

PROJECT REPORT – ANDROID DEVELOPMENT (SMARTINTERNZ)

WANDERLUST – A PERSONALIZED TRAVEL PLANNER & TRACKER APP

1. INTRODUCTION

Project Overview

Travel is a diverse and enriching experience with several key aspects. Firstly, the purpose of travel varies and can include leisure, business, education, or visiting friends and family. Leisure travel, for instance, involves recreational activities like vacations and tourism, driven by the desire to relax and explore new cultures.

Transportation is a crucial element, encompassing various modes such as air travel for long-distance and international journeys, providing quick connectivity. Accommodation is essential for travelers, ranging from hotels and motels to hostels, vacation rentals, or camping sites. Planning and booking are integral to a successful trip, involving thorough research on destinations, flights, accommodations, transportation options, visas, and travel insurance. The process requires careful consideration and organization. Expenses and budgeting play a significant role in travel, as costs vary based on factors like destination, duration, accommodation type, transportation mode, planned activities, and individual preferences. In summary, travel offers a multifaceted experience, allowing individuals to explore, learn, and create meaningful memories through a combination of purposeful planning, diverse transportation options, suitable accommodations, and thoughtful budgeting.

Purpose of the Project

The primary purpose of travel apps is to offer a diverse range of tools, services, and information aimed at enhancing the convenience, efficiency, and enjoyment of travel planning and experiences. Typically designed for use on mobile devices such as smartphones and tablets, these apps are available for download from app stores or accessible through web browsers. Travel apps serve various functions, including researching and planning trips by helping users find flights, hotels, rental cars, and activities. They often provide features to facilitate the booking of flights, hotels, rental cars, and other travel-related services. Comprehensive travel guides are a common feature, offering information about destinations, attractions, local transportation, and dining options. Furthermore, travel apps may offer recommendations for local restaurants, bars, shopping, and other points of interest, enhancing the overall travel experience. Real-time updates on flight statuses, gate changes, delays, and other travel-related information are also frequently provided. Language translation features are incorporated to assist users in communicating in

foreign countries where they may not be fluent in the local language. Additionally, currency conversion tools are available to help users quickly calculate and convert currencies when making purchases or dealing with foreign currencies. For those with a passion for exploration, travel apps cater to their curiosity about the world, providing a comprehensive toolset to assist with various aspects of the journey. From planning and booking to navigation and local recommendations, these apps aim to make travel experiences more efficient, enjoyable, and hassle-free, aligning with the desires of individuals seeking to broaden their horizons and immerse themselves in diverse cultures and activities.

2. LITERATURE SURVEY

Existing Problems

The existing problem in travel planning revolves around the complexity and fragmentation of information and services. Travelers often face challenges in coordinating various aspects of their trips due to the multitude of sources and platforms involved. This fragmentation spans across flights, accommodations, activities, and transportation options. The lack of a unified and streamlined system for gathering information and making bookings can lead to inefficiencies, confusion, and potential oversights in the planning process. Additionally, there is a need for more personalized and tailored recommendations. While many travel apps offer extensive information, the one-size-fits-all approach may not sufficiently cater to individual preferences and travel styles. Travelers often find it challenging to discover unique and personalized recommendations for activities, dining, and attractions that align with their interests. Furthermore, communication barriers and language differences can pose challenges, particularly in foreign destinations. Despite the availability of language translation features in some apps, seamless communication remains an ongoing concern. Lastly, the dynamic nature of travel, including real-time changes in flight statuses, gate information, or delays, poses a continual challenge. Travelers may struggle to stay updated with the latest information, leading to potential disruptions and inconveniences during their journeys. Addressing these existing problems in travel planning requires a holistic and integrated approach to streamline information, enhance personalization, improve communication, and provide real-time updates, ultimately creating a more seamless and enjoyable travel experience for individuals.

References – SmartInternz Technical Training & Knowledge Sessions.

