Implementation of Third Module

Web Integration (Flask App):

In this module, we created a simple and responsive web application using Flask to allow users to interact with the machine learning model. Users can input medicine features through a web form and get real-time predictions on whether the medicine is Safe or Not Safe.

Steps Followed:

1. **Flask Project Setup:**

   - Created a new Flask project folder with:

     o app.py for backend logic

     o templates/ folder for HTML pages

     o static/ folder for CSS files

2. **User Interface Design:**

   - Designed a clean and user-friendly HTML form (index.html) to take inputs like:

     o Active Ingredient

     o Days Until Expiry

- Storage Temperature

- Warning Labels Present

- Dissolution Rate

- Disintegration Time

- Impurity Level

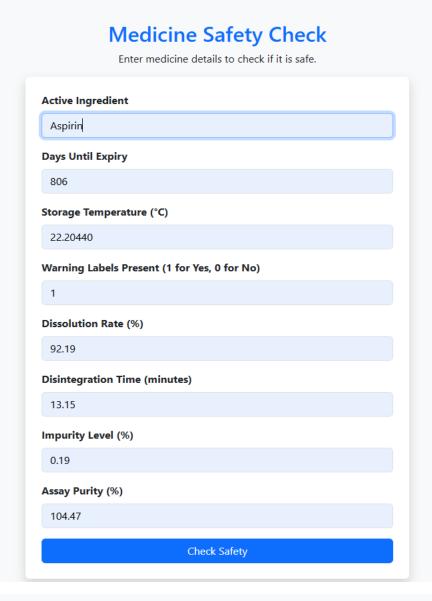- Assay Purity

3. **Backend Logic (app.py):**

- Used Flask to receive form data from the frontend.

- Loaded the saved medicine_quality_model.pkl, encoder.pkl, and scaler.pkl.

- Applied the same encoding and scaling to the input before sending it to the model.

- Returned the prediction result to the user ("Safe" or "Not Safe").

4. **Output Display:**

- The result is shown on a new page with clear formatting and color indicators (green for Safe, red for Not Safe).

- Added input validation and error handling to prevent system crashes from incorrect input.

5. **Testing the App:**

   - Ran the Flask server (python app.py) and tested the app on localhost:5000.

   - Verified that predictions were correct and the frontend was responsive on different browsers.

Outputs :

Medicine Safety Check

Enter medicine details to check if it is safe.

Active Ingredient

Aspirin

Days Until Expiry

806

Storage Temperature (°C)

22.20440

Warning Labels Present (1 for Yes, 0 for No)

1

Dissolution Rate (%)

92.19

Disintegration Time (minutes)

13.15

Impurity Level (%)

0.19

Assay Purity (%)

104.47

Check Safety

Prediction Result

✅ The Medicine is **Safe** for use.

Check Another Medicine

Medicine Safety Check

Enter medicine details to check if it is safe.

Active Ingredient

Aspirin

Days Until Expiry

806

Storage Temperature (°C)

22.273

Warning Labels Present (1 for Yes, 0 for No)

1

Dissolution Rate (%)

98

Disintegration Time (minutes)

13.15

Impurity Level (%)

0.80

Assay Purity (%)

104.47

Check Safety

Prediction Result

✖ The Medicine is **Not Safe** for use.

Check Another Medicine