DOCWISE AI-A SMART MEDICAL HISTORY ANALYZER & DOCTOR RECOMMENDATION SYSTEM

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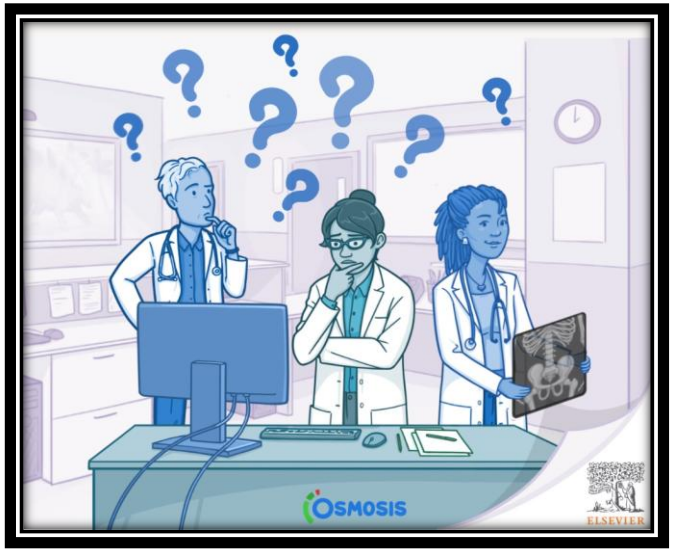
INTRODUCTION

In today's world, people face two major healthcare challenges:



1)Doctors spend a lot of time manually reading long patient reports.

- ❖ Reading and analyzing both scanned and digital medical reports.
- ❖ Summarizing patient history for doctors.
- ❖ Predicting diseases with risk levels.

2)Patients find it difficult to identify the right specialist for their disease.

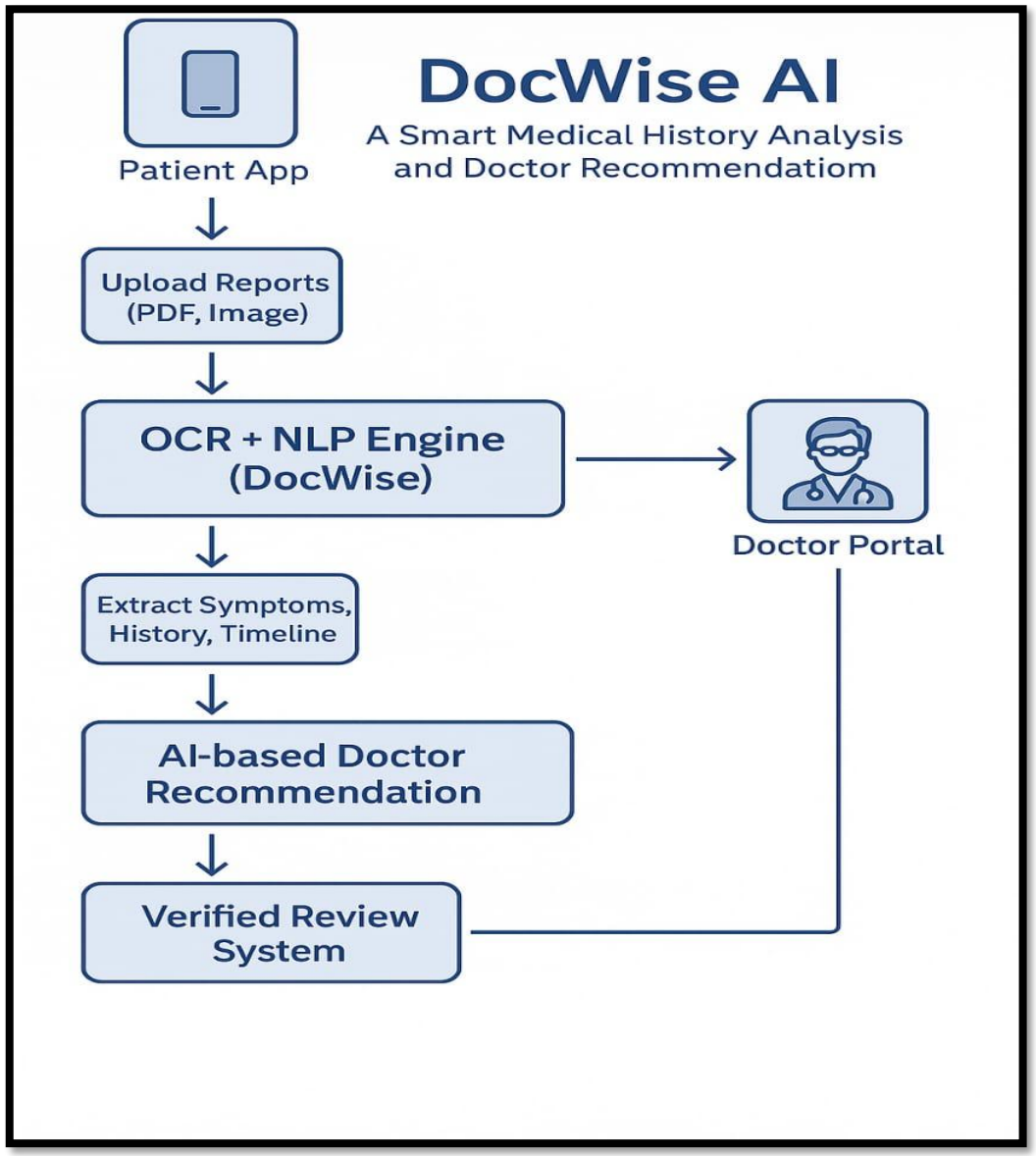
- ❖ AI and ML have been applied to disease prediction and recommendation systems, but most focus on single diseases or structured data only.
- ❖ Recommending verified specialists based on expertise, location, and availability.