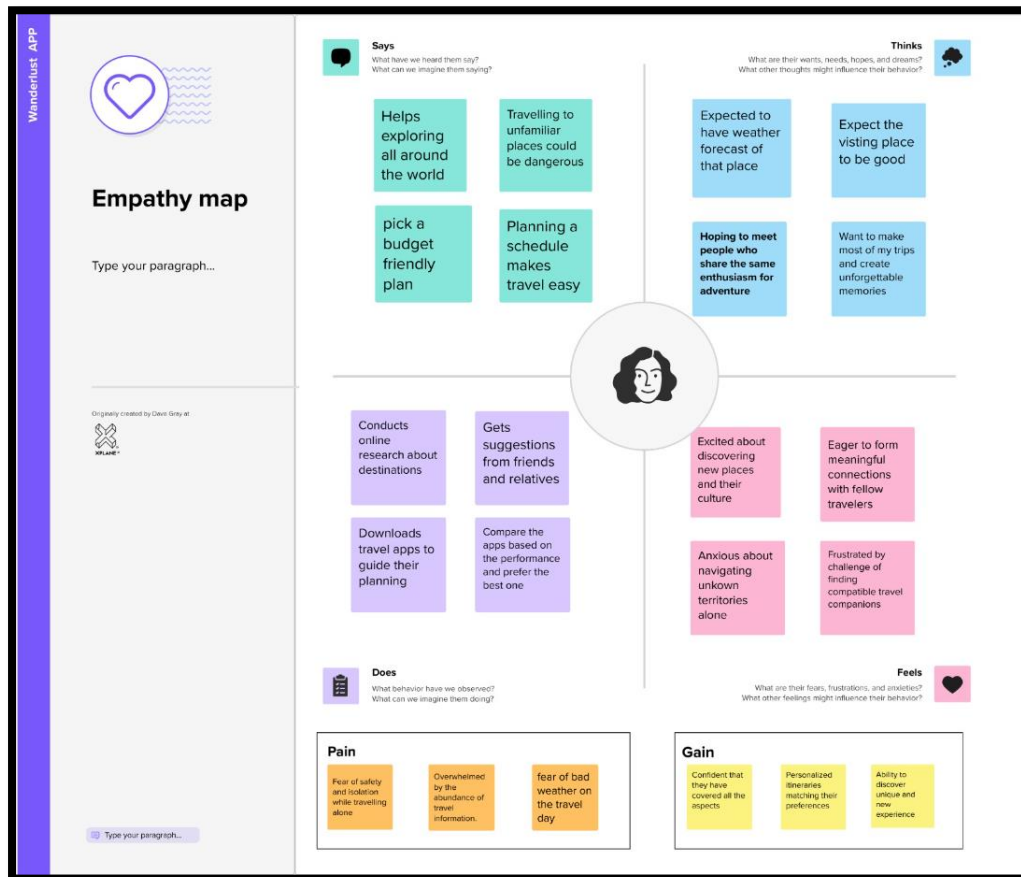
Problem Statement Definition

Current travel planning processes lack a unified and user-friendly solution, leading to fragmented information, inefficiencies, and a lack of personalized

recommendations. There is a need for a streamlined, integrated, and user-centric travel planning app that addresses these challenges and enhances the overall travel experience.

3. IDEATION AND PROPOSED SOLUTION

Empathy Map Canvas



Ideation & Brainstorming

1

Define your problem statement

Wanderlust aims to address the challenges faced by travelers in efficiently planning and tracking their journeys. The app seeks to streamline the travel planning process, offering personalized itineraries and seamless tracking features to enhance the overall travel experience

⌚ 5 minutes

How might we have a **Personalized Travel Planning App** which is **user friendly** and **easy accessibility**?

2

Brainstorm solo

Have each participant begin in the "solo brainstorm space" by silently brainstorming ideas and placing them into the template. This "silent-storming" avoids group-think and creates an inclusive environment for introverts and extroverts alike. Set a time limit. Encourage people to go for quantity.

