Computer Science Capstone Topic Approval Form

The purpose of this document is to help you clearly explain your capstone topic, project scope, and timeline. Identify each of these areas so that you will have a complete and realistic overview of your project. Your course instructor cannot sign off on your project topic without this information.

Note: You must fill out and submit this form. Space beneath each number will expand as needed.

Any cost associated with developing the application will be the responsibility of the student.

INFORM INSTRUCTOR:

Potential use of proprietary company information: (Y/N) **N**

ANALYSIS:

1. Project topic AND description:

   Tala Street Financial needs a tool to assist in Stock Market Price Analysis and Prediction to assist in making investnment decisions. This project will create a data model to analyze historic stock performance to help the firm with future investments.

2. Project purpose/goals:

   Provide a stock market analysis tool tool to Tala Street Financial traders to help then in investment decision-making.

3. Descriptive method:

   Visulaization, such a plot lines, will be used to present the current stock price. Also, visulation will be used to show the 100 & 200 Moving Average (MA) for each stock along with prediction and closing price comparison.

4. Predictive/Prescriptive method:

   A machine-learning model using an LSTM (Long Short-Term Memory) neural network. It is used to predict the stock prices based on the past prices and trends. The data is preprocessed using MinMaxScaler to normalize the data, and then the model is trained on the training set. The trained model is then used to predict the stock prices for the testing set. Finally, the predicted and original prices are plotted to visualize the performance of the model.

DESIGN and DEVELOPMENT:

1. Computer science application type (select one):
   - Mobile (indicate Apple or Android)
   - Web
   - **Stand-Alone**
2. Programming/development language(s) you will use:
   - **Python**
3. Operating System(s)/Platform(s) you will use:
   - **Mac OS M1 Chip**
   - **Jupyter Notebook**
   - **Pycharm**

4. Database Management System you will use:
   - N/A

5. Estimated number of hours for the following:
   i. Planning and Design: 40
   ii. Development: 40
   iii. Documentation: 30
   iv. Total: 110

6. Projected completion date:

   - After March 20th 2023

IMPLEMENTATION and EVALUATION:

1. Describe how you will approach the execution of your project:
   - We will meet with the client to gather information about thir business use-case and project requirments.
   - Looking for Live data source to provide stock market data on demand.
   - Understanding and preparing the data for the machine learning model.

This project does not involve human subjects research and is exempt from WGU IRB review? <u>Yes</u>

STUDENT SIGNATURE

AbdAllah M AbdAllah Khodeir

By signing and submitting this form, you acknowledge any cost associated with development and execution of the application will be your (the student) responsibility.

COURSE INSTRUCTOR'S NAME:

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COURSE INSTRUCTOR APPROVAL DATE: 3/16/2023