AI-powered dual-dashboard system:

🩺 *Doctor Dashboard: Summarizes medical reports.*

👨‍⚕️ *Patient Dashboard: Recommends suitable doctors.*

Fully automated using AI,NLP, and OCR.



OBJECTIVES

- Automate report summarization (OCR + NLP).
- Recommend doctors using AI filtering.
- Improve accessibility and reduce manual effort.

SDG GOALS:

SDG 3 :Good Health and Well-being

SDG 9 : Industry, Innovation, and Infrastructure

SDG 16 : Peace, Justice and Strong Institutions

EXISTING SYSTEM vs PROPOSED SYSTEM

CRITERIA	EXISTING SYSTEM	PROPOSED SYSTEM (DOCWISE AI)
Report Reading	Manual	AI Summarization
Doctor Search	Word-of-mouth	Smart Recommendation
Time	High	Minimal
Accuracy	Moderate	High

MODULE

A module in a software project is a self-contained unit or component that performs a specific task in the application. Each module works like a building block and may interact with other modules to complete the overall functionality.

MODULES IN DOCWISE AI:

1. Data Collection
2. OCR & Report Analysis
3. Disease Mapping
4. Doctor Filtering
5. Recommendation & Output

Data Collection Module:

- Handles datasets (Doctor & Disease mapping)
- CSV format for easy updates

OCR & Report Analysis Module:

- Uses Tesseract OCR & NLP (Transformers)
- Summarizes diagnosis & medical history

Disease Mapping Module:

- Matches disease → specialist

Doctor Filtering Module:

- Filters by location, ranks by rating/experience

Recommendation Module:

- Displays top doctors

TECHNOLOGIES USED:

Tools & Libraries:

1. Python
2. Tesseract OCR
3. PyMuPDF, PIL
4. Transformers (NLP)
5. Pandas
6. Kivy MD

MACHINE LEARNING ALGORITHM

Content-Based Filtering Algorithm

Steps:

✓ Identify Specialist for Disease

✓ Assign Scores (Experience, Rating, Location)

