A

Project Stage-I

Report

On

"Culture-AI"

By

1. Krushna Devidas Patil(221106034)
2. Mansi Sudhir Bendale(221106035)
3. Samiksha Shekhar Kharche(221106053)
4. Rituja Ravindra Dhangar(221106059)

R. C. PATEL
INSTITUTE OF TECHNOLOGY
An Autonomous Institute

Department of Computer Science & Engineering

(Data Science)

The Shirpur Education Society's

R. C. Patel Institute of Technology, Shirpur - 425405.

[2024-25]

A

Project Stage-I Report

On

"Culture-AI"

In partial fulfillment of requirements for the degree of

Bachelor of Technology

In

Computer Science & Engineering (Data Science)

Submitted By

1. Krushna Devidas Patil(221106034)
2. Mansi Sudhir Bendale(221106035)
3. Samiksha Shekhar Kharche(221106053)
4. Rituja Ravindra Dhangar(221106059)

Under the Guidance of

Prof. T. R. Girase

R. C. PATEL
INSTITUTE OF TECHNOLOGY
An Autonomous Institute

The Shirpur Education Society's
R. C. Patel Institute of Technology, Shirpur - 425405.

Computer Science & Engineering (Data Science)

[2024-25]

R. C. PATEL
INSTITUTE OF TECHNOLOGY
An Autonomous Institute

The Shirpur Education Society's

R. C. Patel Institute of Technology
Shirpur, Dist. Dhule (M.S.)

Computer Science & Engineering (Data Science)

CERTIFICATE

This is to certify that the Project Stage-I entitled "**Culture-AI**" has been carried out by team:

1. **Krushna Devidas Patil**
2. **Mansi Sudhir Bendale**
3. **Samiksha Shekhar Kharche**
4. **Rituja Ravindra Dhangar**

under the guidance of **Prof. T. R. Girase** in partial fulfillment of the requirement for the degree of Bachelor of Technology in Department of Computer Science & Engineering (Data Science)(Semester-VI)of Dr. Babasaheb Ambedkar Technological University, Lonere during the academic year 2024-25.

Date:

Place: Shirpur

Guide	**Project Stage-I Coordinator**
Prof. T. R. Girase	**Dr. P. S. Sanjekar**
H.O.D.	**Director**
Prof. Dr. U. M. Patil	**Prof. Dr. J. B. Patil**

ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to my respected project guide, **Prof. T. R. Girase**, for her valuable guidance, constant encouragement, and unwavering support throughout the development of our project "CultureAI – Showcasing the Rich Cultural Heritage and Traditions of India." Her technical insights and continuous motivation helped us stay focused and overcome every challenge with confidence.

I am also sincerely thankful to our Head of Department, **Dr. U. M. Patil**, for providing us with this wonderful opportunity and for her constant support throughout the project. Her inspiring leadership and commitment to academic excellence created a positive environment that encouraged us to put forward our best efforts.

Lastly, I would like to extend my deepest gratitude to our respected Director, **Dr. J. B. Patil**, for his support and for providing all the necessary resources and infrastructure. His vision and encouragement towards student innovation and practical learning played a crucial role in the successful completion of our project.

Project Team:
Krushna Devidas Patil
Mansi Sudhir Bendale
Samiksha Shekhar Kharche
Rituja Ravindra Dhangar

PAGE INDEX

TABLE INDEX

ABSTRACT

India is a land of immense cultural diversity, historical richness, and architectural brilliance. In an era dominated by digital technology, there is a growing need to preserve and promote this heritage in a modern and accessible format. CultureAI is an Android-based mobile application developed with the objective of showcasing the rich cultural heritage and traditions of India, including temples, forts, caves, monuments, and traditional practices. The application combines historical information, high-quality multimedia content, and location-based navigation to offer an engaging user experience. It features Google Maps integration for easy navigation, a review and rating system for user interaction, and push notifications for cultural event updates. Additionally, offline access is enabled using SQLite, ensuring users can explore heritage information even in areas with limited connectivity.The app leverages Firebase for cloud storage and user-generated content, providing real-time updates and dynamic content handling. Through this initiative, CultureAI bridges the gap between India's ancient legacy and today's digital generation, encouraging cultural awareness, tourism, and preservation. The project highlights the potential of technology in making cultural knowledge more accessible, interactive, and impactful for users across the globe.

