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University of Applied Sciences

Software Project 2 - Retake

"Algorithm for analyzing one stock from the stock market"

in the course of Software Engineering

with a study focus on

Digital Technologies and Coding

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Study focus: Digital Technologies and Coding.

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1.0 Overview

The project attached in this zip file is an algorithm that analyses the behaviour of one chosen stock from the stock market. In this project the chosen stock remains the Mercedes-Benz Company due to its historical value and collected data. This project is meant to estimate metrics of this stock and predict the behaviour of the stock for the upcoming 10 years. Due to the author's certain time and knowledge limitations of Artificial Intelligence it has been created using tries and fails unfortunately.

2.0 Code Overview

This project has been coded using Python in Flask. The code submitted previously as Software Project 2 was incorrect by accident and non-responsive, therefore it has been edited and corrected and is fully responsive in this project. In addition, there was an attempt at adding an Artificial Intelligence that predicts the next 10 years based on historical data gathered in the comdaily API (the author tried her best).

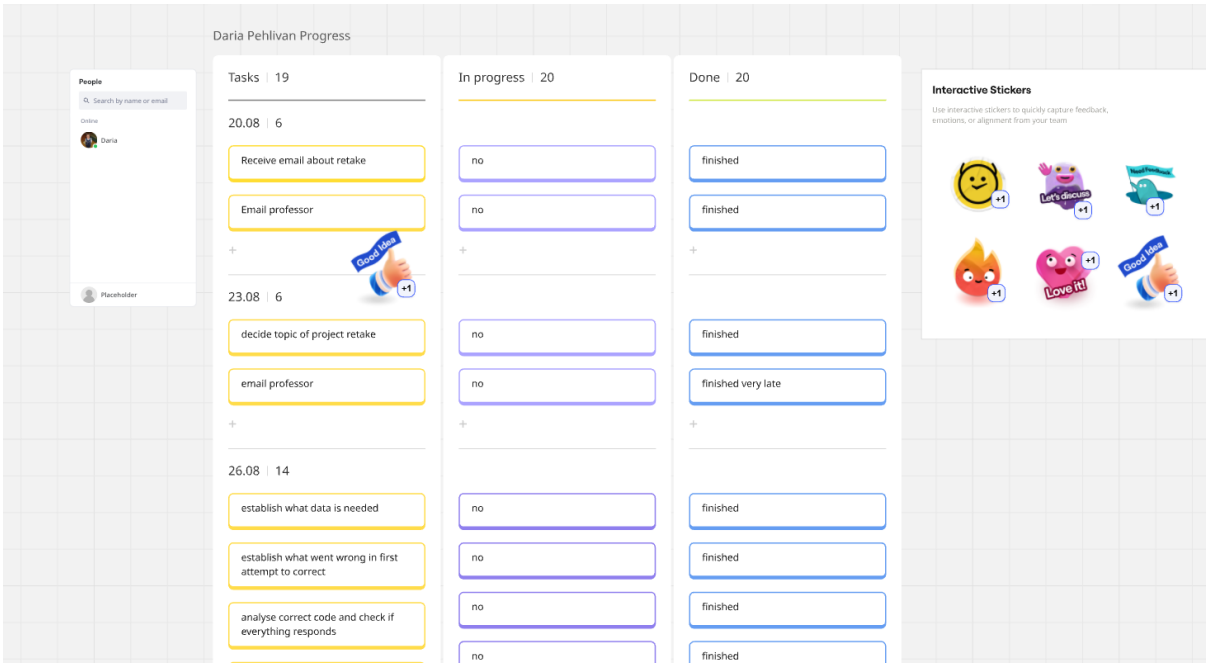
The frontend remains similar theme due to it not being relevant in this project but was also edited in some areas to fit this new project.

