

HOSPITAL FINDER APPLICATION

A PROJECT REPORT

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CERTIFICATE

This is to certify that the Project report “**HOSPITAL FINDER APPLICATION**” being submitted by “Akash K A, Chanchal k, Sanjana B k, and Thejaswini G k” bearing roll number(s) “20211COM0080, 20211COM0088, 20211COM0081, 20211COM0092” in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology in Computer Engineering is a Bonafide work carried out under my supervision.

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DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **Hospital Finder Application** in partial fulfillment for the award of Degree of **Bachelor of Technology in Computer Engineering**, is a record of our own investigations carried under the guidance of **Dr.Sudha.P, Associate Professor, School of Computer Engineering, Presidency University, and Bengaluru.**

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

Finding the accurate hospital and the information about that hospital such as the appointment fees, opening hours, closing hours, treatments available, specialist available and emergency services is a time consuming and complex task for the users especially during emergency situations. Also it's challenging for individuals who are not familiar with technology such as elderly or those who are disabled or with limited digital knowledge to use the existing applications.

To address these problems, the proposed application's has a user-friendly interface that can be used by every age group and also users with minimum digital knowledge. The main objective is to help users near itagalpur to find nearest hospital for their specific need quickly this is done by using location based services and Google API integration. This application provides detailed information about hospitals helping users to make informed decisions. This application is very beneficial to users during critical situation as it saves time in searching hospital manually , it has accurate information and easy to use format.

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CHAPTER-1

INTRODUCTION

1.1 Overview of the Project

The Hospital Finder Application is an innovative project aimed at solving a critical problem in the healthcare sector: ensuring quick and efficient access to nearby hospitals. This challenge is particularly relevant during medical emergencies where delays in reaching the appropriate healthcare facility can lead to severe consequences, including loss of life.

The application leverages advanced technologies, including GPS and location-based services, to provide accurate and real-time information about hospitals within a specified radius, typically 10 km. By integrating user-friendly interfaces and robust data management systems, the project ensures accessibility for a diverse user base, including those with limited digital skills or physical constraints.

The need for this application arises from the increasing reliance on mobile technology to bridge gaps in information access. With the rise in healthcare demands and urban congestion, finding the nearest hospital equipped to handle specific medical needs has become a pressing issue. This project not only addresses this gap but also enhances healthcare accessibility, inclusivity, and equity, making it a significant contribution to modern public health efforts.

1.1.1 Importance of Timely Healthcare Access

Timely access to healthcare is crucial for ensuring positive patient outcomes, particularly in emergency situations such as heart attacks, accidents, or strokes. Delays in locating nearby hospitals often arise due to:

- Limited Information:** Users may not know the nearest hospital that offers specific services.
- Stress and Panic:** During emergencies, individuals often make irrational decisions or fail to navigate effectively.
- Geographical Barriers:** Lack of knowledge about routes or unfamiliarity with an area can cause further delays.

This project aims to eliminate these barriers by incorporating the following features:

1. **Real-Time Location Services:** The app identifies hospitals within a pre-defined radius (e.g., 10 km), enabling users to make swift decisions.
2. **Critical Information Availability:** It provides essential details such as hospital type, services offered, consultation fees, availability of specialists, and operating hours.
3. **Navigation Assistance:** By integrating Google Maps, the app guides users to their chosen hospital with turn-by-turn navigation and live traffic updates.

These features significantly reduce response times during emergencies, ensuring that users receive the care they need when they need it most.

Furthermore, the application is designed to cater to non-emergency situations as well, such as routine consultations, by providing transparent information about hospitals' services and costs. This dual-purpose functionality enhances its utility and appeal to a wider audience.

1.2 Objective of the Project

The primary objective of the Hospital Finder Application is to provide a reliable, efficient, and inclusive platform for locating nearby hospitals. This is achieved by combining advanced technology with user-centered design principles.

Key Objectives:

1. **Facilitate Quick Access**

The app is designed to identify hospitals within a user-defined radius (e.g., 10 km) in real-time, ensuring minimal delays in accessing healthcare.

2. **Promote Informed Decision-Making**

By offering detailed information about hospital services, availability of specialists, consultation fees, and emergency care options, the application empowers users to make well-informed choices.

3. **Enhance Emergency Response**

The app reduces delays in critical situations by providing direct navigation to hospitals

equipped to handle specific emergencies, such as cardiac care or trauma services.

4. Cater to Diverse Users

Inclusivity is a central focus of the project. The app is designed to be accessible to elderly individuals, people with limited digital literacy, and those with disabilities, ensuring equitable access to healthcare services.

5. Align with Public Health Goals

By bridging gaps in healthcare accessibility and promoting equity, the application contributes to larger public health objectives, including improved patient outcomes and better resource utilization.

6. Scalability and Future Expansion

The application is built with scalability in mind, allowing for the integration of additional features such as telemedicine, AI-powered hospital recommendations, or multilingual support in the future.

1.3 Scope of the Project

The scope of the Hospital Finder Application extends beyond simply identifying nearby hospitals. It encompasses a wide range of use cases, ensuring its relevance in both emergency and non-emergency scenarios.

1.3.1 Emergency Care

One of the primary use cases of the application is in emergency situations. The app identifies hospitals equipped to handle critical cases, such as trauma care, cardiac emergencies, or pediatric crises. Features include:

- Emergency Hotlines: Direct access to hospital contact numbers for faster communication.
- Live Updates: Real-time data on hospital availability and estimated travel times.
- Specialist Availability: Information on the presence of specialized doctors, such as cardiologists or neurologists, during emergencies.

This functionality ensures that users can act swiftly during emergencies, minimizing delays and improving survival rates.

1.3.2 General Consultations and Non-Emergency Care

The application also caters to routine healthcare needs, such as general consultations, diagnostic tests, or follow-ups. Users can:

- Search for hospitals offering specific services, such as dental care or physiotherapy.
- Filter results based on consultation fees, ratings, or distance.
- Book appointments directly through the app.

1.3.3 Inclusivity and Accessibility

To ensure widespread adoption, the application is designed with inclusivity in mind. Key features include:

- Multilingual Support: The app supports multiple languages, catering to users from diverse linguistic backgrounds.
- Accessibility Features: Voice navigation, large fonts, and high-contrast themes ensure usability for elderly individuals and those with disabilities.
- Offline Mode: Essential hospital information is stored locally, allowing users to access it even in areas with poor network connectivity.

1.3.4 Scalability and Future Developments

The project is built on a scalable architecture, allowing for the seamless integration of additional features in the future. Potential expansions include:

- Telemedicine Integration: Enabling users to consult with doctors virtually.
- AI-Powered Recommendations: Providing personalized hospital suggestions based on user preferences and history.
- Preventive Health Features: Incorporating reminders for regular health check-ups or vaccinations.

By addressing immediate healthcare needs while planning for future developments, the project ensures its long-term relevance and impact.

In summary, the Hospital Finder Application is a comprehensive solution designed to bridge

gaps in healthcare accessibility. By leveraging advanced technology and prioritizing user experience, the project addresses the needs of diverse demographics, enhances emergency response times, and promotes equitable access to healthcare services. Its scalable design ensures it remains adaptable to the evolving demands of the healthcare sector, making it a valuable tool for improving public health outcomes.

CHAPTER-2

LITERATURE SURVEY

2.1.The effectiveness of mobile-health technologies to improve health care service delivery processes: a systematic review and meta-analysis.

The integration of mobile applications with healthcare is important and beneficial for the environment where resources are lacking. In the sector of e-health, the use of mobile computing and communication technologies is rapidly growing. The advantages of mobile devices, such as communication technologies, accessibility, and technological capabilities, make them well suited for mobile health. Through a report made in 2009, it is evident that even in low-income countries; over two-thirds of the world population had mobile phones. With this much popularity, they can improve the consumer-management relationship through reminders about appointment or test results, the patient management system, and help the health care providers too. The results explain the mobile health interventions in health care providers aimed to give the services to consumers through various forms and interventions to improve the communication between consumers and healthcare management aimed to improve overall accessibility to the health care services.

2.2.DAHS: Development of Android based Healthcare System using Cloud Computing.

Cloud computing has provided flexibility and scalability to the healthcare providers and management, which is making it easier to store the patients data, integrate systems, manage, and secure the data as well. Cloud computing is valuable for applications that cater to critical needs, such as hospital finder applications. A cloud-based hospital finder application makes use of the current state, name of hospital, and city to find relevant hospitals for the users. It displays the best route for the selected hospitals so the users can navigate quickly without any delays during critical situations. The proposed system has a feature of a hospice taker, which provides all necessary information about the hospital, such as a specialist doctor, ambulance services, availability of services, medications, or blood. Consolidating all these features, this application eliminates the physical need of searching hospitals in any kind of emergency

situation for both patients and caretakers. This application showcase the advantages of integrating cloud computing to healthcare services, this is not only useful for the patients but enhances the delivery of healthcare services and resource management.

2.3 Mobile healthcare locator system for heart patients (MHLSP).

As the population is increasing rapidly all over the world, the need for healthcare facilities has become an issue. In recent times, the rate of death due to heart diseases has increased, which is concerning. Due to this issue, the mobile healthcare locator system for heart patients is proposed in this paper. The main objective of this is to provide healthcare services to heart patients, especially in critical situations. The system tracks the patient's location and identifies a nearby hospital for immediate medical services. This system makes use of the Global Positioning System and Location Bases services for tracking and quickly locating the nearby hospitals. This is very important and useful in emergency situations as it helps to reduce the delay in finding the hospitals. This system also has a feature where a notification is sent to nearby healthcare facilities in real time; this helps the healthcare facilities to take certain actions, such as sending an ambulance to the patient's location or preparing for a critical situation. This proposed system serves as a foundation for future healthcare delivery systems as it offers a practical and accurate approach.

2.4.An Android-based Application for determining a specialized Hospital Nearest to the Patient's Location.

The android-based application is developed for determining the nearest hospital efficiently required for the patients. This app provides location-based services and real time information like the facilities of the hospital and the availability of the doctors.It also provides efficient location tracking, matching hospital to patients and the medical needs and the services. It offers a user-friendly interface for easy navigation, making it easily accessible for the users. There are some limitations too, like data accuracy. It may not provide properly updated information due to discrepancy or deletion of data. In case of poor internet apps may not work or may not provide the required information. The GUI is simple and user friendly of this

application. After the survey was conducted to find the hospitals and even the list of doctors and their contact numbers and address was also identified.

2.5.Android based hospital finder application using global positioning system.

There are various kinds of healthcare applications developed in android applications which help patients to easily find hospitals and other medical services to reduce time and cost efficiency.

This application provides the availability and services in the hospital based on the request submitted by the patient .The application is designed so that it helps patient to find the hospital which is nearest to their location and is about five kilometer radius with required medical specialist nearest hospital is calculated with built in feature of GPS smartphones, and it finds the best route from their current location .This plan may also provide an opportunity to book online appointments which can facilitate patients' access to hospitals by saving time instead of physical visits and avoiding long queues. Through the online appointment management system, it enables patients, staff and doctors to check the status of appointments. This appointment management system facilitates getting appointments for registered patients and sending regular updates or notification for them and for the regular follow ups.

2.6.UX/UI Design for Healthcare Applications: Improving Accessibility and Usability.

User Experience (UX) design in medical is essential in enhancing patient outcomes, satisfaction and feedback. UX design in healthcare personifies a shift towards prioritizing the needs, experiences and perspectives of end users whether it can be patient, healthcare centers and even caretakers. In terms of healthcare UX refers to creating user-friendly Apps or products like appointment scheduling or even maintaining electronic records of the patients. UX design has the strength to improve people's everyday life. Nowadays the healthcare sector depends upon digital websites. UX designers should balance creating user-friendly websites and follow the rules and regulations in designing the websites. UX designers should strongly

implement security and private measures as it contains patients' sensitive data including contact details and address. Using modern technologies can further improve the UX in medical fields.