CHAPTER -1

INTRODUCTION

India is renowned for its vast cultural diversity, rich history, and architectural marvels that span thousands of years. From ancient temples and majestic forts to intricate caves and timeless traditions, every corner of the country holds a unique story of heritage. However, in the fast-paced digital age, awareness and accessibility to this cultural wealth are often limited, especially among the younger generation. There is a growing need to preserve and promote this heritage using modern technological tools.

CultureAI is a mobile application designed to bridge this gap by offering an interactive and informative platform to explore India's cultural richness. The app aims to serve as a digital companion for heritage lovers, tourists, students, and researchers by providing detailed historical descriptions, high-quality multimedia content, and location-based navigation to various heritage sites across the country.

Through features like offline accessibility, user reviews and ratings, push notifications for events, and Google Maps integration, CultureAI ensures both engagement and convenience. By blending cultural education with mobile technology, this application not only promotes heritage tourism but also contributes to the larger mission of cultural preservation and appreciation in a digitally connected world.

1.1 SCOPE

Cultural Preservation and Awareness:

CultureAI promotes the preservation and awareness of India's rich cultural heritage by providing detailed information about heritage sites, monuments, temples, forts, caves, and traditions. By digitizing historical and cultural data, the app contributes to safeguarding intangible cultural assets and encourages users to appreciate and learn about India's diverse heritage.

Tourism Enhancement and Guidance:

The application acts as a digital travel companion, supporting heritage tourism through features like Google Maps navigation, multimedia exploration, and offline access. By offering location-based guidance and engaging content, CultureAI enhances the travel experience for tourists and helps them discover both popular and lesser-known cultural sites.

User Engagement and Interaction:

Through features such as reviews, ratings, and push notifications, CultureAI fosters user engagement and active participation. Users can share feedback, receive updates about events, and stay connected with the cultural community, thereby making the app a dynamic and interactive platform for cultural exchange.

Educational Tool for Learners and Researchers:

CultureAI serves as a valuable educational resource for students, educators, and cultural researchers. It provides well-organized, accurate historical content and multimedia materials that support learning and exploration of India's cultural history in a user-friendly mobile format.

Scalability and Future Expansion:

The app architecture allows for future enhancements such as integration of Augmented Reality (AR) for immersive tours, real-time heritage event tracking, and multilingual support. These features will broaden the app's reach and usability among diverse user groups across regions and languages.

Government and Institutional Collaboration:

CultureAI has the potential to collaborate with tourism departments, heritage boards, and cultural organizations. This can support policy-level initiatives for cultural preservation and tourism development while also enabling joint campaigns to highlight important cultural sites and traditions.

Accessibility and Inclusivity:

With offline support through SQLite, CultureAI ensures that crucial cultural information is accessible even in remote or low-connectivity areas. This inclusive approach empowers users from different regions to access and engage with cultural content without technical barriers.

Innovation in Digital Heritage Management:

CultureAI represents an innovative step in combining mobile technology with cultural conservation. The project encourages interdisciplinary collaboration between developers, historians, designers, and tourism professionals to create new ways of presenting and preserving heritage using modern tools.

1.2 RESOURCES

- Dataset Sources:
  - ✓ Curated lists of Indian heritage sites, temples, forts, and caves from:- Archaeological Survey of India (ASI)
  - ✓ Ministry of Culture, Government of India
    - Incredible India (https://www.incredibleindia.org)
    - UNESCO World Heritage Centre
    - Official tourism websites of various Indian states
  - ✓ Historical and cultural descriptions from academic articles, government publications, and trusted history blogs
  - ✓ Multimedia (images and videos) from copyright-free repositories and site visits
- Software and Development Tools:
  - ✓ Programming Language: Java
  - ✓ Development IDEs: Android Studio, Visual Studio Code
  - ✓ Backend Services:
    - Firebase (Authentication, Realtime Database, Cloud Storage)
    - SQLite (for offline data access)
  - ✓ APIs Used:
    - Google Maps API (location-based navigation)
    - Firebase Cloud Messaging (push notifications)
  - ✓ Version Control: Git and GitHub for collaborative development and code management