✓ Rank Doctors by Weighted Score

✓ Display Top Recommendations

SYSTEM ARCHITECTURE

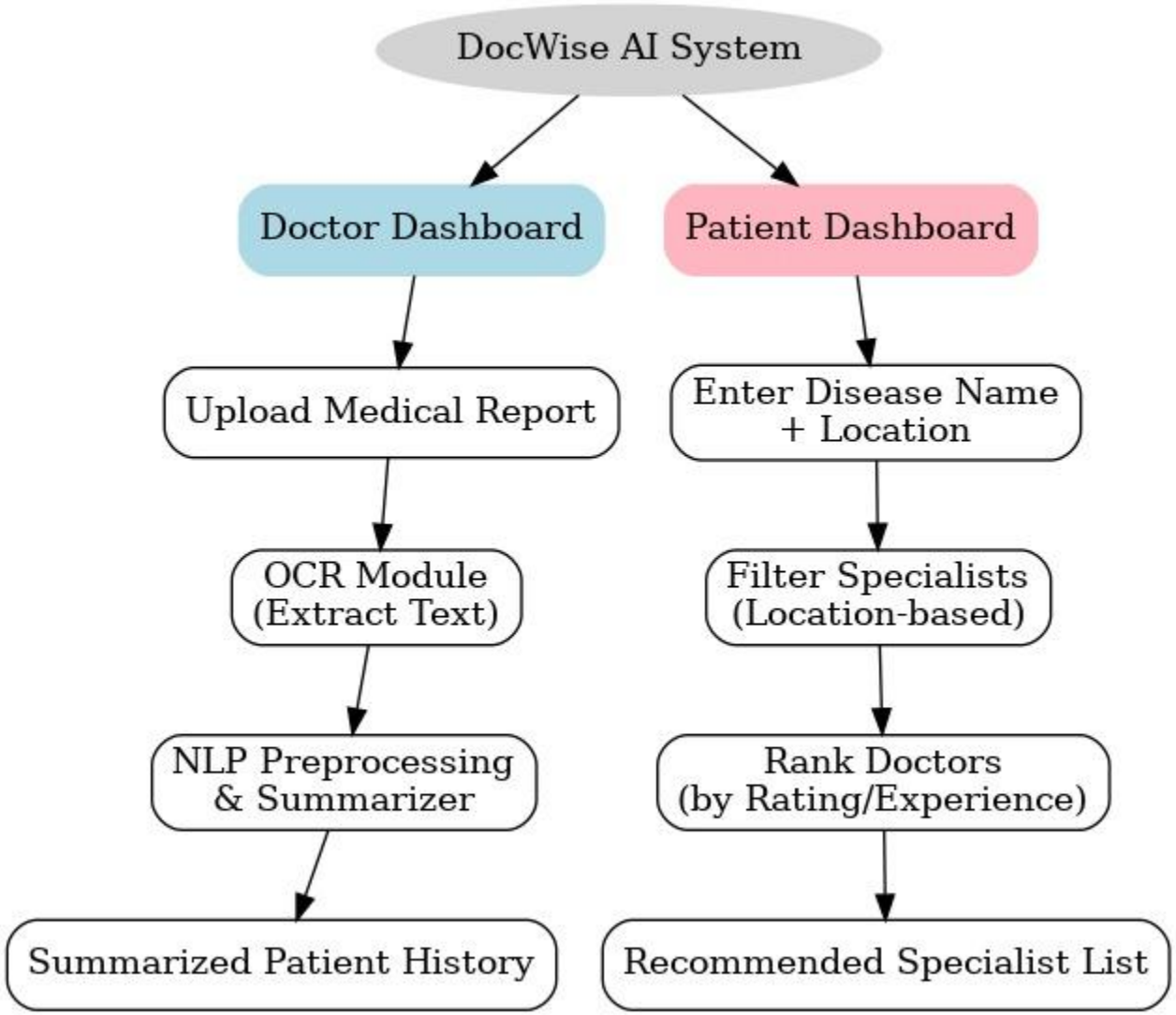
Two Workflows:

Doctor Workflow:

- Upload → OCR → NLP → Summary

Patient Workflow:

