SINDH SIGHT *(TRAVEL AND TOURISM APP)*

Using Flutter

BACHELOR OF COMPUTER SCIENCE

Submitted By
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ABSTRACT

The Software The Software application for Sindh Sight is a project aimed at preserving the rich cultural and historical heritage of the Sindhi province in Pakistan. The software is designed to provide a user-friendly interface that allows tourists, students, and researchers to explore the different historical places in Sindhi, including ancient monuments, museums, and archaeological sites. The application provides detailed information about each location, including historical and cultural significance, architectural features, and visiting hours. It also includes multimedia content such as images and videos, which provide a virtual tour of the site. The software also includes features such as user reviews and ratings, which provide feedback and help improve the user experience. The software application for Sindhi Historical Places is an innovative and timely project that not only helps preserve the cultural and historical heritage of Sindhi but also promotes tourism and cultural awareness. The application is expected to be a valuable resource for students, researchers, and tourists interested in exploring the rich history and culture of Sindh.

DECLARATION

I, Sohail Riaz S/O Muhammad Raiz, Naresh S/O Hakam, Mukesh Kumar S/O Jairam, students of "Bachelor of Computer Science", at "Faculty of Computer Science", Benazir Bhutto Shaheed University Lyari, hereby declare that this thesis titled, "SINDH SIGHT (Travel and Tourism app)" is our own research work and has not been submitted, published, or printed elsewhere in Pakistan or abroad. Additionally, I will not use this thesis for obtaining any degree other than the one stated above.

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I solemnly declare that the research work presented in this thesis titled, “Sindh Sight” is solely my research work, and that the entire thesis has been completed by me, with no significant contribution from any other person or institution. Any small contribution, wherever taken, has been duly acknowledged.

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It is certified that the research work contained in this thesis titled “SINDH SIGHT” is up to the mark for the award of Bachelor of Computer Science.

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CHAPTER ONE: INTRODUCTION

Problem Statement Background

In recent years, the tourism industry has witnessed significant growth, with more and more people exploring different parts of the world. One of the key factors contributing to this growth is the use of technology and mobile applications that provide users with valuable information and interactive experiences. The province of Sindh, located in Pakistan, is rich in historical and cultural heritage, making it an attractive destination for tourists. However, there is a lack of comprehensive and user-friendly applications specifically designed to promote and facilitate tourism in Sindh. Therefore, this thesis aims to develop an app called "Sindh Sight" that will serve as a comprehensive guide for tourists, providing information about the historical places in Sindh and enhancing their overall experience.

The current scenario lacks an efficient and user-friendly mobile application that focuses on promoting tourism in Sindh, particularly highlighting the historical places. Existing tourism apps for Sindh lack features such as an interactive map, multimedia content, user reviews, personalized itineraries, and offline access. Additionally, most available apps do not provide content in local languages such as Urdu and Sindhi, limiting their accessibility and usability for local and international tourists. Therefore, there is a need for an innovative and comprehensive mobile application that addresses these limitations and enhances the tourism experience in Sindh.

Objectives

The primary objective of this thesis is to develop the "Sindh Sight" mobile application, which will serve as a comprehensive and user-friendly guide for tourists visiting Sindh's historical places. The specific objectives include:

- To design and develop an interactive map feature that allows users to explore and navigate through historical sites in Sindh.
- To provide detailed information about each historical place, including its historical significance, architectural features, and cultural importance.
- To incorporate multimedia content, such as images and videos, to provide users with a visual representation of the historical place.
- To include navigation and directions functionality to guide users to their desired

- Destinations within Sindh.
- To enable user reviews and ratings, allowing tourists to share their experiences and recommendations with others. To offer personalized itineraries, helping users plan their visits based on their interests, time availability, and preferred historical places.
- To provide offline access to the app, ensuring users can access information and navigate even in areas with limited or no internet connectivity.
- To inform users about upcoming events and festivals related to Sindh's historical places to enhance their overall experience.
- To make the app content available in multiple languages, including English, Urdu, and Sindhi, to cater to a diverse range of users.

Significance of the Study*:*

(Third level headings are left-aligned and italicized) The development of the "Sindh Sight" mobile application will have several significant implications. Firstly, it will contribute to the promotion and preservation of Sindh's historical and cultural heritage By providing a comprehensive guide to historical places, the app will attract more tourists and increase awareness about Sindh's rich history. Secondly, the app will enhance the overall tourism experience by offering features such as interactive maps, multimedia content, user reviews, and personalized itineraries. This will make it easier for tourists to navigate, explore, and plan their visits effectively. Lastly, by providing content in multiple languages, the app will cater to both local and international tourists, ensuring a broader user base and promoting inclusivity.

Scope and Limitations

Focused on the development of the "Sindh Sight" mobile application, specifically targeting historical places in the province of Sindh, Pakistan. The app will include features such as an interactive map, detailed site information, multimedia content. The app aims to provide comprehensive information, interactive features, and a user-friendly interface to enhance the tourism experience. However, it is important to acknowledge that the app's success may be subject to factors beyond its control, such as infrastructure limitations, network connectivity, and external events. The app will be developed for the Android and iOS platforms, and the content will be available in English, Urdu, and Sindhi languages to cater to a diverse range of users.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter presents a comprehensive review of the existing literature related to tourism applications, historical place guides, and mobile app development. The literature review aims to identify the current state of research and development in the field, highlight the gaps and challenges, and provide a theoretical foundation for the design and development of the "Sindh Sight" mobile application.

2.1 Tourism Applications and Historical Place Guides

Tourism applications have gained popularity in recent years, serving as digital companions for tourists and providing them with valuable information and interactive features. Many tourism apps focus on specific regions or cities, offering guides to historical places, attractions, and local events. These apps often include features such as interactive maps, site information, multimedia content, user reviews, and personalized itineraries. Existing studies highlight the importance of user-centric design, usability, and content accuracy in tourism applications, as they significantly impact the user experience and overall satisfaction.

2.2 Interactive Map

Interactive maps play a crucial role in tourism applications, allowing users to explore and navigate through different locations. Research emphasizes the need for intuitive and user-friendly map interfaces, providing clear markers and icons for historical places. Advanced functionalities, such as zooming, panning, and route planning, enhance the usability of the map feature. Furthermore, studies suggest the integration of GPS technology and real-time location tracking to provide accurate navigation and directions to users.

2.3 Site Information

Comprehensive and accurate information about historical places is a fundamental component of tourism applications. Researchers emphasize the importance of providing detailed descriptions, historical backgrounds, architectural features, and cultural significance of the sites. The content should be concise, yet informative, engaging users and fostering their understanding and appreciation of the historical places. Moreover, the

Inclusion of multimedia content, such as images, videos, and virtual tours, enhances the visual experience and immerses users in the historical context.

