

**Military Institute of Science and Technology**

**Department of Electrical, Electronic and Communication Engineering (EECE)**

**Course Code: EECE-212**

**Course: Numerical Technique Laboratory**

Project Proposal

Presented by:

Mahfuzur Rahman Kabbo – 202316071

Md Asaduzzaman Jiman – 202316101

Hafsa Khan – 202316105

Osama Ahmed Ibrahim – 202316126

Group 04

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**Project Title: Analysis and Prediction of iPhone Price Trends by The Use of MATLAB.**

Initial concept: In real-life situations and in the finance market, Data Analysis has an incomprehensible importance to keep up with trends, to adjust the market price accordingly and to make proper predictions for the future market scenarios. For such requirements we have conceptualized a software programme, capable of doing data analysis and making proper predictions for the ease in many real life situations.

Steps to be implemented:

* Data collection of various models of a singular product and storing it in Excel.
* Extracting said information from Excel sheet for Data processing.
* Implementing a linear regression model that fit our requirements as needed.
* Predicting the future prices, calculating the price differences and the percentages changes.
* Displaying newfound information graphically.

Project Outcome:

The code has several practical uses:

1. Price Prediction:

* Predicts the price of a new product model based on historical price data using a linear regression model. This is useful for consumers, businesses, and analysts to anticipate future pricing trends.

2. Price Analysis and Difference Calculation:

* Analyzes the historical price data of product models to identify trends and patterns. It shows how prices have changed over different versions, helping to understand the pricing strategy of a certain company over time. This also helps in identifying significant price jumps or drops between versions.

3. Data Visualization:

* Visualizes the data through scatter plots and bar charts. The scatter plot with the regression line helps in understanding the overall trend and the accuracy of the prediction. The bar charts for price differences and percentage changes help in easily identifying and comparing changes between different product models.

4. Business Decision Support:

* Assists businesses in making informed decisions about pricing strategies, marketing, and sales forecasting based on historical price data and future predictions. However, the data can also be adjusted accordingly to fit different situations.

It is notable that in this project the idea of analysis is being done by using linear regression rather than logistic regression as we are finding values and not just the prediction. By providing these functionalities, the code is a valuable tool for anyone interested in analyzing and predicting product model financial markets.

Tentative Flowchart:

PLOT THE SCATTER PLOT WITH REGRESSION LINE, BAR CHART OF PRICE DIFFERENCES AND % PRICE CHANGE

START

LOAD DATASET AND EXTRACT REQUIRED VARIABLES

FIT LINEAR REGRESSION MODEL AND PROMPT USER FOR NEW MODEL VERSION

PREDICT AND DISPLAY THE PREDICTED PRICE, CALCULATE THE PRICE DIFFERENCES AND % CHANGE

END

This flowchart outlines the logical flow of the program, showing the sequence of operations and the key steps involved in processing and visualizing the data.