🕒 10 minutes

Chandra Vamsy

- provide information about hotels in travelling place
- providing best routes
- options of renting in travelling place
- daily schedule as notifications
- sharing reviews about the place visited
- access travel plan in offline
- Recommendation based on the previous trip
- transport schedule in the area
- estimation of budget

Narasimhan Hari

- User Profiles and Destination Recommendation
- Trip Itinerary builder and budget planning
- Flight and Accommodation booking along with Local Transportation
- Personalized Requirements and Offline Access
- Travel tips and guides and social sharing
- Notifications, Alerts and Language Translation
- Travel Safety Information and Feedback Reviews
- Travel Journal and Photo Album
- Integration with weather and personalized packing lists
- Community and Forums for live discussion
- Gamifying the traveling experience by badges
- Emergency Assistance and Insurance Claim

Agrima Singh Rajput

- Travel Recommendation - Personalized travel recommendations based on user interests, budget and previous history
- Expense Tracking - Log and categorize expenses during the trip for easy post-trip expense report
- Travel Alerts - Receive real-time updates, such as flight delays, weather warnings or safety advisories
- Community Features - Connect with other travelers, exchange tips, and seek advice from a community of fellow wanderers
- Language Translation - Access translation tools to help you communicate in foreign languages
- Feedback and Reviews - Leave reviews and feedback for accommodations, restaurants, and attractions visited
- Local Events and Attractions - Discover local events, attractions, and restaurants at destination
- Customizable Notifications - Set reminders for important travel related tasks and updates
- Trip Planning - Create and customize travel itineraries, including destination details, dates and activities

Sneha Uppara

- AI powered personalized travel recommendations based on user's preference such as budget, travel dates, destination
- A collaborative planning app - allow users to collaborate with fellow travellers
- Aiding travellers with navigation tools and maps
- Real time updates on traffic conditions and weather forecasts
- Cost effective - offer deals and discounts on airlines, hotels
- Local experience - connect with local hosts and guides
- Calendars to keep track of important dates and activities
- Ratings and reviews to ensure quality and safety
- Lost and support documents assistance

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

Planning :

- provide information about hotels in travelling place
- Trip Itinerary builder and budget planning
- Cost effective - offer deals and discounts on airlines, hotels

Accommodation and travel :

- Flight and Accommodation booking along with Local Transportation
- Local Events and Attractions - Discover local events, attractions, and restaurants at destination
- options of renting in travelling place

Safety and Emergency :

- Emergency Assistance and Insurance Claim
- Travel Alerts - Receive real-time updates, such as flight delays, weather warnings or safety advisories
- Ratings and reviews to ensure quality and safety