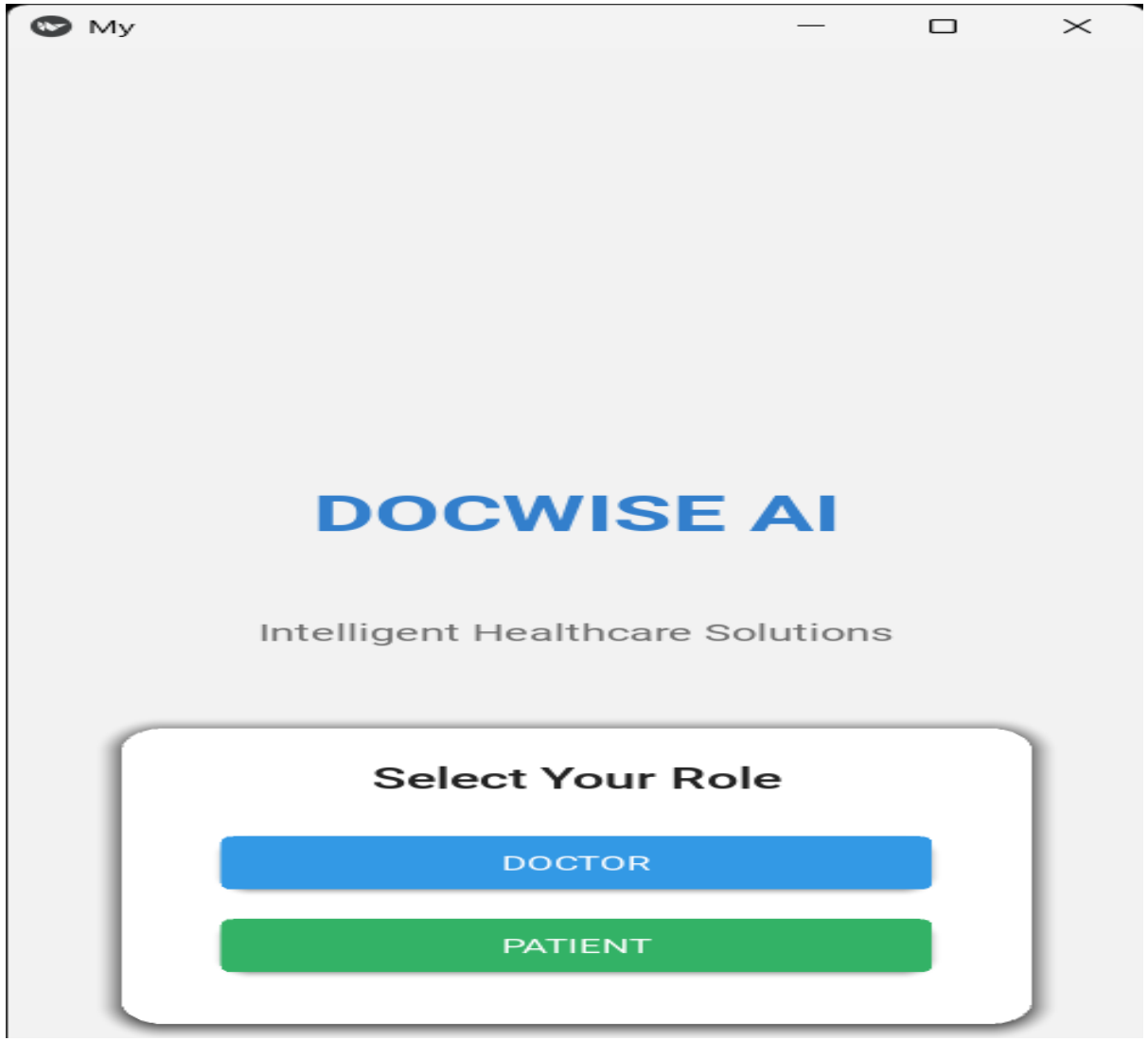
- Disease + Location → Specialist → Filter → Recommend



