



INDIAN SCHOOL AL WADI AL KABIR

Class: IX	Department: Computer Science
Holiday Homework	ARTIFICIAL INTELLIGENCE (417) PRACTICE AND PROJECT

Important Instructions

1. All the given activities must be neatly written in the AI Practical Notebook.
2. The work should be started from the middle of the notebook.
3. These activities must be written along with the Portfolio Activities in the same notebook.
4. Maintain proper headings, dates, and index for each activity.
5. Submission Date: **8th January 2025 Thursday**
6. This notebook will be evaluated and considered for internal grading.

CHAPTER: PART B UNIT2 DATA LITERACY

Data Literacy involves knowing how to understand, work with, and talk about data, encompassing the ability to collect, analyse, and show data in meaningful ways.

Activity 1: Visualize and Interpret Student Performance Data

Purpose: To practice data visualization techniques, which makes it easier to extract useful information from datasets and communicate trends and patterns effectively.

Instructions:

1. Use the provided student performance data table below (representing the marks distribution for 50 students across 5 subjects).
2. Copy this data into a digital tool (such as MS Excel) or draw the graphs manually.
3. Create the following three data visualizations based on the table:
 - A **bar graph** showing the marks distribution for all 5 subjects (Math, Physics, Chemistry, Social Science, and Biology),.
 - A **pie chart** showing the marks distribution specifically for **Physics**.
 - A **line chart** displaying the marks distribution specifically for **Chemistry**.
4. After completing the visualizations, write a brief paragraph interpreting the data. Identify which subject had the most students scoring "45 and Above" and which subject had the most students scoring "Less than 20".

Marks Range	Math	Physics	Chemistry	Social Science	Biology
Less than 20	6	3	1	0	0
Between 20-29	14	11	9	15	8
Between 30-40	17	20	21	22	19
Between 41-44	8	10	14	10	16
45 and Above	5	6	5	3	7
Total Students	50	50	50	50	50

Activity 2: Impact of News Articles

Purpose: To help students realize that every data tells a story, but they must be careful before believing the story, enabling them to become data literate individuals who can make informed decisions.

Instructions:

1. Select a **trending news story**.
2. Search and find three different articles or online data sources discussing this news story.
3. For each source, record the following details:
 - Author of the Source
 - Weblink to the Source

- How the situation was described by the Source
 - Key figures (data points) cited in the source
4. After recording the information for all three articles, rank the sources from **most accurate to least accurate**.
5. Write down the reasons for your chosen ranking, determining which sources were reliable or authentic.

CHAPTER PART B UNIT 3: MATH FOR AI (STATISTICS & PROBABILITY)

Math is essential for AI, as AI is a way to recognize patterns, and Math is the study of patterns,. The mathematical concepts of Statistics (exploring data) and Probability (predicting different events) are crucial for understanding AI.

Activity 3: Car Spotting and Tabulating

Purpose: To implement the concept of data collection, analysis, and interpretation, which forms the basis of statistics in AI.

Instructions:

1. Visit the following video link:
https://www.youtube.com/watch?v=4A5L3x3TVuc&ab_channel=CarvingCanyons.
2. While watching the video, collect data on the colour of every car spotted.
3. Use **tally marks** to tabulate the count of cars for the following colours: White, Black, Red, Blue, Grey, and Yellow.
4. Perform **Data Analysis** by answering the following questions:
 - How many cars are spotted in total?
 - Which colour has been spotted the maximum amount of time?
5. Perform **Data Interpretation** by answering this question:
 - What is the most common color choice for the residents of this area?

Activity 4: Probability Scenarios

Purpose: To understand the possibility of occurrence of an event and define terms like likely, unlikely, certain, and impossible events using the ratio of favourable outcomes to the total possible outcomes.

Instructions:

1. **Coin Toss Probability:** If a fair coin is tossed once, state the probability of getting a head (H).
2. **Probability Terminology:** Imagine a bag full of stars where **7 stars are Blue** and **3 stars are Yellow**. Write the most appropriate probability term (likely, unlikely, certainly, impossible, or equal probability) for the events given below:
 - If you pick a star from the bag without looking, it is that you will pick a **Blue** star.-.....
 - If you pick a star from the bag without looking, it is that you will pick a **Green** star.-.....
3. **Real-life Application:** Provide two examples of **Impossible Events** and two examples of **Equal Probability Events**.
 - *Hint for Impossible Event:* An event that will never happen, having a probability of 0.
 - *Hint for Equal Probability Event:* Chances of each event happening are the same.

*"We wish you a joyful and meaningful holiday! Make the best use of this time to
practice, explore, and enhance your skills,
so you return refreshed and ready to shine in your learning journey"*