4

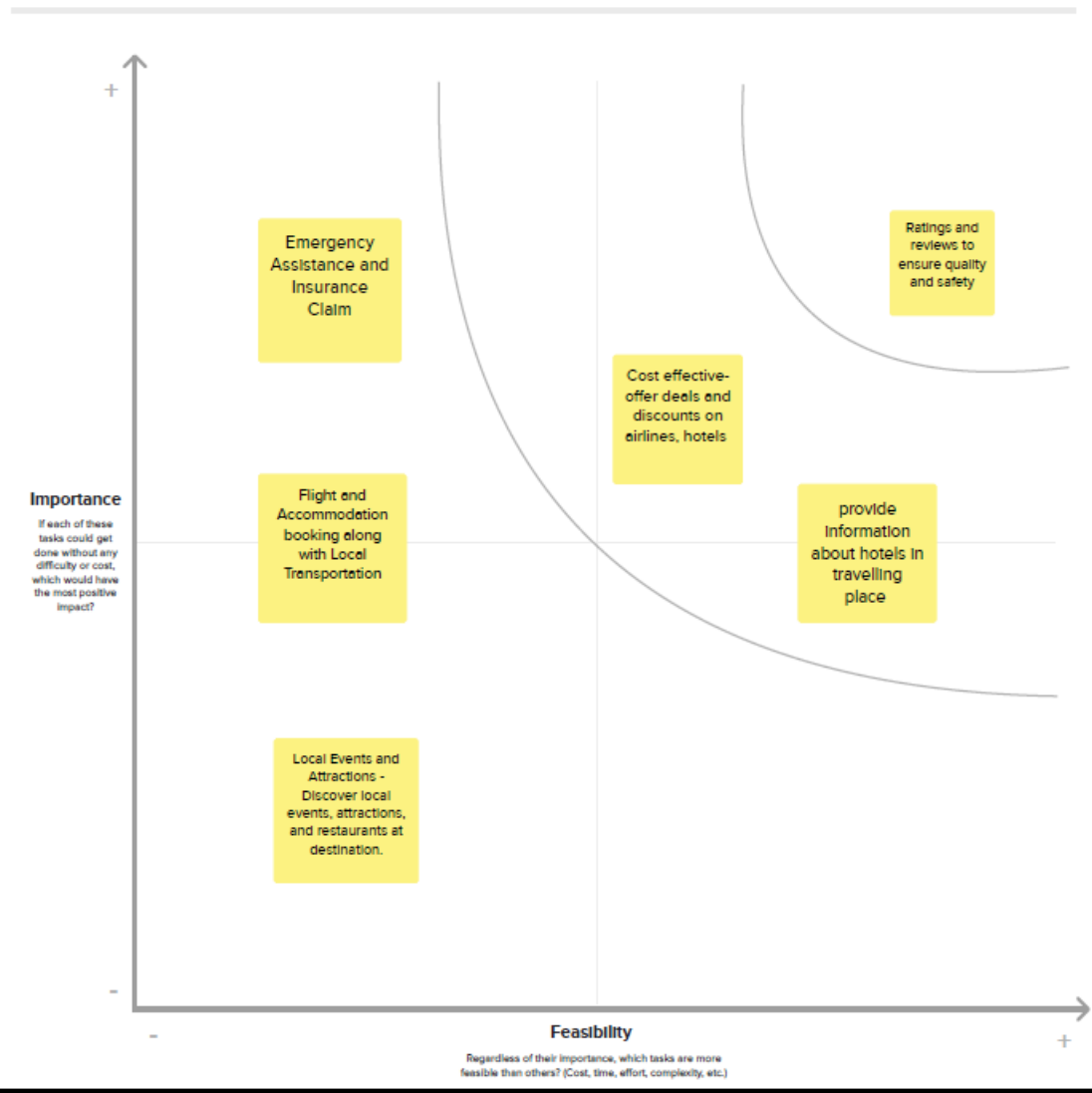
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.



4. REQUIREMENT ANALYSIS

Functional Requirements

The travel planning app will enable users to securely register, manage profiles, and effortlessly plan trips by creating, editing, and deleting itineraries with destination details and travel dates. The app will provide comprehensive information about destinations, including attractions, activities, weather, and local amenities. Users will have the capability to search, view, and book accommodations, as well as find and book flights through seamless integration with third-party platforms.