2.7.Integration of the regional public health resources and establishment of the digital hospital.

The creation of progressed progression is basic for mending centers not as it were to alter predominant to a dynamically competitive healthcare exhibit but besides to move forward and broaden the scope of open care, decrease operational costs, and hence grant way superior understanding comes about. Ask almost demonstrate gives palatable legitimization for the thought that contributing to the progressed establishment and more innovative prosperity information systems can get an unending comeback on clinic theories. Be that as it may, gotten, planning, and data security will have to be carefully supervised in the handle of overcoming these challenges. Future ask-around and approach endeavors should prioritize overcoming hindrances to enable around-the-world clinics to utilize the computerized healthcare revolution.

2.8.Mobile Health Apps for Medical Emergencies: Systematic Review.

In terms of accessibility, communication, and data exchange, this assessment of mHealth's helpful emergency applications talks to a critical movement in the altar of calm care. Fast get to healthcare organizations and moved forward real-time communication between patients and masters are made conceivable by mHealth apps, which unavoidably advance emergency case outcomes.

There is a necessity for asking almost in the run of prehospital care to address the novel challenges and seize the openings of 5G and fake experiences. The review gives an extraordinary direction for improvement by investigators, healthcare specialists, and app engineers in the movement of emergency prosperity organizations. Centering on client needs and collaboration will animate the progression of mHealth courses of action, which in turn will make strides in prosperity comes about and efficiency in emergency organizations.

2.9. Analytic hierarchy process for hospital site selection.

A research study presents the best location for a new hospital to be developed in Muğla, Turkey where AHP was applied to evaluate the main sites: Bodrum, Fethiye, and Marmaris. The criteria used for their evaluation were people requiring hospitalization, accessibility, and also proximity to other hospitals. According to the study, Bodrum is the best, while Data and Marmaris are two alternatives. AHP throws a great deal of critical concerns in an environment of a poor resource-setting country like Turkey. In such a setting, it was considered that the first priority of this criterion was medical needs of the population. Next to this was accessibility and proximity to existing hospitals. The study emphasizes the manner in which strategic location would benefit health facilities to make them serve more people and enhance health care. AHP turned out to be an effective tool of decision-making in planning hospitals in ways and manners that would translate into maximum equity for the resident

2.10. Location based services: ongoing evolution and research agenda

Location Based Services (LBS) report information related to location, including maps or locations nearby. While starting as rudimentary navigation tools, LBS have evolved into more complex applications that may function in both indoor and outdoor settings. Indeed, such systems have continued to evolve towards providing more context-aware functionality beyond basic maps and audio interfaces. This article aims to review recent trends and challenges in LBS research. These range from enhancement in location accuracy, improvement in data modeling and communication systems to effective analysis of a huge amount of spatial data generated by LBS. Social, ethical, and privacy issues increase their importance due to the rising integration of LBS into everyday life. In summary, the objective is to obtain LBS that are efficient, secure, and respectful of user privacy as they provide beneficial benefits to society in their advancement as mobile technologies.

2.11. Accessibility and site suitability for healthcare services using GIS-

based hybrid decision-making approach: a study in Murshidabad, India.

Using a GIS-based hybrid decision-making approach, Parvin et al. (2021) assessed the accessibility of healthcare services in Murshidabad, India. The land use and road network data combined with other information about population dispersion highlighted the existence of considerable unevenness in accessing healthcare services, where rural and under-served areas faced more difficulties. The strategic recommendations for the placement of facilities were analyzed to improve service reachability and reduce travel times. This method is helpful for policymakers and planners to address inequities in health and also improve infrastructure development in resource-limited regions.

2.12.The Application of Artificial Intelligence in Health Care Resource Allocation Before and During the COVID-19 Pandemic: Scoping Review.

Wu et al. (2023) provides an extensive overview of the contributions of AI towards the optimization of resource allocation during critical situations like COVID-19 pandemic. The author suggests that AI has the capacity to improve effective management of all essential resources that are vital and important, which includes hospital beds, medical staff, and vital supplies. Applying machine learning techniques and predictive analytics, AI facilitates real-time decisions and helps in adjusting healthcare systems in response to the dynamic requirements of the critical situation. The researchers also address the key challenges of AI adoption, including patient data privacy, cybersecurity, and integration of AI systems with existing healthcare infrastructures. They highlight the need for data sharing across institutions to allow for more accurate predictions and equitable resource distribution, especially in resource-constrained or underserved areas. Applications for hospital-finder tools can make use of the real-time tracking of AI-driven resources to take users to hospitals with available beds, staff, or medical supplies. This is likely to dramatically improve healthcare access and response time in emergencies and, therefore, patient outcomes.

2.13.Performance and availability evaluation of a smart hospital architecture.

The paper discusses three major aspects of a smart hospital system: the availability of the system, reliability in service, and real-time management of data. A smart hospital depends on

integrating IoT devices, cloud computing, and automatic processing of data to improve efficiency and quality of healthcare services. Integration of these advanced technologies into the hospital will bring about a higher system availability that allows constant service delivery and better data interoperability supporting communication between different systems and devices. It would be significant to the system if it were an in real-time-updating kind, reducing operations and enhancing decision-making, especially in emergency cases. Its essence lies in continuous delivery of health care and patient care without causing delay or low service reliability.

The direct output of the study will form the basis in designing a hospital finder application that should support real-time updates of service-related information, such as bed availability, doctor schedules, and emergency services, in guiding the user to find the closest facility that will adequately meet his health needs.

2.14. Health Informatics to Enhance the Healthcare Industry's Culture: An Extensive Analysis of Its Features, Contributions, Applications, and Limitations.

Health informatics is the integration of information technology, computer science, and health care for the improvement of the management as well as the exploitation of medical data. It significantly plays a role in streamlining health care procedures, enabling improved patient results and the efficient utilization of resources. Examples include such improved technologies as Electronic Health Records and hospital information systems, which reduce labor intensity and lower the chance of error while making health care operations more effective. It is the basic principle of health informatics: to bring all kinds of data sources together, apply advanced analytics, and allow the field to improve diagnosis so that treatment could be personalized. Analyzing huge datasets helps the providers understand the conditions better, and thus they would tailor the treatment plans for higher effectiveness and better patient satisfaction. Seamless communication between different healthcare systems and devices further ensures that critical patient data are accessible in support of coordinated care. The new technology in healthcare offers wearables, IoMTs, and telemedicine to improve health services availability in remote difficult-to-reach areas. Its latest technology consists of real-time monitoring of their health conditions with virtual consultations; data sharing brings the

patient nearer to the provider interconnecting them together. Since this innovation includes aspects of AI in machine learning or data science toward health service provisioning, it develops diagnostic accuracy more by pattern identifications and offers predictions for eventual outcomes, such that proactive efficacious decisions emerge

2.15.Location based services: ongoing evolution and research agenda.

This article provides a critical review of recent trends and challenges in LBS research. LBSs, which provide location-specific services using geographical data, have been increasingly integral to daily life and have led to progress in fields such as navigation, healthcare, retail, and emergency response. It surveys some of the most prominent trends in LBS, among them enhanced location precision, an integral component for accurate service provision. Other reasons are that innovations in data modeling approaches and developments in communication networks have also contributed much to handling enormous spatial data as well as transferring it to their users. Much of the paper focused on how large quantities of spatial data are produced in LBS. Sometimes complex and dynamic, datasets call for robust analytical tools and methodologies so that meaningful insights can be gotten and real-time solutions come. Issues on social, ethical, and privacy will, hence, become even more critical concerns as LBS increasingly integrate into everyday life. This might be associated with some of the issues such as unauthorized data collection, user consent, and misuse of location data. All these issues call for the development of stricter data protection frameworks and ethical guidelines.

CHAPTER-3

RESEARCH GAPS OF EXISTING METHODS

3.1. Lack of completeness in information

The most fundamental problem of the hospital finder system is incomplete information. Most of these applications which already exist have the names and addresses of the hospitals and the contact numbers, but other information that would be absent includes critical information about services provided, equipping available or staff present. This user may want to know if the facility has an available MRI machine or has ICU beds, cardiologists and neurologists, among many service providers. Since there is no such information, their proper decision making in a medical emergency would probably be hindered, where time and accuracy make all the difference. This lack of information will further delay because the user has to call up multiple hospitals several times to confirm their availability or nonavailability.

A patient with an emergency related to the heart may end up wasting precious time looking for a facility that has the ability to conduct the service of angioplasty only to discover that the health facility lacks the resource to conduct the desired service. It would require appropriate data collection and real-time updating of the same to solve the problem, enabling users to make prompt decisions.

3.2. Lack of Fee Transparency by Specialist Type:

The other significant problem is that there is hardly any explicit information available on consultation fees, especially by specialists. Most search systems of hospitals are not able to differentiate between general practitioners, pediatricians, or very specialized doctors like cardiologists and oncologists. Such a system of lack of transparency puts the user in considerable confusion and irritation while the person has to abide by a budget constraint and plan with the health care expenditure of the person.

For example, if a patient desires to see a general practitioner, then she is going to pay less as compared to if she were seeking some consultation with the specialist. But in the case of no

uniform fee structures, a patient may also pay some price that is unsuspected and will therefore pay a lot of tension than she needs on this already tricky situation. Therefore, hospital finder systems should provide patients with comprehensive fee information for specialist services that will enable them to make choices within their budget.

3.3. Complexity of User Interface:

During emergencies, for instance, there is an imperative need to rush decisions. Majority of these hospital locators have cluttered user interfaces, thus offering many options, or it becomes vague for users to determine exactly where to go in a given short period of time to get any form of needed information. Every passing second counts in dealing with emergency cases. If it takes more hours to determine, lives may end up being lost. For example, if someone urgently needs an emergency trauma center and wants to find the closest available facility to rush the injured family member for treatment, badly designed menus, and redundant information may confuse the person while navigating through an application. The application must be so intuitive that an individual would find no problems in using it even during critical moments of distress. Such user experience efficiencies may also come in the form of reduced searches, intelligent filtering, and readily available emergency contact numbers.

3.4. Dependence on network services:

The Hospital finder system is highly dependent on the external APIs like Google Places and Google Maps to fetch location and directions. The services are advanced but weak in areas with less geographical coverage such as rural or remote areas. Hence, people in such regions might be confused with incomplete or wrong suggestions leading to a delay in getting the proper health care. For instance, the physician will refer her to the nearest local clinic which is underprepared to handle her case instead of the nearest and the best prepared hospital in case the patient stays in a small village of the rural type. Things get worse with this as far as the geolocation data most of which are actually not very accurate are concerned. The other reliable alternatives are none as compared to those in popular use APIs. Thus, by keeping in mind such

multiple sources for location data and using offline functionality on hospital finder systems, they will be enhanced at a point whereby reliability and coverage increase in an area with not so good networking.

3.5. Inaccurate or outdated information:

Hospital finder systems are often designed based upon static databases consisting of outdated, or even information that is patently incorrect. This becomes very problematic in such emergencies where there is a need for real-time updates regarding the availability of specialists, medical equipment, or even hospital beds. For example, when a hospital may present that they have available ICU beds, which are full and occupied in reality, proper care is likely to be delayed for quite some time. This is even more complex in large-scale emergencies such as pandemics or natural disasters where the demand for healthcare resources changes rapidly. Users would waste their precious time going to a hospital that could not meet their needs without real-time updates. In this regard, the focus of the hospital finder systems should be on dynamic data integration using IoT devices and automated reporting systems to ensure accuracy and updates of information.

CHAPTER-4

PROPOSED MOTHODOLOGY

4.1.Research and analysis:

Determining the basis for any successful application would involve determining whom the target users are and what needs to be provided to them; hence, the earlier stages of the development would form part of the research and analysis work. Therefore, on Google Forms, amongst all the available users, setups will be kept in place to gather all the feedback possible that could make its way into the most preferably required features-about location, live hospital staff information, and relevant details related to other specialized medicinal service.

