PCBB

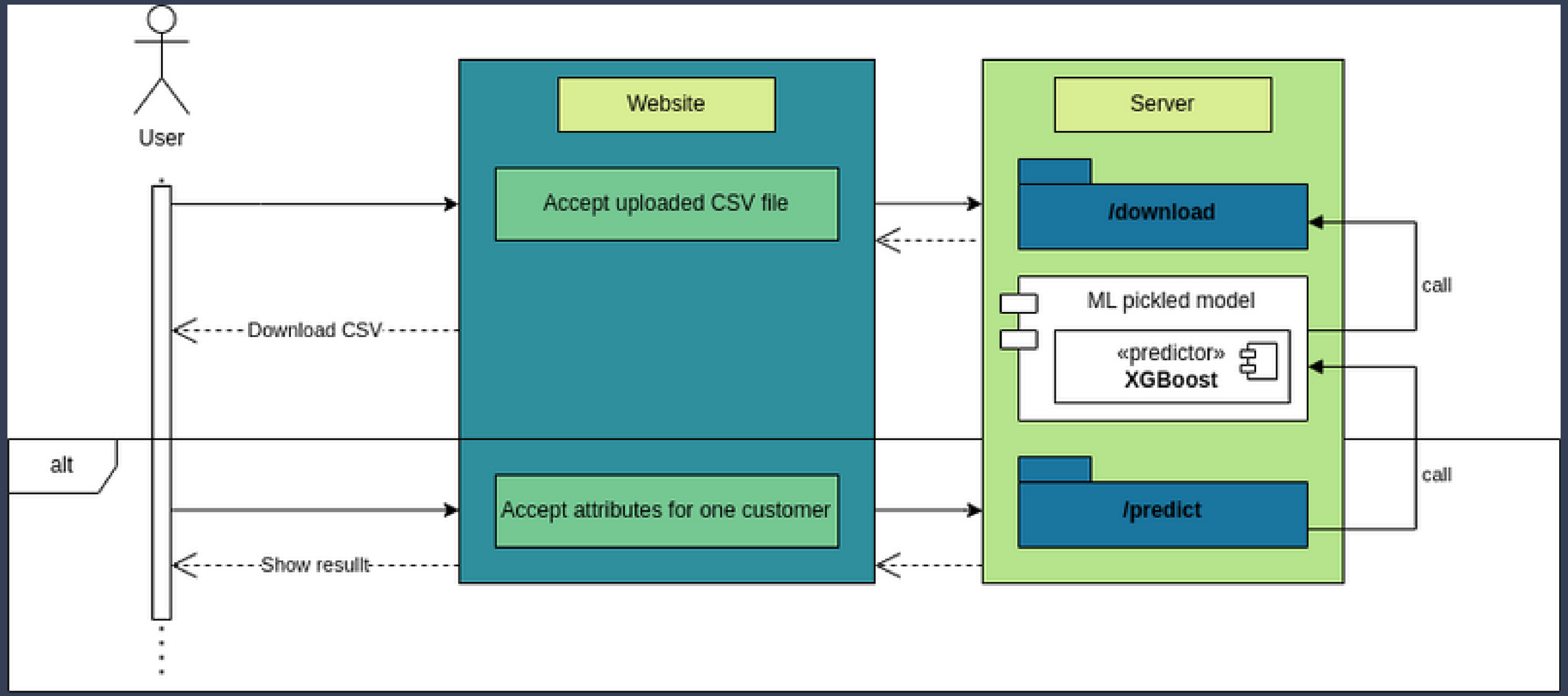
LearningRate=0

- LENOAH CHACKO
- K GOPAL CHOUDHARY
- PAVITHRA RAJAN
- AMIT KUMAR

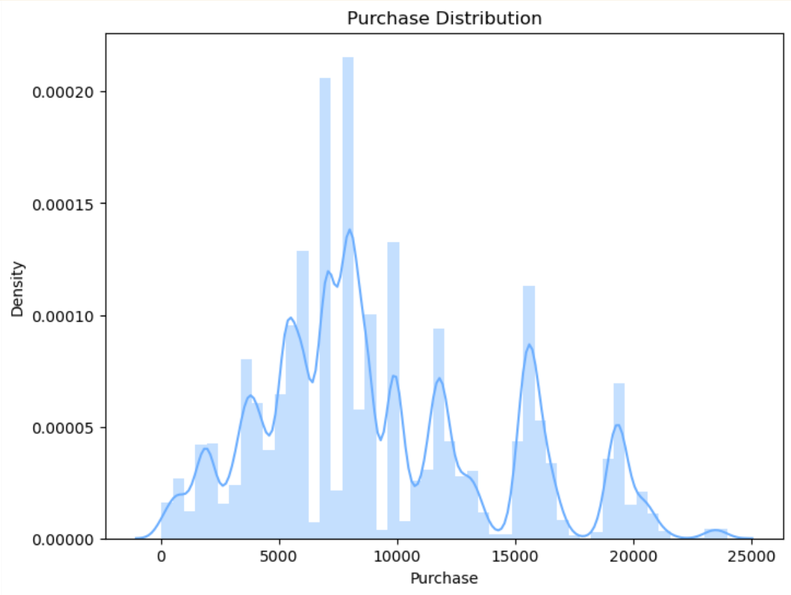
PROBLEM STATEMENT

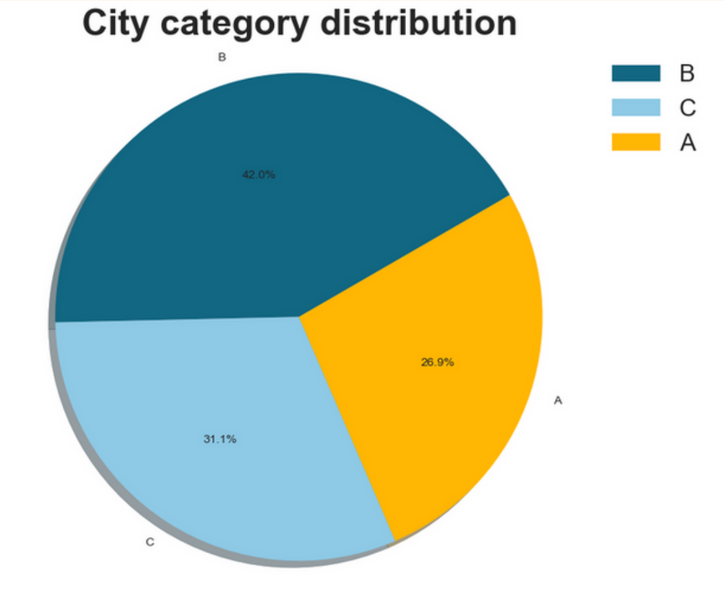
- Purchase summary data from the past month
- Details for selected high volume products
- Includes customer demographics and product details
- Build a model to predict customer purchase amount for different products
- Personalised offers for customers based on behaviour