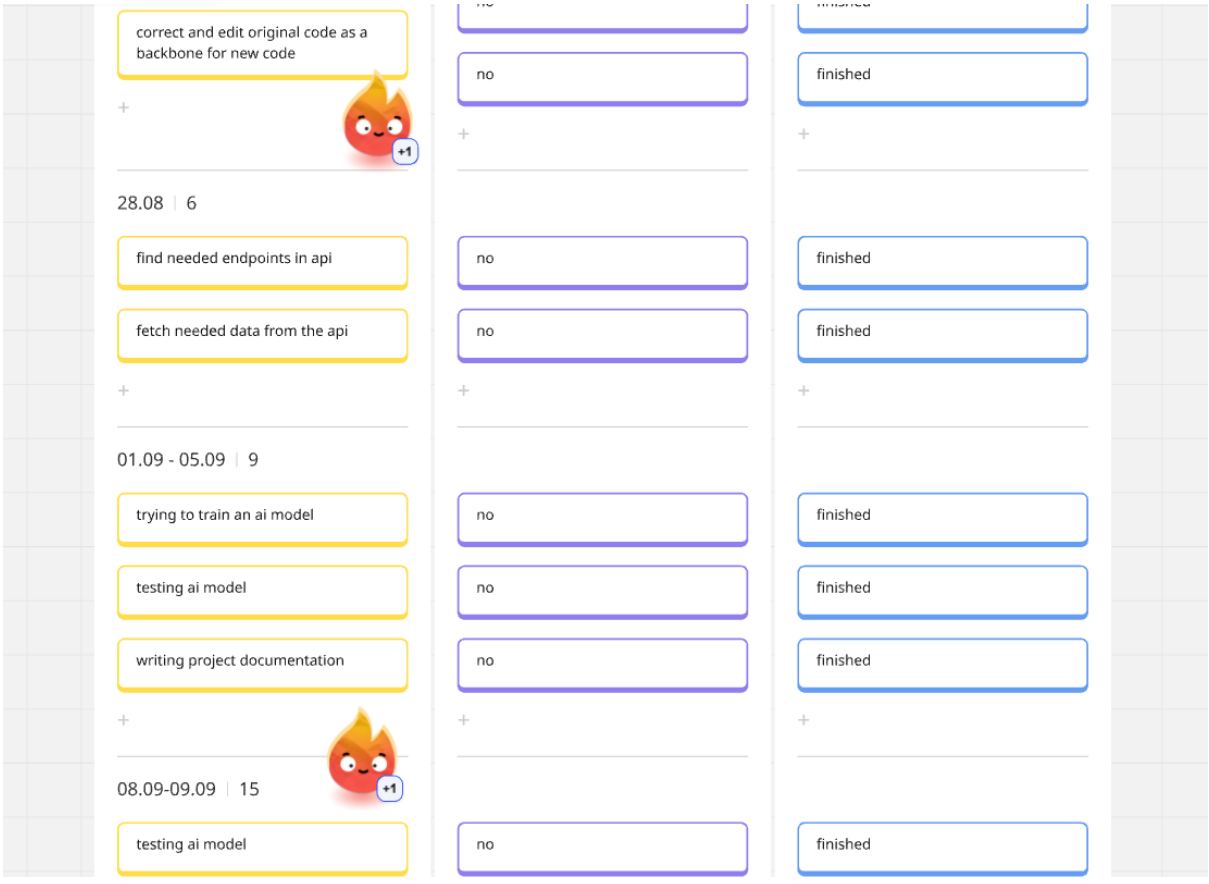
The data gathered previously in the comdaily API was used to calculate Stock Trend Comparison, Key metrics that were based on formulas tailored to generate the results for each one separately, as well as Income Statements from the recent years.