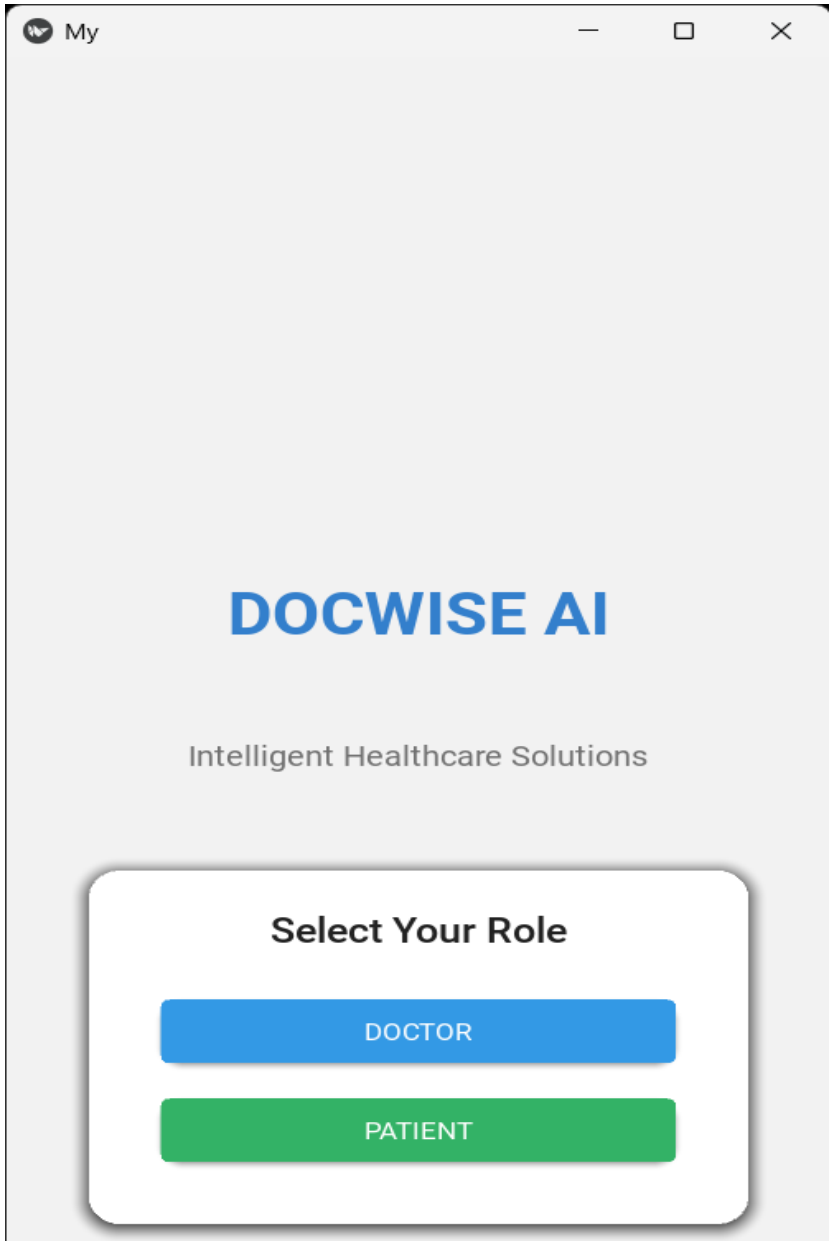
IMPLEMENTATIONS

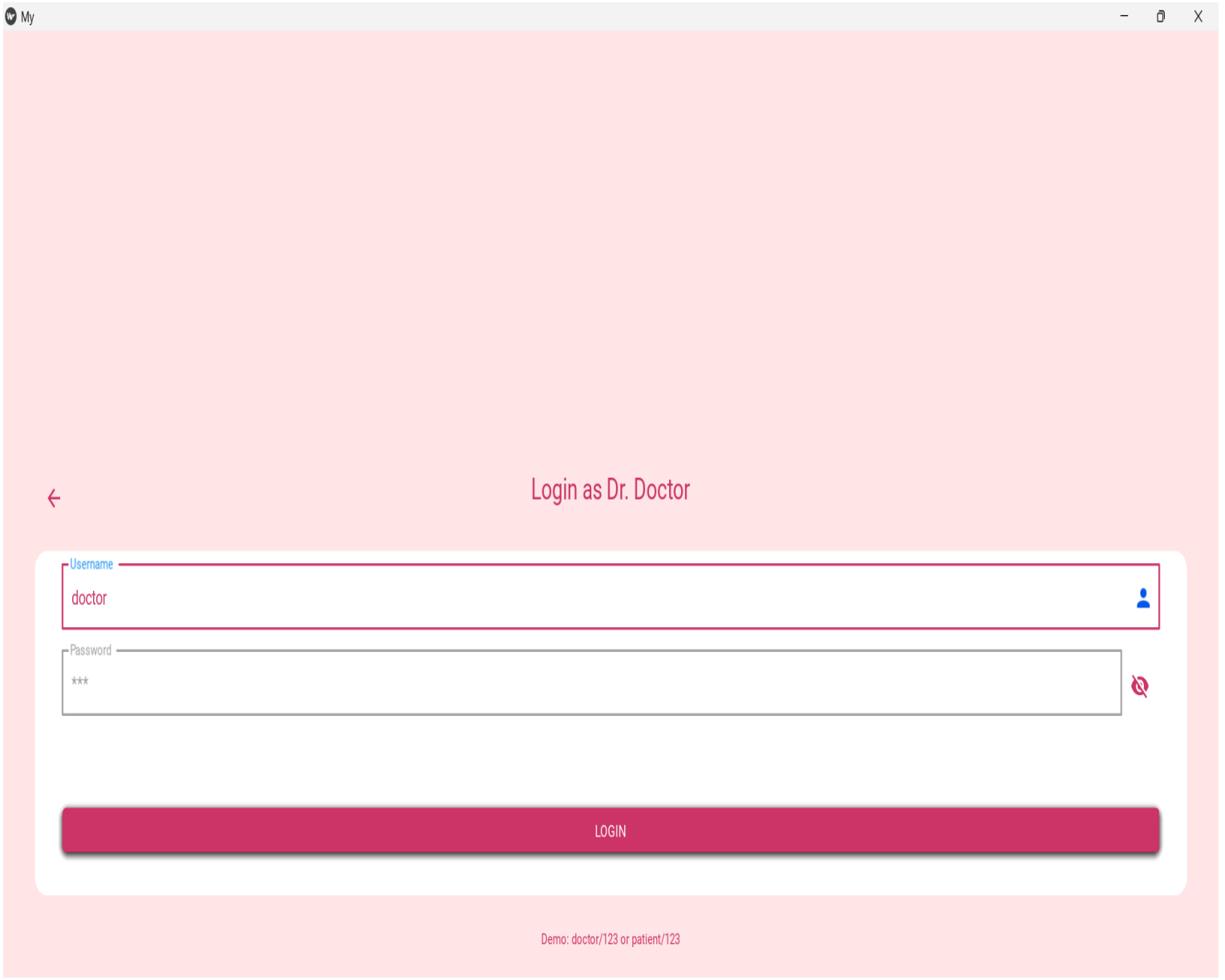
MODULES:
pdf_analyzer.py
disease_mapper.py
doctor_filtering.py
app.py (Integration)

Front-End: Kivy MD
Data: CSV Datasets



OUTPUT


My
DOCWISE AI
Intelligent Healthcare Solutions
Select Your Role
DOCTOR
PATIENT


My
Login as Dr. Doctor
Username
doctor
Password
***
LOGIN
Demo: doctor/123 or patient/123

