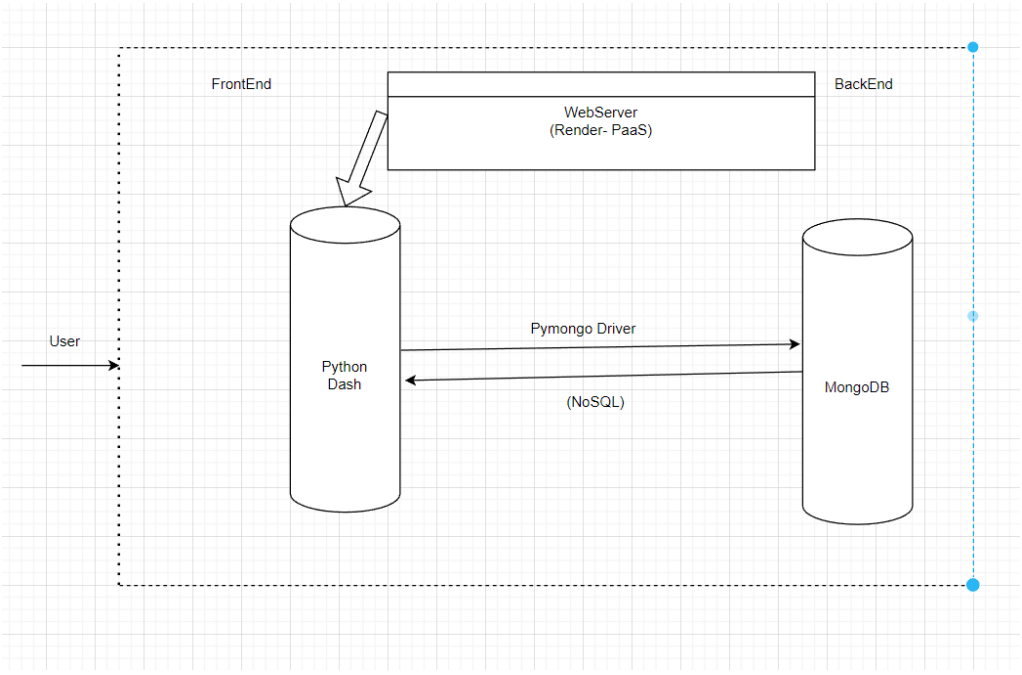
Time Series Analysis

Final Project Part 3

Part 1:

1. We are planning to store our data in MongoDB. So, we would be downloading our data from Stooq and upload it in MongoDB
2. We would be using Python to build our backend
3. We would be building a visualization dashboard where users would be able to interact with various dashboards. As we are using mongodb as backend we would be connecting to it using pymongo driver. And we would be designing our api's in a way that they would be validating the input and once the input is validated only then it would be connecting to database and fetch data. So, there is no chance that users can modify the data
4. We are planning to build the visualization dashboard using Python Dash. Python Dash library has some inbuilt bootstrap components, we would try to make use of that
5. We are planning to host our application on Render as it is a free hosting platform
6. We would be using Dash callback functions to provide interactivity with our dashboard
7. WebApp Architecture:

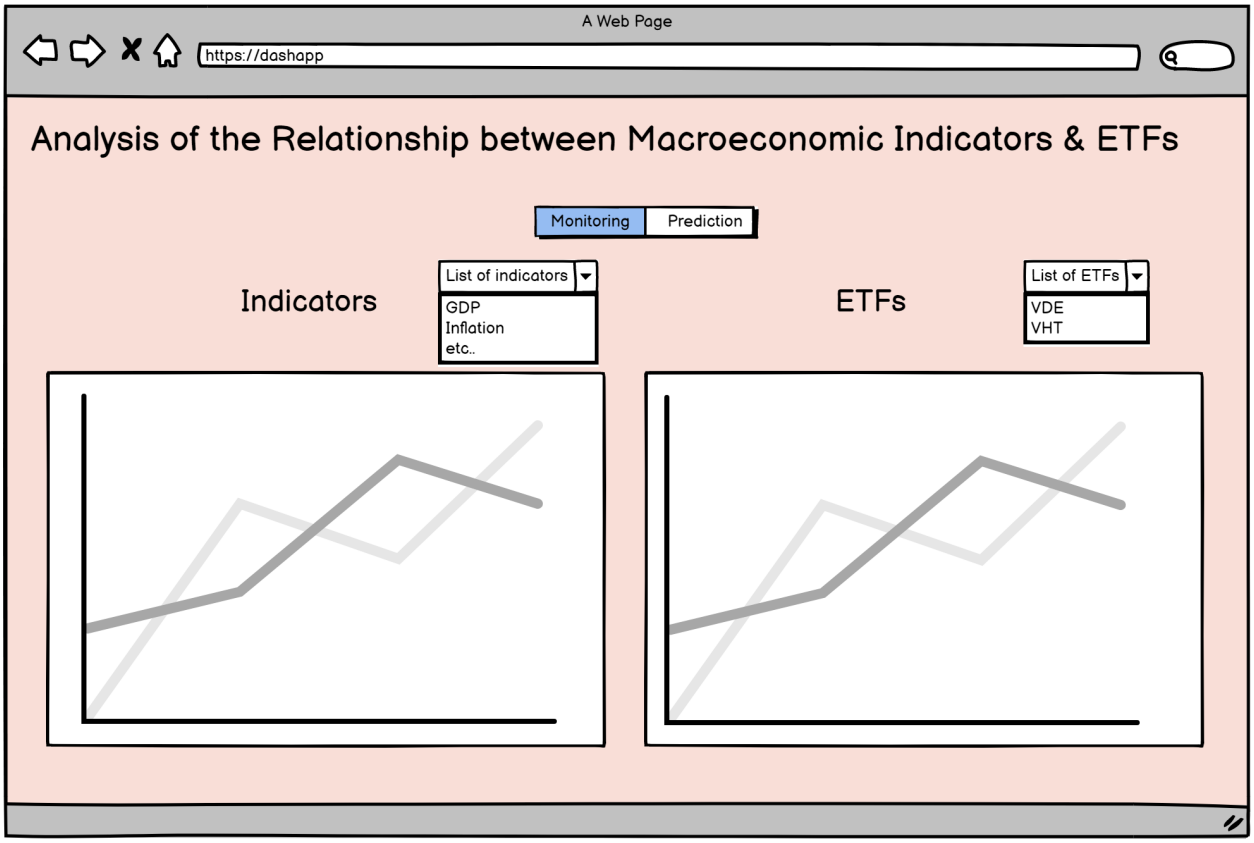


Part 2:

- What is the initial layout (when a user sees your app first)?

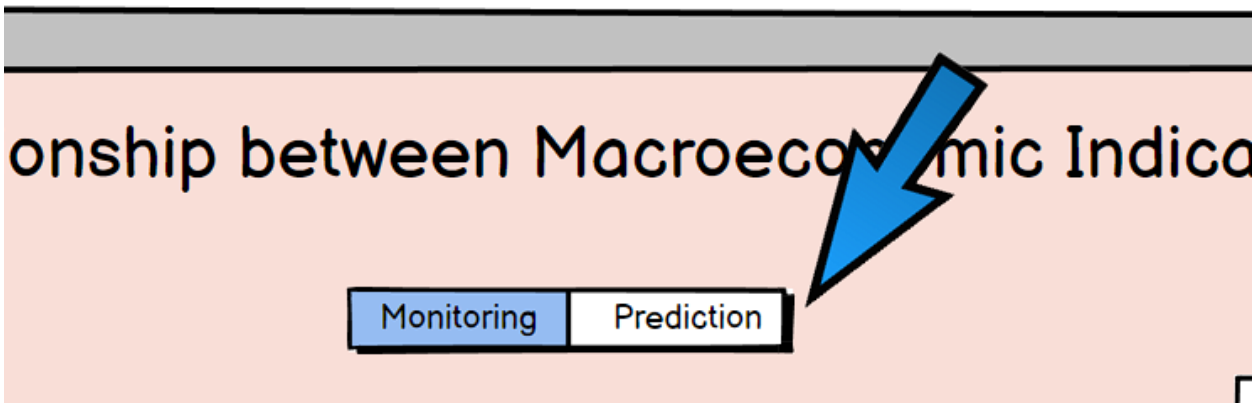
The First page the user sees is the Monitoring tab. Where there are MacroIndicator Graph and ETF graph. The User can interact with the graphs and has a choice of choosing different indicators such as GDP, Inflation, Employment (UNRATE, …) and etc. for the Macro-Indicator Graph with the help of dropdown list button. And when it comes to

ETFs Graph there is also a dropdown list button and the options of choosing are the Energy (VDE) and Health (VHT) ETF.