2.5 Multimedia Content

The integration of multimedia content in tourism applications significantly enhances the user experience. Images, videos, 360-degree panoramas, and virtual reality (VR) experiences offer a visually appealing and immersive way to showcase historical places. Research suggests that high-quality and well-curated multimedia content positively influences user engagement and satisfaction. Additionally, studies emphasize the importance of optimizing multimedia content for various devices and internet speeds to ensure a seamless viewing experience.

2.6 Navigation and Directions

Effective navigation and directions functionality are essential features in tourism applications, particularly in historical place guides. Research highlights the need for accurate and reliable navigation systems that consider factors such as transportation modes, traffic conditions, and real-time updates. Studies also emphasize the importance of clear and concise directions, including step-by-step guidance, distance, and estimated travel time. Integration with external mapping services and the use of augmented reality (AR) technology further enhance the navigation experience.

2.7 User Reviews and Ratings

User reviews and ratings play a significant role in tourism applications, as they provide valuable insights and recommendations for other users. Research suggests that user-generated content positively influences decision-making, trust, and engagement. It is crucial to implement a user review system that allows tourists to share their experiences, rate historical places, and provide feedback. Proper moderation and filtering mechanisms should be in place to ensure the authenticity and relevance of the reviews.

2.8 Personalized Itineraries

Personalized itineraries cater to the diverse needs and preferences of tourists, allowing them to plan their visits according to their interests, time constraints, and priorities. Research highlights the importance of incorporating intelligent algorithms and recommendation systems to generate tailored itineraries based on user preferences and available resources. Personalized itineraries enhance the user experience, optimize time management, and ensure a memorable and fulfilling visit.

2.9 Offline Access

Limited or no internet connectivity is a common challenge faced by tourists, especially when visiting remote historical places. Research emphasizes the importance of offline access in

tourism applications, enabling users to access essential information, maps, and multimedia content without an internet connection. Studies suggest the use of caching techniques, pre-downloading data, and offline map functionalities to ensure uninterrupted access and usability.

2.10 Informing Events and Festivals

Events and festivals related to historical places contribute to the cultural richness and unique experiences for tourists. Research highlights the importance of providing information about upcoming events and festivals in tourism applications. Users should be informed about dates, venues, schedules, and relevant details to encourage their participation and enhance their overall experience.

2.11 Multilingual Content

The inclusion of multilingual content in tourism applications is crucial for catering to the diverse linguistic needs of users. Research emphasizes the importance of offering content in local languages, such as Urdu and Sindhi, alongside English. Localization techniques, translation services, and user-friendly language selection options contribute to inclusivity, accessibility, and user satisfaction.

2.12 Conclusion

The literature review provides a comprehensive overview of the existing research and development in the field of tourism applications, historical place guides, and mobile app features. The review highlights the significance of interactive maps, site information, multimedia content, navigation and directions, user reviews, personalized itineraries, offline access, informing events and festivals, and multilingual content. These insights and findings will guide the design and development of the "Sindh Sight" mobile application, ensuring it addresses the gaps and challenges identified in the existing literature.

CHAPTER THREE: RESEARCH DESIGN
(Or MATERIALS AND METHODS,)

3.1 Introduction

This chapter outlines the methodology employed in the development and evaluation of the "Sindh Sight" tourism app for historical places in Sindh. It provides an overview of the research design, data collection methods, app development process, and evaluation procedures.

3.2 Research Design

The research design employed for this study is a combination of software development and user evaluation. It follows a sequential process that includes the following stages: requirement analysis, app design, app development, user testing, and evaluation.

3.3 Data Collection Methods

To gather the necessary data for the development and evaluation of the "Sindh Sight" app, the following data collection methods were utilized:

3.3.1 Requirement Analysis:

Conducted interviews and surveys with potential app users, including tourists, locals, and stakeholders involved in tourism management.

Collected feedback and suggestions regarding the desired features, functionalities, and user expectations for the app.

3.3.2 App Development:

Employed agile software development methodologies, specifically the iterative and incremental approach.

Utilized a multidisciplinary team consisting of software developers, designers, and content creators.

Conducted regular meetings and brainstorming sessions to discuss and prioritize features, plan sprints, and track progress

3.3.3 User Testing and Evaluation:

Conducted usability testing sessions with a diverse group of participants, including tourists and locals.

playback, and personalized itinerary generation.

3.4 Evaluation Procedures

The evaluation of the "Sindh Sight" app involved the following procedures:

3.4.1 User Testing:

Invited a diverse group of participants, including tourists and locals, to interact with the app.

Observed and recorded their interactions, feedback, and suggestions during the testing sessions.

Analyzed the collected data to identify usability issues, areas of improvement, and user satisfaction levels.

3.4.2 Performance Evaluation:

Assessed the performance of the app in terms of responsiveness, loading times, and resource utilization. Conducted benchmarking tests to evaluate the app's performance under different network conditions and device specifications.

3.4.3 Comparative Analysis:

Compared the "Sindh Sight" app with existing tourism apps and evaluated its strengths and weaknesses. Conducted surveys and interviews to gather user opinions and preferences regarding the "Sindh Sight" app in comparison to other available options.

3.5 Conclusion

This chapter provided an overview of the methodology employed in the development and evaluation of the "Sindh Sight" tourism app for historical places in Sindh. It outlined the research design, data collection methods, app development process, and evaluation procedures. The next chapter will focus on the results and analysis of the app development and user evaluation phases.

