BUDHA DAL PUBLIC SCHOOL, PATIALA

LESSON PLAN (SESSION 2023-2024)

CLASS –XII (SUBJECT – INFORMATICS PRACTICES) Subject Code-065

A lesson plan is the instructor's road map which specifies what students needs to learn and how it can be done effectively during the class time. A lesson plan helps teachers in the classroom by providing a detailed outline to follow in each class. A lesson plan addresses and integrates three key components:

- **Learning objectives**
- **Learning activities**
- **Assessment to check the student's understanding A lesson plan provides an outline of the teaching goals**

1. **Identify the learning objectives.**
2. **Plan the lesson in an engaging and meaningful manner**
3. **Plan to assess student's understanding.**
4. **Plan for a lesson closure.**

AIDS/ INNOVATIVE METHODS

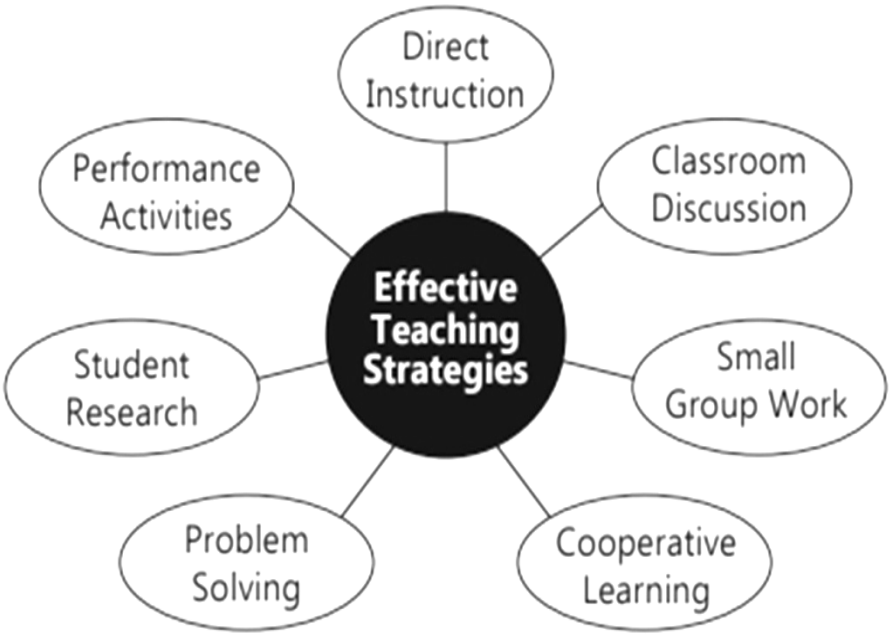
Smart class, Black Board, E-book, Text book

PROCEDURE

The text in the chapter will be read turn wise by the students. Important terms will be written in notebook.

CO-SCHOLASTIC ACTIVITY

Teacher will ensure active participation of the students by providing lab assignment.



Books

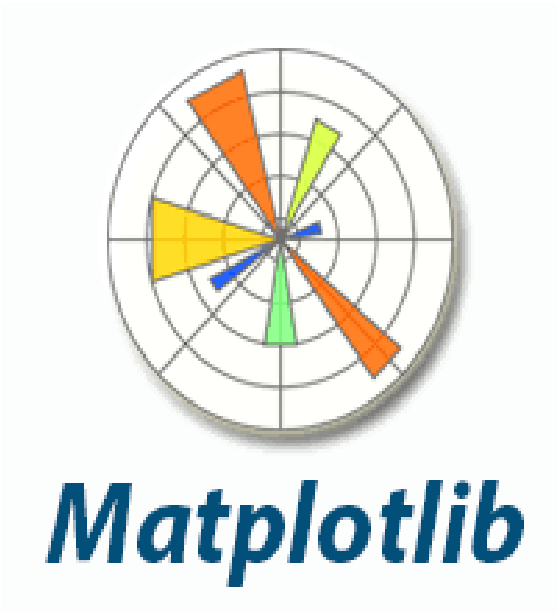
(i) **NCERT Informatics Practices - Text book for class - XII**
(ii) **Informatics Practices for Class XI (By Preeti Arora)**

UNIT 1: Data Handling using Pandas –Series **Month :- April**

Experiential Learning:-

Introduction to Python libraries- Pandas, Matplotlib. Data structures in Pandas - **Series and Data Frames. Series**: Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing.