- Learning Platforms and Tutorials:
  - ✓ Android Development Tutorials – Android Developers, YouTube, GeeksforGeeks
  - ✓ Firebase Documentation – firebase.google.com
  - ✓ Google Maps API and YouTube API integration – Udemy, Medium blogs
  - ✓ UI/UX Design – Coursera (Google UX Design), Dribbble for UI references
  - ✓ SQLite Integration in Android – TutorialsPoint, Medium articles
- Online Communities and Support:
  - ✓ Stack Overflow – For code troubleshooting and integration issues
  - ✓ GitHub Discussions – For project collaboration and feedback
  - ✓ Reddit Communities – r/androiddev, r/learnprogramming
  - ✓ Google Developer Groups (GDG India)
  - ✓ Medium and Hashnode – For tutorials, case studies, and dev blogs

1.3 PERSPECTIVE

The rapid growth of mobile technology has opened new possibilities in the field of digital heritage preservation. CultureAI takes advantage of this opportunity by creating a mobile application that bridges the gap between India's rich cultural legacy and modern technological platforms. As urbanization and modernization grow, many young generations are drifting away from their roots and cultural identity. This app aims to reintroduce them to the historical richness of the country through an engaging, interactive, and educational platform.

Through features like offline accessibility, location-based navigation, and multimedia-rich content, CultureAI provides a comprehensive solution for tourists, educators, and heritage enthusiasts. It empowers users to not just learn, but also contribute by sharing reviews and ratings, thereby making cultural learning participative.

In the broader perspective, CultureAI also supports tourism development and the mission of digital India. It has the potential to collaborate with government bodies, tourism departments, and educational institutions. Furthermore, future integrations like AR/VR tours and multilingual support can transform the app into an immersive cultural encyclopedia.

In essence, CultureAI is not just a project—it's a step toward protecting, promoting, and passing on the cultural treasure of India to future generations in a smart and sustainable way.

1.4 PROBLEM STATEMENT

Cultural Awareness and Preservation:

India has a vast and diverse cultural heritage comprising ancient temples, forts, caves, monuments, and traditions. However, with rapid modernization and urbanization, there is a growing disconnect between the younger generation and India's cultural roots. Many lesser-known heritage sites remain unexplored or underappreciated due to lack of awareness and accessible digital information. There is a strong need for a modern, technology-driven solution to preserve and promote this cultural richness.

Information Accessibility:

Despite having a wealth of historical data, multimedia content, and government-backed tourism information, there is no unified, user-friendly platform that presents this knowledge in a comprehensive and interactive manner. Tourists and culture enthusiasts often struggle to find reliable and localized information about heritage sites, especially in remote regions with poor internet connectivity.

Digital Tourism and Engagement:

While tourism apps exist, most lack engaging features such as user interaction, offline accessibility, and immersive exploration. There is an opportunity to use mobile technology to enhance the tourism experience through features like Google Maps navigation, multimedia content, real-time updates, and user-contributed reviews.

Resource Optimization and Innovation:

By combining cloud-based services (like Firebase) with offline databases (SQLite), CultureAI can ensure reliable access even in low-network areas, optimizing both performance and user experience. The integration of push notifications and interactive content can also help cultural organizations and tourism departments promote upcoming events and campaigns efficiently.

Research and Technological Advancement:

CultureAI contributes to the broader vision of Digital India by integrating mobile app development, cloud storage, real-time data handling, and interactive media. It sets the foundation for future innovations like augmented reality (AR), multilingual support, and AI-powered recommendations—paving the way for smart, educational, and culturally enriching mobile platforms.

CHAPTER -2

RELATED CONCEPT

Mobile Application Development: Mobile app development involves creating software applications that run on mobile devices. CultureAI uses Android development (in Java) to build a responsive, user-friendly interface that allows users to explore cultural sites, view multimedia content, and interact with the app both online and offline.

Firebase Integration: Firebase is a Backend-as-a-Service (BaaS) platform that provides real-time database, cloud storage, and authentication services. In CultureAI, Firebase is used to store images, videos, user reviews, and ratings, enabling real-time updates and seamless user interaction.

SQLite Database: SQLite is a lightweight local database used for offline data storage. CultureAI leverages SQLite to provide access to crucial cultural information even in areas with poor internet connectivity, ensuring uninterrupted user experience.

Google Maps API: The Google Maps API allows the app to provide location-based navigation. CultureAI uses this API to help users locate and navigate to various heritage sites across India with real-time map integration.

Digital Cultural Preservation: This concept refers to the use of digital tools to document, protect, and promote cultural heritage. CultureAI aims to digitally preserve and present India's historical sites and traditions to global audiences.