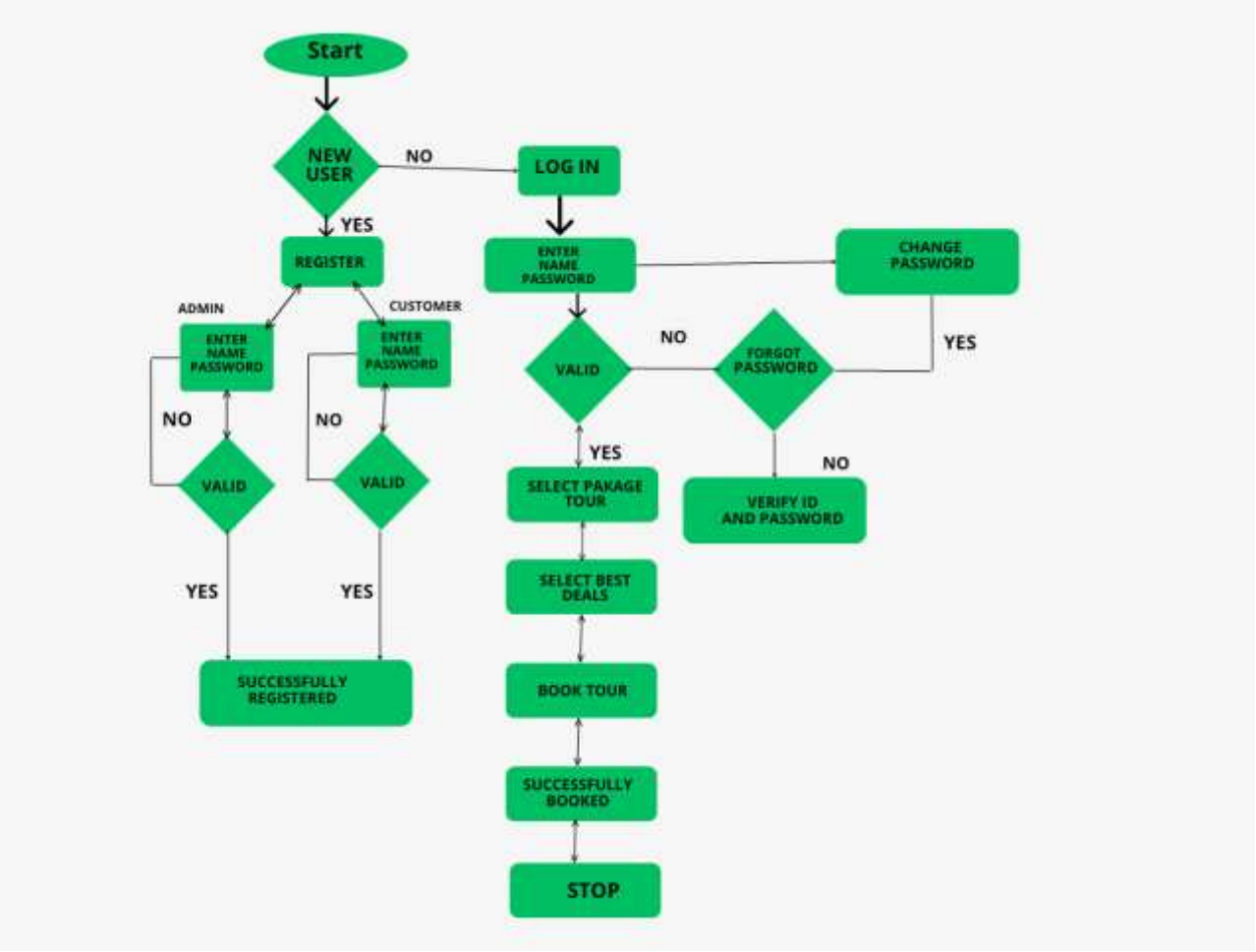

Figure 1 flow chart

Flow Chart

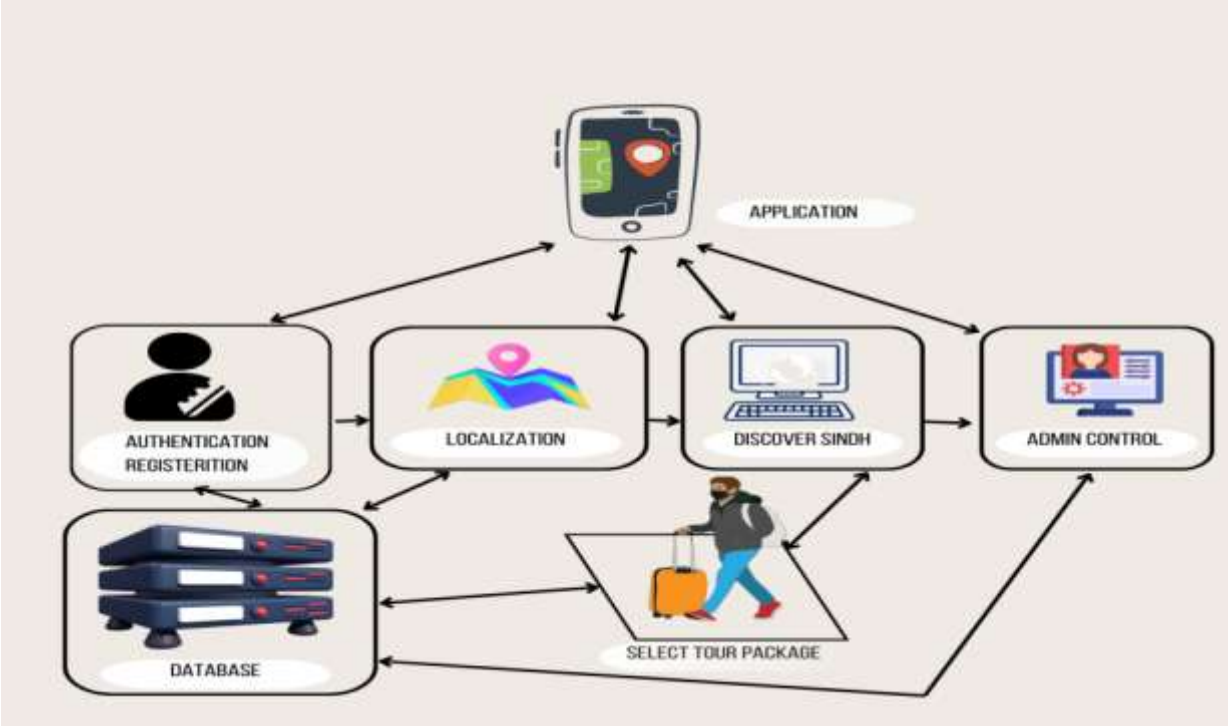

Figure 2 Architecture of Sindh sight application

Architecture

Use Case Diagram

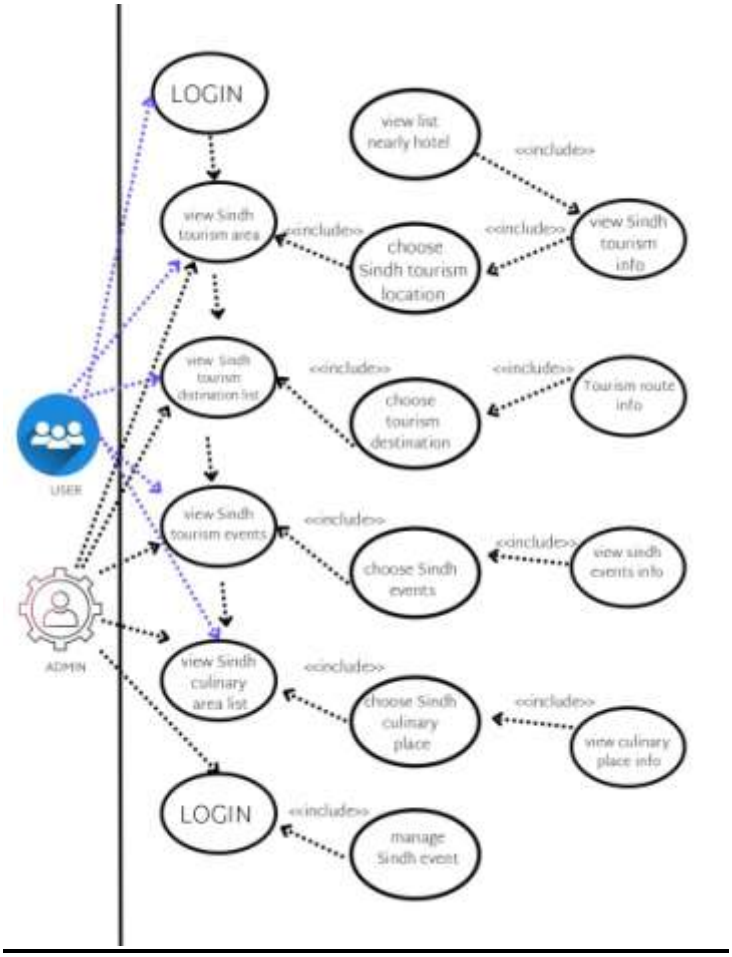

Figure 3 Depict work sequence for Sindh sight

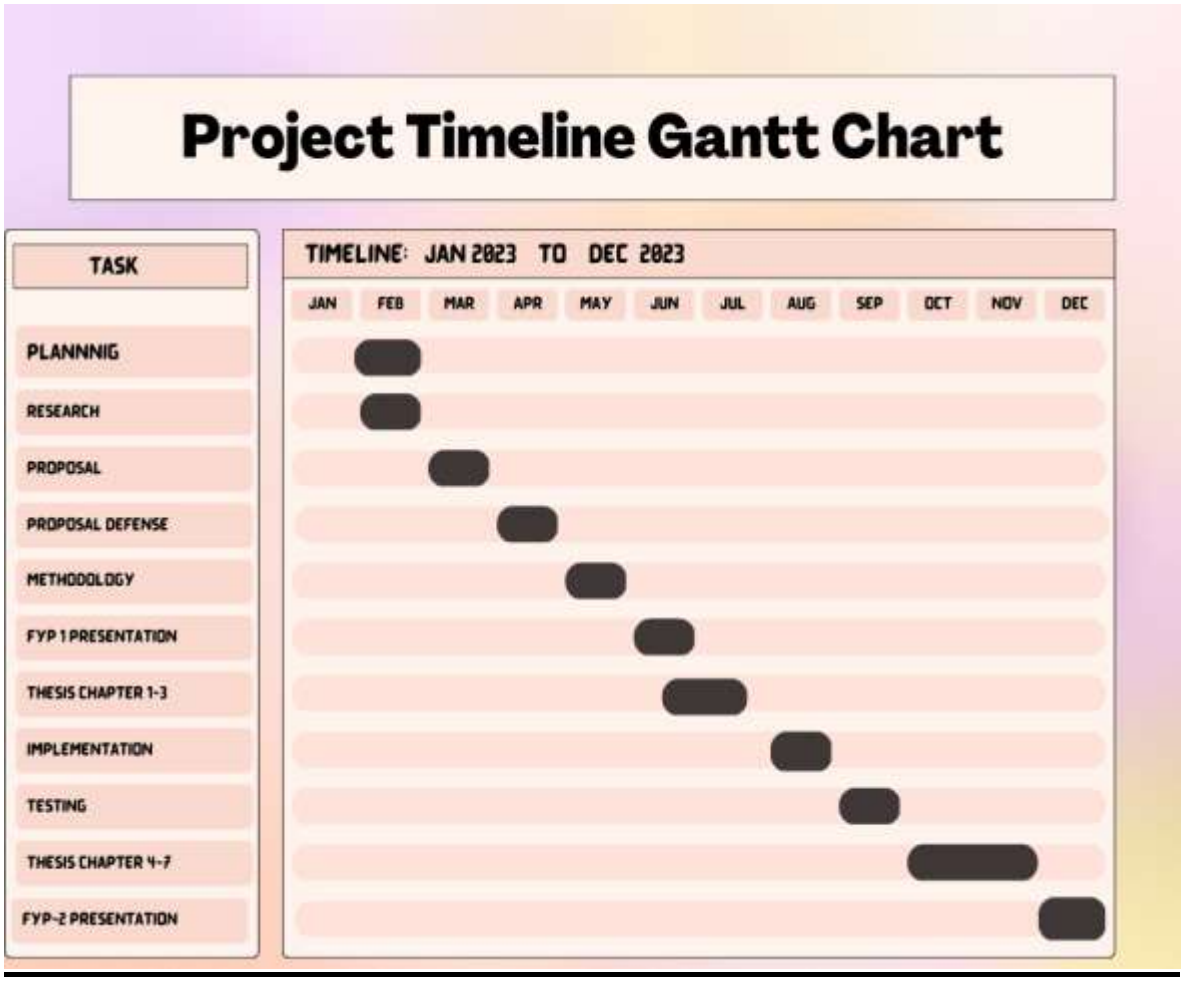

Figure 4 Project Timeline Gant Chart

CHAPTER FOUR: RESULTS

Users interested in learning more about Sindh's history and cultural legacy have reported that the Sindh history Places application has produced exceptional results. The following important outcomes were attained by the application:

Improved Accessibility: A variety of people, including visitors, students, researchers, and history enthusiasts, now have simple access to historical data on Sindh's legacy thanks to the program.

The ability to learn in-depth information on historical places, their cultural significance, their architectural aspects, and more has increased users' understanding of and respect for other cultures.

Increased Tourism: By offering a thorough and interactive guide for tourists, the application has helped promote tourism in the area.

User Engagement: The app's social networking capabilities have helped history and culture aficionados become more involved with one another and form communities.

Convenience: Users may access information even in places with spotty internet connectivity thanks to the offline access function, which has proven to be quite helpful.

Key Features and Capabilities:

- The Sindh Historical Places app has a number of distinctive qualities that make it a useful tool for learning about Sindh's historical locations, including:
- Users get access to in-depth information on historical places, such as their historical and cultural value, architectural aspects, visiting times, and entrance costs.
- A user's immersive investigation of the historical locations is made possible by the application's multimodal material, which includes photographs and videos.

