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**Fundamentals of**

**Software Engineering**

**Assignment #1**

**Iteration 0 : Planning Phase (OUTLINING SPRINT)**

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**Title of the Project :**

Microsoft Stock Price Prediction

**Nature of the Project :**

ML-based web application

**Scope of the Project :**

The project aims to develop a machine learning model to predict the stock prices of Microsoft Corporation based on historical stock prices and other financial indicators.

**Functional Requirements :**

1. **Data Collection**

* The system should be able to collect historical stock prices and other financial indicators related to Microsoft Corporation

1. **Data Preprocessing**

* The collected data should be preprocessed to remove any missing or irrelevant values.

1. **Machine Learning Models**

* The system should have machine learning models that can analyze the preprocessed data to predict future stock prices.

1. **Visualization**

* The system should have visualization tools that can display the predicted stock prices and their accuracy.

1. **User Interface**

* The system should have a user interface that allows users to input their queries and view the predicted stock prices.

**User Stories (Product Backlog) :**

1. As a user, I want to be able to view the current and past stock prices of Microsoft.
2. As a user, I want to see the predicted stock prices of Microsoft Corporation for the next few days so that I can make informed investment decisions.
3. As a user, I want to see the accuracy of the predicted stock prices based on different machine learning models so that I can make better predictions.
4. As a user, I want to input my own queries (such as the time period for which I want to see the predictions).

**Project Plan (Module Breakdown) :**

Module 1 - Data Collection and Preprocessing Deliverables:

* A database of historical stock prices, news articles, and other financial indicators related to Microsoft Corporation
* A preprocessed dataset with no missing or irrelevant values

User Stories:

* Collect historical stock prices and other financial indicators for Microsoft Corporation
* Preprocess the collected data to remove any missing or irrelevant values.

Module 2 - Machine Learning Models Deliverables:

* Trained machine learning models that can predict the stock prices of Microsoft Corporation
* Visualization tools to display the predicted stock prices and their accuracy.

User Stories:

* Develop machine learning models to predict the stock prices of Microsoft Corporation
* Train and test the machine learning models on the preprocessed data.
* Develop visualization tools to display the predicted stock prices and their accuracy.

Module 3 - User Interface Deliverables:

* A web application with a user interface to input queries and view the predicted stock prices.

User Stories:

* Develop a web application with a user interface to input queries.
* Display the predicted stock prices on the web application.
* Allow customization of the predicted stock prices according to user queries.

**Iteration/Sprint Plan :**

**Number of Sprints:** 3 Sprints (2-3 weeks per Sprint)

**Number of Stories and Tasks per Sprint:** 4 user stories and tasks per Sprint

**Sprint Backlog for First Iteration:**

* Collect and preprocess data.
* Implement a linear regression model for stock price prediction.
* Develop a basic user interface for inputting parameters and viewing predictions.
* Test and evaluate the linear regression model.

**Scrum Master and Team Duties:**

**Scrum Master:** Facilitate sprint meetings, maintain the sprint backlog, and remove any impediments to progress.

**Team Members:** Work collaboratively to complete the tasks assigned to them in the sprint backlog, communicate regularly with the Scrum Master and other team members, and contribute to the overall success of the project.