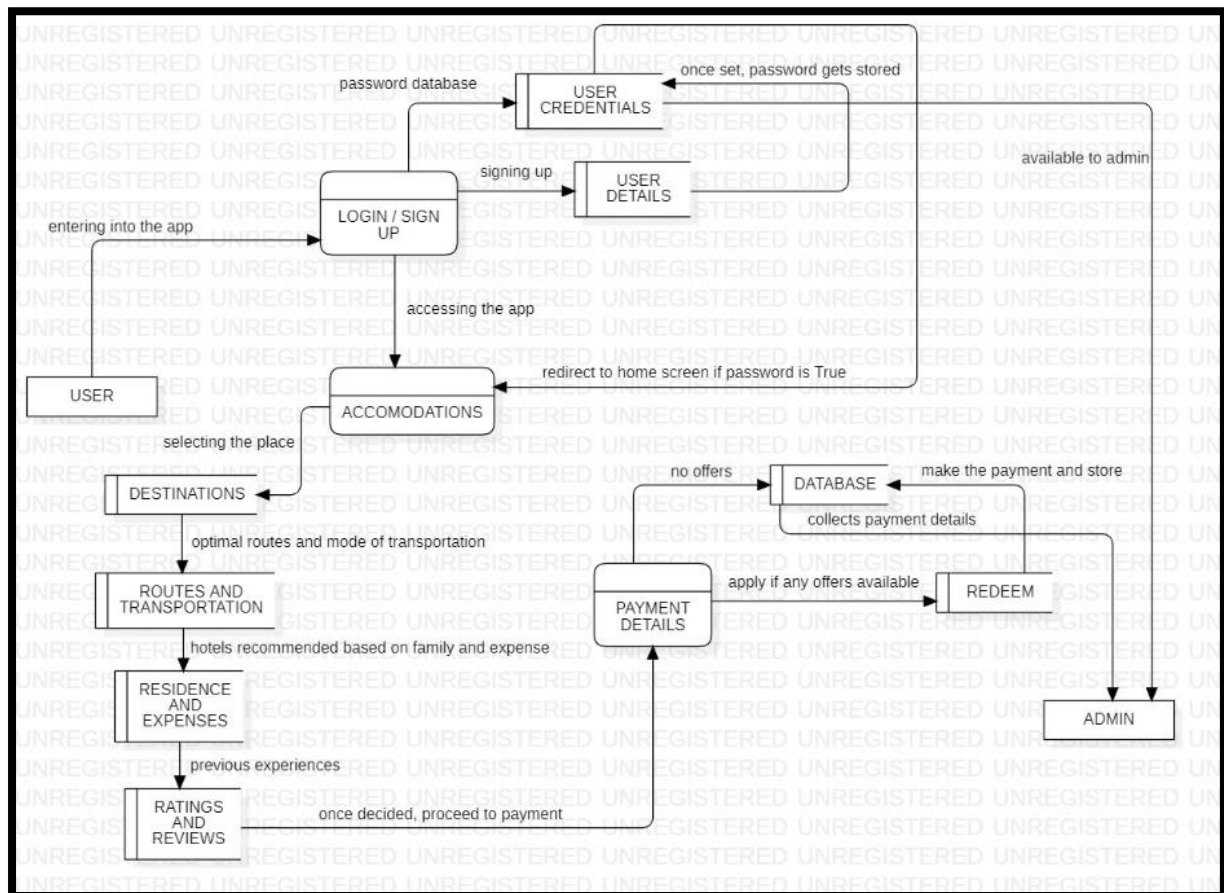
Non – Functional Requirements

The travel planning app should respond quickly to user actions, maintaining a 99.9% uptime and scaling efficiently with increased users. It must prioritize security through encrypted data, robust authentication, and compliance with privacy regulations. The app should be user-friendly, compatible across platforms, and meet legal requirements. Ensuring easy updates, it must have a well-documented codebase for maintainability and support modular enhancements without disrupting the system. These non-functional requirements are integral for a reliable, secure, and seamless travel planning experience.