- Interactive maps: Users may use interactive maps to get about and explore the places they are visiting, which makes their trips more convenient and educational.
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How to Use the App?

- The Sindh Historical Places program is simple to use and intuitive. Here is a detailed tutorial on how to use the app:
- Download and Install: Download and install the program from the app store on your smartphone (the Apple App Store for iOS or the Google Play Store for Android).
- Registration (Optional): You have the option to register with the app to build a user profile, giving you access to extra features like sharing your experiences and interacting with other users. A working email address must be provided upon registration, otherwise you may need to use third-party authentication techniques.
- Explore Historical locations: Look through the app's collection of historical locations. Choose a website that you wish to learn more about.
- Access Information: Find out all there is to know about the historical site, from its architectural elements to its historical and cultural value to its opening hours and entry costs.
- Multimedia material: To improve your comprehension and experience with the site, take use of the multimedia material, which includes pictures, movies, and interactive maps.
- Reviews and Ratings: If you're a registered user, you can post reviews and ratings to

share your insights with other users and assist in the platform's improvement.

- Social networking (if you're signed up): Get to know other users, exchange stories, and interact with a group of history and culture aficionados.
- Users may easily explore the historical and cultural treasures of Sindh province at their own pace and convenience thanks to the application's simple and user-friendly design

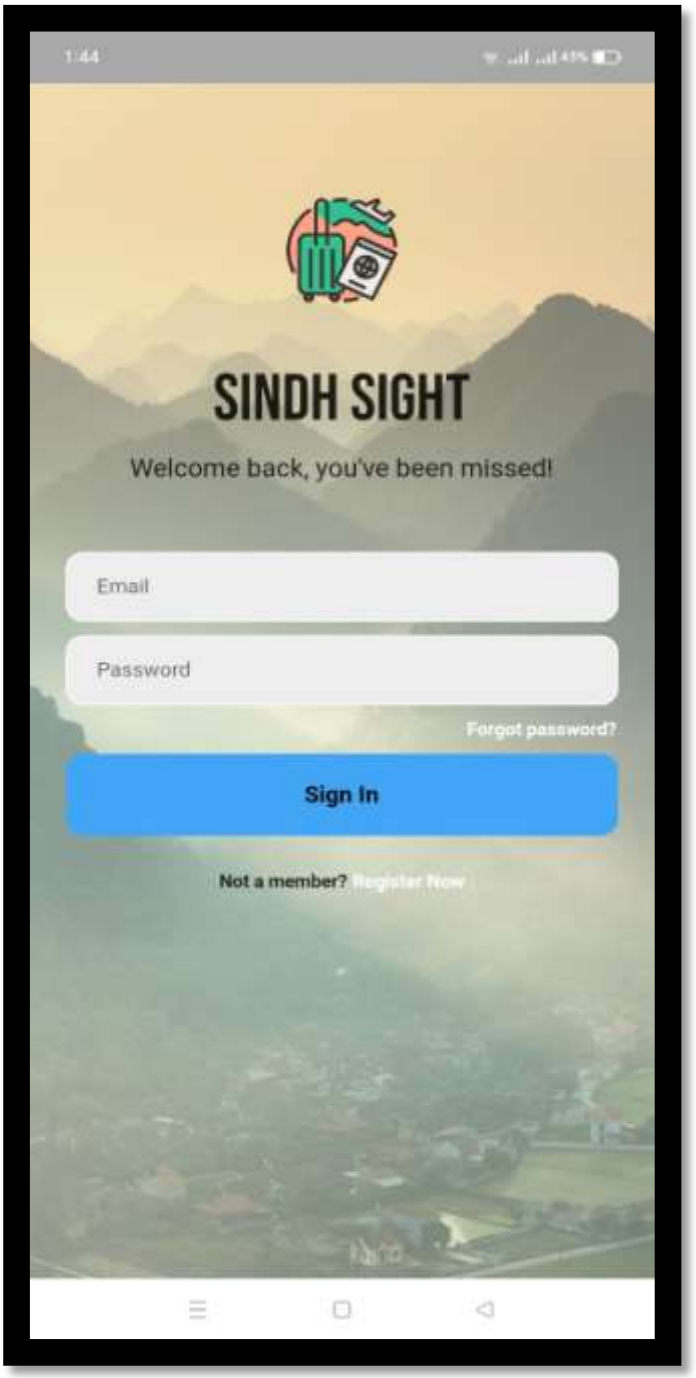

Figure 5 LOGIN PAGE:

LOGIN PAGE

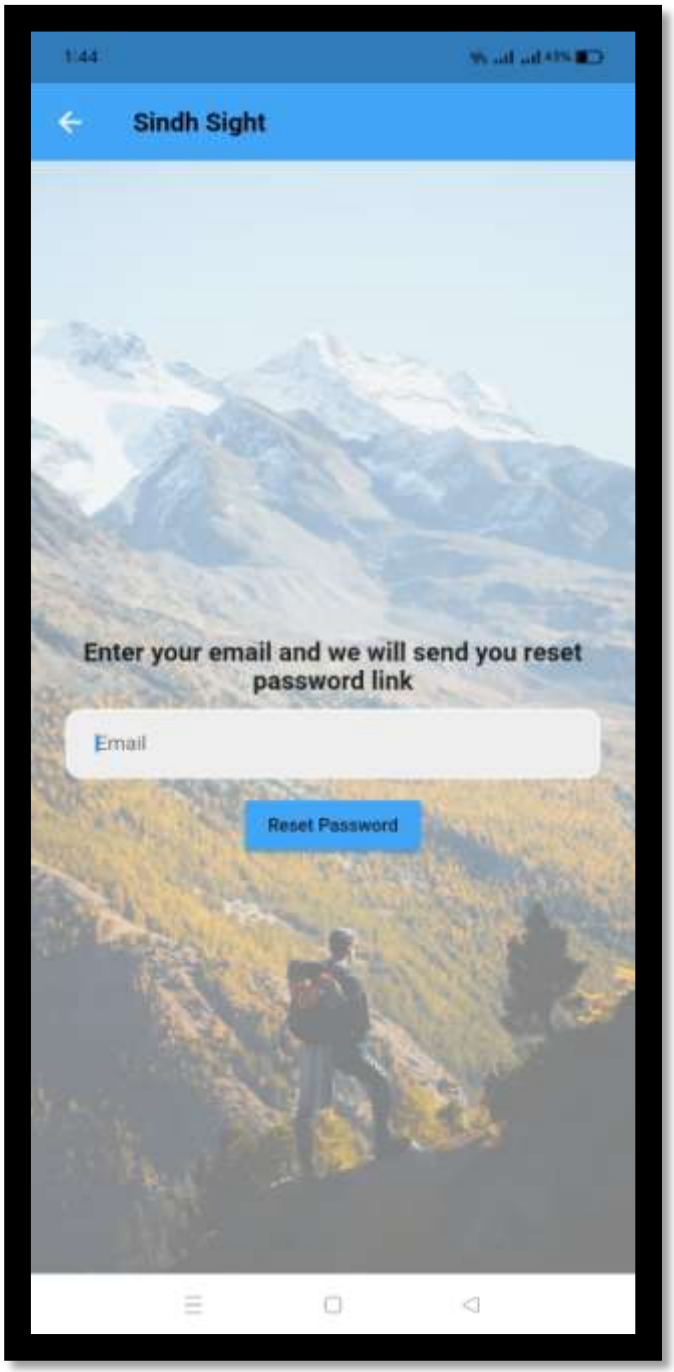

Figure 6 PASSWORD RESET:

PASSWORD RESET

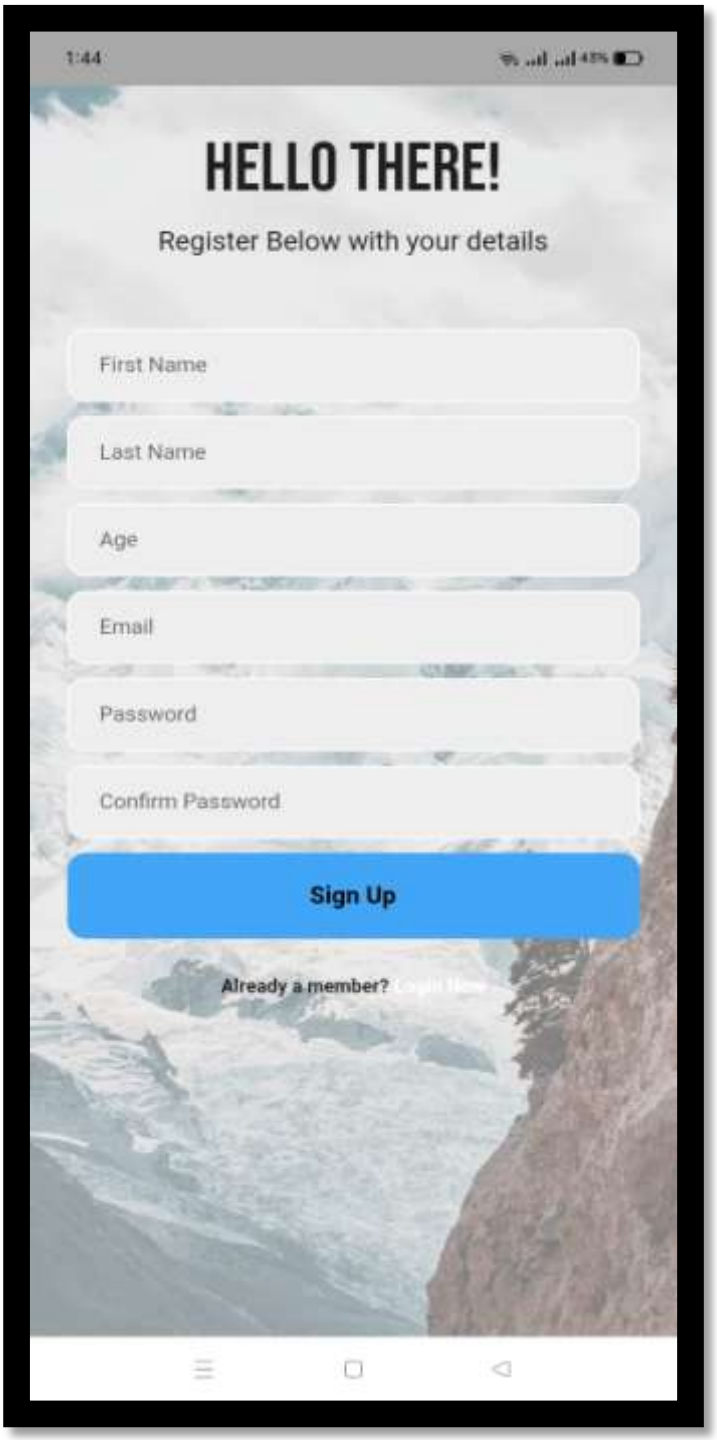

Figure 7 REGISTERATION PAGE:

REGISTERATION PAGE

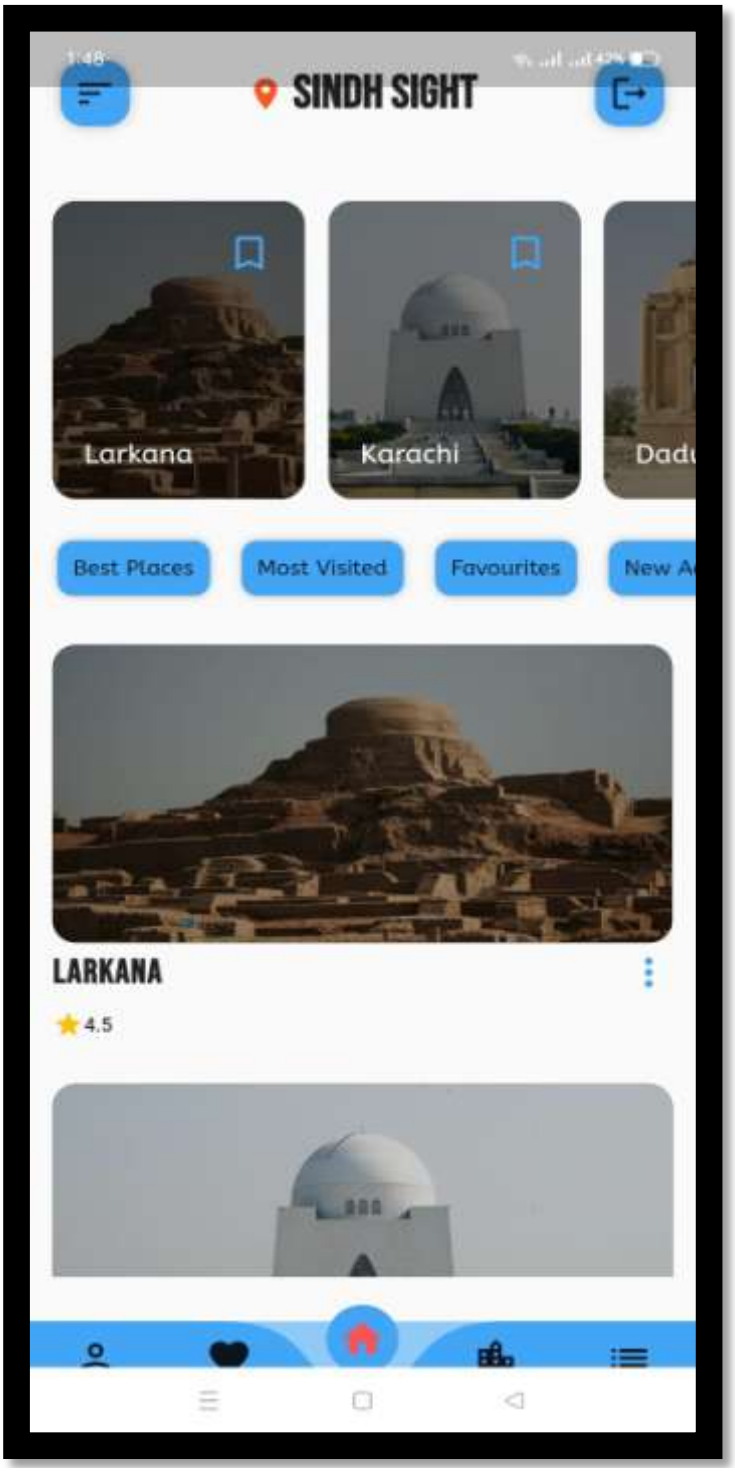

Figure 8 HOME PAGE :

HOME PAGE

Figure 9 INFORMATION PAGE:

INFORMATION PAGE

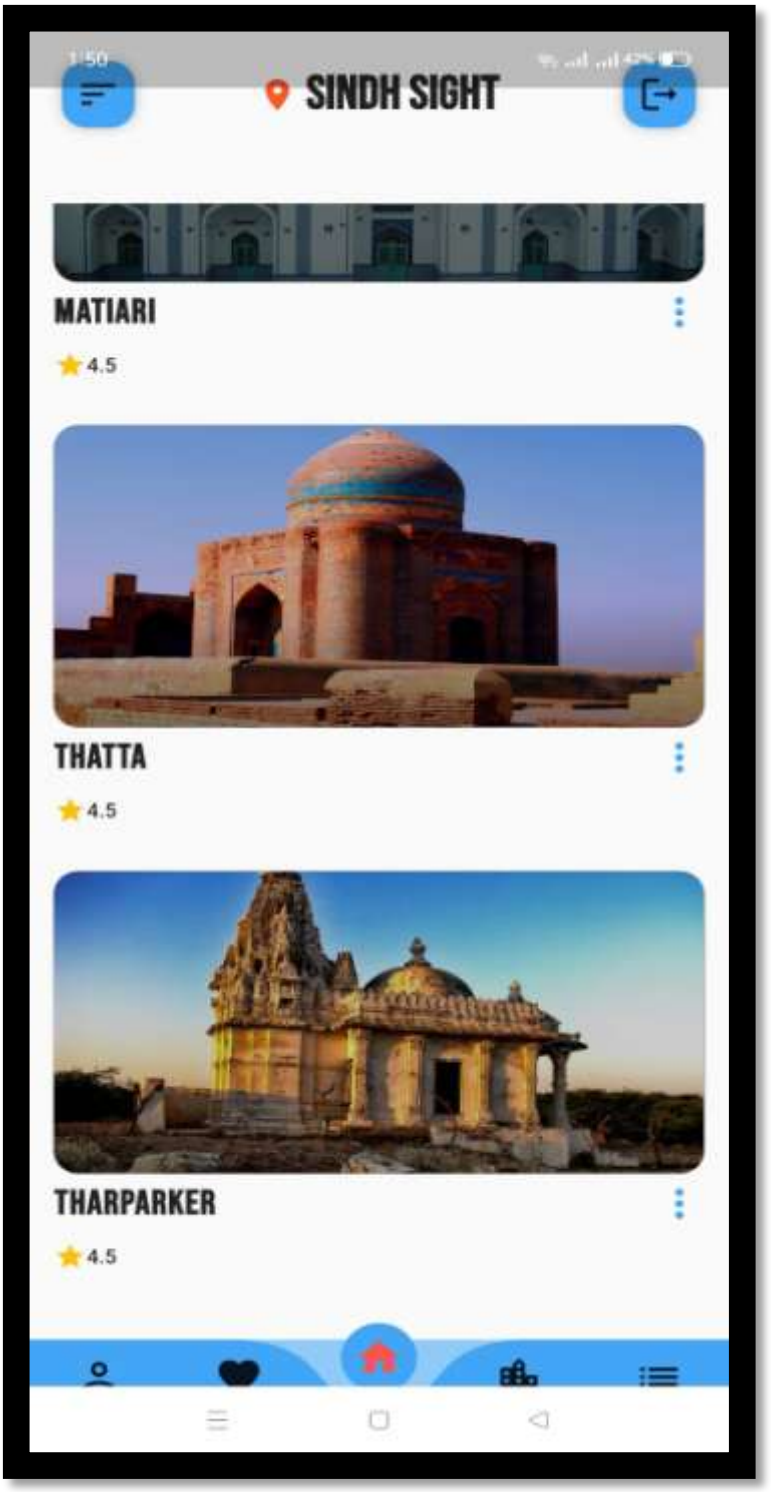

Figure 10 LIST OF CITY:

LIST OF CITY

CHAPTER FIVE: DISCUSSION

The project, focused on developing a Software Application for Sindh Sight, prompts a discussion on various pertinent aspects.

Technical breakthroughs

The initiative emphasizes the importance of technical breakthroughs in cultural protection and accessibility. With the introduction of mobile applications and cloud-based services, creating digital repositories of historical and cultural knowledge has become more practical. In keeping with the digital age, the initiative uses these breakthroughs to make historical knowledge freely available to a wide variety of people.

Changing lives and hectic Schedules:

The project addresses the demand for practical and accessible ways to engage in cultural inquiry in the context of changing lives and hectic schedules. People today frequently don't have enough time for in-depth study or site visits due to the demands of modern living. The software works around these limitations by giving users a thorough, portable guide to historical locations, allowing them to study and enjoy cultural heritage at their own pace and convenience.

The Project's Contribution to Preserving and Promoting Sindh Province's Cultural and Historical Heritage Is What Gives It Its Significance. The initiative enhances users' awareness and enjoyment of historical sites by offering a platform with in-depth information, multimedia content, and interactive elements. This encourages cultural awareness, instruction, and tourism, all of which are essential for preserving and reviving Sindh's rich cultural heritage.

