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School of Science and Engineering

Software Engineering

Special Topics in Software Engineering

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Project Name: End-to-End Machine Learning Project with GUI, GitHub Copilot, and Clean Code Practices

Done By

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Introduction about the project:

This project is about analyzing social media trends using machine learning. We used a dataset about viral content and engagement metrics from different platforms. The main goal is to predict whether a trend will go viral based on early data. Moreover, this project will let the user know what level of engagement the social life is at.

Dataset:

we used the "Viral Social Media Trends and Engagement Analysis" dataset from Kaggle. It contains data such as platform type, region, and the hashtag category, and it will provide a small table to show it in integer mode since the dataset was in this type of the dataset. This data helped us understand what makes a trend viral.

Link to the dataset:

🚀 Viral Social Media Trends & Engagement Analysis

Project Steps:

a. Data preprocessing:
   We loaded the dataset and removed the missing values. Also, we converted the platform, region, hashtag, and engagement levels into numbers using simple mapping.

b. Model training:
   We used the random forest classifier to predict engagement level. In addition to that, the features that are used are platform, region, and hashtag.

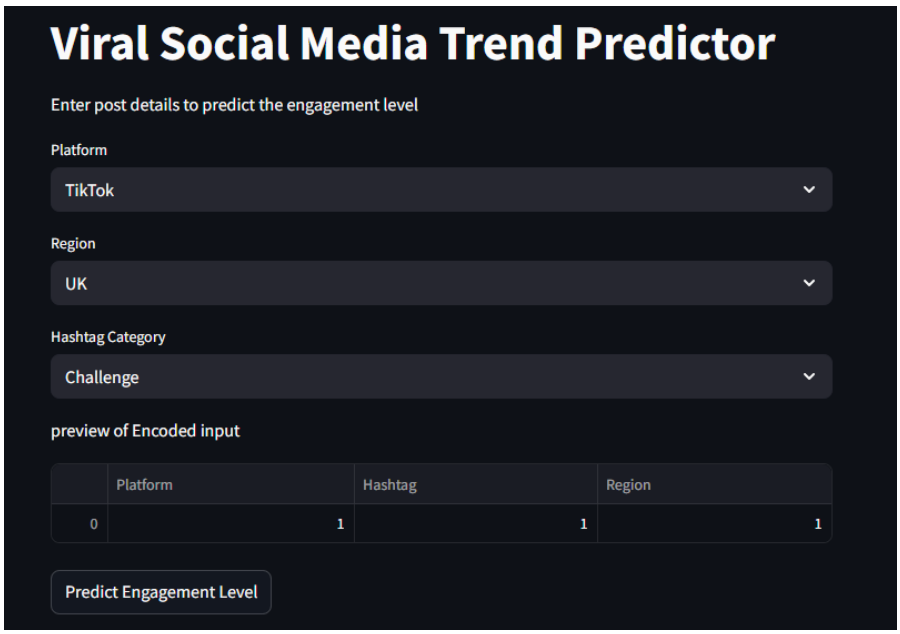
c. GUI with Stremlit:
   We built a simple user interface using Streamlit, and users select the platform, region, and hashtag category. To sum up, the app shows the predicted engagement level (high, medium, or low).

d. README.md:
   This file will explain what the project does, and it includes simple instructions for how we can run the project, and it mentions the dataset source and the tool that is being used, such as pandas.