My

DOCTOR DASHBOARD

Medical Report Analysis

Upload patient PDF reports for AI analysis and insights

UPLOAD PDF REPORT

Analysis Results

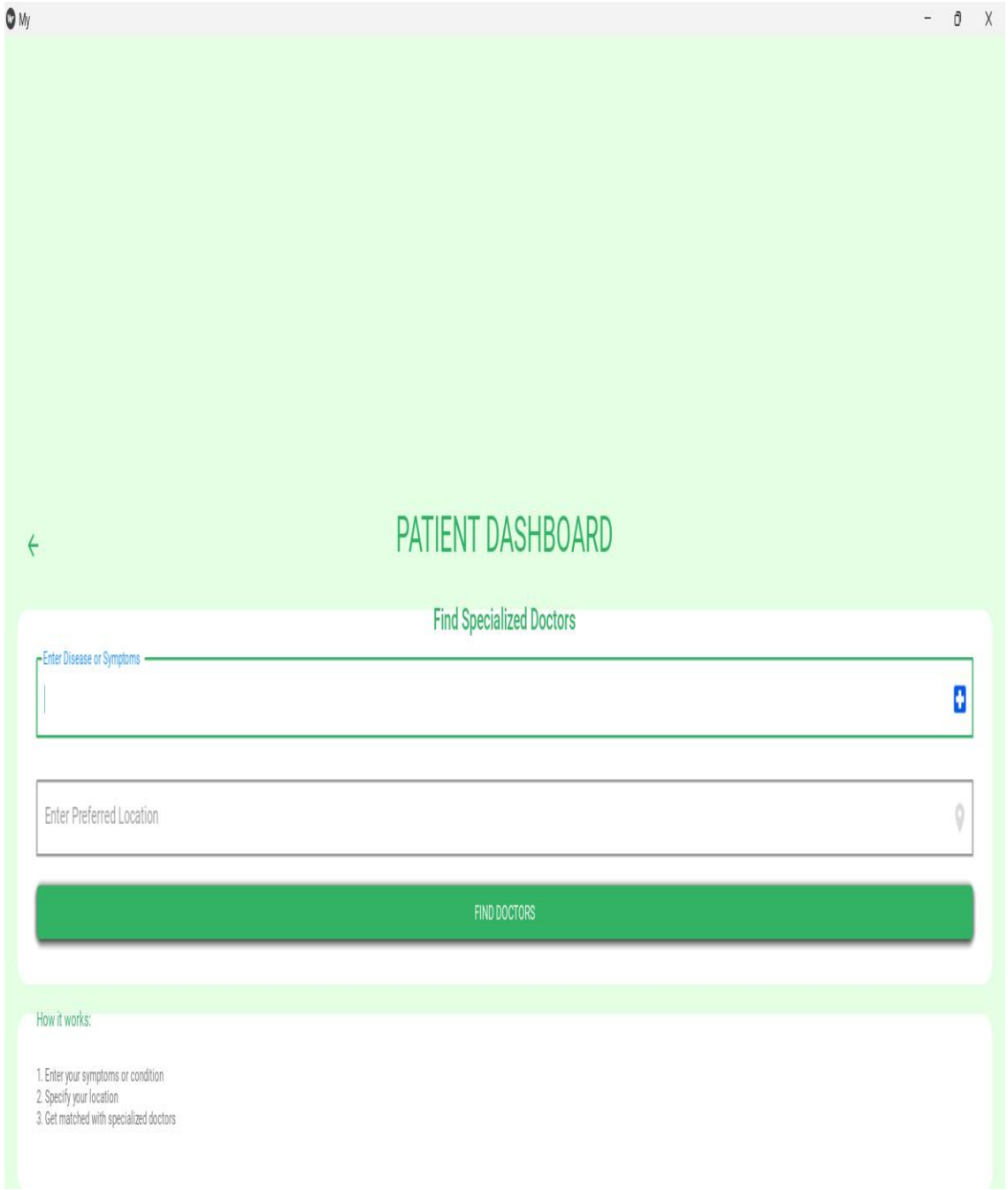
 Processed in 99.0s

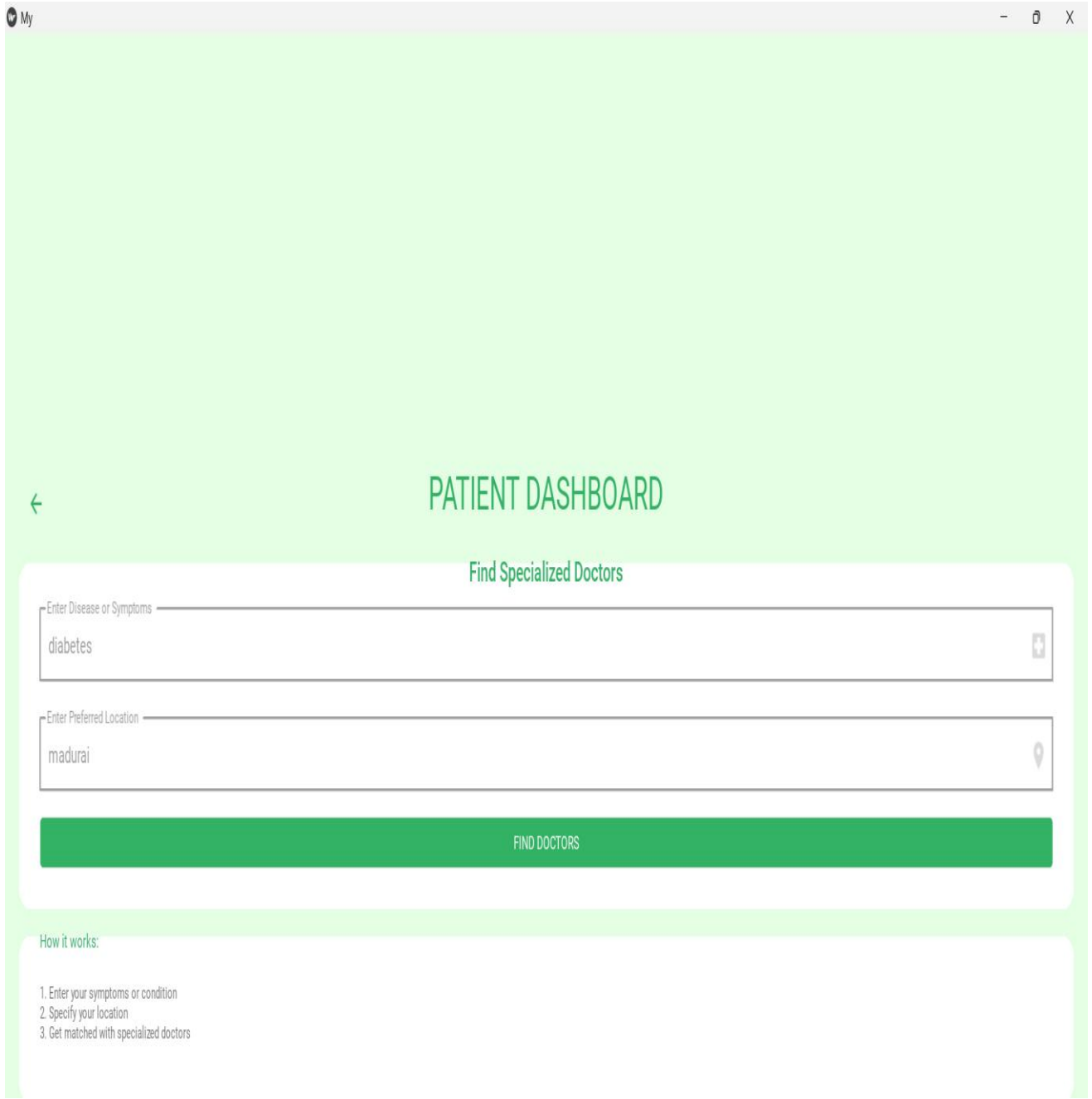
 SUMMARY:
Mr Tan Ah Kow is a 55 year old man, who is divorced, and unemployed. He has had hypertension and hyperlipidemia since 1990 and suffered several strokes in 2005. He developed heart problems (cardiomyopathy), cardiac failure and chronic renal disease and was treated in ABC Hospital. Mr Tan is at present incontinent, and is unable to bathe or use the toilet on his own.