More and more, a survey will highlight the pain area with which they are facing or being affected from the existing hospitals finding applications. Questions would have been answered just to find gaps in information obtained, problems about navigating the user interface, and some trouble getting into updates in actual time during some emergencies.

Besides the type of user's survey, specific research regarding the existence of hospital-finding applications will also be referred to. In order to identify some of the strengths and weaknesses of some of the prominent platforms, there should be specific information on some changes. That is, specific applications did not manage to provide information concerning the real time delivery of available beds within the hospital, while to some, the interface appears too complex. All this will come forth during designing and development to such an extent that this new application shall generate a fairly smooth and effective experience to the user.

4.2. User friendly interface:

This application will inherently demand a very user-friendly UI that is plain, intuitive, and accessible to any person regardless of age or little technical acumen. What will appear in the design in order to be as clear and easy to use as possible will include the following:

- **Readable Interface:** The application should be read-friendly and very clean with information that a user deems fit to be presented. It is easy to notice features like the search bar, filters, and the details of the hospital.
- It will provide big readable fonts and buttons so that those blind or visually impaired people

can utilize it. In the same manner, the proper labelling with big buttons is to be given in the application, so that if a person suffers from limited dexterity, they may easily tap on them.

- **Fewer Steps to Information:** Critical needs demand information in the least amount of time possible. The application will require fewer steps to attain information regarding a hospital or emergency services. For example, the application will allow patients to view a list of hospitals within their region, complete with all relevant information relating to that hospital right on the home screen.

All this, the interface will make the user navigate the application both while within and out of the stressful period.

4.3. Detailed information of the hospitals:

The most rudimentary functionality for the software shall be that regarding information about the existence and availability of various hospitals and clinics; hence the software shall avail Location-Based Services (LBS) for providing all health institutions within a distance of 10 kilometers from the current location of the user.

For example, if the patient is at Itagalpur then this application itself would indicate the list of hospitals and clinics which were present in that local area. This list of hospitals and clinics was presented on their distance as well as the relevance with which they belonged to. All the information regarding all and every hospital will include the following:

- Opening and closing time
- Emergency services like ICU, trauma care, and ambulance services
- Specialized cardiologists, orthopedics, pediatrician, etc.
- Contact details along with the telephone number and e-mail,

All the above information will be put on a safe constantly updated database that is kept to ensure there is reliability and accuracy. Added to this would be real-time updates such as hospital capacity or equipment availability for certain equipment and will be vital in case an emergency arises. Correspondingly, the application would deliver all-round information that would be valid for use by the user, making appropriate decisions, and avoiding delays to health care service delivery.

4.4. Search and filter module:

The module on search and filter will ensure a robust presence for the module and will help to make the application friendly and efficient for the user. This would allow easy detection of hospitals and services through criteria set up for selection.

- Search Bar: the user will be able to search for a hospital by its name, as well as by the type of specialty or service desired. For example, a user will be able to find "orthopedic specialist," "emergency trauma center," and get user-readable results that apply to their own needs.
- Filter Options: Fine-grained filters will be available to customize searches according to varied parameters involving
 - Type of Specialty: such as cardiology, neurology, gynecology
 - Emergency services which might be available to the user like ICU, ventilators, and ambulance
 - The fee for consultation or treatment
 - Rating of the hospitals and comments from users

This would save much time in searching for persons and will make sure them to get the most relevant health care facilities easily and promptly. This module is mainly useful to the people who have special medical requirements or to those people who are on a tight budget.

4.5.Google API:

Functionally, this application will introduce Google API to Location-based services, navigate through its functionalities and assistance to the user to pinpoint where the exact hospital's location, as reflected through the interactive map. The basics of Google API to implement some of the attributes include the below

Location and Distance of the hospitals- this Application will show a given particular hospital with absolute correct position with its live, so to make known its existence distance it stands .

Route Planning and Navigation: It would provide turn-by-turn navigation to the chosen healthcare facility along with real-time traffic updates so that the person will not waste their time while traveling.

- Landmark-Based Directions: In case the user is not familiar with that region, it will mention what type of landmarks are available around the hospital so that navigation is easy.

Since the mapping services provided by Google are efficient and accurate, this application

would ensure smooth navigation and be time-effective, so that, in case of an emergency, the consumption of time during traveling is minimal.

4.6. Hospital Finder Application: Challenges overcome:

This hospital finder application will overcome all the challenges present in the existing system. Wrong or Obsolete Information: The application will ensure that the latest information in relation to capacity, availability of the specialist and the emergency services within the hospital is provided using dynamic data integration and updating in real time.

- Offline Support: It will enable access even without an internet connection so that basic details about the hospitals can be obtained by users when the internet is not available.

- Consultation Fee: The consultation fees of various specialists would be shown to the users, and thus, they can schedule a visit accordingly for better clarity.

Conclusion: Once these issues are resolved, it will display a more trustable and user-friendly solution compared to any hospital finder already there in the system.

The application being proposed is going to be an array of features that would really help solve current limitations of the systems in place while focusing much on user experience and reliability. With the application coming from full research, this is detailed by a user-friendly interface, at hospital information is detailed, a search module is also strong with Google API integrated, it envisions as quite a comprehensive tool that can use when finding healthcare facilities. Those will provide easy access, minimize the response time in emergency cases, and will aid the user to take a proper decision contributing towards better results in healthcare.

CHAPTER-5

OBJECTIVES

5.1. User-Friendly Interface:

The intuitive and simple interfaces with the intention of including minimal levels of cognitive load to achieve their intended correct operation with the help of users, this application aims for easy-to-use and intuitive clear simple interfaces which require little mental effort in the utilization of the appliance. The following features promote usability

Readable fonts as part of neat layouts:

- Fonts are used so that text can be read both by the partially sighted user and the layman who isn't too bright with technology. There is no element presented to the user from which he is deprived in the graphical presentation. Thus, visual overload is avoided.

- Buttons will be located as conspicuous as possible and simply labeled so its functionality will come intuitively. For example, icons with descriptive text will prevent the guesswork process and smooth out the navigation process.

- Streamlined Navigation:

The system will reduce the number of steps to take an action from a user to access information he or she will need to do his or her activities. Main activities will be given to their users so that what they want could be found with only a few steps. For instance, hospitals or emergency contacts will need only one touch or click.

- Accessibility Features:

Accessibility will therefore be considered to include meeting other unique needs so as to involve and accommodate diverse other users who either suffer from other forms of disability or have problems with sight loss. In this application, usability will be tenfold times higher for its user with diversity inbuilt features it carries: a range of different themes with support for voice navigation.

- High contrast themes:

High contrast themes that will help aid users with visually impaired issues allow text and graphical elements to distinguish more clearly

Voice navigation will enable the user to interact with the application using voice commands and make it more accessible for users that would have motor disabilities or difficulties navigating touch interfaces.

5.2.Nearest Hospitals with Full Details:

This will enable the application to receive information about nearby hospitals and clinics using location-based services. Such an application will be very useful in increasing access to health care in times of emergencies or ordinary consultation.

For instance, the application at Itagalpur would give health care facilities available within 10 kilometers from the user's location. The information will be sourced from the application, where the application, with the GPS technology, finds the position of the user, and then it provides hospitals around as a list or in a map format.

- **Contact Information:**

The contact number and the email, physical address of all hospitals will appear. Directly with the respective hospital, contacting would be successful.

- **Specializations:**

A clear view would be given for users to understand the various specializations involved such as cardiology, pediatric orthopedics and gynecology of each hospitals.

- **Emergency Facilities**

List indicating whether each of the service and facilities involving ICU facilities, in-house diagnostic facilities and ambulance is available or not.

- **Operating hours**

It will show the opening and closing times for each of the hospitals, therefore allowing the visitor to plan well when visiting them.

With such features created, the application is sure on its course in making sure it makes information come alive for the user in real-time and with this comes to control to have the best option available.

5.3. Search and Filter Module:

Search and filter module is one of the most important modules of the hospital finder application with the aim of making work easier for the end-user, as the search work should not be very difficult. This super system makes its users able to access hospitals according to their requirement. This saves them a lot of time and gives results-personalized.

Key Features:

1. The Search Bar

There is a search box in which a user can key in keywords that will include names of hospitals and services in the medical field, kinds of specialties offered. For example, if a person wishes to search for a "pediatrician, then the list of hospitals providing pediatric services will pop up immediately on the screen.

2. Filtering

There are some options for narrowing down the list:

- **Location:** It speaks of the count of hospitals that are available in a particular radius, say 5-10 km
- **Specializations:** It can eliminate hospitals that fall under some form of specialization, say cardiology, neurology, or orthopedic
- **Emergency Services:** It filters out the hospitals that have services including the provision of ambulances, trauma, or beds with ICUs to the patients
- **Cost:** A user may filter hospitals concerning the cost for a consultation or a cost of a treatment that shall be useful in budgeting to the budgeter

The attached search and filter module with the software will enable the customers to surf for more than a dozen various health-care services; in other words, they would find no delay towards the proper receipt of health-care.

5.4. Consultancy and Cost Estimation:

The Consultation and Cost Estimate feature provides the cost and consultation regarding health care in the application for searching the hospital. This feature makes it possible to make a decision about the health care process by being accessible and available.

Important Features are as follows:

1. Doctor Consultation Services

Doctor consultation services provide the facility of consulting a doctor directly through visit or telemedicine at once whenever needed.

- It will provide a list of doctors along with their comprehensive details: specializations, consultancy time, and qualification, all the details

2. Rough Estimating Treatments and Procedure

- For most treatments or procedures that go on in that hospital, a range would have to be almost put together and delivered via the application. A patient would want some form of MRI diagnosis; well, they'll get an approximation value of the cost through some other hospitals.
- Consultancy fee, cost of diagnostic test and all possible expenses would be provided

3. Payment Consolidation:

- Convenience-the app can facilitate in-app payments wherein clients can make consultancy payment or book appointment direct from the app.

Benefits:

- It keeps the expense quotes transparent as they help create an estimate on medical costs about a patient and foreseen nasty surprise
- This means that people have the right judgment of costing on hospitals and doctors and the person can get an appropriate within the budget along with better fulfillment of their medicinal requirement.
- accessibility: It saves time immediately consulting that reduces anxiety accrued in case of emergencies.

That allows the patient to get excellent health care whereby they are advised on the expenses which the choice is going to incur, so it boosts self-confidence and confidence in the use of the app.

5.5.Hospital Rating:

This is how the feature of Hospital Rating is going to improve the process of decision-making in its users, since it's going to make them judicious in making judgments about which hospitals are actually providing quality care.

The feature that leads the rating and review system to increase transparency and accountability in health service provision.

Key Features

1. Rating and Review Based on User Reviews: Users can rate based on their experience at the hospital. Their ratings concern aspects such as professionalism displayed by the staffs, hygiene aspects, and also the efficiency of the treatments. The app will be able to refer to the average ratings of the hospitals from the reviews of the different users so that it is easy for the potential patient to know the quality of the service.

2. Except for scores, patients will remark extensively on the service they got at the health institution. Other examples of such comments include, occasions in which they have a thing for giving praise for the emergency group as they appeared fairly promptly or better yet facilities as are sufficient.

3. Rating Fields:

- Rating the scores by:
 - Standard of care rendered
 - Dignity accorded to patient patients by staff
 - Infrastructure for health purposes
 - Professionalism and access for the process
- 4 Customer Testimonials

Only people who have gone for an appointment or who received any treatment would be allowed to make a review since that is how this application is structured.