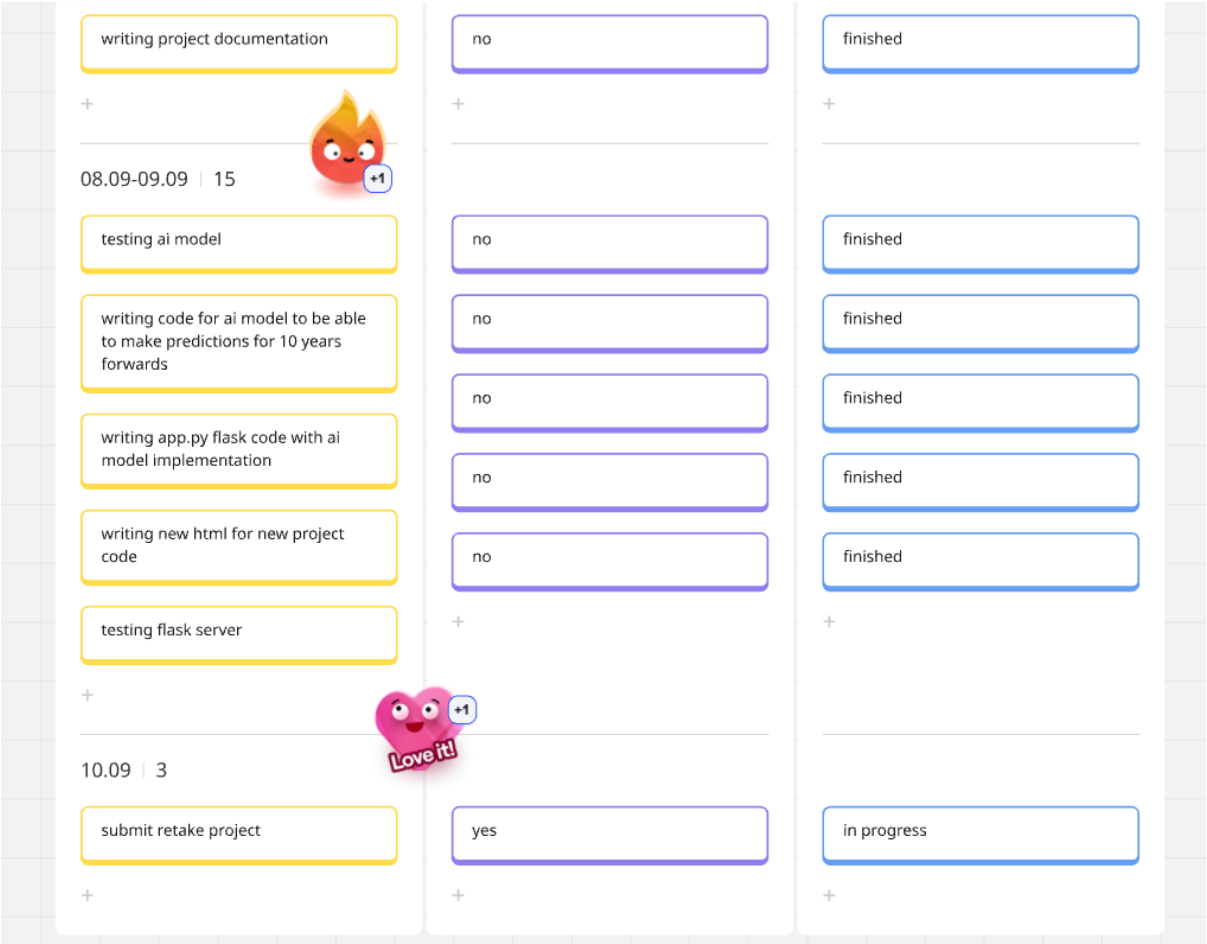
I have added other metrics to help prediction for the 10 years as well such as : ratios, cash flow statement and annual price.

The API data was also cleaned and used to train an Artificial Intelligence Model in order to predict the stock behaviour for the future.

3.0 Miro Board


Daria Pehlivan Progress
People
Search by name or email
Online
Daria
Placeholder
Tasks | 19
In progress | 20
Done | 20
20.08 | 6
Receive email about retake
no
finished
Email professor
no
finished
Good Idea
+1
23.08 | 6
decide topic of project retake
no
finished
email professor
no
finished very late
26.08 | 14
establish what data is needed
no
finished
establish what went wrong in first attempt to correct
no
finished
analyse correct code and check if everything responds
no
finished
Interactive Stickers
Use interactive stickers to quickly capture feedback, emotions, or alignment from your team
Let's discuss
Love it!


correct and edit original code as a backbone for new code
no
finished
+1
28.08 | 6
find needed endpoints in api
no
finished
fetch needed data from the api
no
finished
01.09 - 05.09 | 9
trying to train an ai model
no
finished
testing ai model
no
finished
writing project documentation
no
finished
08.09-09.09 | 15
testing ai model
no
finished



4.0 Limitations

This project's app.py main flask file runs correctly fetching data from the API on its own. The author applied a trained AI model to this code. This AI model's purpose was to predict the stock's key metrics in 10 years time. While implementing the AI model there have been multiple fails and corrections made by the author. Some of the code causing the correct code to crash has been commented out to prevent this from happening and affecting the main code.

The first complication began in the stock_data.py which was being used to acquire data from the API to train the AI Model. While the author tried to get the json from the key-metrics endpoint. The author has checked, and the endpoint is spelled correctly as well as the URL and symbol. Everything is correct, yet the code gave a response status 200 due to the

API not being able to find the data for an unknown reason. This error was fixed.

After successfully training the AI I have made a test python file (flask_test.py) for the flask server due to the fact that one part of code displays perfectly fine with its html but after trying to do the last step and implementing the trained ai model into the flask code it crashes and doesn't display data at all on the developmental server throwing out a 200 response which confirms the ai model works.

Author tried to fix this and isn't sure it worked unfortunately, but working AI model is included separately in its training file titled: training_data_ai.py and working basics of code that display on flask server are in the original app.py file.