User Manual

User Manual for Dynamic Forecasting Visualization Application

Introduction

Welcome to the Dynamic Forecasting Visualization Application. This application is designed to visualize and track forecast predictions and actual outcomes. It also detects data drift and enables you to run simulations to evaluate the performance of your forecasting model.

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1. Home Screen Overview

The main screen of the application is divided into two sections:

- **Forecast Visualization (Main Content Area):** This is where the forecasted and actual data are visualized as a time series plot. It also highlights drift events detected during the forecasting process.
- **Controls (Sidebar):** This section allows you to configure the model, upload necessary files, and control the simulation.

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2. Sidebar Controls

2.1 Model Configuration

The sidebar contains the following controls under the "Model Configuration" section:

- **CSV File Upload:**
  - Upload a CSV file that contains historical data needed to initialize the model.
  - **File Type:** Only CSV files are supported.
- **Window Size:**
  - This allows you to set the time window for how many days of predictions you want to display at once.

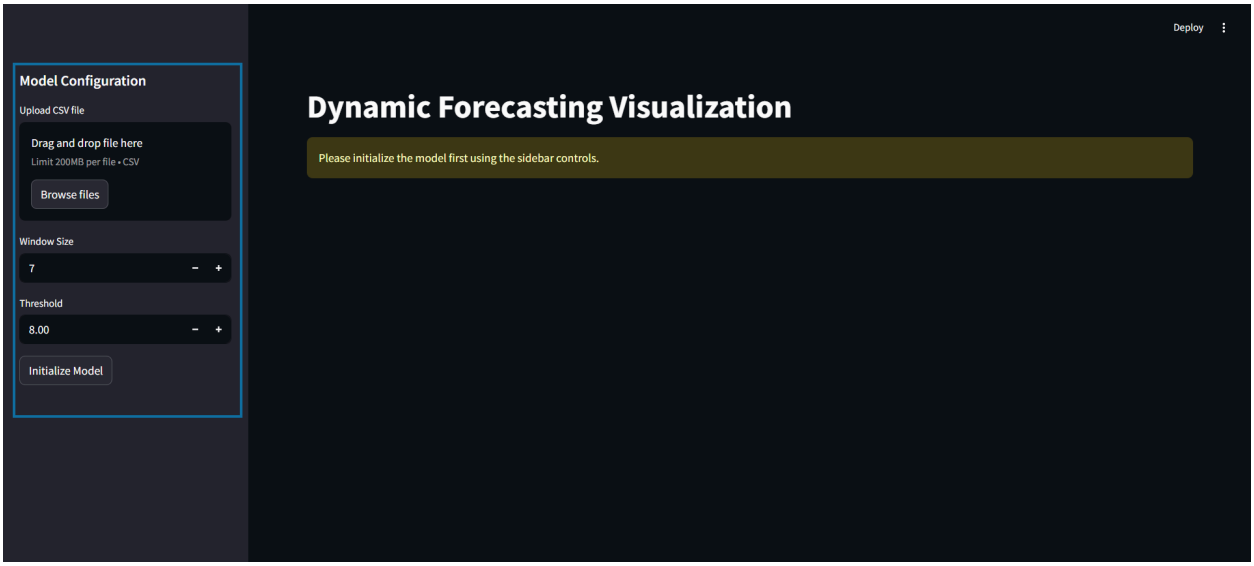
- **Default Value:** 7 days.

- **Threshold:**
  - This threshold value is used by the model to determine the sensitivity of drift detection.
  - **Default Value:** 8.0.
- **Initialize Model Button:**
  - Click this button to initialize the model after uploading the CSV file and setting the parameters.
  - **Success:** A success message will appear, and the model will be initialized.
  - **Error:** If there's an issue with the file or initialization, an error message will be displayed.

2.2 Model Initialization Status

After the model is initialized successfully, the following information will be displayed:

- **Current Date:** The last date of the training data. This is used to track the next forecast date.
- **Drift Events Detected:** A count of drift events that have occurred based on the model's predictions.



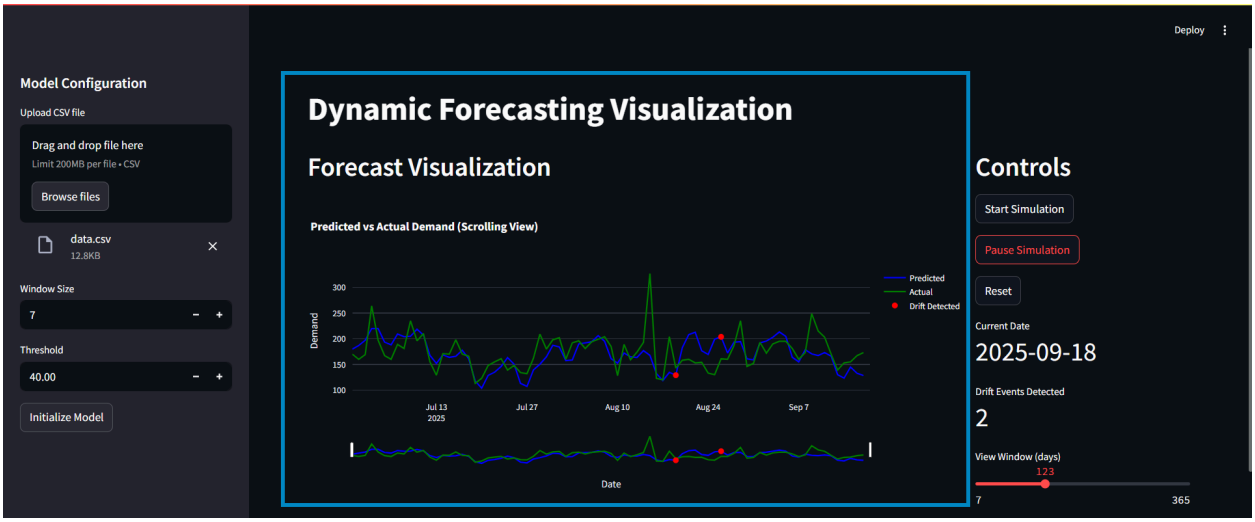
3. Forecast Visualization

Once the model is initialized, you will see the forecast visualization section where:

- **Predicted Values** are shown as blue lines.
- **Actual Values** are shown as green lines.
- **Drift Detected Events** are highlighted with red markers on the plot.

Time Window Controls

- You can adjust the time window (i.e., the number of days) to zoom in or out on the forecasted data.
- The current window size is displayed, and you can modify it using the slider under the "Controls" section.



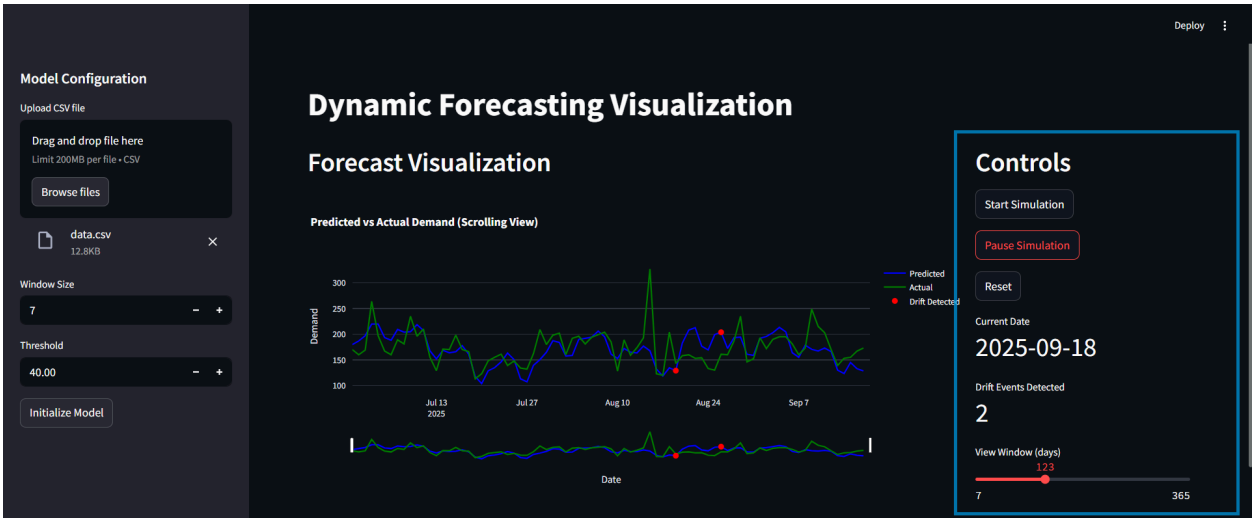
4. Simulation Controls

The **Simulation Controls** allow you to start, pause, or reset the simulation:

- **Start Simulation Button:**
  - Clicking this starts the forecast prediction process. The model will generate predictions one day at a time.
- **Pause Simulation Button:**

- Clicking this pauses the simulation. You can resume it later.

- **Reset Button:**
  - This resets the predictions and drift detection history, returning the application to its initial state.



5. Live Data Update

When the simulation is running:

- The **Current Date** and **Predictions** are updated automatically every time a new prediction is made.
- **Drift Events** are monitored, and if any are detected, they are highlighted on the graph.

Error Handling

- If any issues occur during prediction, the application will display an error message, and the simulation will be paused until resolved.

6. Viewing Raw Data

- You can view the raw data used for the forecast by clicking on the **"Show Raw Data"** expander.
- This will display the table with all prediction information, including:

- **Date:** The date of the forecast.
- **Predicted:** The forecasted value for that date.
- **Actual:** The actual value for that date.
- **Error:** The error value between predicted and actual data.
- **Drift Detected:** A boolean value indicating whether drift was detected for that prediction.

	date	predicted	actual	error	drift_detected
41	2025-08-10	152.5304	128	24.5304	☐
42	2025-08-11	172.198	189	16.802	☐
43	2025-08-12	164.9925	159	5.9925	☐
44	2025-08-13	163.4902	174	10.5098	☐
45	2025-08-14	176.8111	193	16.1889	☐
46	2025-08-15	167.6723	327	159.3277	☐
47	2025-08-16	132.2121	123	9.2121	☐
48	2025-08-17	118.6566	120	1.3434	☐
49	2025-08-18	134.4186	204	69.5814	☐
50	2025-08-19	129.0262	143	13.9738	☑

7. Troubleshooting

If you encounter any issues while using the application, consider the following steps:

- **Model Initialization Fails:**
  - Ensure that the CSV file is correctly formatted and does not contain any empty or invalid values.
  - Verify that the parameters (Window Size and Threshold) are set correctly.
- **Error with Simulation:**
  - If the simulation stops unexpectedly, check for error messages displayed on the screen and resolve any issues with the data or model.