can be easily identified.

Database name should be no more than 128 characters.

5. INT(size) or INTEGER(size) : A normal-sized integer that can be signed or unsigned.

If signed, the allowable range is from -2147483648 to 2147483647. If unsigned, the allowable range is from 0 to 4294967295. You can specify a width of up to 11 digits.

DECIMAL(size, d) or DEC(size, d): It is used to specify a fixed point number. Its size parameter is specified by d parameter. The maximum value for the size is 65, and the default value is 10. The maximum value for d is 30, and the default value is 0.

6. CHAR(size): A fixed length string which can have letters, numbers, and special characters. The size parameter specifies the column length in characters which can vary from 0 to 255. Default size is 1  
 VARCHAR(size): A variable length string which can contain letters, numbers, and special characters. The size parameter specifies the maximum string length in characters which can vary from 0 to 65535.
7. SQL SELECT Statement is used to fetch the data from a database table which returns this data in the form of a table. These tables are called result-sets. The basic syntax of the SELECT Query is as follows  
 SELECT column1, column2, columnN FROM table\_name;
8. Save Time: Instead of searching through the endless files of paper work, a database locates information with the help of a simple query.  
 Save Money: Small business groups always look for cost cutting methods without compromising on quality.  
 Avoid Data Redundancy: Redundancy or Duplication of data is reduced in a database as you can arrange the data in a particular order.  
 Data Security: File cabinets are not safe as they can be stolen, accidentally destroyed or lost.  
 Data Integrity: Data integrity means that the data is accurate and consistent in the database. Data Integrity is very important as there are multiple databases in a DBMS.

## **Assessment - 2**

**(Based on chapters 5 and 6)**

**A Fill in the blanks**

1. Table      2. Prospector      3. RPA      4. Tuple      5. M-commerce

**B Write T for True and F for False**

1. T      2. F      3. F      4. T

**C Multiple choice questions**

1. 3D painting      2. foreign      3. Mixed Reality

**D Answer the following**

1. To create a database in MySQL, we use the CREATE DATABASE command. The syntax is : CREATE DATABASE database\_name;  
 In this syntax database\_name specifies the name of database.
2. E-commerce is the buying and selling of goods and services, or the transmission of funds or data, over an electronic network, primarily the Internet.
3. RPA is the technology used for software tools that automate human tasks, which are manual, rule-based or repetitive. Typically, it is like a bot that performs such tasks at a much higher rate than a human alone.



**General Objectives:**

- To introduce students to control structures in Python.
- To familiarize students with sequential, selection, and iterative statements.
- To enable students to understand how control structures influence the flow of program execution.

**Learning Outcomes:**

- Students can understand the concept of control structures in Python.
- Students can differentiate between sequential, selection, and iterative statements.
- Students can implement sequential statements to execute code in a specific order.
- Students can utilize selection statements such as if, elif, and else to make decisions based on conditions.
- Students can employ iterative statements like while and for loops to execute code repeatedly.
- Students can classify control structures based on their functionality.

**Methodology:**

**Aim:** To equip students with the knowledge and skills to effectively use control structures in Python programming.

**Strategy:** Start with an overview of control structures and their significance in programming. Provide examples to illustrate sequential, selection, and iterative statements. Engage students in interactive coding exercises to practice implementing control structures. Encourage collaborative learning through group discussions and peer-to-peer teaching.

**Expected Skills achieved by the learners:** Problem Solving, Computational Thinking and Creativity Skills.

**Lesson Activities:****A Fill in the blank**

1. While      2. Continue      3. [10,5]      4. if condition: Statement  
5. [3,4,5,6,7,8,9]      6. Pass      7. Break

**B Write T for True and F for False**

1. F    2. T    3. F    4. F    5.F    6.T    7. T    8. F

**C Match the following**

1. Range()    2. While    3. Continue    4. If-elif-else    5. Pass

**D Multiple choice questions**

1. Traversal    2. if x>n: y=x    3. Comment    4. Jump    5. for

## E Answer the following

1. Control structures that serve to specify what has to be done by our program, when and under which circumstances. Conditional structure, Iteration statement and Sequential statement are the different type of control structure in python.
2. The for loop in Python is used to iterate over a sequence (list, tuple, string) or other iterable objects. Suppose the sequence is a list [11,22,33,44,55,66], then code to iterate through the list can be written as:

```
>>> for i in [11,22,33,44,55,66]:  
    print(i)
```

In the first iteration value 11 from the list is assigned to the variable **i**, then the statement inside body of the loop is executed. This completes the first iteration of the loop. In the second iteration next value from the list, i.e 22 is assigned to the variable **i**, then again statements inside the body of the loop is executed again. The same process repeats for next values. The loop terminates when the last value, i.e 66 from the list is assigned to variable **i** and loop body is executed.

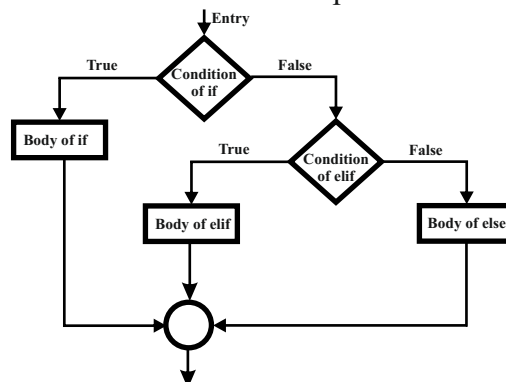
3. The general form of if statement is

if condition:

statements(s)

For example: Consider the total marks obtain by student in an examination. Here the program tests whether the total mark is less than 210, if so it print the statement 'Student Failed'. if total mark<210: print("Student Failed")

4. If the condition for if is False, it checks the condition of the next elif block and so on. If all the conditions are False, body of else is executed. Only one block among the several if...elif...else blocks are executed according to the condition. The if block can have only one else block. But it can have multiple elif blocks.