Data Frames: Creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions;



LEARNING OBJECTIVES

Understands the basic concepts of python programming using pandas data structure like series and data frames Knows uses of various programming syntax Identifies type of programming paradigm Applies the concept practically

Practical Activity:-

Series Programs:-

Creation of Series from – ndarray, dictionary, scalar value; mathematical operations; Head and Tail functions; Selection, Indexing and Slicing.

Data Frames:-

Data Frames: creation - from dictionary of Series, list of dictionaries, Text/CSV files; display; iteration; Operations on rows and columns: add, select, delete, rename; Head and Tail functions; Indexing using Labels, Boolean Indexing; Importing/Exporting Data between CSV files and Data Frames.

Use of E-Content

E-book, PowerPoint Presentation, Explanation of topic on Projector Videos Explanation.

Question During Chapter Explanation:

Q1. Acronym for CSV is ……..

Q2. What are the advantages of CSV file formats?

Q3. Write a program that reads from a CSV file where the separator character is'$'. Read only the first 5 rows in your dataframe. Give column headings as Item Name, Quantity, Price. Make sure to read the first row as data and not as column headers.

Q4. Write a menu driven program in python to create series and dataframe using numbers.

Q5. WAP to read details such as item, sales made in a dataframe and then store this data in a CSV file.

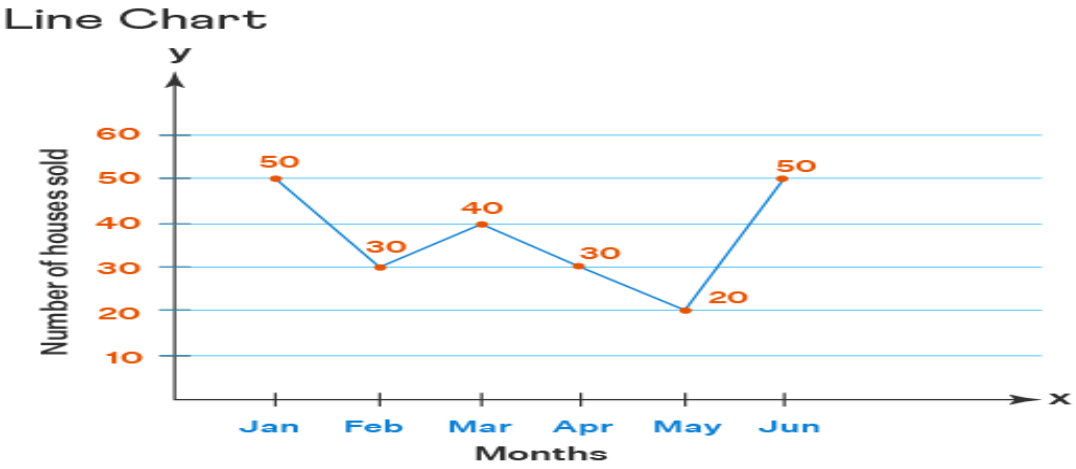
ASSESSMENT STRATEGIES PLANNED

Individual Task, Group Task, Quiz ,Questionnaire ,Demonstration Method, Monthly test

Unit 1 Contd.... Data Visualization **Month :- May & July**

Experiential Learning:-

Plotting with Pyplot I – Bar Graphs and Scatter Plots: Focused Skills -Understanding, Knowledge, Identification, Application: Introduction, Data Visualization, Using Pyplot of Matplotlib Library- installing and importing matplotlib, working with PyPlot Methods. Creating Line Charts Line Chart using plot() function, applying various settings in plot() function. Creating bar charts – Changing widths, colors of the bars in a bar chart, creating multiple bars chart, creating a horizontal bar chart. Customizing the plot – Anatomy of a chart, adding a title, setting X and Y labels, limits and ticks, Adding Legends, Saving a figure.



LEARNING OBJECTIVES

Understands the basic concepts of Data visualization using Matplot library.