CHAPTER-6

SYSTEM DESIGN & IMPLEMENTATION

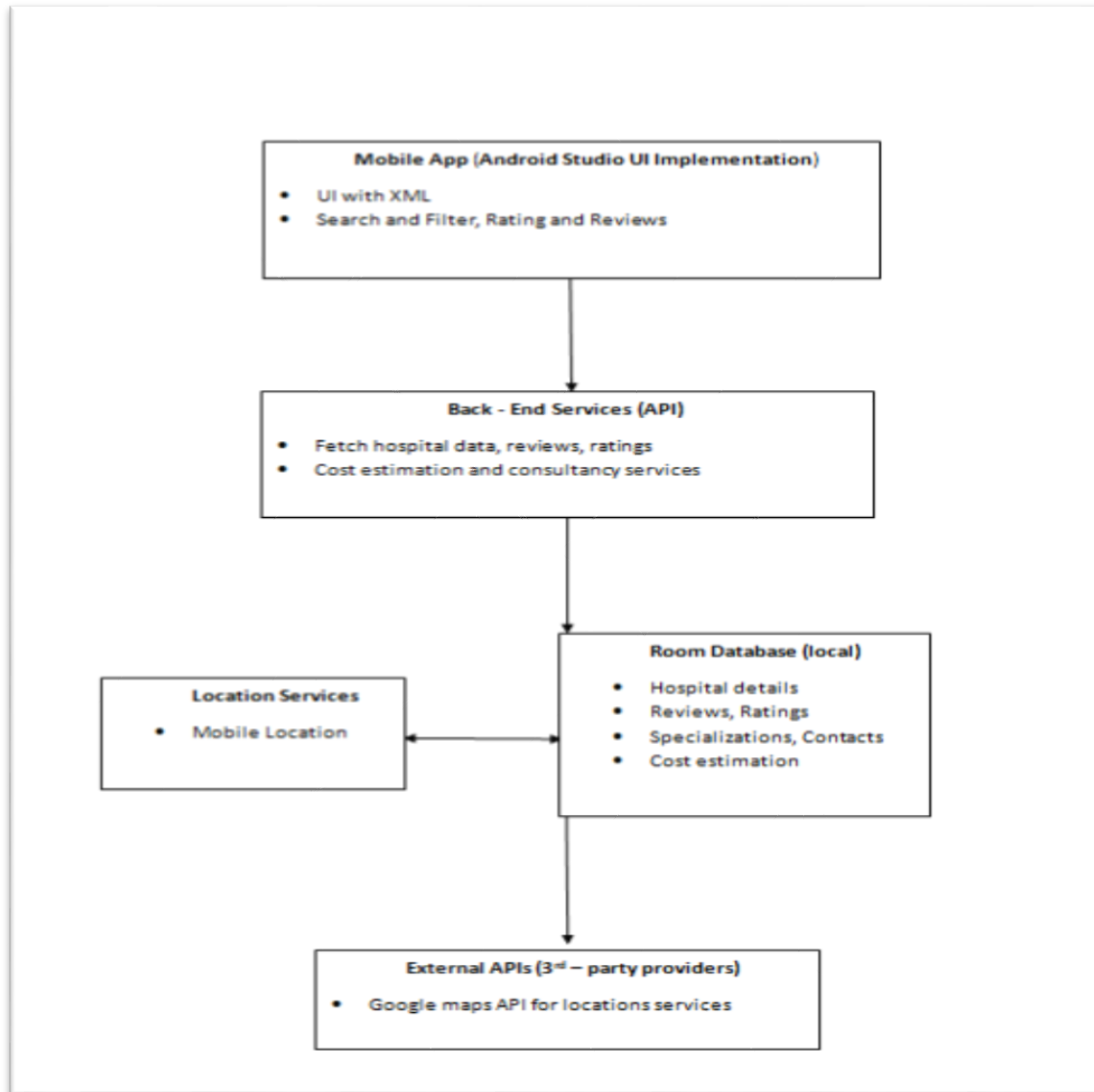


Fig 6.1 System Design and Implementation

Explanation of Overall System Architecture in Depth

The hospital finder application is a very critical component so that it must be appropriate and fit for purpose in the health sector to guarantee an effective and properly designed system architecture. It must be supported by a reasonable number of core components that are integrated together in delivering real-time information concerning health to the users. Each of these asks for usability, reliability, and scalability. Below are descriptions of the details in the system:

6.1.Mobile Application: Front-End Interface

This application is actually a front-end interface that brings a user in contact with the system. Supposed to be very intuitive and, as such, extremely easy to use, designed on Android Studio, this application made the UI. For the structure and design of layout, it utilized XML. As for the function, Java or Kotlin is utilized.

6.2.Important Features of the Mobile Application:

6.2.1 Clean, Interactive, and User-Friendly Layout:

This application works on the point of focusing on simpleness and smoothness to get the information so that anyone can gather any piece of information within a very short span regarding any type of inquiry. Its form is so visually appealing that one tends to enjoy it at times, even in terms of its use.

6.2.2.search and filtering capabilities:

A fantastic searching system the website has provided, where one can look up for a hospital according to its name, specialty, and/or service they are looking to get. The filters provided are rating, distance, and whether emergency service is available, which will increase the correctness of the outcome received and hence help make a correct decision to fulfill his requirements.

6.2.3.Rating and Reviews:

It allows rating and commenting on hospitals, which further helps build up a user-driven

feedback environment towards guiding other users to realize the service quality of hospitals.

6.2.4 Health Information Access:

Due to the highly self-explained interface, information on such grave health-related items could be collected very easily, right from availability at hospitals through to available specialities and emergency services; thus helping keep users notified on each available information at each instance without any restriction.

6.3. Back-End Services (API)

The back-end services are the main core architecture, which gives a free exchange between the mobile application and the database.

Back-End API Job Responsibilities

6.3.1 Data Collection:

Hospital information, rating, reviews, and cost prediction will be collected for sharing with third parties and stored from the APIs through central database.

6.3.2 Request Processing:

It reads the query request and serves the appropriate output while asking the query. Suppose that person needs to search for any cardiologist then, at this moment, it feels how many cardiologists are present there in related hospitals, then gives that much related information to a user.

6.3.3 Online Appointment Booking:

In addition to the above, users can even book a direct appointment with specialists through the application. Back-end ensures that the details of booking are provided securely so it leads to a frictionless workflow both from the user side as well as the service provider's side.

6.3.4 Reliable and Secure Communication:

The back-end system ensures the data accessed is up-to-date and reliable. It uses the communication protocols, meaning user data is secure and private, hence, reliable in the system.

6.4. Room Database (Local Storage)

Room Database: Room database is a light local storage that allows an application to function

without the internet.

Data Held in Room Database

6.4.1 Hospital Data:

It keeps the customer's name contact number and address within the local memory for easy referral to the same.

6.4.2 Reviews and Feedback:

Client review and comments are stored there by saving the entry offline so that feedback remains. Details about professionals and emergency contact can be stored to be retrieved anytime an urgent needs arises.

6.4.3 Treatment Estimates:

Quotes from treatment and surgeries are stored, so quotes can even be referred offline while working online.

6.5. Location Services

Location services refer to the needs made by applications, which offer results to the end-users according to the geographical location of devices.

Important features of a location service:

6.5.1 Real-Time location tracking:

This also points out the position of the current user, at the same time indicating the list of hospitals within, for example, 10 kilometers from the current user location. It then provides the avenues whereby patients find nearby medical facilities especially in time of emergencies.

6.5.2. Google Maps Implementation:

It integrates with Google Maps so ensures proper navigation to hospitals along with real-time tracking of the patient reaching the target hospital. So, this has greatly enhanced the user experience and removed any confusion and complexity from the user end.

6.6. Third Party APIs

The application uses third-party APIs so that it can ensure high functionality and accuracy.

Key APIs Used:

Google Maps API:

The APIs will be used for powering the search, routing, and distance calculation in the app.

Real-time geolocation data it brings give much more accurate estimates of travel times and thus enhance the overall user experience.

6.7.Detailed Workflow of Hospital Finder Application

The Hospital Finder application is developed following the step-wise workflow interaction with different system's components. Here, starting with the input gathered from the user to the resultant output which must be produced before reaching there let's explore this in details through the below following steps from obtaining the input input from the users.

6.7.1. User Engagement

The workflow of the application is initiated by the user interaction with the system. The applications provide so many functions to the users that they can:

- By Hospital name, Specialty, or Specific Services
- By Distance, Ratings, or Availability of Emergency Services
- See Reviews and Ratings given by other users so that they know the quality of services
- It directly allows the patients to access the healthcare providers through the application.
- It gives them information of the selected hospital.

The system is quite intuitive and user-friendly. The system lets them input questions as they please with either a search box, using drop-down filters or interactive maps. The system takes all of this and gets them ready for further processing.

6.7.2. API Calls

Once the user has forwarded the query, then the mobile application makes an API request to the backend system. The request is a line of communication between the data-handling systems of the application and its user interface.

- Depending on the type of request being made for example if it is information on hospitals or makes an appointment or even finding directions
- After gaining all the required parameters, the location and filters the user has attached to his question.
- Then, it sends this query request to the data source in hand. If required, an API with local has to be configured in addition and also have integration with room database so it will support

with real-time updation.

Example: The API has to process the entire flow with a user location combined with filters so that the right data is pulled whenever a user requires any cardiology service within 10 km of his location.

6.7.3. Local Room Database (Offline Storage)

It gets accessed when either application goes offline, or it contains the locally available data which one needs to be accessed.

This helps the viewer get overall details of hospitals that include name, address, contact number, rating, and review of hospitals.

6.7.4. Third Party API

Google maps etc third-party API are also implemented in which user will have actual results on locations for navigation purpose travel time can also be found through them. End This even displays whether there are beds currently vacant or the appointment can be availed; costs associated, along with things offered for a consultancy session.

- It incorporates the offline as well as online source if needed to gather all the information required in the result.

6.7.5. Data Analysis and Filtering

It is further processed after extraction so that it will be accurate, valid, and helpful to the user.

- Filter Results: It may filter by distance, rating, or services available for an emergency.
- Sort Results: It may sort by relevance, proximity, or user preference.
- Information Collection: Collect information from different sources and consolidate it into one format.

Example: If the user is looking for the best-ranked pediatric hospitals close to his or her current location, the system should make sure that the best result appears on top.

6.7.6. Result Presentation

These process data are passed on to the mobile application where they come out displayed for the end-users. Accuracy is good with proper structured presentation pleasing to the end-users.

- Hospital Information: Its name, several specialties that could be sought in the hospitals, and the contact numbers pertaining to types of services to be provided:

- **Rating and Review:** The rating reviews given by its users assist other to take a decision most apt:.
- **Navigation Menu:** It offers functionalities of map view and actual directions from Google Maps.
- **Menu Booking:** It offers functionality in which a user can make a consultation appointment straight from the application.

It lets the systems avail their users only by clicking the selected hospitals in which they will proceed to look at other details without straining.