- Where is the menu panel?

  The menu panel contains 2 buttons. Monitoring Button and Prediction Button. The Monitoring Button points to the monitoring tab and Prediction button points to the Prediction tab. The Monitoring Button is the default tab.



- How many pages do you need? Or will you be using Tabs?

  I will be using two tabs. Where we can navigate to those tabs by their corresponding buttons. Monitoring Button and Prediction Button

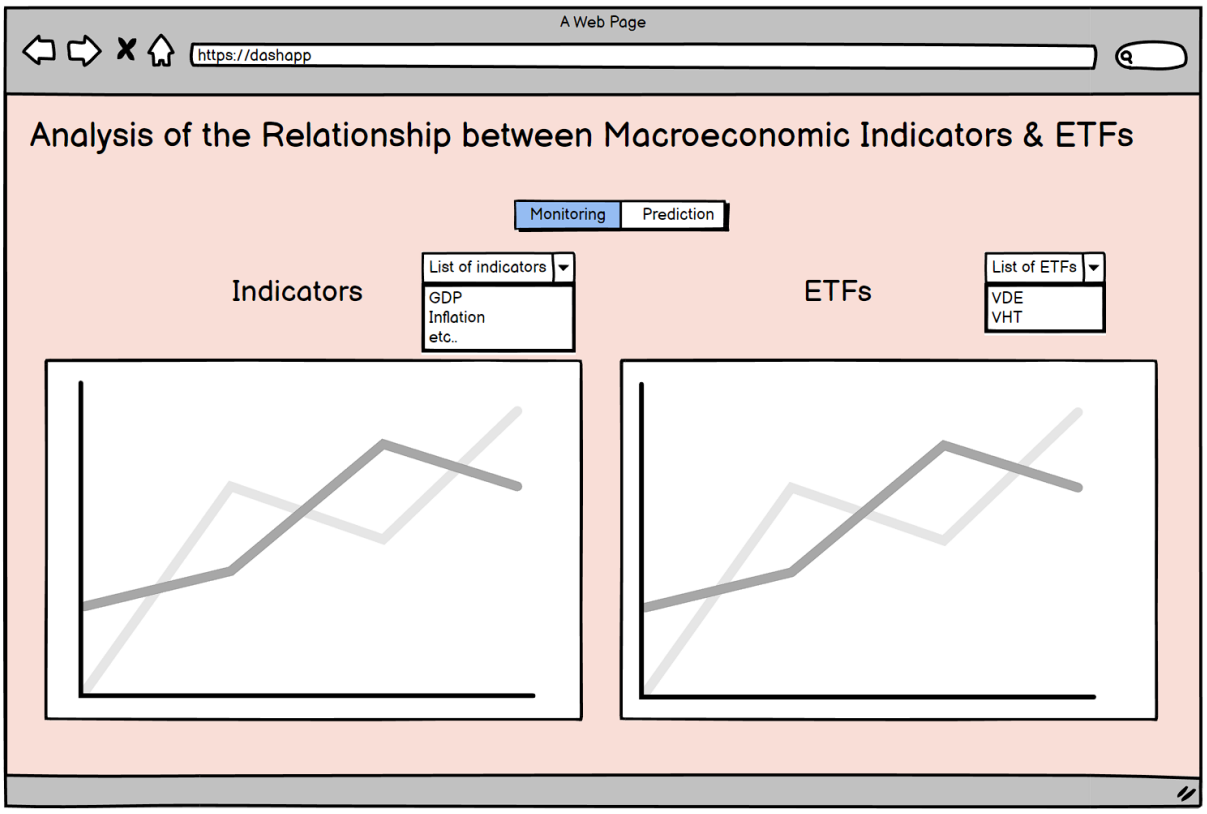
- What is the color schema?

