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softdev
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Abstract:
Our Stock Simulator will use data on stocks and Kaggle models to predict whether specific stocks will go up or down by simulating up to 100 (?) trials and the result will be the most common outcome.

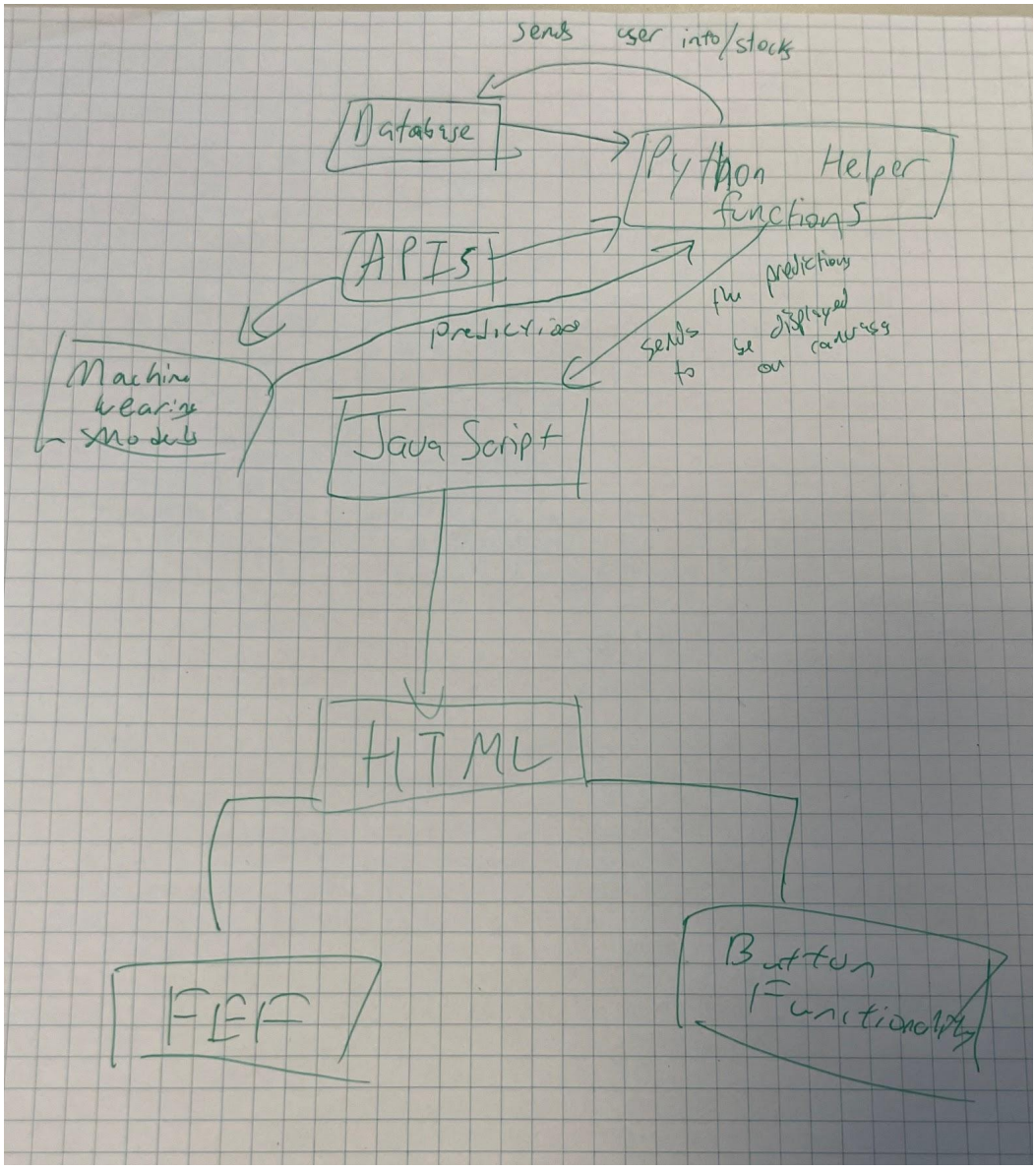
Components and roles:

- Magic prediction machine
    - API
    - Models imported for machine learning e.g. LSTM, ARIMA, GRU (Neuro-networks and regression models for time series forecasting)
    - Simulation of test runs with model, predicting for each stock
- Database (SQL)
    - Stores the prediction results from the magic prediction machine
- Website (HTML/CSS/FEF)
    - Magic Button for Magic Prediction
    - (Maybe?) Grid of boxes, lighting up green or red to indicate whether stock price will go up. Simulations of 100 tests can be illustrated this way.
    - Dropdown for stock selection.
- Javascript for Website:
    - Visualizing using canvas and filling up grid lines
- Stretch goal: Sports betting machine predictor? (maybe)
    - Can visualize sports and player statistics and then makes a bet on the winning team.

How does each component relate to each other?:

- Magic prediction machine outputs the data that'll be processed and displayed by the javascript.
- The database will have the different stocks that can have predications ran on by the magic prediction machine. It'll also store the prediction results which will be displayed on the html by the javascript file.

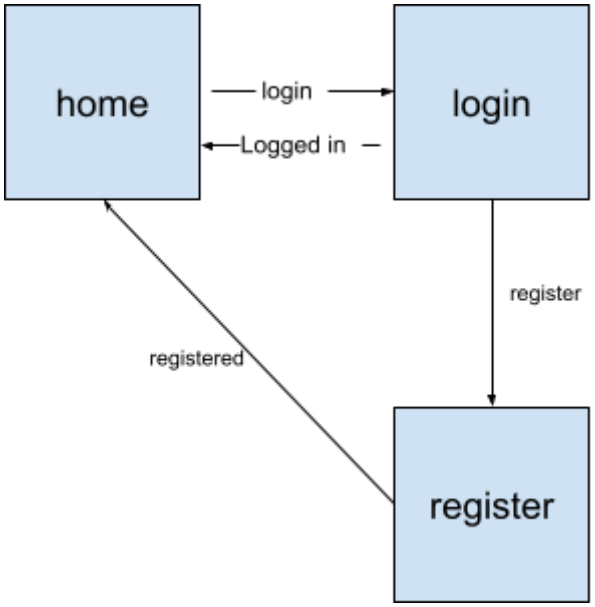
Component map



Database Organization:

- tables.db
- Login Info: Username & Password
- Stock Info: Stock Name, Prediction Result
- List of selected stock in portfolio

Front-end Site Map:



- home.html
    - If signed in, there will be a drop-down menu to select which stock you want predictions on.
    - A big button to that'll start the predictions and tell you whether you should buy the stock or not
    - It will consist of many canvases that will visualize the predictions
- login.html
    - It will have a username and password box
- register.html
    - Same as login, but instead of logging in, it'll create an account and add the account to database.

Breakdown of tasks:
Machine learning APIs - kevin
Backend JavaScript - ian
Frontend stuff - aden
Database - gitae

APIs:
Yahoo Finance API : https://algotrading101.com/learn/yahoo-finance-api-guide/
Bloomberg Terminal? Mayhaps? (Stretch)
https://www.bloomberg.com/professional/solution/bloomberg-terminal/
Kaggle Datasets

- Crypto: https://www.kaggle.com/datasets/sudalairajkumar/cryptocurrencypricehistory
- S&P 500: https://www.kaggle.com/datasets/camnugent/sandp500

Openai Datasets

FEF:

We are choosing to use Bootstrap as our front-end framework. We made this decision because we think the look and feel of it fits into our design. We would also like to make use of its Javascript add-ons to increase the interactivity of our site.

Target "ship date.": May 28, 2023