User Engagement Features: Interactive features like reviews, ratings, and push notifications enhance user participation and content richness. These elements help build a community of users who contribute to and benefit from shared cultural knowledge.

Multimedia Content Management: Managing and organizing media such as images and videos is essential for delivering engaging experiences. CultureAI incorporates optimized loading and retrieval techniques to display high-quality visuals efficiently.

UI/UX Design Principles: Good user interface (UI) and user experience (UX) design

ensures the app is intuitive, accessible, and visually appealing. CultureAI is built with a clean layout, simple navigation, and culturally themed design elements.

Cultural Studies and Heritage Tourism: CultureAI draws from cultural studies to present historically accurate and meaningful content. It also supports heritage tourism by guiding users to visit and learn about India's diverse heritage locations.

CHAPTER -3

SOFTWARE & HARDWARE REQUIREMENT

3.1 HARDWARE REQUIREMENT

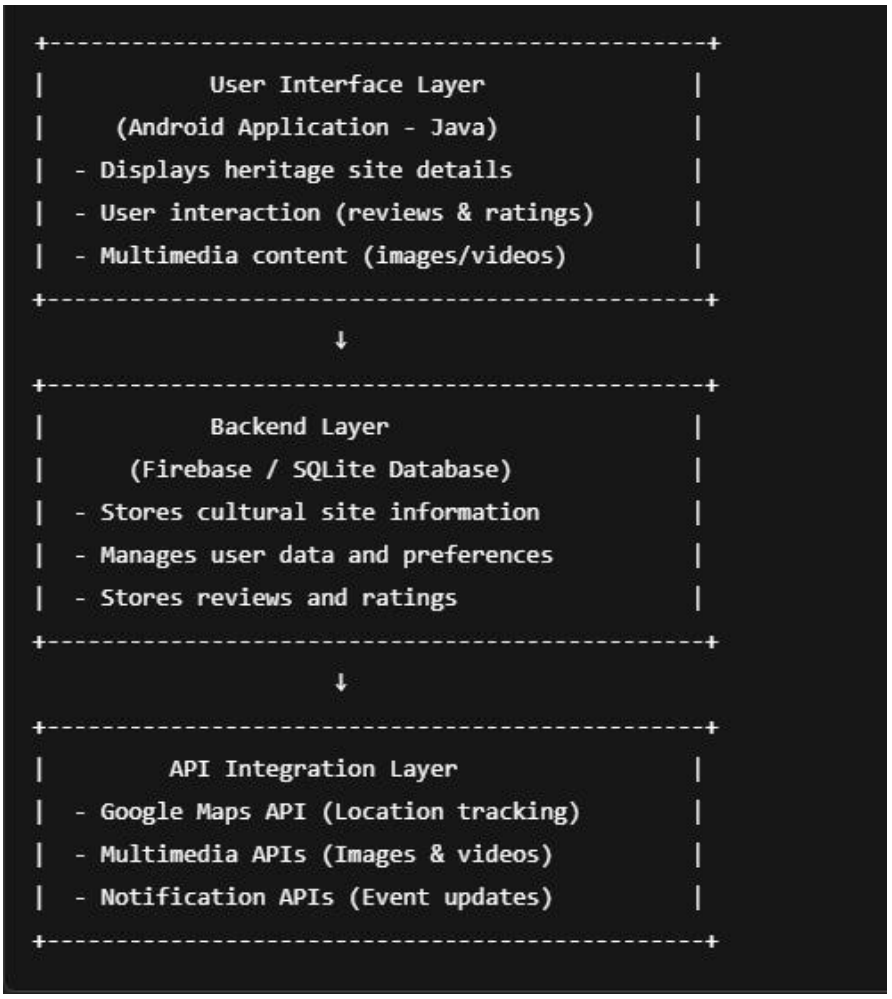
Processor	NVIDIA GPU with CUDA Compute Capability 7.0 or higher
RAM	8 GB RAM or higher
CPU	Quad-core Intel Core i5 or equivalentAMD processor
Storage	SSD storage for faster data loading
Mobile Device	Android smartphone (for testing and deployment)

3.2 SOFTWARE REQUIREMENT

Programming Language	Java (for Android app development)
Frontend Tools	Android Studio, XML, Java
Backend & Cloud Services	Firebase (Authentication, Realtime DB, Cloud Storage)
Offline Database	SQLite
APIs Used	Google Maps API
Version Control	Git, GitHub

CHAPTER- 4
METHODOLOGY

4.1 BLOCK DIAGRAM



1. Dataset Collection & Preparation

Monument-related data such as names, locations, descriptions, and image paths were collected, cleaned, and structured. Images were categorized and mapped with the corresponding dataset entries.

