**Mobile Price Prediction API Documentation**

**Overview**

This API allows users to predict the price range of mobile devices by uploading a CSV file containing specific features of the devices. The API uses a pre-trained Support Vector Classifier (SVC) model to make predictions and returns a CSV file with the predicted price ranges.

**Prerequisites**

* Python 3.x
* Flask
* pandas
* scikit-learn
* joblib

**Files**

* **app.py**: The main Flask application file.
* **svc\_pipeline.pkl**: The pre-trained SVC model file.
* **templates/index.html**: The HTML file for the web interface.

**Running the Application**

1. **Place the pre-trained model file (svc\_pipeline.pkl) in the same directory as app.py.**
2. **Run the Flask application**:

python app.py

1. **Access the application**: Open a web browser and go to **http://127.0.0.1:5000/**.

**Using the API**

**Uploading a CSV File**

1. **Prepare a CSV file** with the following columns:
   * **battery\_power**
   * **blue**
   * **clock\_speed**
   * **dual\_sim**
   * **fc**
   * **four\_g**
   * **m\_dep**
   * **n\_cores**
   * **pc**
   * **px\_height**
   * **px\_width**
   * **ram**
   * **sc\_h**
   * **talk\_time**
   * **three\_g**
   * **touch\_screen**
   * **wifi**

Example:

csv

battery\_power,blue,clock\_speed,dual\_sim,fc,four\_g,m\_dep,n\_cores,pc,px\_height,px\_width,ram,sc\_h,talk\_time,three\_g,touch\_screen,wifi 842,0,2.2,0,1,0,0.6,2,2,20,756,2549,9,19,0,1,0 1021,1,0.5,1,0,1,0.7,3,6,905,1988,2631,17,7,1,0,1

1. **Upload the CSV file**:
   * Go to the web interface at **http://127.0.0.1:5000/**.
   * Click on the "Choose File" button and select your CSV file.
   * Click on the "Submit" button.
2. **Download the Predictions**:
   * After submitting the file, the API will process the CSV and return a new CSV file containing the original data along with the predicted price ranges in a new column **Predicted Price Range**.

**API Endpoint**

**/predict\_csv (POST)**

* **Description**: Predicts the price range of mobile devices based on the uploaded CSV file.
* **Parameters**:
  + **file**: The CSV file to be uploaded.
* **Responses**:
  + **Success (200)**: Returns a CSV file with the predicted price ranges.
  + **Error (400)**: Returns an error message if no file is uploaded.

**Example Response CSV**

csv

battery\_power,blue,clock\_speed,dual\_sim,fc,four\_g,m\_dep,n\_cores,pc,px\_height,px\_width,ram,sc\_h,talk\_time,three\_g,touch\_screen,wifi,Predicted Price Range 842,0,2.2,0,1,0,0.6,2,2,20,756,2549,9,19,0,1,0,High Cost 1021,1,0.5,1,0,1,0.7,3,6,905,1988,2631,17,7,1,0,1,Very High Cost

**Notes**

* Ensure that the column names in the CSV file match exactly with the expected names.
* The prediction model is trained on specific features and may not perform accurately on data outside the expected range.