Walmart API Testing & Frontend Integration Guide

🚀 API Base URL

http://localhost:5001

📋 Available Endpoints

1. Health Check

- **URL**: `GET /`
- **Purpose**: Check if server is running and data is loaded
- **Frontend Use**: System status indicator

2. Inventory Forecast (JSON)

- **URL**: `POST /forecast`
- **Purpose**: Get restock predictions with detailed item lists
- **Frontend Use**: Main dashboard, inventory management

3. Inventory Forecast (Table Format)

- **URL**: `POST /forecast/table`
- **Purpose**: Get formatted table view of forecasts
- **Frontend Use**: Reports, printable views

4. Demand Visualization

- **URL**: `GET /plot/demand/{store_id}`
- **Purpose**: Get demand trend chart as PNG image
- **Frontend Use**: Analytics dashboard

5. Route Optimization

- **URL**: `POST /optimize-route`
- **Purpose**: Optimize delivery routes with waypoints
- **Frontend Use**: Delivery management, logistics

6. Route Analysis

- **URL**: `POST /route-analysis`
- **Purpose**: Analyze existing route performance
- **Frontend Use**: Route performance metrics

🧪 Postman Testing Instructions

Test 1: Health Check

http
GET http://localhost:5001/
Expected Response:

json
```
{
  "status": "Server is running",
  "data_loaded": true,
  "endpoints": ["/forecast", "/forecast/table", "/plot/demand/<store_id>"]
}
```
Test 2: Inventory Forecast

http
POST http://localhost:5001/forecast
Content-Type: application/json

```
{
  "store_id": 101,
  "forecast_days": 30, #default
  "min_categories": 10 #default
}
```
Expected Response Structure:

json
```
{
  "store_id": 1,
  "forecast_period_days": 30,
  "categories_to_restock": [
    {
      "category": "Dairy",
      "category_group": "Grocery & Food",
      "items_to_order": [
        {
          "item_name": "Fresh produce",
          "quantity_to_order": 45
        },
```

```
      {
        "item_name": "Dairy",
        "quantity_to_order": 38
      }
    ],
    "avg_predicted_demand": 63.25,
    "stockout_risk_percentage": 25.5,
    "priority": "High",
    "total_items": 10
  }
 ],
 "total_restock_count": 10,
 "high_priority_count": 3,
 "total_items_to_order": 100
}
```


Test 3: Forecast Table View

http
POST http://localhost:5001/forecast/table
Content-Type: application/json


```
{
 "store_id": 1,
 "forecast_days": 30,
 "min_categories": 10
}
```


Test 4: Demand Visualization

http
GET http://localhost:5001/plot/demand/1
Response: PNG image file

Test 5: Route Optimization

http
POST http://localhost:5001/optimize-route
Content-Type: application/json


```
{
 "start_lat": 18.5204,
 "start_lon": 73.8567,
 "end_lat": 18.5314,
```

```
  "end_lon": 73.8446,
  "vehicle_type": "truck",
  "fuel_type": "diesel",
  "load_kg": 1500
}
```

Test 6: Route Analysis

```
http
POST http://localhost:5001/route-analysis
Content-Type: application/json

{
  "waypoints": [
    {"lat": 18.5204, "lon": 73.8567},
    {"lat": 18.5254, "lon": 73.8500},
    {"lat": 18.5314, "lon": 73.8446}
  ],
  "vehicle_type": "truck",
  "fuel_type": "diesel",
  "load_kg": 1500
}
```