Practical Activity:-

Practical of Following Matplotlib – line plot, bar graph,histogram

Use of E-Content

E-book, PowerPoint Presentation, Explanation of topic on Projector
Videos Explanation.

Question During Chapter Explanation:

Important Questions:-
Q. What is data visualization? What is its significance?
Q. What is pyplot? Is it a Python library?
Q. Given an ndarray p as ([1,2,3,4]).
Q. Given two arrays namely arr1 andarr2, each having 5 values.
Q. Create a historam chart so that each data points gets a different color, different size.

ASSESSMENT STRATEGIES PLANNED

Individual Task, Group Task, Quiz ,Questionnaire ,Demonstration Method, Monthly test

Unit 3: Introduction to Computer Networks **Month :- August**

Experiential Learning:-

Focused Skills –Understanding ,Knowledge, Identification, Application: Introduction , Computer Networks components, Types of Networks based on geographical spread, Network devices/ Hardware – WiFi card, Hub, Switch, Bridge, Router, Gateway, Repeater, Modem etc.
Network topology: Star, Bus, Ring, Mesh Introduction to Internet, URL, WWW and its applications- Web, email, Chat, VoIP.
Website: Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website.

Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.

LEARNING OBJECTIVES

Learn terminology related to networking and internet. Identify internet security issues and configure browser settings.

Practical Activity:-

PowerPoint Presentation on Following Topics:-
Types of network: LAN, MAN, WAN.
Network Devices: modem, hub, switch, repeater, router, gateway
Network Topologies: Star, Bus, Tree, Mesh.

Use of E-Content

E-book, PowerPoint Presentation, Explanation of topic on Projector
Videos Explanation.

Question During Chapter Explanation:

Q. What is hub, switch and repeater?

Q. What is network? Why is it needed?

Q. What is Gateway?

Q. Differentiate between hub, switchand router?

Q. What is full form of WWW ,URL,VoIP

Q. Write any 2 advantages of Bustopology.

Q List any 4 web browsers.

Q. Write any 2 advantages of E mail.

ASSESSMENT STRATEGIES PLANNED

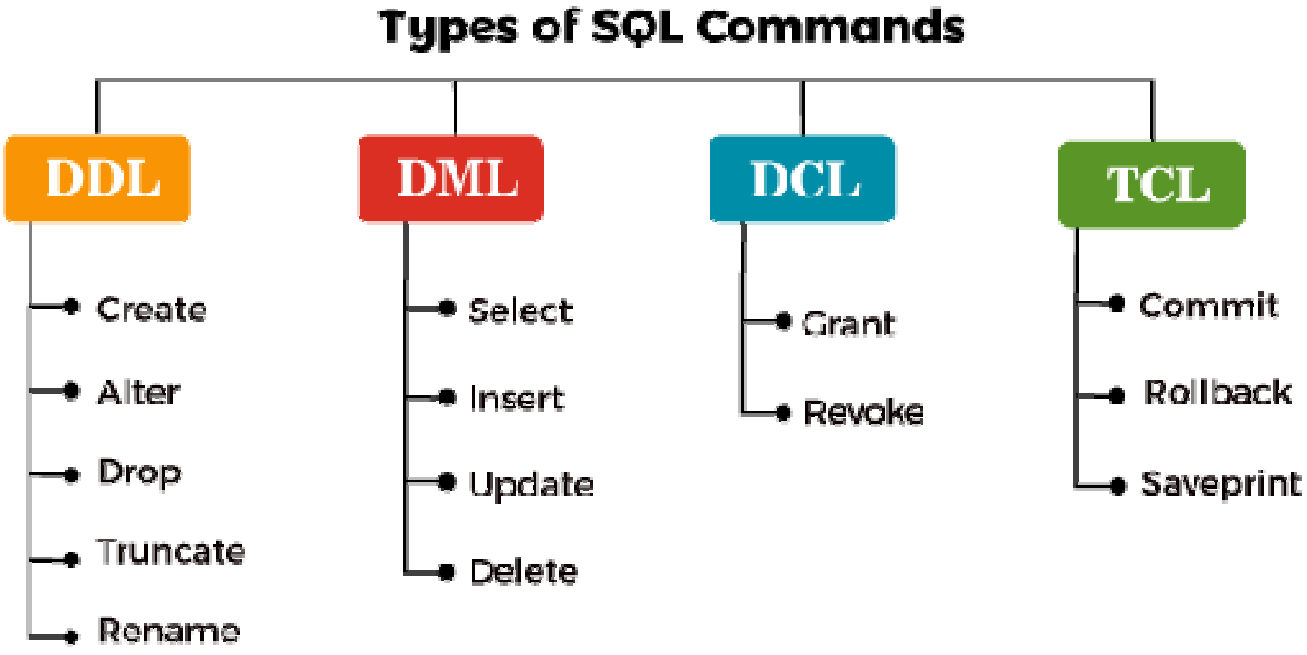
Individual Task, Group Task, Quiz ,Questionnaire ,Demonstration Method, Monthly test

