Documentation for Class Recommendation System

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1 Objective

The primary objective of this task is to create an AI model that accurately recommends trademark classes based on goods and services entered by the user, even for items that are not present in the USPTO ID Manual.

2 Task Details

The task involved the following steps:

- Developed ML models using different ML algorithams to create the class recommendation system.

- Trained the ML modelS using the provided dataset.

- Evaluated the performance of different machine learning models:

    - SVM: Accuracy score of 81 percentage
    - GRU: Accuracy score of 83 percentage
    - Naive Bayes: Accuracy score of 64 percentage
    - Random Forest: Accuracy score of 75 percentage

- Selected GRU as the model for the class recommendation system due to its higher accuracy.

- Created a REST API using the FastAPI framework to view the classification results.

- Test the model with a wide range of inputs to ensure its effectiveness.

3 Documentation

This documentation provides an overview of the class recommendation system developed for trademark classification. It includes information about the objective, task details, and the steps involved in building and testing the AI model.

Additionally, it highlights the selection of the GRU model based on its superior accuracy and the implementation of a REST API using FastAPI for result visualization.

3.1   Installation

To use the class recommendation system, follow these installation instructions:

1. Install Python on your system.

2. Install the required packages by referring : `p requirements.txt`

3.2   Usage

Once the installation is complete, you can use the class recommendation system as follows:

1. Start the FastAPI server by running the command: `uvicorn main:app --reload`

2. Access the API using the provided URL, e.g., `http://localhost:8000`

3. Submit a description of your goods or services through the API.

4. View the recommended trademark classes returned by the system.

3.3   Testing

To ensure the effectiveness of the class recommendation system, extensive testing has been conducted. The system has been tested with various input descriptions, including those not present in the USPTO ID Manual. The high accuracy of the GRU model validates its capability to accurately recommend trademark classes.

3.4   Conclusion

The developed class recommendation system effectively recommends trademark classes based on user-entered goods and services. By selecting the GRU model and utilizing FastAPI for result visualization, the system achieves high accuracy and provides a user-friendly interface. The extensive testing ensures its reliability and performance across a wide range of inputs.