2. Frontend Development (Android)

The mobile interface was developed using Android Studio, featuring key screens like splash, home, monument detail, and map screens. Components such as RecyclerView

and card layouts were used for effective display and interaction.

3. Dynamic Data Binding

Parsed dataset entries were dynamically rendered on the app using RecyclerView. This allowed users to browse monuments interactively. Glide was used for efficient image loading and caching.

4. Google Maps Integration

Google Maps API was configured and integrated into the app. Monument coordinates were used to plot markers on the map. Each marker was linked to its respective monument detail view, enabling location-aware browsing.

5. User Feedback & Review System (Planned)

Firebase Firestore was configured to store user-generated reviews and ratings for each monument. A custom UI was designed to allow users to submit and view feedback.

6. Multimedia Embedding (Planned)

Firebase Storage was selected for hosting additional multimedia content such as cultural videos and extra images. These will be embedded in the monument detail screens to enhance the learning experience.

7. Offline Mode & Notifications (Planned)

SQLite was implemented for partial offline functionality, with caching of monument data. Firebase Cloud Messaging (FCM) integration was initiated for sending cultural event alerts and site-related notifications.

CHAPTER 5
IMPLEMENTATION

5.1 WORK DONE :

1. Project Initialization and Planning

The project began with the creation of a GitHub repository for version control, ensuring smooth collaboration and version tracking. A clear folder structure was defined for Android source code, datasets, and documentation. The app's objective—to showcase India's cultural heritage—was finalized along with the target user base.

2. Data Collection and Preprocessing

Monument-related datasets were collected and curated. This included image-based data and descriptive metadata such as monument names, descriptions, and geographical coordinates. The datasets were cleaned and organized for easy integration into the app.

3. Android Project Setup and UI Design

An Android project was initialized using Java in Android Studio. Key UI components such as the splash screen, home screen, and monument detail pages were designed. A card-style layout was implemented to display monument information effectively. Static data was linked initially to test the visual structure.

