**BTP**

**Smart Traffic Management System**

**Rough Progress Report**

* (Started from doing backend, taking help from chatgpt as Django is new for me.
* Done initial setup according to the instructions provided and tried to integrate mapmyindia api to get traffic data.
* Got stuck at the point when access token was required according to code given by gpt but api console didn’t have that.
* So it took some time but I got that as some query was supposed to be run using postman and query was given in api documentation.
* But that didn’t work as still error was there or you can say I was not able to interpret what my code is doing through api, whether it is fetching data or doing nothing.
* Gave some time on resolving this issue but couldn’t so discarded it.
* Then started again from scratch through Django documentation and tutorials provided in it to do first project.) -> Till 23 Oct
* (Completed tutorial 1 and 2 In which basic setup including one view, database model setup and migration was involved and Django’s admin panel introduction was there along with linking our app to admin panel was there.
* By which a rough model schema has been defined.
* Then jumped to tutorial 3 in which I didn’t find much relevant things but will look at it again.
* As it contained views part but focused on how site will view which we will consider in frontend portion.
* Write some views, serializers and related url adjustments while which encountered some error due to rest framework.
* But error was resolved quickly as it was just due to installation of djangorestframework in wrong environment.) -> Till 28 Oct
* (Completed tutorials of Django as the left ones were not so useful for now.
* Tried to study about mapmyindia api but nothing helped.
* So changed api to tomtom and it seems to be a better option till now as its documentation has clearly mentioned that what kind of request to use to fetch traffic data and all such things.
* Before jumping further into these things I remembered that currently Django is using sqllite but I want to use mysql as I am familiar with it.
* For that I studied about it on Django documentation and got the method with a few changes in settings.py code and a module named as mysqlclient but its giving error which I am not able to resolve, I tried on gpt also, tried the solutions provided by it but nothing helps.) -> Till 12 Nov
* (As real time data integration was taking time so I shifted to csv file dataset from Kaggle.
* Write the codes for data processing, feature engineering, model, conversion to tflite and testing codes.
* I decided to work directly on tensorflow instead of trying simpler techniques like random forest because real time data will be complex so will have to work with neural networks.
* Tried two different approaches like lstm and fnn to know which works better.
* Errors were there but progressive so got away with it.
* Lstm gave maximum accuracy of 78% till now and stopped working on that due to time constraint.
* Write the views code to integrate it with Django app.
* Tested tflite model integrated with Django using postman and it worked successfully.) -> Till 22 Nov

**Best Evaluation Metrics**

Mean Squared Error (MSE): 7.5053

Mean Absolute Error (MAE): 1.4977

Mean Absolute Percentage Error (MAPE): 0.2129

Model Accuracy: 78.71%

**Step-By-Step Goal: ( Green- Done Blue- In Progress )**

* Basic Django setup
* Define db models
* Define views and serializers
* ML model development using csv file dataset
* ML model integration with Django
* Traffic api integration
* Backend code to fetch and store real time traffic data
* Ml model development on tesorflow and integration with Django code
* Code for pothole detection
* Frontend….