Implementation of Hospital Finder Mobile App

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A B S T R A C T

This paper represents the implementation of a mobile app for finding nearby hospitals during emergencies using user location from GPS. And facilities for finding the required medical treatment, and appointments with doctors, allowing one to find the best hospital based on filters like ratings, reviews, nearby distance, facilities, services, emergency availability, etc.

During an emergency, there is very limited time to find the best-suited hospital for the treatment. So this app provides detailed information and allows you to understand about the hospitals nearby you and to choose the best hospital as per your needs.

Keywords: Hospital finder, GPS, Spring boot, Flutter, Doctor appointment.

1. Introduction

- During medical emergencies, common people always face problems in deciding which hospital they should visit for required treatment. The wander from one hospital to another in search of medical facility, medicines, blood supply, etc. Hospital Finder will solve this problem by allowing people to search for nearby hospitals on the basis of medical treatment, specialist doctors, medicine/blood availability, etc.

- we give all necessary information about all the hospitals from the applications itself.

2. Literature review

Existing Methods

1. **Hospital data API** - The Community Benefit Insight data API allows you to retrieve the following types of data: - Hospital data (optionally filtered by state) Link = https://www.communitybenefitinsight.org/?page=info.data_api

2. **Android based hospital finder app using GPS** - To utilize the built-in Global Positioning System (GPS) feature in smartphones to calculate the nearest hospital's location and provide a route from the user's current location through the integration of Google Maps application programming interfaces (APIs). Link https://www.academia.edu/36350507/ANDROID_BASED_HOSPITAL_FINDER_APPLICATION_USING_GLOBAL_POSITIONING_SYSTEM_GPS

3. **Nearest Hospital Tracking and Disease Prediction** – this paper focuses on saving patients' time by swiftly locating the nearest hospital, enabling patients to gain more time for understanding their symptoms. Treatment can be tailored based on the patient's disease, ensuring prompt care in nearby hospitals. Link = https://scholarworks.calstate.edu/downloads/sj139245q

4. **Hospital Locator and Bed Availability Detector for Emergency Cases** - The main theme of Hospital Locator and Bed Availability detector for emergency cases is to develop a webservices based system to provide optimal services for the emergency cases. Link = https://www.irjet.net/archives/V9/i12/IRJET-V9I12142.pdf

5. **Domain specific search** – The project maintains a cloud-based database of hospitals, clinics, and blood banks. It employs data mining and algorithms to identify optimal hospitals during emergencies. Users register in the application, allowing for cloud-based storage of their data and Electronic Health Records (EHR). The system also assists users in locating clinics and blood banks for specialized medical needs. Link = https://www.ijatir.org/uploads/613452IJATIR5059-297.pdf

6. **Implementation of hospital finder** – To develop an application to help and find the location and nearby Ayush hospital with opening time and closing time and by integrating various biomedical data sources, containing information relevant to the hospital demo graphics, their impatient procedure rates, Outpatient department etc. Link = https://ijrpr.com/uploads/V4ISSUE4/IJRPR11857.pdf

Advantages

- Uses user location coordinates to find nearest hospital.
- Implements google maps easier to locate the position.
- User input filters to sort hospitals.
- Viewing Hospital Details.
- Suggest Doctor based on symptoms.
- Appointment with Doctor
- View ratings.
- Hospital distance and route.

Limitations

- The data must be accurate and must reflect real time data.
- Inaccurate Disease prediction due to lack of physical examining patient.
- The source needs to be trusted.
- Hospital contact details must be present.
- Need to include all hospitals near use's vicinity.
- customer support feature
- Type of hospital.

3. Objectives

- The main aim is to quickly locating the nearest hospitals within as per given radius.
- Save patients' time by helping them decide the hospital quickly with the desired medical specialists, treatment and facilities.
- Utilize GPS in smartphones for accurate hospital location and provide route guidance via Google Maps. Allow patients to input symptoms for timely treatment.
- Provide a user-friendly and informative application with details on hospital infrastructure and doctor appointment, availability, including contact information and websites.

