Proposed System – Working of System, Algorithm / Architecture

Working of the System:

The proposed system is a web-based platform where users can enter the features of a tablet—such as expiry time, storage temperature, dissolution rate, impurity level, etc.—and get an instant prediction on whether the medicine is Safe or Not Safe.

Here's how it works:

1. User Input:

   Users enter the details of the medicine through a web form (hosted using Flask).

2. Preprocessing:

   The system uses saved encoders and scalers to transform raw inputs into machine-readable format.

3. Model Prediction:

   The processed data is passed to a trained machine learning model (e.g., Random Forest or Decision Tree), which returns the prediction.

4. Output Display:

   The result is shown on the screen along with a color indication (e.g., Green for Safe, Red for Not Safe) to make it easy to understand.

5. Future Scope:

The same system can be extended to recommend medicines based on user preference (Ayurveda, Homeopathy, Allopathy) or predict diseases from symptoms.

System Architecture (Layered Overview) :

1. Frontend (User Interface):

- Built using HTML and CSS.
- Takes user input for medicine features.
- Sends data to backend via Flask routes.

2. Backend (Logic & ML Integration):

- Flask server receives inputs.
- Uses pre-trained ML model (.pkl file) for predictions.
- Returns the prediction result to the frontend.

3. ML Model (Core Intelligence):

- Trained on Kaggle dataset of 1100 entries.
- Features include dissolution rate, assay purity, impurity level, etc.
- Output label: "Safe" or "Not Safe".

4. Storage (Static Data Files):

- Model file (medicine_quality_model.pkl)
- Scaler and encoder files for preprocessing