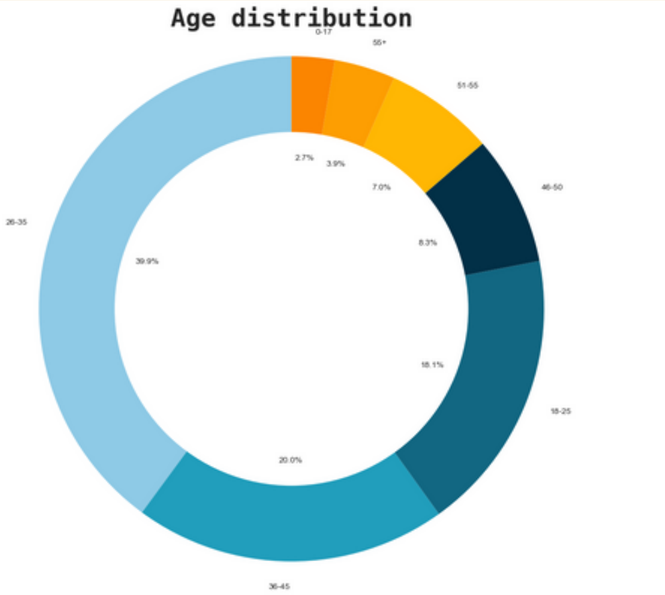
ARCHITECTURE DIAGRAM

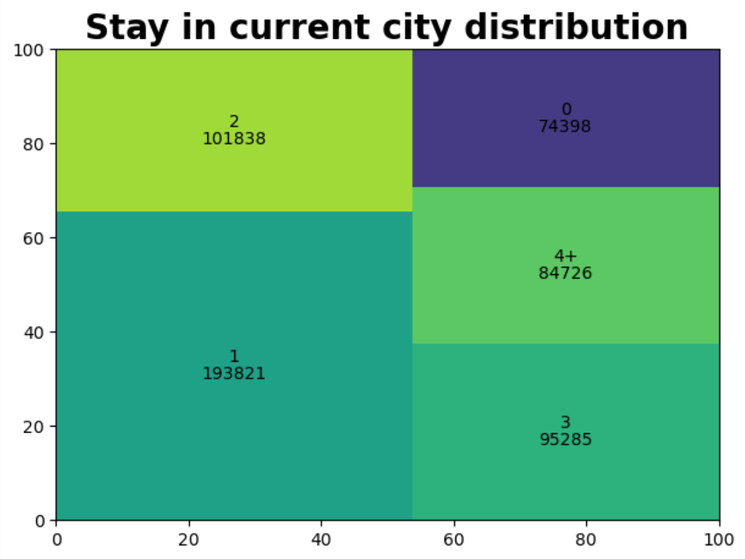


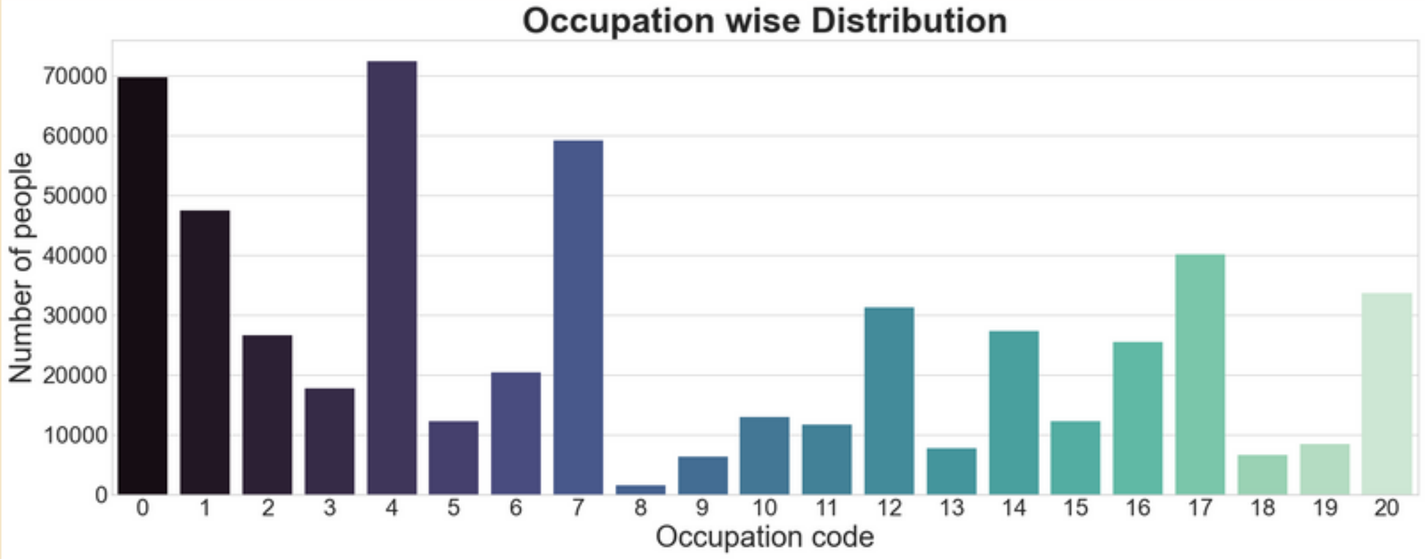
DATA ANALYSIS











SUB-TASKS

- Choosing the right parameters that affect the purchase amount and eliminating the unwanted parameters
  - Eliminated
    - User_ID
    - Product_ID
    - Product_Category_3
- Predicting the amount and increasing the accuracy of the prediction.
  - Two types of models
  - Tuning parameters

MODELS

XGBoost Regressor

- Useful for regression-based problems (continuous output variable)
- XGB stands for eXtreme Gradient Boosting Regressor
- Each tree is built sequentially, with each subsequent tree trained to correct the errors made by the previous tree.
- Several hyperparameters

Random Forest Regressor

- Again, used for regression-based
- Based on ensemble learning using decision trees
- Each tree is built independently and in parallel.
- Several hyperparameters