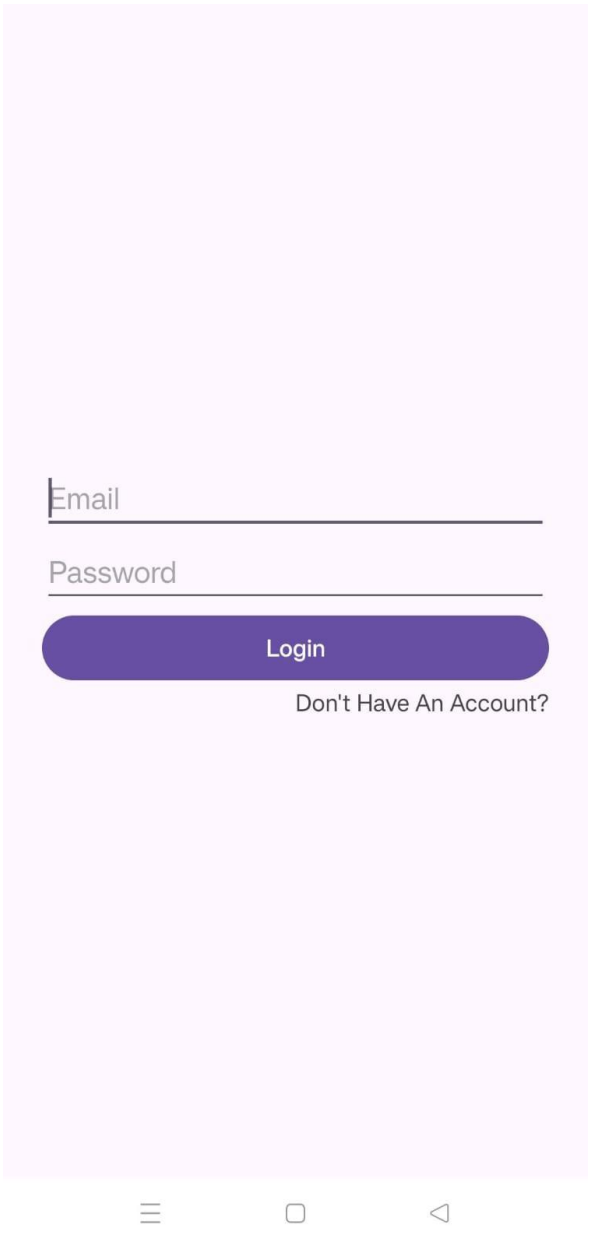
4. Dynamic Data Integration

The app was enhanced to dynamically render monument data using RecyclerView. A model class was created to represent each monument. Data such as monument names, descriptions, and images were displayed in real-time from the dataset. Glide was integrated for efficient image loading.

5. Google Maps API Integration

Google Maps was embedded into the application using API keys. Monument locations were mapped using their latitude and longitude values. Interactive markers were plotted on the map, each linked to its respective monument detail screen to enhance navigation and user engagement.

5.2 Result :




9:21
1 device
73%
Taj Mahal
A beautiful white marble mausoleum in Agra.


9:21
1 device
73%
Taj Mahal
Nepal
Jaipur
जयपुर
India
Mumbai
मुंबई
Hyderabad
హైదరాబాద్
Bengaluru
ಬೆಂಗಳೂರು
Chennai
சென்னை
Google
Home
Map

CHAPTER 6
FUTURE WORK

1. Backend Integration with Firebase Firestore Although Firebase has been configured, the full integration for real-time review and rating storage is pending. Future work will include:
   - ✓ Implementing Firestore queries to store and fetch user feedback.
   - ✓ Linking feedback dynamically to individual monument detail pages.
2. Multimedia Content Embedding Cultural videos and high-resolution images need to be uploaded to Firebase Storage and embedded into the app. Planned steps include:
   - ✓ Hosting video and image files on Firebase Storage.
   - ✓ Updating the UI to support multimedia playback within monument detail screens.
3. Offline Mode (SQLite Integration) Offline functionality is partially implemented. Future work includes:
   - ✓ Completing local caching of monument data using SQLite.
   - ✓ Implementing sync logic to update offline data when internet is restored.
4. Push Notification System Firebase Cloud Messaging (FCM) integration is pending deployment. Upcoming tasks:
   - ✓ Finalizing message format and triggers for cultural event updates.
   - ✓ Testing notification delivery and user interaction on Android devices.
5. Final Testing and Optimization A complete testing cycle is required to ensure robust performance:
   - ✓ UI consistency across devices.

- ✓ Bug fixing and performance optimization.
- ✓ Generation of signed APK for final deployment.

6. User Authentication (Optional Future Scope) Consider implementing a user login system using Firebase Authentication to:
   - ✓ Track individual user reviews.
   - ✓ Enable bookmarking of favorite monuments.

CONCLUSION

The CultureAI project successfully demonstrates the potential of mobile technology in preserving and promoting India’s rich cultural heritage. Through a well-structured development approach, the application integrates monument datasets, interactive UI components, dynamic content display using RecyclerView, and location-based services via Google Maps. The use of Glide for optimized image loading further enhances performance and user experience. While core frontend functionalities and dataset integration have been implemented, key backend features such as Firebase-based user reviews, multimedia embedding, offline accessibility, and push notifications are planned for future development. Once complete, CultureAI will serve as a robust educational and exploratory platform for users interested in India's cultural landmarks.

BIBLIOGRAPHY

[1]. Android Developers Documentation. (n.d.). RecyclerView. Retrieved from https://developer.android.com/guide/topics/ui/layout/recyclerview

[2]. Google Maps Platform. (n.d.). Maps SDK for Android. Retrieved from https://developers.google.com/maps/documentation/android-sdk

[3]. Firebase. (n.d.). Cloud Firestore Documentation. Retrieved from https://firebase.google.com/docs/firestore

[4]. Firebase. (n.d.). Firebase Cloud Messaging. Retrieved from https://firebase.google.com/docs/cloud-messaging

[5]. Glide. (n.d.). Image Loading Library for Android. Retrieved from https://bumptech.github.io/glide/

[6]. SQLite. (n.d.). SQLite Database Engine. Retrieved from https://www.sqlite.org/index.html

[7]. Kothari, C. R. (2004). Research Methodology: Methods and Techniques. New Age International.