5. PROJECT DESIGN

Data Flow Diagram (DFD) & User Stories

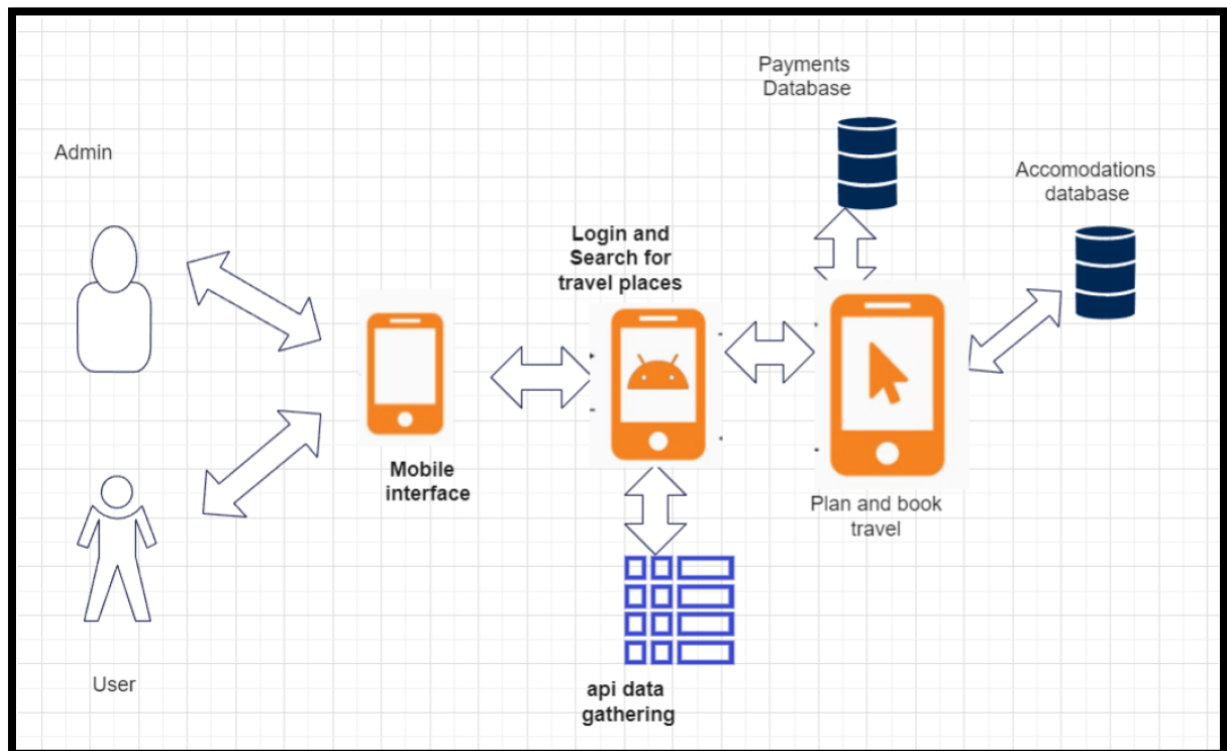
DFD for Travel Planning Application (Wanderlust)



User Stories for Travel Application (Wanderlust)