September :- Revision and Mid Term Exams

Unit 2: Database Query using SQL Focused Skills –Understanding Month October

Experiential Learning:-

Knowledge, Identification, Application: Introduction, Relational Data Model, MySQL and SQL, Math functions: POWER (), ROUND (), MOD ().Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR ()/SUBSTR (),LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM(), RTRIM (), TRIM (). Date Functions: NOW (), DATE (), MONTH (),MONTHNAME (), YEAR (), DAY (), DAYNAME (). Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*). Querying and manipulating data using Group by, Having, Order by.



LEARNING OBJECTIVES

Understands the basic concepts of MySQL programming Knows uses of various programming syntax Identifies type of programming paradigm Applies the concept practically

Practical Activity:-

Practical of Following SQL Units

Math functions: POWER (), ROUND (), MOD ().

Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/ SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM ().

Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME
Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*).
Querying and manipulating data using Group by, Having, Order by.

Use of E-Content

E-book, PowerPoint Presentation, Explanation of topic on Projector
Videos Explanation.

Question During Chapter Explanation:

Q. What are the different types of SQL functions?
Q. What is the difference between WHERE and HAVING Clause?
Q. Write a query to display the number of employees with same job.
Q. Write a query that counts the number of salespeople registering orders for each day.
Q. Consider the table named "Garment". Write SQL command
i) to display name of those garments that are available in XL size.
ii) to display codes and names of those garments that have their names starting with ' Ladies

ASSESSMENT STRATEGIES PLANNED

Individual Task, Group Task, Quiz ,Questionnaire ,Demonstration Method, Monthly test

Unit 4: Societal Impacts **Month:-November**

Experiential Learning:-

Focused Skills -Understanding, Knowledge, Identification,
Application: Digital footprint, net and communication etiquettes,
data protection, intellectual property rights (IPR),plagiarism, licensing and copyright, free and open source software (FOSS), cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act. E-waste: hazards and management. Awareness about health concerns related to the usage of technology

LEARNING OBJECTIVES

Practical Activity:-

- Power point Presentation on Following Topics
- Digital footprint,
- net and communication etiquettes,
- data protection,
- intellectual property rights (IPR),
- plagiarism,
  licensing and copyright,
- free and open source software (FOSS),
- cybercrime and cyber laws, hacking,
- phishing,
- cyberbullying,
- overview of Indian IT Act.
  E-waste: hazards and management.
  Awareness about health concerns related to the usage of technology

Use of E-Content

E-book, PowerPoint Presentation, Explanation of topic on Projector
Videos Explanation.

Question During Chapter Explanation:

Q.What is digital footprint?

Q. Explain Communication Etiquettes.

Q. What is Phishing ?

Q. How can we overcome the problem of cybercrime.

Q. What is E-Waste?

ASSESSMENT STRATEGIES PLANNED

Individual Task, Group Task, Quiz ,Questionnaire ,Demonstration Method, Monthly test

Project Work	**December**
Revision & Explanation of Sample Papers Based on Previous years Papers	**January to February**

ANNUAL EXAMINATION	MARCH

Blue Print of Annual Exam 2023-24

Unit No	Unit Name	Marks
1	Data Handling using Pandas and Data Visualization	25
2	Database Query using SQL	25
3	Introduction to Computer Networks	10
4	Societal Impacts	10
	Total Marks (Theory)	70

Subject Teacher :_____ Principal:_____