6.7.7. System Feedback Loop

It offers an application with a feedback loop that brings about increased functionalities and satisfaction towards the users with time:

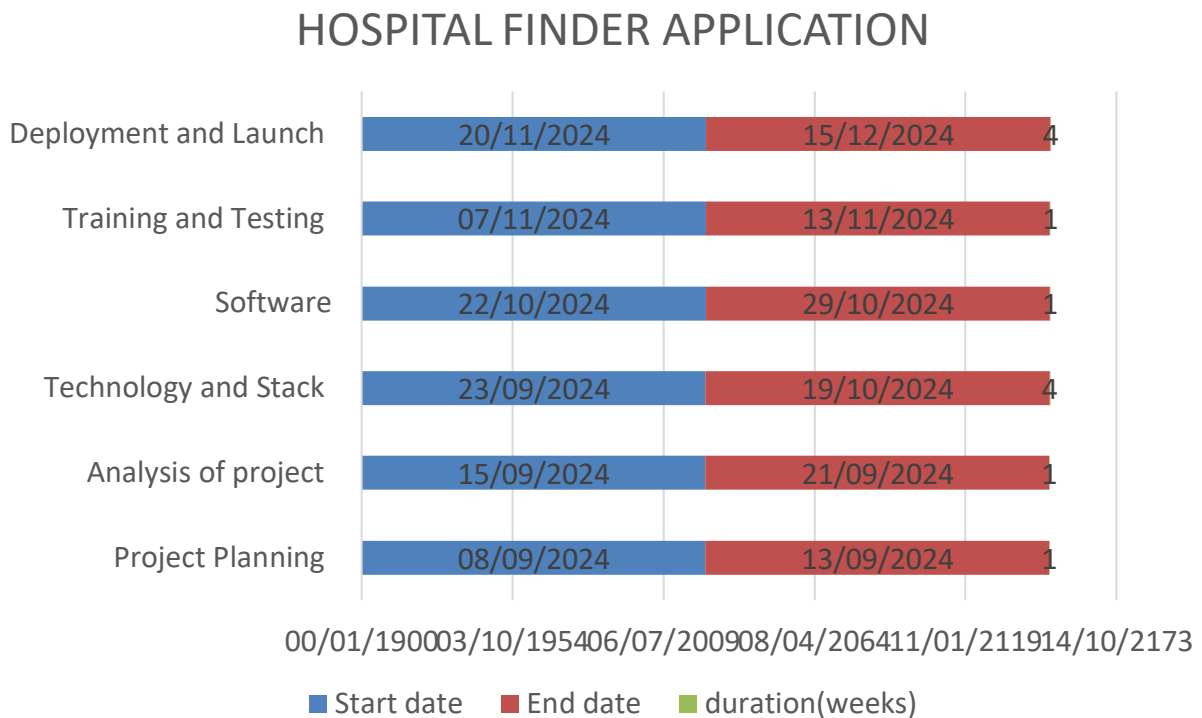
- **Users' Review :** It asks customers to rate and review, and the ratings are kept in the database for later help
- **Usage analytics:** It tracks user behavior. For example, what specialties are often found in search and frequently applied filters-for better app recommendations or performance.
- **Periodic refresh through external APIs-** to update and refresh the data in the database.

Benefits of this Flow:

- **Speed:** In regard to efficiency in retrieval and processing data so speed combined with accuracy are attained
- **User-centered design:** This provides an assurance of being user friendly.
- **Reliability:** The system will be reliable because it has offline information storage and real-time updating.
- **Scalability:** The system may embrace the increased needs of users and adopt other features like AI recommendation and telemedicine.

CHAPTER-7

TIMELINE FOR EXECUTION OF PROJECT (GANTT CHART)



Explanation of the Gantt Chart for the Hospital Finder Application

The above picture is a Gantt chart, which provides an organized timeline of the development of the Hospital Finder Application. It displays the start and end dates with the duration in weeks for every phase of the project. There are six main phases of the project, which begin with Project Planning and end with Deployment and Launch.

Each step is denoted by a bar. Blue color will be used to highlight the start and end dates of each step. The red dots indicate the duration; therefore, there is no confusion about the flow of the project.

7.1.Step-by-Step Description of All Steps

7.1.1.Project Planning

Start Date: 08-09-2024

End Date: 13-09-2024

Duration 1 week

This is where the overall development process is based. This outlines a strategic plan for the application. In this phase, the team identifies the very purpose of the project, key objectives, and overall scope.

Key Activities:

Goal and deliverables of the application

Budget and allocation of resources

Possible risks identification with their mitigation plans

Building of timeline of the subsequent phases

With proper project planning, clearness and flow during the execution of the lifecycle are ensured.

7.1.2. Project Analysis

Start Date: 15-09-2024

End Date: 21-09-2024

Total hours: 1 week

At this analysis phase, it deals with the technological feasibility of the proposed application, market trends, and all requirements of the user to ensure the application meets all the expectations of the users and achieves the projected objectives in the planning phase.

Major Activities:

Market study to find out the requirements of the users and their available solution.

- Surveys or focus groups to obtain the users' feedback.
- Core functionalities identified are as follows: search for hospitals, filters, ratings, reviews, and emergency services.
- Technical and functional requirements are documented for development.

This phase will ensure that the project is relevant and feasible.

7.1.3. Technology and Stack Selection

Start Date: 23-09-2024

End Date: 19-10-2024

Duration: 4 weeks

This is the choice of technologies, tools and frameworks that will be adopted to develop the application. It determines how scalable and fast the application is going to be maintained.

Main Activities

- Languages of front end development chosen in this case, which includes XML and Java.
- This project has chosen the most relevant APIs of the back-end framework for proper data management.
- A database has been chosen, such as Room Database, to store data on hospitals, user reviews, and contact numbers in case of emergencies.
- Third-party services, such as Google Maps API, for location and navigation.

Choosing a good tech stack ensures the application will run smoothly for the user and makes it easier to upgrade later.

7.1.4. Software Development

Start Date: 22-10-2024

End Date: 29-10-2024

Duration: 1 week

This is the design phase, wherein the development team creates the application based on the requirements defined during the previous phases. It includes the design of the front end and implementation of back-end logic and integration of API.

Key Activities

- User interface design should be simple to operate, intuitive, easy to navigate.
- Core Functionality: Hospital search, filtering, and review.
- Safely enabling secure communication of back-end system with the application.

- External API, that is Google Maps API, which would be tested if indeed running in real time.

Conclusion This is pretty critical if indeed the conceptual design is to be implemented.

7.1.5. Training and Testing

Start Date: 07-11-2024

End Date: 13-11-2024

Duration :1 week

This includes the prelaunch testing of bugs or errors. After that, training will be conducted on the core stakeholders on the proper use and management of the system.

Key Activities

- Functional testing based on functionality of features which is doing their right function.
- Testing related to loads.
- Training users or administrator as how to use the application.
- User acceptance testing, iteration based on user feedback on testing.

The testing will assure that the developed application is stable, user friendly, and gets ready for releasing.

7.1.6. Deployment and Launch

Start Date: 20-11-2024

End Date: 15-12-2024

Duration: 4 weeks

The final deployment stage is the production where the application will be released to the public. This will include the hosting environment setting, early performance monitoring, and getting reviews from users.

Key Activities

- Publish in Google Play Store, among others.
- Track the performance of the application after publishing and resolve problems that occur.
- Promotion of the application.
- Getting end-user feedback as a basis for future updates.

The deployment ensures that the product reaches the required audience and that value is extracted on day one.

7.2. Insight from the Gantt Chart

- **Overlapping Phases:** Some phases like "Analysis of the Project" and "Technology and Stack Selection," overlap to utilize time properly.
- **Most Time-Consuming Phase:** The "Technology and Stack Selection" is the most time-consuming phase of the project as it would last for 4 weeks as that is where the development sets.
- **Most Efficient Timeline:** The project would be finished within more than three months and proves to be well-structured and goal-oriented.

This Gantt chart is a fantastic representation of a structured and effective way of designing the Hospital Finder Application. This provides clear objectives for each phase with deadlines as well as deliverables. This will therefore ensure the team can deliver an application that is of high quality and in accordance with user requirements and needs. In addition, this chart postulates a phase overlap along with sufficient testing and proper planning of a launch so that the entire project is completed at the right time.

CHAPTER-8

OUTCOMES

8.1.Accessibility

A Hospital Finder application should be accessible to all ages, technical skills, and levels of physical impairments. Accessibility is meant to ensure that information concerning health care services is as accessible as possible to everyone, especially the elderly and others without much experience with computer systems.

8.1.1. User-centric design and usability

The application has a simple, interactive user interface, user-friendly lay-out that tries to make things simple. Also in the main features are: not difficult type of navigation. Huge buttons touchable for everyone; use a readable font which enables easy readability, thereby easier usage by everybody, especially for the elderly. The complexity put forward by health applications negates common diversion from such healthcare-related matters.

This process involves guided tours and also tooltips for first-time users about how to utilize this mobile application as explained step-wise instructions about what an application uses. Even unlearned folks will know its use.

8.1.2. Multilingualistic

Health care is universal, so must be the availability of its service. The app allows support of several languages through which the application can be operated in a native language of a user's preference. It is especially true in regions where a user's primary language is not English. This ensures breaking all linguistic barriers while also being helpful for elderly patients or those belonging to rural communities.

8.1.3. Voice-Assisted Features

Easy access can be created using voice-guided navigation and text-to-speech functionality. Surely, the feature would benefit visually challenged or mobility-impaired users as an alternative way of interacting within the application. For example, the user could command to "Find nearest hospital" or "Show hospitals with emergency services." This will make the application friendlier.

8.1.4. Offline Mode

It offers feeds in room databases to feed the hospitals on information but in the absence of

internet connectivity. It is extremely important, mainly in areas whose connection is terrible. No person deserves to lose even a single type of health information. It shall satisfy all its users in the sense that access is put on stress. That health information is accessible hence easy to be achieved.

8.2. User Satisfaction

The level of success of any application was always measured by the level of satisfaction of any user. This Hospital Finder Application is making the experience for all very simple and enjoyable through simplicity, reliability, and personalization, as evident from the following.

8.2.1. Intuitive Interface Design

This is a minimalist and responsive application, and thus, users will not get confused when they try to make sense of how to surf features in this application. Thus, all hospital search bars plus emergency contact buttons users will enjoy using the application without any glitch, no matter what technical variation of having the user.

8.2.2. Personalization Options

It also caters to personal preferences as it offers the availability of filters and search options. For example, it helps filter hospitals based on their distance, specialization, or rating by users. It thus saves a user a lot of time and hence helps him come to a conclusion that would better suit him.

8.2.3. Ratings and Reviews

This enables one to view with grades associated with a particular hospital or facilities. They might be techniques whereby it becomes obvious for one to make the right decisions based on other reviews. For instance, if experiencing emergencies they will mostly prefer a hospital holding highly graded grades concerning emergency treatments.

8.2.4. Responsiveness and Feedback

It has the powers in reporting bugs or ways the application can even be better in its improvement such that users contribute their feedback; hence, loyalty and trust to the user with changing according to the needs of the user in its improvement facilitate regular updates in its improvement, therefore enhancing satisfaction.

This is usability, transparency, and responsiveness that ensure usage by the clients will be efficient and positive.

8.3. Emergency Preparedness

There are many medical emergencies where one would need just a fraction of a second to respond to the problem. The concept behind the hospital finder application is quick critical health care information to the users that would sometimes do away with unnecessary delay and even save a life.

8.3.1. Location-based Services:

This employs GPS technology and can offer location-based services in real time. It locates a user's location and then tries to generate the list of nearby hospitals in a specified radius. Simultaneously it also makes sure to provide the information regarding the emergency services along with opening times and contacts information of each place.

8.3.2. Navigation and Routing

It will be integrated with Google Maps, where it will give step-by-step route instructions toward the most favorable hospital. It would help its users to find their shortest route and fastest possible route with live traffic information. This is very useful when it comes to urban areas wherein traffic might take a lot longer to respond in case of an emergency.

8.3.3. Emergency Contact Features

This is an emergency button that the users can use directly to get hold of the nearest hospitals, ambulances, or medical specialists. This saves the time that it takes in the trying of the numbers during emergencies hence facilitating quick communication.

8.3.4. Emergency Services at Top End

The app filters hospitals based on their emergency capabilities, such as whether they have an ICU, trauma care, or even 24/7 services. This will guide the user to the right facility that might help them.

8.3.5. Alerts and Notifications

In the case of the above, regarding any earthquake, epidemic outbreak, or any such natural catastrophe, this health care application should be able to send alerts for real-time issues to users including information concerning care facilities and even safety measures as well as shelter available within that place.

The App provides the users with most streamlined access to life-saving information so that they could promptly respond during the emergency without wasting much time and effort to

look for some medical assistance.

8.4. Scalability

The Hospital Finder Application has been so designed so that it may work and respond to the healthcare requirements of the people and changing technologies in the future.

8.4.1. More Number of Health Units

The system architecture is extensible. It may hold further new hospitals, clinics, and diagnostic units within the system. The application remains updated when more health-care providers are added within its coverage area.

8.4.2. New Feature Addition

Upgradations done later may add the following advance features:

- **Telemedicine Services:** This would give the facility for users to discuss with doctors via the application.
- **Integration with a Pharmacy:** One can source the nearest pharmacy and then definitely know when that prescribed drug is available.
- **Home Healthcare Service:** It ensures one connects with a home health provider to seek care when elderly people get out of their hospitals or are discharged after any surgical procedures.

