6NUMERICAL PROJECT GENERAL GUIDELINES

Graphical User Interface (GUI)-Based Application using Least Square Regression

1. The project will be done by triad.
2. One member should be elected as the project leader who will lead the group in finishing the project.
3. The output of the project will serve as your final exam which is equivalent to a 100 points.
4. The project will be submitted on the first Monday after final exam.
5. The GUI should contain the following parts:
    - **I. About Section:**
        - This section contains a background about the chosen application. The application should be related in the field of computer science, data analytics, or machine learning.
        - The application may be but not limited to the following: prediction of crops yield based on rainfall rate, prediction of CO_2 emission based on engine size and number of cylinders in a car, and predicting enrollment size based on the number of subjects failed, monthly household income of the family, and passing rate of the pre-requisite subjects.
    - **II. Data Entry:**
        - The user should define the number of independent variables from 1 to 3.
        - The user should be able to encode manually or import csv file the dependent and independent variables.
        - The user should encode the independent variable/s to predict future value.
    - **III. Output Section:**
        - The output section should show the predicted future value, standard error of the estimate, correlation coefficient, and verbal description of correlation coefficient.
        - It should also show the best fit regression line equation.
        - This section should also show the plot of data points together with the best fit line.
6. Here are the topics that you can choose from. You may choose one, a combination of the regression methods, or all of the regression methods.
    - **a.** Linear Regression
    - **b.** Multiple Linear Regression
    - **c.** Polynomial Regression
    - **d.** Non-Linear Regression
7. The project will be graded according to: quality of GUI (85%) and peer evaluation (15%). The leader will be doing the peer evaluation.
8. You need to submit a printed screen shots of the following sections of your GUI: About, Data Entry, and Output Section.

Appendix A – Students' Scores

Members	Peer Evaluation (15 points)	GUI-Based Application Score (85 points)	Total
1.			
2.			
3.			

Appendix B – Peer Evaluation

Members	Contribution to Group Goals (5 points)	Collaboration and Team Work (5 points)	Meeting Deadlines (5 points)	Total
1.				
2.				
3.				

Peer Evaluation Rubric (15 points)

1. Contribution to Group Goals (5 points):

5: Consistently contributes significantly to achieving group goals.

4: Frequently contributes to achieving group goals.

3: Usually contributes, but sometimes not actively engaged.

2: Rarely contributes to group goals.

1: Does not contribute to group goals.

2. Collaboration and Teamwork (5 points):

5: Always cooperative, respectful, and supportive of team members.

4: Generally cooperative and respectful but with occasional lapses.

3: Sometimes uncooperative or disrespectful to team members.

2: Often uncooperative and disrespectful to team members.

1: Routinely uncooperative and disrespectful to team members.

3. Meeting Deadlines (5 points):

5: Always meets or exceeds project deadlines.

4: Frequently meets deadlines, with occasional delays.

3: Usually meets deadlines but sometimes causes minor delays.

2: Rarely meets deadlines, often causing significant delays.

1: Consistently fails to meet project deadlines.

Appendix C – Rubrics for the GUI

User Interface Design (20 points)		**Score**
	Visual appeal: 5 points	
	Consistency in design elements (colors, fonts, layout): 5 points	
	Clarity and readability of text and labels: 5 points	
	Use of appropriate icons and graphics: 5 points	
Navigation and Flow (10 points)		
	Intuitive navigation paths: 5 points	
	Smooth transition between different screens or modules: 5 points	
Functionality (20 points)		
	Accuracy of data input and output: 10 points	
	Responsiveness to user interactions (clicks, inputs): 5 points	
	Error handling and validation of user inputs: 5 points	
Performance (10 points)		
	Loading times for screens and data: 5 points	
	Responsiveness during heavy usage or simultaneous tasks: 5 points	
User Experience (10 points)		
	Overall ease of use and learning curve: 5 points	
	Availability of help or documentation within the application: 5 points	
Novelty (15 points)		
	Difficulty of the chosen application: 10 points	
	Availability of Unique Features: 5 points	
	Total	