 No specific symptoms detected

 POSSIBLE CONDITIONS:
• hypertension (confidence: 2)

 RECOMMENDED ACTIONS:
• Reduce sodium intake and maintain a healthy diet
• Monitor blood pressure regularly


My
PATIENT DASHBOARD
Find Specialized Doctors
Enter Disease or Symptoms
Enter Preferred Location
FIND DOCTORS
How it works:
1. Enter your symptoms or condition
2. Specify your location
3. Get matched with specialized doctors


My
PATIENT DASHBOARD
Find Specialized Doctors
Enter Disease or Symptoms
diabetes
Enter Preferred Location
madurai
FIND DOCTORS
How it works:
1. Enter your symptoms or condition
2. Specify your location
3. Get matched with specialized doctors

Recommended Doctors

Recommended Specialist: **Endocrinologist**

Dr. Pooja Mishra

Rating: 5.0

Specialist: endocrinologist

Experience: 28 years

Location: Madurai

Contact: 9213064059

Dr. Harish Rao

Rating: 4.0

Specialist: endocrinologist

Experience: 13 years

Location: Madurai

Contact: 7303695069

Dr. Suresh Reddy

Rating: 4.0

Specialist: endocrinologist

Experience: 11 years

Location: Madurai

CONCLUSION

- The proposed AI-Driven Doctor Recommendation System provides a personalized and accurate approach to connecting patients with the right medical specialists. By integrating techniques like Named Entity Recognition,Rule-Based Mapping, Content-Based Filtering, and Collaborative Filtering, the system ensures that recommendations are both medically relevant and accessible. Unlike generic search engines, it tailor results based on predicted disease, patient profile, location, and availability, making it more effective in improving healthcare accessibility and efficiency.

FUTURE SCOPE

- Integration with real-time hospital databases for live doctor availability.
- Addition of multilingual support to serve a diverse population.
- Incorporation of telemedicine appointment booking directly from the system.
- Expansion to global healthcare networks for cross-border consultations.
- Implementation of AI-based treatment and medicine recommendations alongside doctor suggestions.
- Use of deep learning models for enhanced disease–specialist matching accuracy.

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