8.4.3. Cloud- Infrastructure

This would be the back-end cloud-based system that, if this application becomes highly popular and with its loads of data as well as user traffic, because the application's performance or even reliability would not have a problem.

8.4.4. Multidevice Application

This mobile-based application can stretch to other media, such as web browsers or even wearable devices while the architecture allows the user to access the app with his favorite medium.

8.4.5. Integration with AI and Machine Learning

It will utilize algorithms that rely on AI in which the application will suggest hospitals and services depending on choices, search history, and previous interaction. For example, it will suggest a hospital that has fewer waiting times or is rated as better for the treatment that has

been searched.

Scalability will make the application future-proof since it will cater to new needs of the users and interact with new technologies that are used in health care.

Considering the fact that the needs of the user are quite diverse, the application of Hospital Finder is highly unique in bringing better access to the users, a sense of fulfillment concerning the needs of the patient, preparedness in emergencies, and scalability. All this will be possible with thoughtful designs and robust systems architecture making it easy for all users to access the health care information from where one can even search for an available hospital closest to him to planning ahead. This will ensure that the application stays agile and ready to offer new features and services as demanded in the future. These core elements make the application a leading fundamental tool for improving access and healthcare delivery.

CHAPTER-9

RESULTS AND DISCUSSIONS

9.1.Effective Use of GPS and Location-Based Services

This concept of the hospital locator application is very simple with respect to use of GPS and location-based services, which makes it possible for the application to provide proper and time information with regard to the availability of hospitals within a distance of 10 kilometers from the location. It would be convenient as well as required in medical emergencies where healthcare facilities are to be accessed immediately.

9.1.1. Location tracking in real time

It uses advanced GPS technology to track the geographical location of the user with much precision in real time. This system will give a list of hospitals based on proximity so that users get results very relevant to their immediate surroundings. It is especially very useful for people who might end up in unknown places, travelers, or for those who may require urgent medical care.

It will be also possible to indicate the area of search: a point of service can be chosen as a closest one suitable for acceptance or in some situations one needs to move a bit more to gain the necessary expertise level.

9.1.2. Integration with Google Maps API

It is assumed that the Google Maps API is included within the package, therefore, one is allowed to gain a lot greater capabilities in exploiting the most sophisticated abilities of navigation and mapping.

- Step-by-step guide: He can drive, walk, or take a bus to his nearest hospital, and from there, he would like to arrive with the option provided.
- Real-time Live traffic information: it enables real-time updates on traffic, allowing it to

divert him away from traffics and at the best route towards traveling.

- **Estimated Travel Time:** It measures the time it will take to reach the hospital; therefore, it will enable the person to make the right decisions at any given emergency hour.

It will ensure that the application will notify but, along with that, will give insights in practice meant to ensure that there is easy access to health centers in the most efficient way possible.

9.1.3. Accessibility both in Rural and Urban Areas

These services are devised according to the needs of both urban and rural landscapes. Suppose an application has been submitted by an individual from an urban background. Then, facilities like rating for facilities, specialty of the hospital, and emergency services will be available. This will help the people in rural settings where health facilities are highly probable not to fall within a radius of 10 kilometers to see the nearest accessible health facilities to them so that people in more remote areas do not miss the most critical information about health care.

9.2.Feature Development Directing Surveys

Most of the decisions on which feature to include in the app were based on opinions and user surveys. Features were inspired by requirements and expectations of the target users. Taking a user survey is also part of the design stage as a way of analyzing which feature or pain point will most be associated with a health app.

9.2.1. Identification of Major Features

What people care most with a search app for a hospital?

- **Search and Filtering Options:** The filter option was requested by the users to sort out hospitals based on distance, rating, and specialties.
- **Emergency Contact Information:** Emergency numbers and services must be provided immediately to the respondents.
- **Reviews and Ratings:** Transparency of reviews and ratings of the hospitals is what

cares most that users seek.

All these features were able to and very easily satisfied the need of the user and improvements in functionality as well as satisfaction of users came for the application.

9.3. User Experience

From the data obtained during the survey, different categories of users showed preference, and most of them are the aged and those not having the digital letter. Thus, this application was developed intuitive and accessible enough for anybody with age and background with technology to make use of it.

9.4. Continuous Improvement

There are surveys in which improvement basis finds launching. The mechanism of giving feed-back was built-in through applying at its launch time when responded with real opinions and suggestions by its users. It, therefore goes in circles since the improvement of application matches with changing needs and expectations met by changing natures.

Problems and Solution

All such issues, while formulating a part of developing a potent hospital finding application in ensuring correctness of data, ensuring the least dependency on the network, keeping in mind the dependability of the system, are inculcated by using apt designs and leading technologies.

9.4.1. Data Accuracy:

This information was supposed to be readily available and current for the hospitals concerning their contacts, services, and their availability. Defective information results in dissatisfaction for the users; worse still, delay is caused in the case of emergencies.

It is basically third-party API-based, with a central database. Since it updates with the help of periodic feeds acquired from the same reliable sources; thus, it retains accuracy as it feeds error into the system, and administrative response to that error happens just within minutes.

9.4.2. Dependency on Network

This is another type of device with the limit that it should have net accessibility in order to retrieve information straight in real-time, especially at places where net strength is a lot weaker

at its working space.

Solution: The application can be supported to work offline using the class 'Room Database'. All the crucial data would be available locally so, even though an internet connection is inactive it will be provided with the most critical information from the hospitals, and hence, leads to the fact that the application would be reliable in remote and under-served areas.

9.4.3. Efficient System Design

Straddling a humongous amount of data, with smooth performance was well taken care by proper design system.

Solution: The application has been designed over a cloud architecture, scalable, high-speed data retrieval and algorithms are very efficient with optimized query management. Thus the results for the user appear as if they come out just instantaneously

Ease of Use and Emergency Benefits: User Feedback

It was stated mostly to be quite easy to handle and much time could be saved during the hours of need.

9.4.4. Easy to handle

The application has been enjoyed all the time by people being really very simple and easy to handle. Clear-cut interface, huge buttons, and rational navigation assist any age in effective usage of the application.

9.4.5. Much time saved in case of emergency.

Other features of the software are information and navigation in health facilities. There have been references to them being lifesavers. They save precious time that was to be incurred doing manual explorations or trying out guess work, which at times can come in handy application in emergency stages where every second counted to ensure there was access as soon as there was to some health facility fast.

9.4.6. Better Patient Care

It saves the time used in searching and finding a hospital, hence the direct outcome of the patient. It can be to take a patient to the nearest emergency room which is near to his or locality or even for some specific care services that one is out there to search for.

9.4.7. Continuous interaction with the users

It has inbuilt feedback mechanisms that call upon users to share experiences, report problems, and even suggest improvements. It's two-way communication that helps build trust and ensures the app is user-centric.

It is the application that finds an all-embracing solution to the pressing needs of health care and reveals any hospital located within a radius of 10 kilometers along with carrying forms molded out of user questionnaires in such an arrangement that its outcome is both highly functional as well as quite satisfied. This thereby gives it an impregnable, accessible database of health facts in the context of data accuracy, network dependency challenges.

It saves user time and gives a better result for the patient, so how it is of value is shown by user feedback. So undoubtedly, this application will be precious in the new era of modern healthcare, making the gap more between patients and their healthcare providers with increased improvement and scalability.

CHAPTER-10

CONCLUSION

10.1.Hospital Finder: Total Solution for Hospitals Near Me

This hospital finder project application solves one of the most daunting challenges people undergo in medical emergency situations: that is, how to find near hospitals in as short a period as possible. Time plays the most significant role in emergency circumstances, and when it takes extra time to go to health facilities, the difference makes a huge amount in patient outcome. The application uses Google APIs on the services related to location to ensure the hospital identifications occur within a certain radius and that the identification is accurate and up to real-time. This, therefore, means that in this aspect, there is a chance of finding a matching hospital, which could perhaps offer the type of care sought by the user, general or specific treatment or emergency, within time.

10.1.1. Use of Google APIs for Accuracy and Validity.

The app integrates Google APIs into it and uses the sophisticated services of mapping and geolocation. Some of the offered services are as follows:

Precise Location: There are real addresses to the hospitals for the user. The user can get clear-cut information about how much distance, direction, etc.

- Real-Time Navigation: turn-by-turn navigation, traffic in real-time and an estimate travel time with help of such the user could get to a hospital selected within as less as time possible.

- Flexible Search Radius: Users can specify how far away they would like hospitals to be, say 5 km, 10 km, or more.

This feature makes the application a very reliable tool when quick and accurate decisions are necessary.

10.1.2.Emergency Situations

In emergency cases, due to stress, panic, or lack of knowledge about the location, the nearest hospital might not be located. The application resolves this problem in the following ways:

- By directly pointing to hospitals that provide emergency services.
- The user gets contact information and can call the hospital directly.
- Special facilities for emergencies such as trauma care, cardiac care, or pediatric emergencies are highlighted.

It saves lives and improves outcomes in emergencies by quickly providing access to these critical services.

10.2. User-Friendly Interface Design

The idea behind the project design was the creation of an intuitive and accessible interface for everyone irrespective of their level of digital literacy, physical constraints, or lack of experience with complex applications.

10.2.1. Easy and Intuitive Navigation

The app makes its interface quite simple so that a user will not get confused in checking through features of it. The few primary features include are: Minimum Steps: Getting the name of the hospital at minimal taps ensures the time as well as energy spent for important information retrieval is well-saved.

- Logical Structure: Organizes the attributes into a logical structure, such as having all options for searching, filters, and navigation in one section; therefore, users will locate what they require.
- Clean Design: Application is visually accessible to elderly persons or those suffering from visual disability by using larger buttons, easy-to-read font, and colors that contrast to each other.

10.2.2. Presents Important Information Very Clearly

Application appropriately emphasizes the representation of significant health information. The information includes the following:

- List of services available at every hospital: General consultations, diagnostics, or some specific treatment by hospitals
- Doctors and Specialists Available: All the information of doctors and specialists present in

the hospital helps in finding the accurate specialty

Consultation Charges: The consultation charge of consultation by every specialist/doctor is quite visibly given so that users are saved from excess budget

Emergency Services Available: Whether the Hospital can give emergency care and cannot; what are emergencies including delivery, heart attacks, etc

- Opening Hours: The working hours of hospitals by which free times of patients shall be benefited so that they get an opportunity to visit hospitals.

This proper presentation eliminates any form of confusion of any user on needs regarding health.

10.3.Access and Inclusivity

The other feature of the project is its emphasis on inclusiveness. The application helps bridge the gap of differential accessibility to health care since it is appropriate for all ages and, therefore, ensures that people at all ages can enjoy the benefits irrespective of age or experience in technology.

10.3.1. Support to Older Users

The elderly have various disadvantages that affect their usage of the digital applications due to physical, technological, and visual limitations on their capabilities. The app responds to these challenges in the following ways:

- Voice-assisted navigation for non-typists.
- Large fonts and high contrast themes for easier reading.
- Easy, step-by-step instructions for first-timers.

10.3.2. Helping Technologically Averse Users

It should be properly interfaced with the target user who is not so familiar with smartphone use or apps in general, auto-suggests, step-by-step prompts, and clear icons that would allow easy starting of use without incident.

10.3.3. Multilingual Support

The application is in many languages hence it ensures that language does not act as a barrier and therefore does not pose a challenge to accessing the required health care information. It thus ensures equal access of the different communities to critical health care information.

It helps close the gap in health care accessibility.

This application presents a critical bridge in the area of health care accessibility by reaching dependable health information to all irrespective of location and the demographic background.

1. The Urban-Rural Gap

Well, indeed there are many health care facilities in the urban areas within a very short radius, while in the rural areas, there are just a few health care facilities. The application ensures that:

- The rural users travel to the nearest accessible hospital irrespective of the distance it is from them beyond the conventional 10 km radius.
- Telemedicine or virtual consultation facilities are offered so that patients based in remote locations can consult doctors without having to move long distances.

