CSC 495
Software Engineering Project Seminar I
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Requirements

Introduction

Overview

We will be making a machine learning algorithm that will attempt to predict the movement of stocks based on many datasets that we will collect and train the algorithm on. This algorithm will be connected to a website that we will design as well.

This document will explain the purpose and features of the entire system including: what the system will do, how it will do this and the constraints under which it must operate. This document is intended for stakeholders, developers, and users of the system.

Scope

Front-End

- We will be using either a React or Vue web application to use a means to interact with the program.
- The frontend will contain many different useful visual including
    - A prediction graph, a social media feed, Buy/Sell Indicator, real graph.

Back-End

- Depending on the complexity of the algorithm and the other stuff performed, we will decide between running the back-end on my personal computer computer or Pi (Oswego's Server). If that deems too tasking on those we will have to rent a cloud service like AWS.

Middleware

- We will either make our own REST API or use a Framework like Flask, since we are going to be using Python for our machine learning algorithm, or Django.

Algorithm

- We are currently deciding which type of machine learning algorithm will be optimal for this project. This is expected to be decided by Feb 12.

Datasets (Input Variables)

- Economic Indicators
    - Macroeconomic indicators such as gross domestic product (GDP), inflation rate, unemployment rate, and consumer confidence index can provide valuable information about the overall health of the economy.
- Sentiment Analysis
    - Analyzing public opinion, such as social media sentiment, news articles, and analyst reports, can provide valuable insights into the market sentiment
- Market Data
    - Information about market trends, such as stock indices and exchange rates, can provide a broader perspective on the market conditions
- Technical Indicators
    - Technical indicators, such as moving averages and momentum, can provide information about the short-term trends in the stock market.
- Political Events?
    - Political events, such as elections, policy changes, interest rates, and geopolitical tensions, can have a significant impact on the stock market
- Pattern Recognition
    - There are some common patterns that can indicate future events of a stock market price
- Currency Exchange Rates
    - Changes in currency exchange rates can impact international trade and investments.
- Commodity prices
    - Commodity prices, such as oil, gold, and silver, can impact various industries and sectors.

Dependencies

- We will be using an API to get current prices and historical data.

Description

Purpose

The purpose of this project is to help people make more informed decisions on what companies to invest in. The algorithm will use and be trained with many different datasets, including more unconventional datasets to try and gain a unique perspective.

Reference link to Github
https://github.com/umangptl/Software-Engineering-Project-Seminar_1