Problem Statement

- In India, late diagnosis of most patients raises costs and lowers survival rates.
- Specialists are not available in rural areas, and the patient may take a long time to reach a proper healthcare center.
- The existing systems are treatment-focused rather than preventive.
- **AI for early disease diagnosis** can identify risks quicker and give timely medical advice to everyone.

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Expected Solution

- Develop an **AI-driven cloud-based software** that forecasts disease risks early based on patient symptoms, demographics, and basic lab test data.
- Accessible through **mobile/web app** to promote **healthcare for all**, particularly rural communities.
- Offers:
  1. Disease risk score (low, medium, high).
  2. Prevention measures suggestions.
  3. Doctor consultation reminder for high-risk patients.
- Integration with **telemedicine platforms** for direct medical consultation.

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Technical Architecture

1. User Input → Patient enters symptoms, age, habits, and basic test results via web/mobile app.

2. Azure Function API → Processes and validates input.

3. Azure Machine Learning Model → Predicts disease risk (e.g., diabetes, heart disease).

4. Database (Azure SQL) → Stores anonymized patient history securely.

5. Output Dashboard → Shows risk score, recommendations, and doctor connect option.

6. Notification Service (Azure Logic Apps) → Alerts patients if high risk.

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How is Microsoft Azure used?

- **Azure Machine Learning**: Train, deploy, and scale disease prediction models.
- **Azure Functions**: Handle serverless processing of patient data and AI predictions.
- **Azure App Service**: Host the patient/doctor web app.
- **Azure SQL Database**: Secure storage of anonymized patient data.
- **Azure Cognitive Services** : For Natural Language Processing (if users enter symptoms in text).

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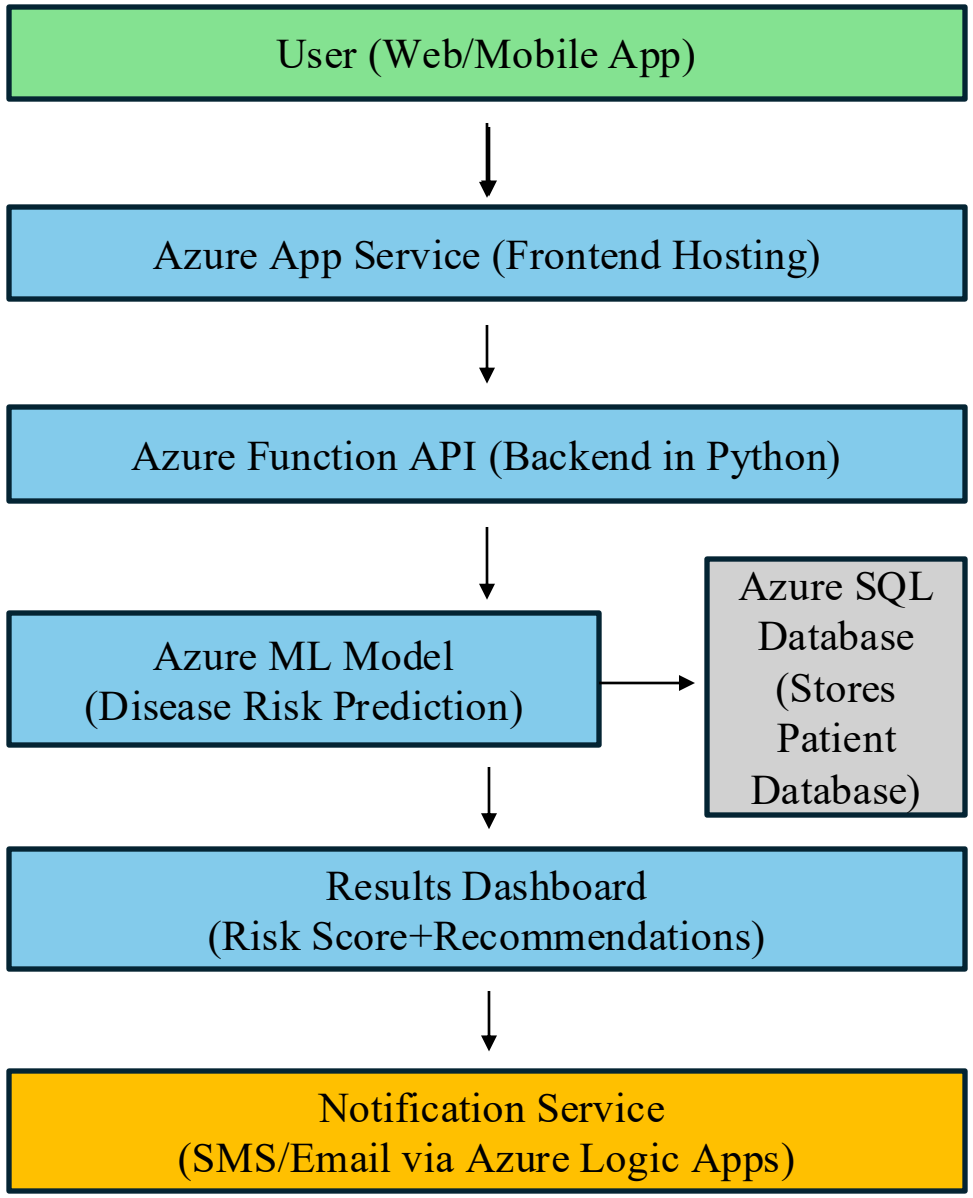
Tech Diagram



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Tech Stack

Layer	Technology
Frontend	React.js (patient form + results dashboard)
Backend	Python + Azure Functions (API to connect UI & ML model)
AI/ML	Python (scikit-learn) + Azure Machine Learning (model deployment)
Database	Azure SQL Database
Cloud	Microsoft Azure (App Service, Functions, ML)
Version Control	GitHub

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GitHub Repo Link

https://github.com/Chaithali3/Ai-early-disease-diagnosis

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