2. Health Equity Promotion

The application meets the general goals of health equity because it allows all the users to get elementary knowledge on health. This is in the sense that:

- Economically less well-placed users get low-cost health care services.
- Users with disabilities have features that are friendly and accessible for them.

10.4. Healthcare and Public Health Outcomes Delivery Improvement

This project changes the delivery of health care to the extent that users may seek medical attention early and effectively.

10.4.1. Efficient Emergency Response Time

It is going to lengthen the emergency response time with real-time hospital and emergency information. It heightens the opportunities of administering the proper treatment in good time and, therefore increases the survival chance in acute conditions from complications.

10.4.2. Informed Decision Making

The app is transparent about what services are provided in hospitals, at what cost, and are accessible. This informs the user so that he/she can make sound health decisions. This helps ease tension and doubt often associated with medical treatment when the matter of urgency.

10.4.3. Role in Achieving Bigger Objectives of Public Health

The application contributes to achieving more objectives of public health as it:

- Enhances equity in health service provision.
- Increases less time wastage before receiving health care through effective searching and retrieval of information
- Increases preventive care through availability of health facilities

Hospital Finder App is a revolutionary application, which would actually dispose of the problems related to effective searching for nearby hospitals especially in emergency situations. Using Google APIs, the application provides accurate and dependable location-based services, which help the user get the required health facilities without delay.

This would mean that the app would be accessible to very many users, including elderly people who are limitedly digitally literate, but at the same time, organize very important health information for enhancing the empowering of the users in making well-informed decisions regarding their medical care.

It fills a gap in the bigger objectives of the global goals in using technology to improve public health outcomes in filling gaps in access to healthcare and equity. It therefore plays a crucial role in streamlining response time in emergencies, cutting down delay times, and relatively availing the service of healthcare, making the application an indispensable part of today's health care. It shall be a most vital application as users in multiple demographics seek it in achieving their goal of the quality health-care service for everyone due to upgradation and increasing scalability of its application.

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APPENDIX-A

PSEUDOCODE

MainActivity (Navigation between activities)

// OnCreate

initialize views:

- Button searchButton
- Button favoriteButton
- Button nearbyButton
- Button settingsButton

set OnClickListener for searchButton:

- Create an Intent to start SearchHospitalsActivity
- Start the activity

set OnClickListener for favoriteButton:

- Create an Intent to start FavoriteHospitalsActivity
- Start the activity

set OnClickListener for nearbyButton:

- Create an Intent to start NearbyHospitalsActivity
- Start the activity

set OnClickListener for settingsButton:

- Create an Intent to start SettingsActivity
- Start the activity

NearbyHospitalsActivity (Displays list of nearby hospitals)

// OnCreate

initialize hospitalList with data

initialize nearbyHospitals list by filtering hospitalList (2km, 5km)

initialize ListView (nearbyHospitalsListView)

set ArrayAdapter for nearbyHospitalsListView with nearbyHospitals

set OnItemClickListener for nearbyHospitalsListView:

- On item click, call showHospitalDetails with selected hospital name

// showHospitalDetails

for each hospital in hospitalList:

if hospital name matches selected name:

- Create an Intent to start HospitalDetail activity with hospital details (name, location, description, image)
- Start the activity

RegisterActivity (User registration)

// onCreate

initialize SharedPreferences (USER_CREDENTIALS)

initialize EditText fields for username and password

initialize Buttons (registerButton, alreadyHaveAccountButton)

// set OnClickListener for registerButton

if username or password is empty:

- Show Toast "Please fill in all fields"

else if username exists in SharedPreferences:

- Show Toast "Username already exists"

else:

- Save username and password to SharedPreferences
- Show Toast "Registration successful"
- Redirect to LoginActivity

// set OnClickListener for alreadyHaveAccountButton

- Redirect to LoginActivity

SearchHospitalsActivity (Search and filter hospitals)

// onCreate

initialize hospitalList with data

initialize Spinner (filterSpinner) for filter options

initialize ListView (hospitalsListView)

initialize AutoCompleteTextView (autoCompleteTextView) for hospital search

set OnItemSelectedListener for filterSpinner:

- Call applyFilter with selected filter

set OnItemClickListener for autoCompleteTextView:

- On item click, call showHospitalDetails with selected hospital name

set OnItemClickListener for hospitalsListView:

- On item click, call showHospitalDetails with selected hospital name

// applyFilter

clear availableHospitals list

for each hospital in hospitalList:

if filter is "All":

- Add all hospitals to availableHospitals

else if filter is "Low Cost":

- Add hospitals marked "Low Cost" to availableHospitals

else if hospital matches selected filter:

- Add hospital to availableHospitals

notify adapter to refresh ListView

// showHospitalDetails

for each hospital in hospitalList:

if hospital name matches selected name:

- Create an Intent to start HospitalDetail activity with hospital details
- Start the activity

// Emergency Button

set OnClickListener for emergencyButton:

- Create an Intent to dial 108 (ambulance)
- Start the activity

SettingsActivity (User settings)

// onCreate

initialize SharedPreferences (USER_SETTINGS)

initialize EditText for username (nameEditText)

load saved username from SharedPreferences and set in nameEditText

initialize Button (saveButton) to save user settings

set OnClickListener for saveButton:

if new username is empty:

- Show Toast "Username cannot be empty"

else:

- Save new username to SharedPreferences
- Show Toast "User information saved successfully"

```
// Feedback section  
initialize EditText for feedback (feedbackEditText)  
initialize Button (feedbackButton) to submit feedback
```

```
set OnClickListener for feedbackButton:  
    if feedback is empty:  
        - Show Toast "Feedback cannot be empty"  
    else:  
        - Show Toast "Thank you for your feedback"  
        - Clear feedbackEditText
```

FavoriteHospitalsActivity (Displays a list of favorite hospitals)

```
// onCreate  
initialize sharedPreferences for "FAVORITE_HOSPITALS"  
initialize favoriteHospitals as an empty list  
  
// Retrieve favorite hospitals from SharedPreferences  
for each hospital name in SharedPreferences:  
    - Add a new Hospital object to favoriteHospitals with name, default location, default  
    description, and default image  
  
// Set up RecyclerView  
initialize recyclerView  
set recyclerView layout to LinearLayoutManager  
  
initialize HospitalsAdapter with favoriteHospitals  
set the adapter for recyclerView
```

Hospital (Hospital data model)

```
Hospital class with fields:  
    - String name  
    - String location
```

- String description
- int imageResourceId

// Constructor to initialize hospital fields

constructor with parameters (name, location, description, imageResourceId)

// Getter methods for each field

getName()

getLocation()

getDescription()

getImageResourceId()

HospitalDetail (Displays details for a specific hospital)

// onCreate

initialize sharedPreferences for "FAVORITE_HOSPITALS"

initialize WebView and TextViews for hospital details

// Retrieve hospital details from Intent

hospitalName = getIntent().getStringExtra("hospital_name")

hospitalLocation = getIntent().getStringExtra("hospital_location")

hospitalDescription = getIntent().getStringExtra("hospital_description")

hospitalImage = getIntent().getIntExtra("hospital_image", default_image)

// Retrieve hospital-specific Google Maps URL

hospitalMapUrl = getMapUrl(hospitalName)

// Set hospital data to UI elements

set hospitalName in nameTextView

set hospitalLocation in locationTextView

set hospitalDescription in descriptionTextView

```
// Handle "Save as Favorite" button click
if hospital is not already in favorites:
    - Save hospital name and location in SharedPreferences
    - Show Toast "Saved as favorite"
else:
    - Show Toast "Already in favorites"

// Handle "Navigate" button click
if hospitalMapUrl is not null:
    - Load the URL in WebView
else:
    - Show Toast "No navigation URL"

// getMapUrl (returns Google Maps URL based on hospital name)
switch (hospitalName):
    case "Chiguru":
        return "Google Maps URL for Chiguru"
    case "Raksha":
        return "Google Maps URL for Raksha"
    default:
        return null

// loadWebView (loads the Google Maps URL in WebView)
set WebView settings (enable JavaScript, DOM storage, image loading, etc.)
set WebViewClient to handle URL loading
load the given URL in WebView
```

HospitalsAdapter (Adapter for displaying hospital data in a RecyclerView)

```
// Adapter constructor
constructor with parameter hospitalList (list of Hospital objects)
```

```
// onCreateViewHolder (inflates the layout for each item in RecyclerView)
initialize view from item_hospital layout
return a new HospitalViewHolder with the inflated view

// onBindViewHolder (binds data to the UI elements)
retrieve hospital from hospitalList at given position
set hospital name and location to respective TextViews

// If description contains rating information
- extract and display rating
- If rating is not present, hide the rating TextView

// Set click listener for each hospital item
- On click, create an Intent to navigate to HospitalDetailActivity
- Pass hospital details (name, location, description, image resource) through Intent

// getItemCount (returns the size of the hospitalList)
return the number of items in hospitalList

// extractRating (extracts rating from the description)
split description into lines
check each line for the keyword "Rating:"
return the rating line, or return "Rating: N/A" if not found

// HospitalViewHolder (ViewHolder to hold references to the TextViews)
initialize TextViews for hospital name, location, and rating in the item view
```

LoginActivity (Handles user login)

```
// OnCreate
initialize sharedPreferences for "USER_CREDENTIALS"

initialize EditText fields for username and password
```


initialize Button for login

// On login button click

retrieve entered username and password

// Retrieve saved password for the username from SharedPreferences

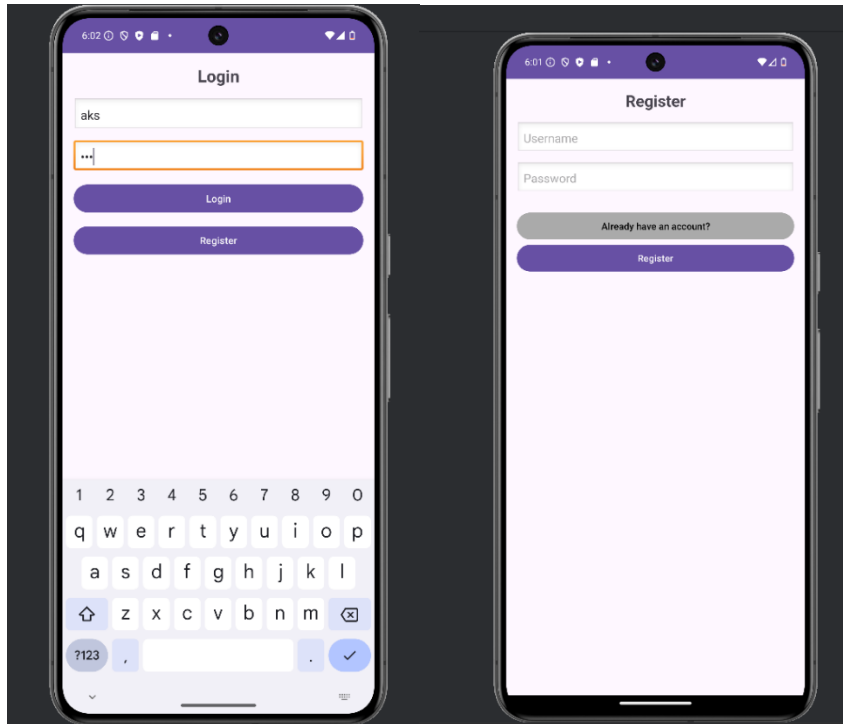
if saved password is found and matches entered password:

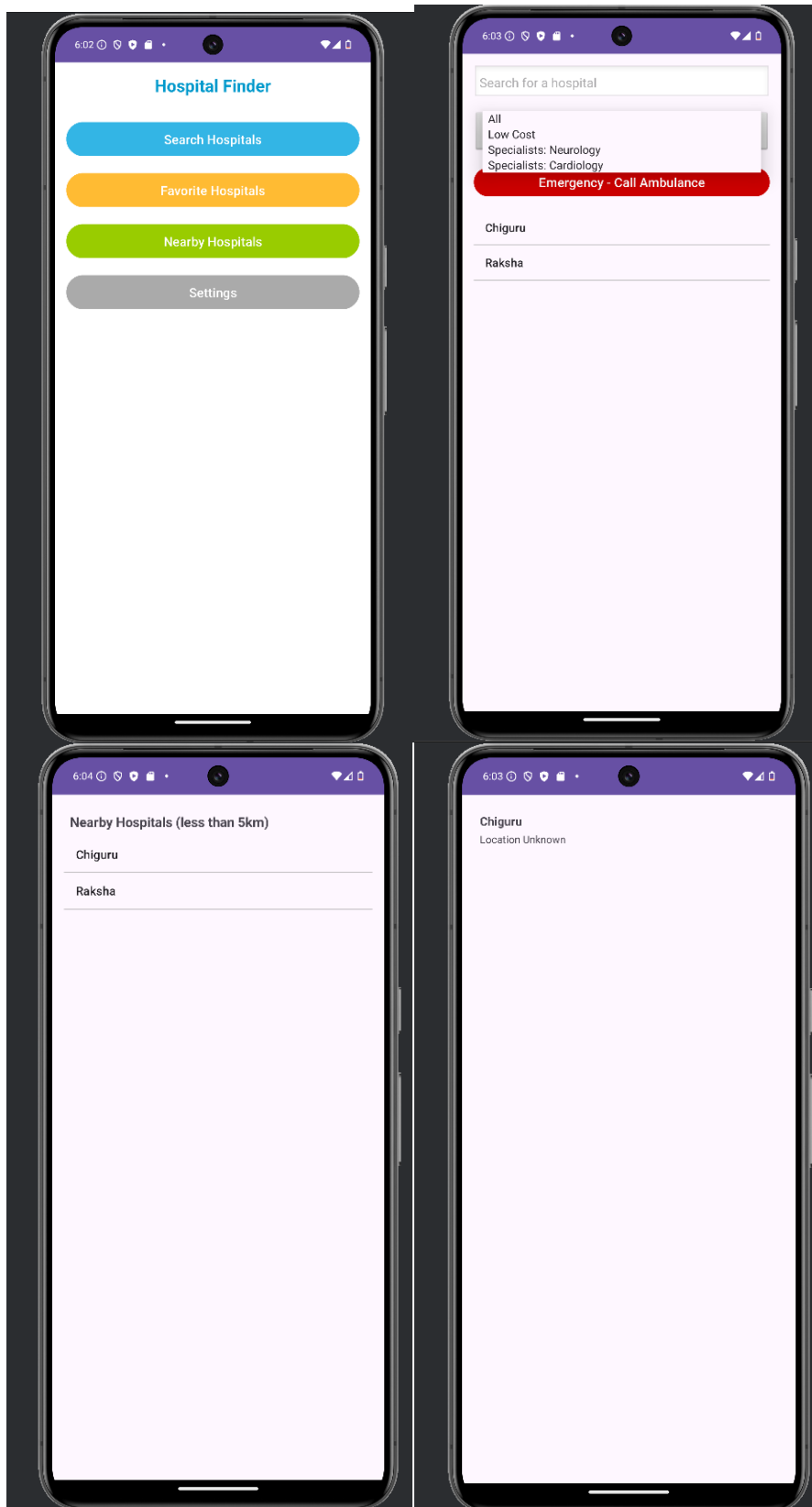
- Show "Login successful!" toast
- Redirect user to MainActivity
- Close LoginActivity

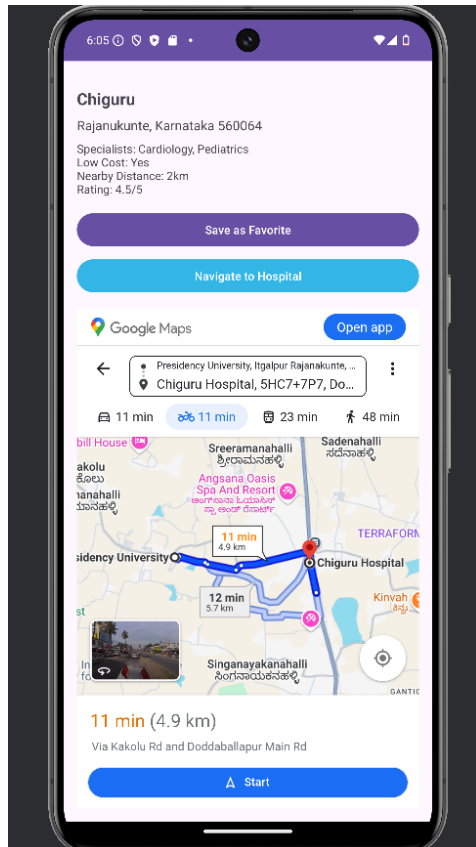
else:

- Show "Invalid username or password!" toast

APPENDIX-B SCREENSHOTS





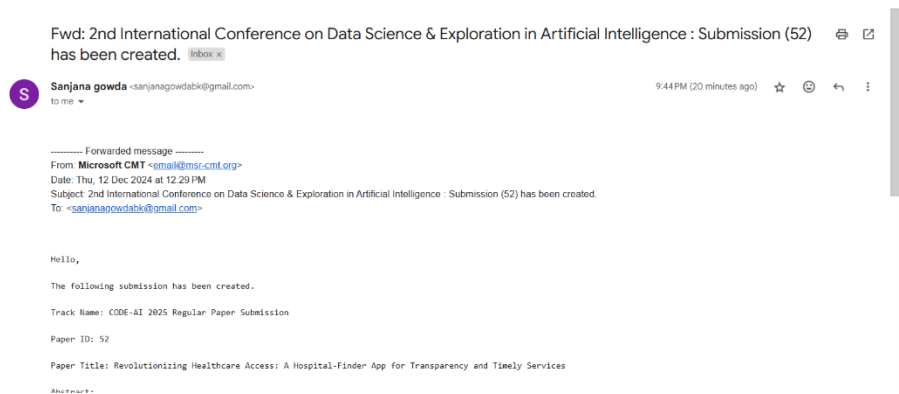


APPENDIX-C

ENCLOSURES

Conference Paper

Submitted the Survey Paper to the International Conference on Data Science & Exploration in Artificial Intelligence.



Abstract:

Abstract—Access in healthcare is indispensable, but many patients are facing difficulties because of less information regarding hospitals, unclear fees, and unavailability of services. This study explores the problems faced by patients in accessing health services, such as less information related to hospitals, unclear consultancy fees, and service unavailability. The study conducted a questionnaire among 320 respondents across the vicinity of Presidency University, India, and found these problems, suggesting a hospital-finder application to enhance access to health care. The key challenges involved are difficulty in finding hospitals during emergency situations, reaching specialists, and getting the complete details about services. The proposed hospital-finder app has real-time hospital data and GPS navigation, for the same issues. The application improves accessibility and transparency while supporting informed decisions and proper communication between patients and providers. The proposed hospital-finder app seeks to ensure timely, efficient access to healthcare services.

Keywords— Healthcare accessibility, Patient preferences, Medical apps, Service availability.

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Details of mapping the project with the Sustainable Development Goals(SDGs).

1.SDG 3: Good Health and Well-being

Objective:

Guarantee healthy lives and promote overall well-being for all at any ages.

Alignment:

The initiative aligns closely with SDG 3 by enhancing access to healthcare services, especially in emergencies. It emphasizes the following:

•Emergency Response:

Offers real-time tracking of locations and complete information about nearby medical facilities, including the availability of emergency services (ICU, trauma care) and specialists (e.g., cardiologists, neurologists).

•Integrates Google Maps to provide step-by-step directions, minimizing delays in reaching critical care.

•Informed Decision-Making:

•Shows details about hospitals like consultation fees, services provided, and ratings, enabling users to choose the best option available.

•Inclusivity:

•Designed for a wide range of users, including senior citizens, individuals with physical disabilities, and those who have limited digital skills.

•Features like enlarged text, high-contrast color schemes, and voice-guided navigation improve accessibility.

•Regular Healthcare:

•Aids in addressing non-urgent requirements, such as scheduling appointments for routine check-ups or diagnostic procedures, thereby encouraging preventive health measures.

Impact on Health Outcomes:

•Decreases mortality rates by reducing response times in critical medical emergencies.

•Enhances access to quality healthcare resources, positively impacting the overall health of the community.

2. SDG 9: Industry, Innovation, and Infrastructure

Objective:

Construct persistence infrastructure, encourage inclusive and sustainable industrial development, and stimulate innovation.

Alignment:

The initiative employs state-of-the-art technology to tackle issues of healthcare accessibility, showcasing innovation within the healthcare domain:

- Use of Advanced Technologies::
- Makes use of GPS and Google APIs to provide precise location-based services, enabling users to locate the nearest hospitals within a defined radius.
- Integrates cloud computing for real-time updates on hospital availability, guaranteeing accurate and up-to-date information.
- Adaptability:
- Designed with a scalable framework, permitting future incorporation of advanced features such as telemedicine, AI-driven hospital recommendations, and multilanguage options.
- Offline Functionality:
- Offers an offline mode for users in regions with poor network access, ensuring fundamental hospital information is available at all times.
- Resource Efficiency:
- Improves the effectiveness of healthcare services by minimizing manual hospital searches and facilitating access to essential services.

Impact on Infrastructure:

- Strengthens healthcare systems by linking users to medical facilities through innovative digital platforms.
- Establishes the foundation for a more technology-oriented healthcare infrastructure.

3. SDG 10: Reduced Inequalities

Objective:

Reduce inequality both within countries and among them.

Alignment:

The initiative aims to ensure that healthcare is accessible and fair for everyone, focusing on the unique requirements of underserved communities:

- Connecting Rural and Urban Areas:
- Facilitates access to healthcare facilities in isolated and rural regions through location-based services, guaranteeing that no one is left behind.
- Emphasis on Underrepresented Groups:
- Prioritizes inclusivity by creating features that address the needs of individuals with limited digital literacy or disabilities.
- Multilingual support enables users from various language backgrounds to navigate the application easily.
- Clear Communication in Healthcare:
- Provides information about consultation fees for different specialists and services, allowing users to make cost-effective choices.

Impact on Equity:

- Guarantees that healthcare resources are reachable for a wide range of demographic groups, lessening health outcome disparities.
- Advances health equity by offering trustworthy information irrespective of geographic or economic challenges.

4. SDG 11: Sustainable Cities and Communities

Objective:

Create urban and rural areas that are inclusive, secure, robust, and sustainable.

Alignment:

The initiative supports sustainable healthcare systems in both urban and rural settings by improving access and emergency readiness:

- City Healthcare:
- Decreases hospital overcrowding by assisting users in locating the nearest facility that caters to their specific needs.
- Offers real-time traffic updates to facilitate quicker travel to healthcare locations.
- Rural and Remote Access:
- Provides offline functionalities and precise location services to guarantee healthcare access in regions with minimal infrastructure.
- Tackles the issue of scarce healthcare resources in rural areas by helping users locate the nearest available facility.

- Disaster Preparedness:

- Features capabilities for issuing alerts and notifications during significant emergencies (such as pandemics or natural disasters), directing users to suitable facilities or shelters.

Impact on Community Resilience:

- Enhances the robustness of healthcare systems by ensuring users have access to essential information and services during crises.

- Promotes the sustainability of healthcare by encouraging efficient resource management and informed decision-making.

Cross-cutting Benefits Across Other SDGs

While the project's primary alignment is with SDGs 3, 9, 10, and 11, it also indirectly supports:

- SDG 4: Quality Education:

- Educates users about healthcare options and empowers them with information for better health-related decisions.

- SDG 17: Partnerships for the Goals:

- Utilizes APIs like Google Maps and collaborates with healthcare providers to ensure accurate data, fostering partnerships between technology and healthcare sectors.