5. Continue statement is used to skip the rest of the code inside the a loop for the current iteration only. Loop does not terminate but continues on with the next iteration.

for val in "str":	<b>Output</b>
if val == "n":	s
continue	t
print(val)	r
print("The end")	The end

6. The simplest of looping structures in python is while loop statement. The while statement is used to carry out looping operation in which a group of statements are executed repeatedly until some condition has been satisfied.

While test condition:

Body of loop

Here the condition is evaluated first and if it is true, the body of the loop is executed. After the execution, the text condition is again evaluated and if it is true the body of the loop is executed once again. This process continues until the text conditions become false. On exit the program continues with the statement immediately after the body of the loop.

7. Jump statements perform an immediate local transfer of control. It transfer control unconditionally.

**General Objectives:**

- Understand the categories and domains of Artificial Intelligence.
- Recognize the capabilities and limitations of different types of Artificial Intelligence.
- Explore the potential risks and barriers associated with the adoption of Artificial Intelligence technologies.

**Learning Outcomes:**

- Students can define and differentiate between Narrow AI, General AI, and Super AI.
- Students can identify examples of Narrow AI, General AI, and Super AI in real-world applications.
- Students can explain the advantages and disadvantages of each category of Artificial Intelligence.
- Students can discuss the potential risks and barriers associated with the widespread adoption of Artificial Intelligence technologies.

## Methodology:

**Aim:** To provide students with a comprehensive understanding of the categories and domains of Artificial Intelligence and to facilitate critical thinking about the implications of AI adoption.

**Strategy:** The lesson will be delivered through a combination of lecture-style presentations, interactive discussions, and multimedia resources. Real-world examples and case studies will be used to illustrate key concepts and engage students in active learning.

**Expected Skills achieved by the learners:** Problem-solving skills, Communication skills and Critical Thinking Skills.

## Lesson Activities:

### A Fill in the blanks

1. Chess game software
2. inter connected
3. AI
4. three types
5. the computer vision
6. Semi-structured data
7. Natural Language Processing

### B Write T for True and F for False

1. F
2. T
3. T
4. T
5. F
6. T

### C Multiple choice questions

1. Super AI
2. Google Duplex
3. High cost
4. Computer vision

### D Write the difference between the following

General AI is perform like human.

Super AI is intelligent than human.

### E Match the following

1. Google Duplex
2. Autonomous car
3. Computer vision
4. Better than humans

### F Fill the Crossword

1. Structured
2. Autonomous
3. Data
4. Computer
5. General

### G Answer the following

1. It is goal-oriented, designed to perform a specific task it is programmed to do. A chess game software is an example of Narrow AI, meaning it can only do what it is designed to do.

2. Data is like the raw material businesses use to make decisions and improve performance. Without data, businesses would not know how well they are doing or what customers want.

3. Reduction in Human Error

Takes Risk, Available 24x7

Helping in Repetitive Jobs

4. a. Acquiring Images
  - b. Processing Images
  - c. Analyzing Images
  - d. Understanding Images
5. High cost, Making humans lazy, Unemployment, No emotions and Lacking out of the box thinking.
6. Structured data, Unstructured data and Semi-structured data.

## Semester - 2

(Based on chapters 5,6,7 and 8 )

### A Fill in the blanks

1. while      2. Shakey      3.      4. Row
5. Natural Language Processing      6. [3,4,5,6,7,8,9]

### B Write T for True and F for False

1. T    2. F    3.T    4. F    5. F    6. T

### C Multiple choice questions

1. 5G      2. Candidate key      3. Google Duplex      4. 3D printing

### D Answer the following

1. Candidate Key: The minimal set of attributes that can uniquely identify a tuple is known as a candidate key. In the following example, the ID, Roll Number, and mail ID column has he candidate key meaning records of these columns do not have any duplicate value and it can be used to identify data of the table.  
 Primary Key: There can be more than one candidate key in relation out of which one can be chosen as the primary key. In the following example, the ID column has the primary key meaning records of the ID column do not have any duplicate value and it can be used to identify data of the table.
2. RPA is the technology used for software tools that automate human tasks, which are manual, rule-based or repetitive. Typically, it is like a bot that performs such tasks at a much higher rate than a human alone.
3. The for loop in Python is used to iterate over a sequence (list, tuple, string) or other iterable objects. Suppose the sequence is a list [11,22,33,44,55,66], then code to iterate through the list can be written as:

```
>>> for i in [11,22,33,44,55,66]:
print(I)
```

In the first iteration value 11 from the list is assigned to the variable *i*, then the statement inside body of the loop is executed. This completes the first iteration of the loop. In the second iteration next value from the list, i.e 22 is assigned to the variable *i*, then again statements inside the body of the loop is executed again. The same process repeats for next values. The loop terminates when the last value, i.e 66 from the list is assigned to variable *i* and loop body is executed.

4. Reduction in Human Error, Takes Risk, Available 24x7, Helping in Repetitive Jobs and Faster Decisions.
5.
  - a. Acquiring Images
  - b. Processing Images
  - c. Analyzing Images
  - d. Understanding Images
6. Blockchain refers to the system of recording information which makes it difficult or impossible to change, hack or cheat the system. This record of every transaction is updated and added to the participant's ledger.