4. Methodology

- Requirement gatherings and Design implementation phase.
- Discuss functional requirements.
- Set up the environment for application development.
- Design UI for the app.
- Plan the task, Implement the Scrum Sprints methodology to complete the tasks.
- Uses MVC pattern design.
- Create APIs for front-end to leverage.
- Implement the code and features.
- Testing

- Review

5. Implementation

The design is divided in to 2 parts, Frontend and Backend.

Frontend -

- Front-end development focuses on the visual aspects of a website, the part that user see and interact with.

- Is built using flutter.

- For map location uses Flutter Map.

- UI and App design, layouts are implemented here.

- Fetches the data from the backend and populates.

- The user's GPS location is taken from the device.

Backend -

- Back-end development comprises a site's structure, system, data, and logic.

- Mainly used to create Rest Api's for frontend to leverage.

- is built using Spring Boot.

- Data storing and retrieval is implemented here.

- Uses MVC design patterns.

- The backend code is sectioned into modules.
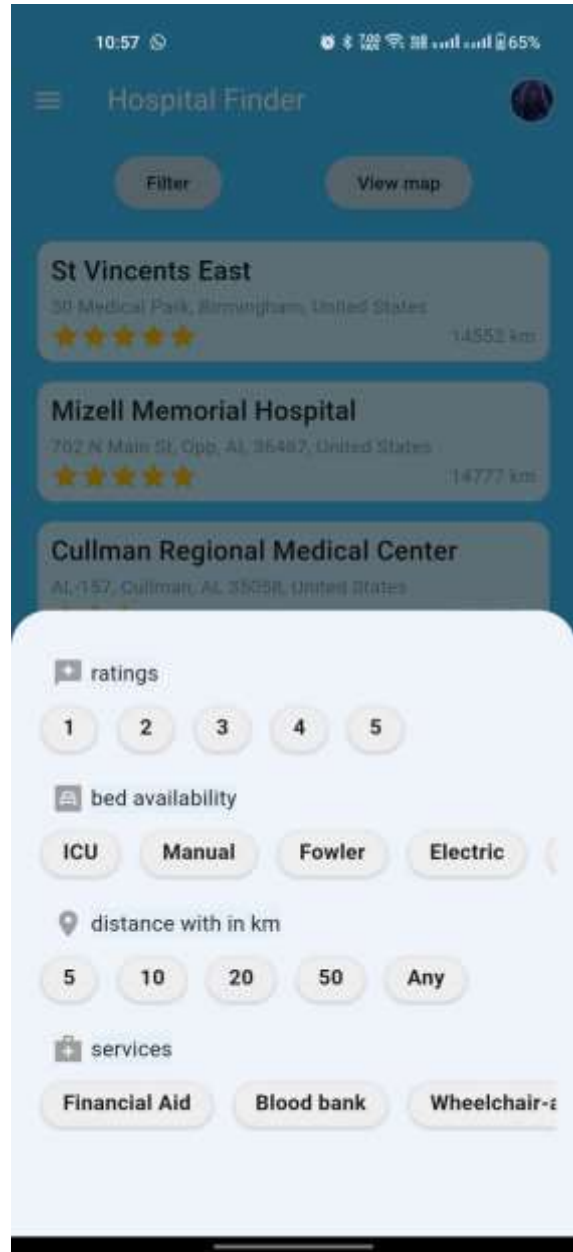
Controller – Responsible for invoking requests.