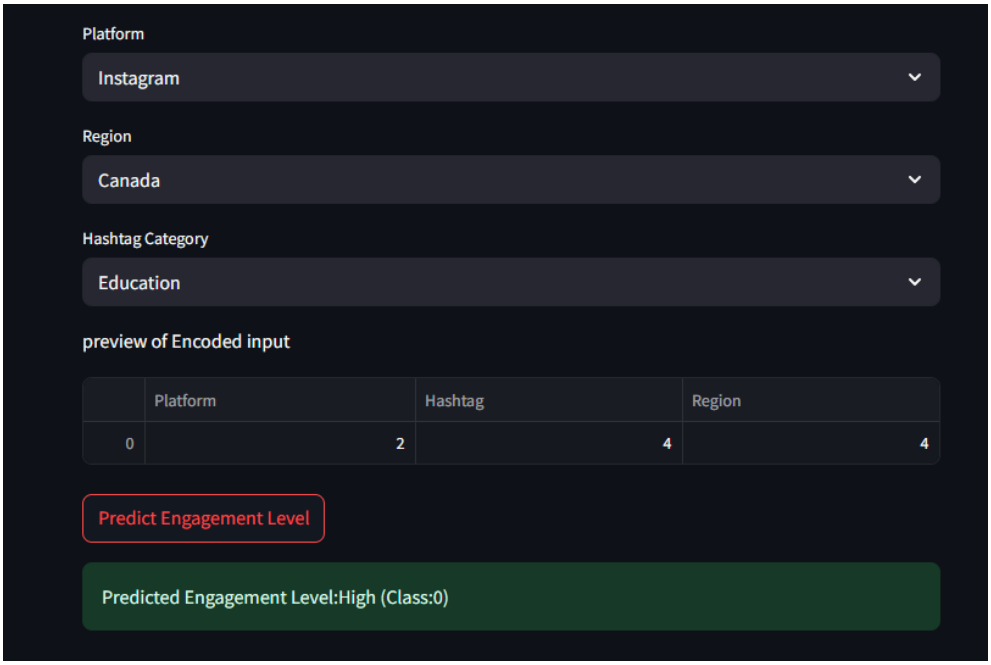
e. Requirement.txt:
   This file will list all the Python libraries used in the project, and helps to install other people to install the packages in an easy way.

Screenshots of the output:

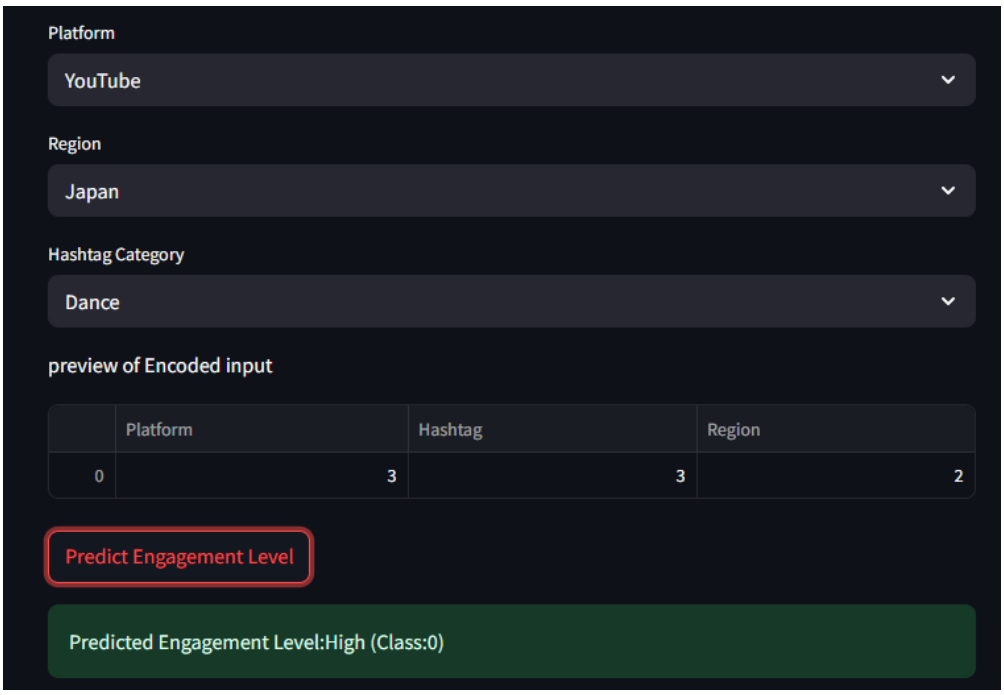
Here is a screenshot of the GUI of the project, and how it is working :



The above photo shows what the web looks like once we write(streamlit run gui_app.py)



This is an example of the entered information of the (platform, region, and hashtag category). This will show the predicted level based on the provided dataset.



This is also another example, but with different information, which gives a different engagement level.

Note: each level has an integer number (0 high), (1 medium), (2 low).

Conclusion:

This project helped us learn how to work with real data, build a prediction model, and create a user-friendly interface. Moreover, it helped to practice clean code and teamwork using GitHub by sharing the information there and presenting it.