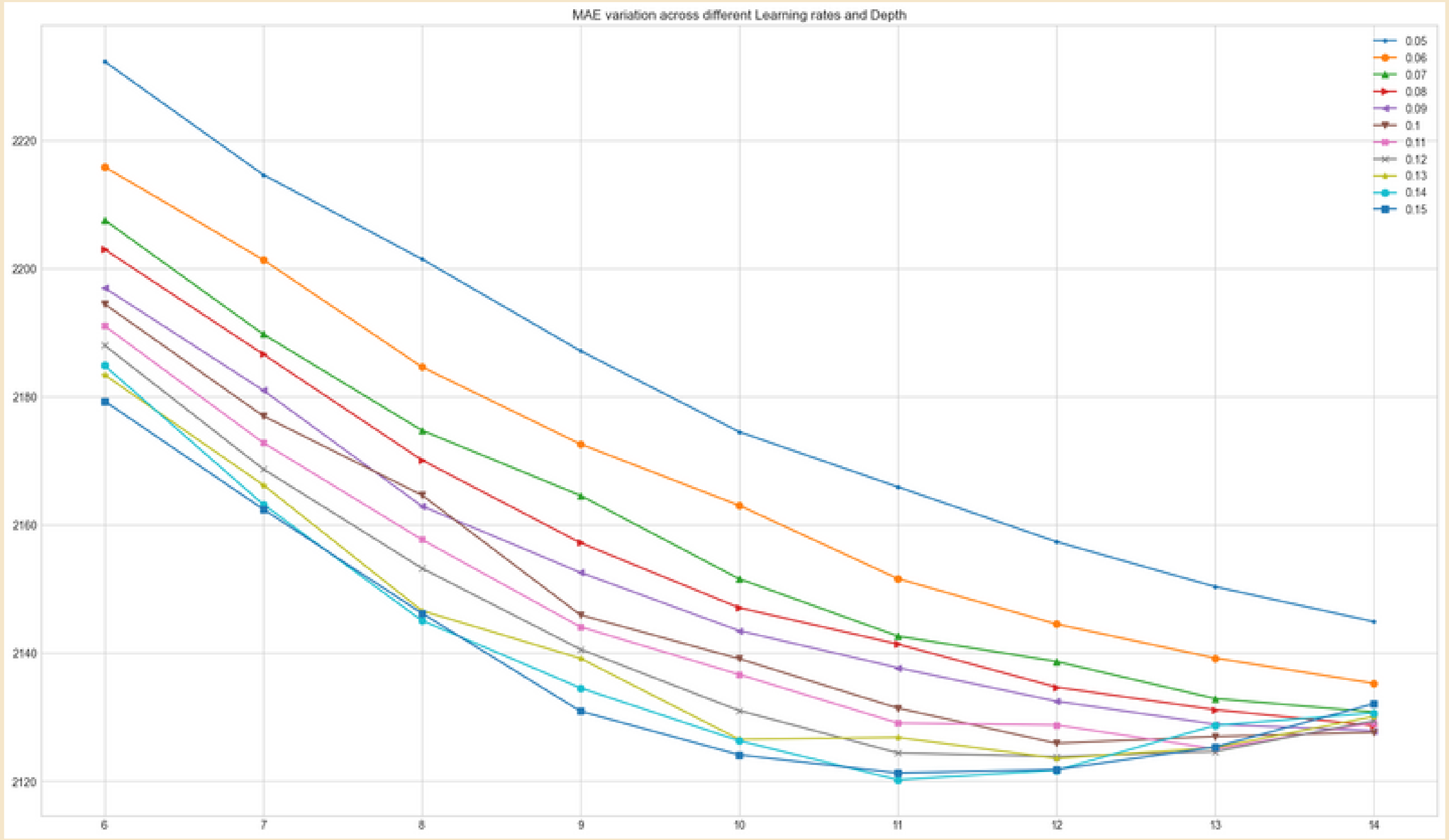
RESULTS

Parameters for evaluation

- Root Mean Squared Error (RMSE)
- Mean Absolute Percentage Error (MAPE)
- R-squared (R^2) or Coefficient of Determination

Model	RMSE	MAPE	R^2
XGB Regressor	2858.23	14%	0.69
Random Forest	3019.58	18%	0.64

RESULTS


MAE variation across different Learning rates and Depth
0.05
0.06
0.07
0.08
0.09
0.1
0.11
0.12
0.13
0.14
0.15
2220
2200
2180
2160
2140
2120
6
7
8
9
10
11
12
13
14

TECH STACK

REACT

FLASK

PYTHON

DEMO

DOCUMENTATION AND CODE BASE

FUTURE SCOPE

- Tune the parameters further to obtain better results
- Try a different model - neural network models
- Dynamic visualisation and interactive charts

THANK YOU

Any questions?