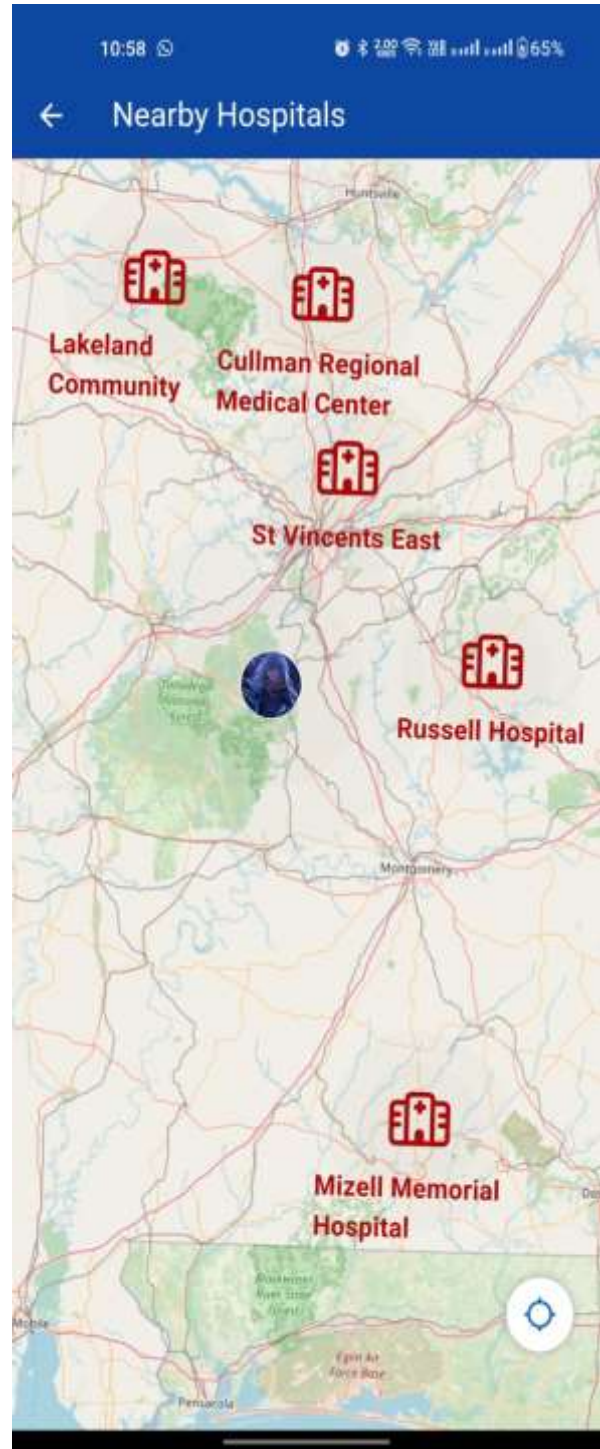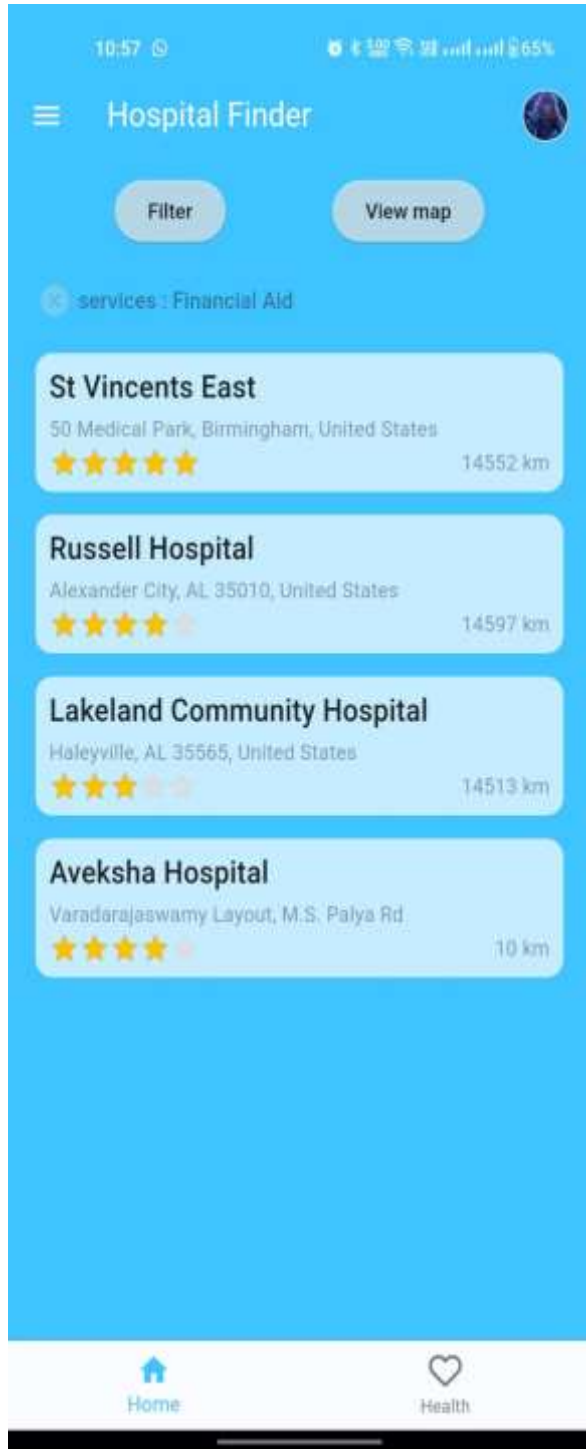Service – contains application business logic.