  It's a simple color palette with color (#f9ded7)

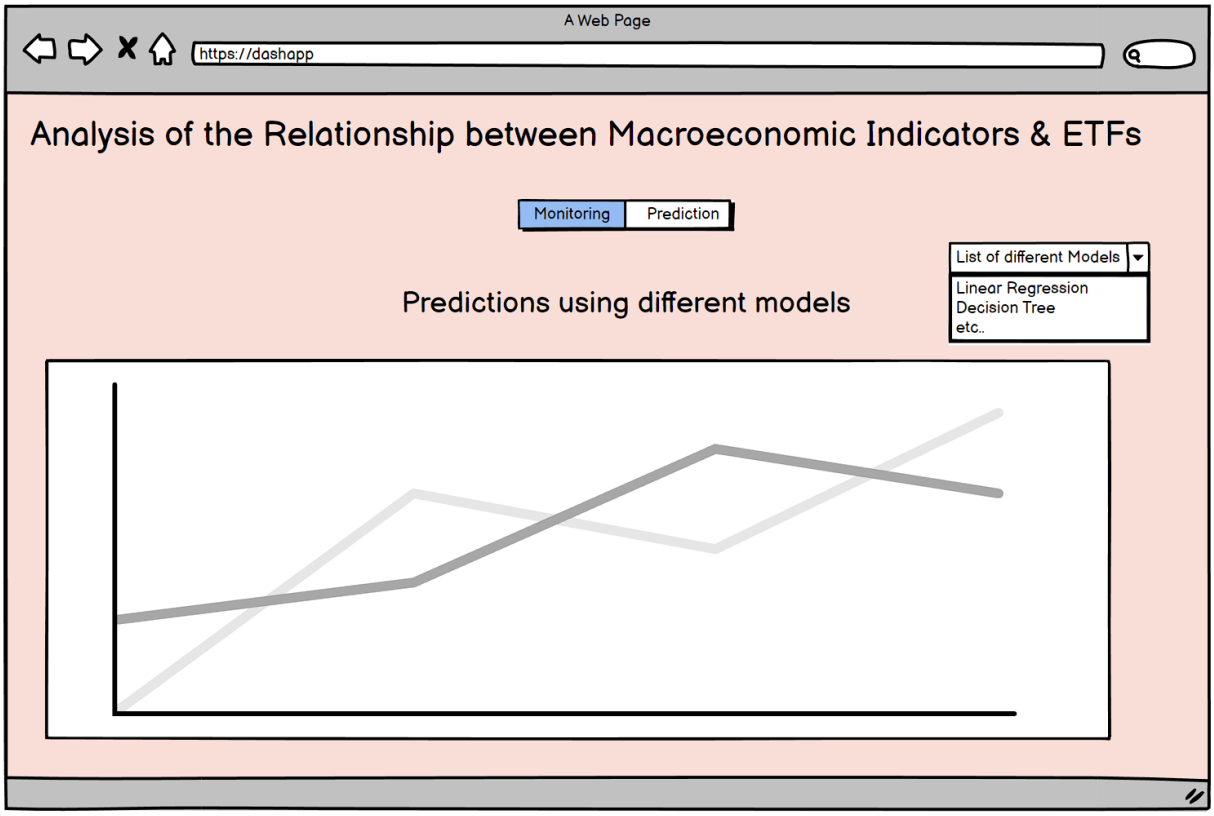
- What each page or Tab will display?

The monitoring tab will display the Macro-Indicator Graph and ETFs graph where the user interact with drop down lists and dash graph GUI buttons. and when the user clicks on the Prediction Tab he will display the graphs of predictions using different models used. And the user can choose the model by clicking on one of the model option in the drop down list.

Monitoring Tab:



Prediction Tab:



Part 3:

- Sai Madhav :After careful consideration and evaluation, I have arrived at a decision to utilize MongoDB and Python for the backend development of our web application. I have assessed the various options available and determined that MongoDB and Python best meet the requirements and objectives of our project .Also collaborated with Sricharan in designing the webApp Architecture.

- Sricharan:After thorough analysis and evaluation of different options, I have concluded that Dash and Plotly are the most suitable choices for building the frontend of our web application. Based on their functionalities and capabilities, I am confident that these tools can effectively meet our project's goals and requirements..Also collaborated with Madhav in designing the webApp Architecture.

- Shiva Kumar: I am responsible for deploying the application to a hosting platform and ensuring its security. These tasks may include setting up the hosting environment on Render.I went on to design the app layout using Baslamiq.