Benefits:

The project provides a number of advantages. First and foremost, it is a teaching tool that offers information on the historical, architectural, and cultural facets of Sindh's past. Second, it improves tourism by making it easier to reach and more interesting, possibly stimulating the regional economy. Thirdly, a variety of users, including those with poor internet connectivity, can utilize the program thanks to its intuitive design and offline access capability. Together, these advantages make the Software Application for Sindh Historical

Places an invaluable resource for both visitors and residents who are curious about discovering and learning more about Sindh's historical riches.

To sum up, the initiative uses technology to close the gap between traditional cultural practices and contemporary lifestyles. It serves as evidence of the changing methods via which we may obtain.

CHAPTER SIX:

CONCLUSION AND FUTURE DIRECTION

Conclusions

This section should provide a conclusion for the entire thesis along with theoretical and practical contributions of your study, and include limitations in the study and any suggestedideas for future research finally, the Sindh Sight Software Application is a project that aims to provide a comprehensive and user-friendly platform for obtaining information on historical places in Sindh province. To establish a scalable and accessible platform, the project makes use of contemporary tools and technologies such as Flutter, Firebase, and APIs. Key aspects of the project, such as language support, offline access, social networking, multimedia material, and thorough information, seek to give users with an interesting and instructive experience. The Agile development process used for the project ensures that it is agile and adaptive to changing user demands. Overall, the Software Application for Sindh Historical Places is a useful resource for anybody interested in learning more about Sindh's rich cultural legacy.

In essence, the Sindh Historical Places app is an innovative and user-friendly platform developed to deliver detailed information on historical places in Pakistan's Sindh province. To establish a scalable and accessible platform, the program makes use of contemporary tools and technologies such as Flutter, Firebase, and APIs.

The application's primary features, such as language support, offline access, social networking, multimedia content, and thorough information, engage and inform users. These qualities make the application a significant resource for visitors, students, scholars, and anybody else interested in experiencing Sindh province's rich cultural legacy.

The project's Agile development style guarantees that it is agile and adaptive to changing user demands. The project team took a systematic approach, beginning with requirements collection and analysis and progressing through design, implementation, testing, and deployment.

Overall, the Sindh Historical Places application is a fantastic project that helps to preserve Sindh's cultural history while also increasing tourism. The program provides an easy-to-use platform for users to explore Sindh's historical monuments, learn about their cultural value, and schedule their trips. The program has the potential to be further enhanced and expanded to include additional historical places in Sindh and other regions of Pakistan.

REFERENCES.

1. Sindh Tourism Development Corporation (STDC) website. Available at: http://www.sindh.gov.pk/dpt/Tourism/index.html.
2. Juma, Leanard Otwori, et al. "mobile-application usage potential for nature interpretation and visitor management at masai mara national reserve, kenya; wildlife viewers'perspectives." (2022).
3. "Tourism in Sindh: Challenges and Opportunities." Research report by Mohammad Ali Qasim, Pakistan Journal of Tourism and Hospitality Management. Available at: https://pjthm.com/index.php/pjthm/article/view/18.
4. Xiao, Hongyi. "Scenic tourist route planning algorithm based on mobile computing and grey entropy decision model." Wireless Communications and Mobile Computing 2022 (2022).
5. Chung- Ming Chung-Ming. "A current travel model: smart tour on mobile guide application services." Current Issues in Tourism 23.18 (2020)
6. Chung-Ming. "A current travel model: smart tour on mobile guide application services." Current Issues in Tourism 23.18 (2020)
7. Chuang, Chung-Ming. "A current travel model: smart tour on mobile guide application services." Current Issues in Tourism 23.18 (2020)
8. Firdaus, Nurul, et al. "Driving Digital Tourism through Tourism Village Mobile Application "Go-Ticketing" for Ticket Management." 2022 1st International Conference on Smart Technology, Applied Informatics, and Engineering (APICS). IEEE, 2022.
9. "Tourism Industry in Pakistan: An Overview." Research article by Humaira Naz, International Journal of Business and Social Science. Available at: https://www.ijbssnet.com/journals/Vol_4_No_1_January_2013/8.
10. "Mobile Applications for Tourist Destinations: A Review." Research article by S. Manikandan and S.Srinivasan, International Journal of Computer Applications. Available at: https://www.ijcaonline.org/archives/volume143/number2/manikandan-2016-ijca-906239. pdf.
11. Firdaus N, Hartono R, Putri YA, Purbayu A, A'la FY. Driving Digital Tourism through Tourism Village Mobile Application "Go-Ticketing" for Ticket Management. In2022 1st International Conference on Smart Technology, Applied Informatics, and Engineering (APICS) 2022 Aug 23 (pp.

205-210). IEEE.

12. "Tourism Mobile Applications: A Comparative Study." Research article by Noora AlGhassani , International Journal of Information Technology and Web Engineering. Available at: https://www.researchgate.net/publication/318693545_Tourism_Mobile_Applications_A_Comparative_Study
13. F. Hussain, I. H. Leghari, and S. Naveed (2015). Vegetation in Sindh: An analytical and literary study. 7. Ka-roonjhar.
14. Gardner, H., and K. Davis (2013). The app generation: navigating identity, intimacy, and imagination in a digital environment. The Yale University Press.
15. Do, Hai-Ninh, Wurong Shih, and Quang-An Ha. "Effects of mobile augmented reality apps on impulse buying behavior: An investigation in the tourism field." Heliyon 6.8 (2020).
16. 13M. M. Sadruddin (2011). Promotion Strategies to Alleviate Poverty via Tourism Development in Sindh. 5(2), Journal of Management Sciences
17. Sindh tourist guide issued by Sindh Tourism Development Corporation (STDC) Dr. Abdul Fatah Doudpoto, Peacock Printers Karachi printed it.
18. Egypt travel guide by Play-Store. https://play.google.com/store/apps/details?id=com.triposo.droidguide.
19. A. M. Martnez-Graa, J. L. Goy, and C. A. Cimarra (2013). A geological heritage virtual tour: valuing geodiversity with Google Earth and QR codes. Computers and Geosciences, vol. 61, pp. 83-93
20. Sadoun, B., and O. Al-Bayari. Geographic information systems are used to provide location-based services. 3154-3160 in Computer Communications, 30(16).
21. Dorcic, Jelena, Jelena Komsic, and Suzana Markovic. "Mobile technologies and applications towards smart tourism–state of the art." Tourism Review 74.1 (2019): 82-103.
22. Dai, Fengwei, Dan Wang, and Ksenia Kirillova. "Travel inspiration in tourist decision making." Tourism Management 90 (2022): 104484.

23. Do HN, Shih W, Ha QA. Effects of mobile augmented reality apps on impulse buying behavior: An investigation in the tourism field. Heliyon. 2020 Aug 1;6(8).