System Architecture



The system has 6 major components:

**Client System (Grey)**

This is the system that will make use of the classification API, its responsible for collecting transaction data and transaction processing

**REST API (Grey)**

This is responsible for bridging the classification model and the client system. It handles requests from the client system, and returns an appropriate response acquired from the classification model

**Data Processor (Light Blue)**

This is responsible for transforming the data into a format that is suitable for the classification model

**Data Store (light Green)**

This is responsible for the storage of all transaction data

**Retraining Module (Light Orange)**

This is responsible for retraining the classification model using new transaction data to improve its performance

**Model Development (Light Grey)**

This is responsible for the development of the initial classification model using historical data

**How it Works**

A new transaction is made on the client system and before the transaction is processed by the transaction manager the client system sends the transaction details to the REST API. First the new transaction data is pre-processed and parsed to the classification model which classifies it as fraudulent or not and returns the result to the API with returns the result to the client system which will decide whether to terminate the transaction processing or to continue.

The new data is also store in a transactions data store and when the number of transactions has reached a specified critical number the model will be retrained using the new data in order to improve the model performance