HealthInsight: Leveraging Machine Learning for Real-Time Healthcare Insights and Patient-Centric Care Decision-Making

Group Members

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Background

- Accessing good healthcare is hard in countries like Bangladesh because hospitals are crowded, waiting times are long, and resources are limited.
- Old healthcare systems don't use digital tools, which slows down diagnosis and treatment.
- To solve these problems, we created HealthInsight using real-time data and machine learning.
- It helps patients book appointments, find hospital beds, and get quick disease predictions.
- This makes healthcare faster, easier, and available to more people.

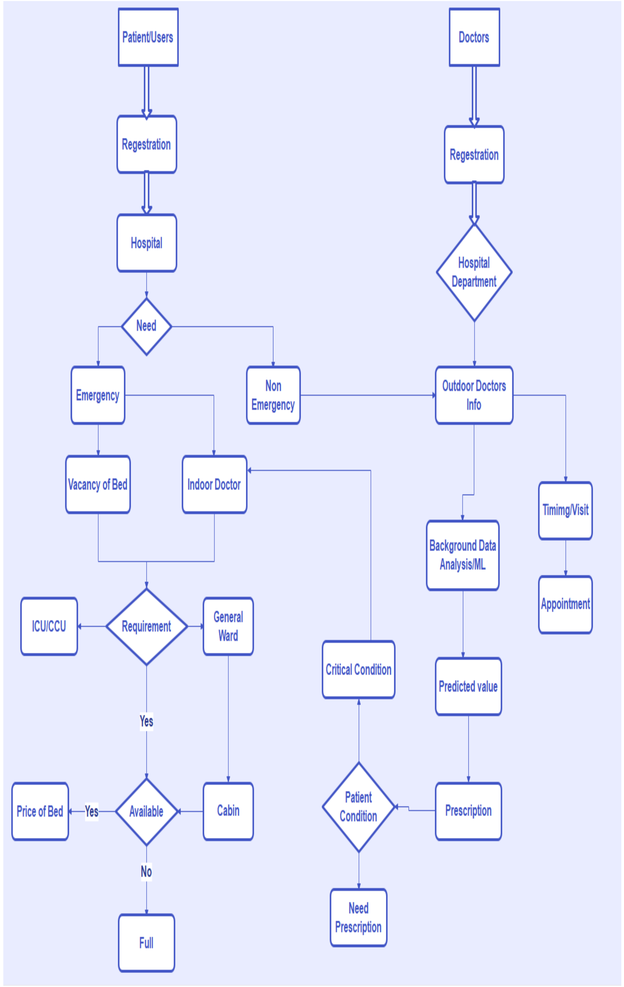
Objectives

- **Automation:** Uses AI to automatically check symptoms, recommend doctors, and schedule appointments.
- **Efficiency:** Provides quick, real-time information on hospital beds, doctor availability, and medical costs.
- **Convenience:** Allows patients to book appointments, consult doctors online, and get digital prescriptions easily.
- **Accuracy:** Offers reliable disease predictions and personalized health advice using machine learning.
- **Better Decision-Making:** Helps patients make informed choices with accurate and timely information.

Questions

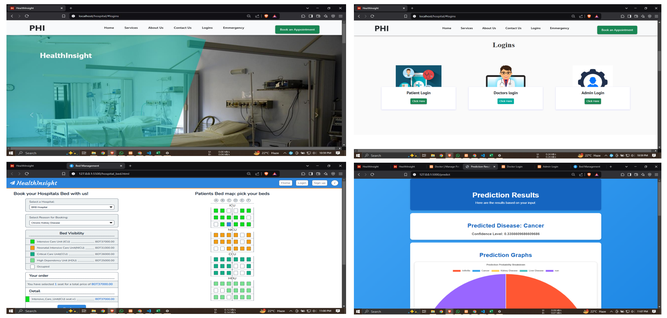
- What is the main purpose of the HealthInsight platform and how does it make the current healthcare system better?
- What were the key factors that influenced your decision to use PHP for both the frontend and backend of your system, and how does it contribute to the overall functionality of the platform?
- How does the appointment booking system benefit patients?

Methodology

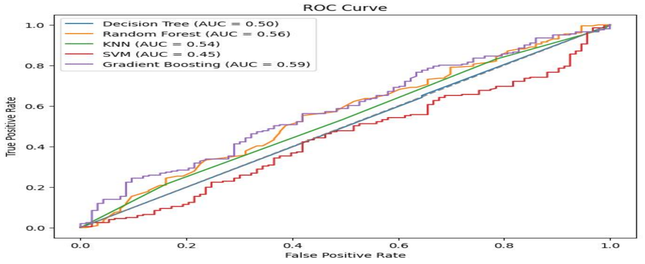


Results

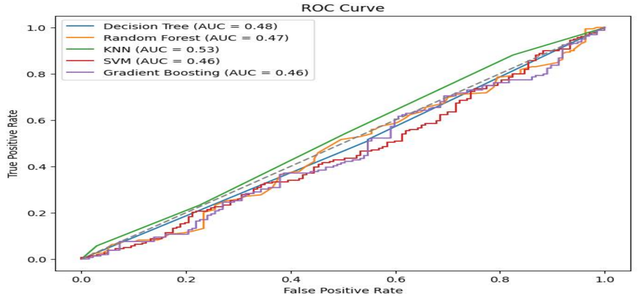
System Interface:



Prediction Result:



Arthritis Disease



Cancer Disease

Limitations

Limited Dataset Diversity: The disease detection model uses specific datasets that may not represent diverse groups, reducing prediction accuracy for underrepresented demographics.

Lack of Real-time Data Updates: The hospital bed booking system relies on manual updates, risking discrepancies like overbooking or inaccurate availability.

Conclusions

- HealthInsight enhances doctor-patient communication and predicts diseases using AI.
- It helps doctors diagnose faster and improves access to healthcare services.
- Features like remote health monitoring and bed tracking ensure timely medical care.
- The system is built with Flask, PHP, and MySQL for security and efficiency.
- Future upgrades will improve accuracy by adding more patient data, linking hospital records, and enhancing AI predictions.

References

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2. G. Ivatury, J. Moore, and A. Bloch, "A Doctor in Your Pocket: Health Hotlines in Developing Countries," Innovations: Technology, Governance, Globalization, vol. 4, no. 1, pp. 119–153, Jan. 2009.
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