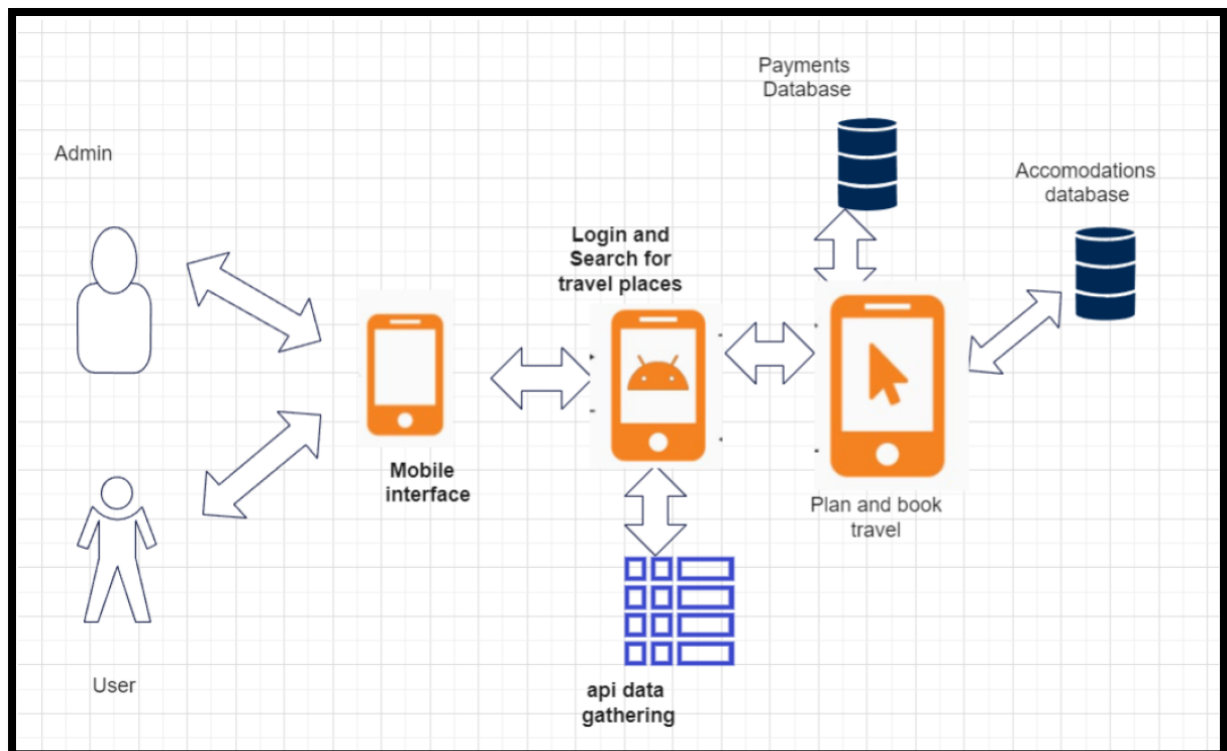
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (App user)	Login/signup	USN-1	As a user, I can register for the application by entering my email, password	I am successfully logged in or signed up and taken to the app's home screen.	High	Sprint-1
Customer	Location Sharing	USN-2	As a customer I want to share my location to my family and friends for safety	I can share my location with my emergency contacts	High	Sprint 2
Customer	View accommodation details	USN-3	As a customer, I want to be able to view detailed information about accommodations, such as photos, amenities, and prices.	I can click on an accommodation from the search results to view more details. I can see photos of the accommodation, read reviews from other tourists, and learn about the amenities and prices.	High	Sprint 1
Customer	customize trip details	USN-4	As a user, I want to be able to create a detailed itinerary for my upcoming trip, including a list of attractions, restaurants, and activities I plan to visit, so that I can efficiently organize my travel plans.	I can set specific time slots for each activity and attraction. I can easily edit and rearrange the itinerary based on preferences and time constraints	Low	Sprint 2
Customer	Book accommodations	USN-5	As a customer, I want to be able to book accommodations directly through the app. I can click on the "Book Now" button to book the accommodation	I can enter my payment information and click on the "Confirm Booking" button. My booking is confirmed and I receive a confirmation	High	Sprint 1
Admin	Manage Database	USN-6	As an admin, I want to have the ability to manage user accounts, including creating, updating, and deleting user profiles, and oversee the app content, including user-generated reviews and destination information	I can add, update, or remove destination information, ensuring the platform's content remains up-to-date and accurate.	Medium	Sprint -2

Solution Architecture



6. PROJECT PLANNING & SCHEDULING

Technical Architecture



Sprint Planning & Estimation

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint 1	Authentication and User Profiles	1	As a user, I want to create an account and log in securely to manage my travel plans effectively.	5	High	Narasimhan, vamsy
Sprint 1	Authentication and User Profiles	2	As a user, I want to update my profile information and manage my account settings easily.	5	Medium	Agrima, Sneha
Sprint 2	Basic Trip Functionality	3	As a user, I want to create detailed itineraries for my upcoming trips, including destinations and activities.	5	High	Narasimhan, Agrima
Sprint 2	Basic Trip Functionality	4	As a user, I want to view maps and plan routes for my travel destinations within the app.	5	High	Vamsy, Sneha

Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint 3	Advanced Trip Features	5	As a user, I want to search for hotels and make reservations directly from the app.	5	High	Sneha, Narasimhan
Sprint 3	Advanced Trip Features	6	As a user, I want to check real-time weather updates for the locations I plan to visit.	5	Medium	Agrima, Vamsy
Sprint 4	Enhanced User Experience	7	As a user, I want to share my travel plans with friends and family effortlessly.	5	Medium	Sneha

Sprint 4	Enhanced User Experience	8	As a user, I want to make secure payments for hotel bookings through trusted payment gateways.	5	High	Narasimhan
Sprint 5	Personalization and Notifications	9	As a user, I want to receive personalized recommendations for activities at my travel destinations.	5	High	Agrima
Sprint 5	Personalization and Notifications	10	As a user, I want to receive timely notifications for any changes or updates to my travel plans.	5	Medium	Vamsy

