UNIVERSITY OF CENTRAL PUNJAB

FOIT

Project # 01 Probability and Statistics

Dead Line: 20-11-25

Submission: Online and Printed

Course Title	Probability and Statistics	Course Code	MAT253
Course Instructor	M. Bilal	Section	
Time Allowed	1 Week	Total Marks	**20**
Student Name		Registration No.	

CLO #	Course Learning Outcome (CLO)	Taxonomy Level	Mapping to PLO
CLO 1	The students will be able to **explain** the basic concept of Statistics and Probability, and their practical need to explore data.	**C2**	**P2**

Task 01: Data Collection **(3)**

1. Collect a dataset (or generate synthetic data) related to a **real-world CS topic**, such as:

- ❖ Response time of different algorithms (e.g., execution time of sorting algorithms in milliseconds).
- ❖ Execution time of a program (e.g., load times of a web page).
- ❖ Number of lines of code written by developers per day (e.g., productivity tracking).
- ❖ Number of commits in a software repository (e.g., daily contributions on GitHub).

Preparation **(2+1+1)**

1. Create a histogram in Excel by choosing appropriate bin ranges.
2. Label axes appropriately (e.g., "Execution Time (ms)" on X-axis, "Frequency" on Y-axis).
3. Add a title and data labels.

Analysis and Interpretation **(1+1+1)**

Answer the following questions based on the histogram:

1. What is the shape of the distribution (e.g., Normal, Skewed, Uniform)?
2. What does the histogram tell you about the dataset?
3. Are there any outliers or unusual patterns?

Tasks 02:

(1+2+3+1+1+1+1)

1) Download the dataset from the following link:

https://lms.digiskills.pk/Courses/DBI101/Downloads/Bike_Sales_Outlier_Lab.xlsx and open the downloaded sample xlsx. file Bike Sales Outliers Lab in Microsoft Excel.

2) Calculate Mean, median, Mode and standard deviation using column of **Unit_Cost**

3) Calculate Mean, Median, Mode of column of **Unit Price**.

4) Discuss the shape of Distributions (i. e skewed, symmetrical etc.)

5) Calculate standard deviation, mean using column of **Profit.**

6) Compare the cost and profit using **Co-efficient of variation.**

7) Interpret your results.