






PROJECT MODULES STATUS UPDATE



Module 1: Data Preparation & Backend Setup

- **Task 1: Dataset Cleaning** (handle missing values, normalize categories) = .
- **Task 2: Feature Engineering** (condition-to-drug mapping, patient history) = .
- **Task 3: Model Input Pipeline** (train/test split, preprocessing pipeline) = .

Endpoint 1: Drug Recommendation Service

- **Input:** Patient's medical record (age, condition, symptoms) = .
 - **Output:** Suggested drug(s) with confidence score = .
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Module 2: Knowledge & Query Processing

- **Task 4: NLP Query Integration**
 - Enable users to ask in natural language, e.g., “*What drug is recommended for hypertension?*” = .
- **Task 5: Database Integration**
 - Connect to structured medical knowledgebase (wandb.ai) = .

Endpoint 2: Query-to-Drug Recommendation

- **Input:** Natural language query.
 - **Output:** Drug name(s), dosage range, and explanation.
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Module 3: Model Training & Evaluation

- **Task 6: Train ML Models**

Model/ Metrics	👉 KNeighbors	🌲🌲🌲 Random Forest	🎲 MultinomialNB	⚖️ Support Vector Classifier (SVC) 🏆
🎯 Accuracy	95.65%	✅ 100%	83.70%	✅ 100%
🔪 Precision	93.92%	✅ 100%	81.16%	✅ 100%
🔄 Recall	97.30%	✅ 100%	87.84%	✅ 100%
💡 F1-Score	94.77%	✅ 100%	82.35%	✅ 100%

- Compare KNeighbors, Random Forest, MultinomialNB, Gradient Boosting, and SVC= ✅.

- **Task 7: Model Evaluation**

- Use precision, recall, F1-score to evaluate = ✅.

➡ Endpoint 3: Predictive Recommendation

- **Input:** Patient structured profile.
- **Output:** Top-N recommended drugs.

Module 4: Frontend & Integration

- **Frontend Page 1:** Patient Form (enter patient details → get drug recommendation) = ⌚ *In Progress...*
- **Frontend Page 2:** Search Interface (type condition → recommended drug list) = ⌚ *In Progress...*
- **Frontend Page 3:** Results Visualization (charts, dosage insights) = ⌚ *In Progress...*

Tech Stack

- **Backend:** Flask / Fast API/ Stream lit = ❌ *Pending...*

- **ML Models:** Scikit-learn, XGBoost, Pytorch (optional) = ❌ *Pending...*
- **Database:** SQLite / PostgreSQL (structured data), Pinecone for embeddings, or MongoDB = ❌ *Pending...*
- **Visualization:** Power BI, Matplotlib, Seaborn = ❌ *Pending...*
- **Frontend:** Flask templates = ❌ *Pending...*
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