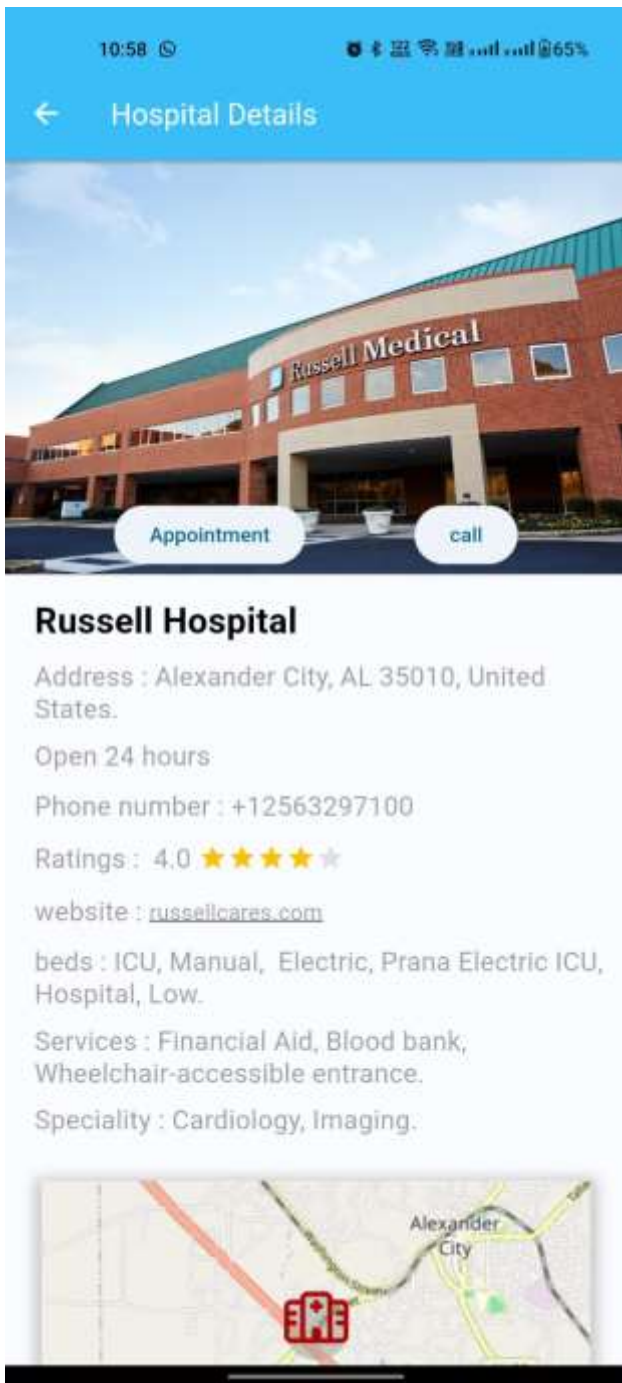Helper – DB calls are made from this class.

Repository - Mediates between data source and application.

Entities – maps to database tables

6. Outcome

7. Result

The app successfully implements the following features

- List of Hospitals Based on nearest location.

- Sorted based on Recommended Hospital and filters based on user Input.

- Provide a user-friendly and informative application with details on hospital infrastructure and doctor appointment, availability, including contact information and websites.

- Hospital location on map.

- Information of the doctors, availability etc.

- Suggest Doctor based on symptoms.

8. Conclusion

The "Hospital Finder App" represents a significant leap forward in healthcare accessibility and convenience. By harnessing the capabilities of modern technology, this app has successfully addressed the common challenges faced by patients in locating nearby hospitals and specialized medical professionals saving valuable time which can save a person from death in critical and emergency situation.

9. References

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