Project Delivery Schedule

Sprint	Total Story Points	Duration Sprint	Start Date	End Date	Story Points) Sprint Release Date
1	10	1 day	1-11-23	1-11-23	10	1-11-23
2	10	1 day	2-11-23	2-11-23	10	2-11-23
3	10	1 day	3-11-23	3-11-23	10	3-11-23
4	10	1 day	4-11-23	4-11-23	10	4-11-23
5	10	2 days	5-11-23	6-11-23	10	6-11-23

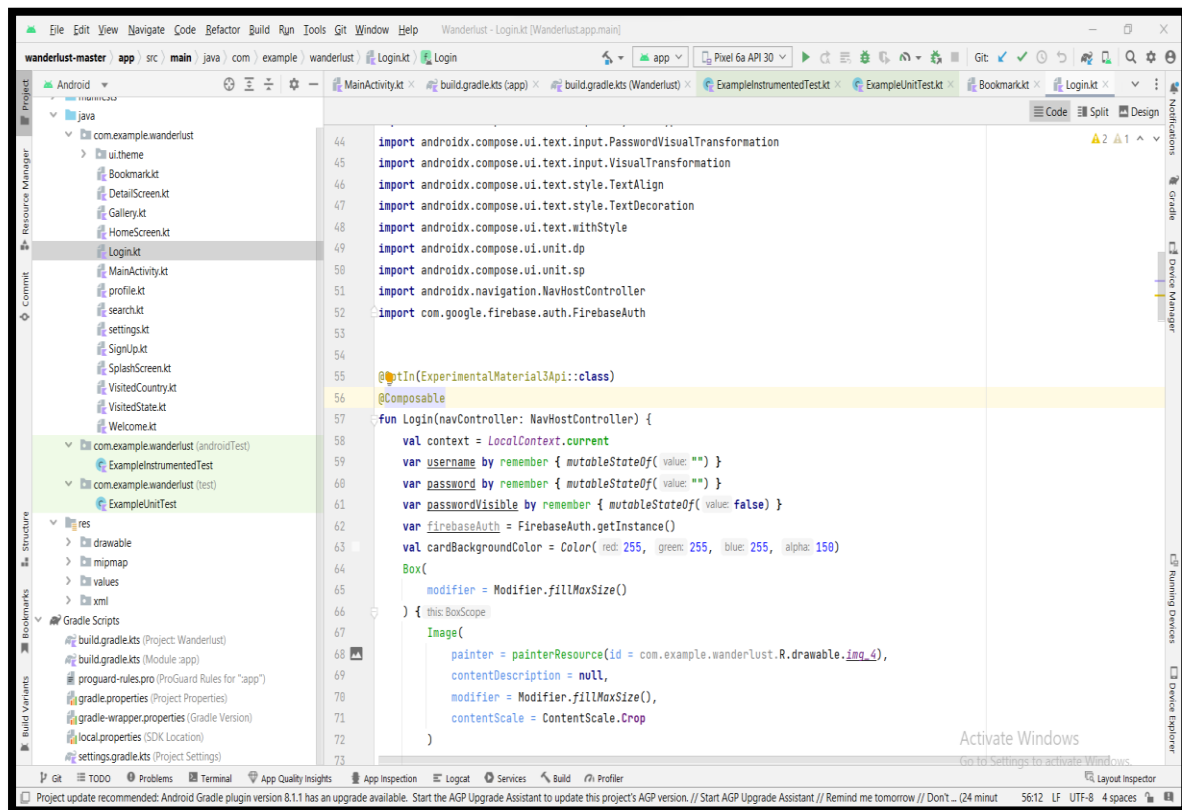
$$\text{Average Velocity} = \frac{\text{Sprint Duration}}{\text{Velocity}} = \frac{6}{10} = 0.6$$



7. CODING & SOLUTIONING

Login.kt –

The travel app login page features straightforward input fields for email or username and password. Users can opt for automatic login and easily recover forgotten passwords. A secure sign-in button initiates the process, while optional social media login options enhance user convenience.



<https://github.com/Agriba5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/Login.kt>

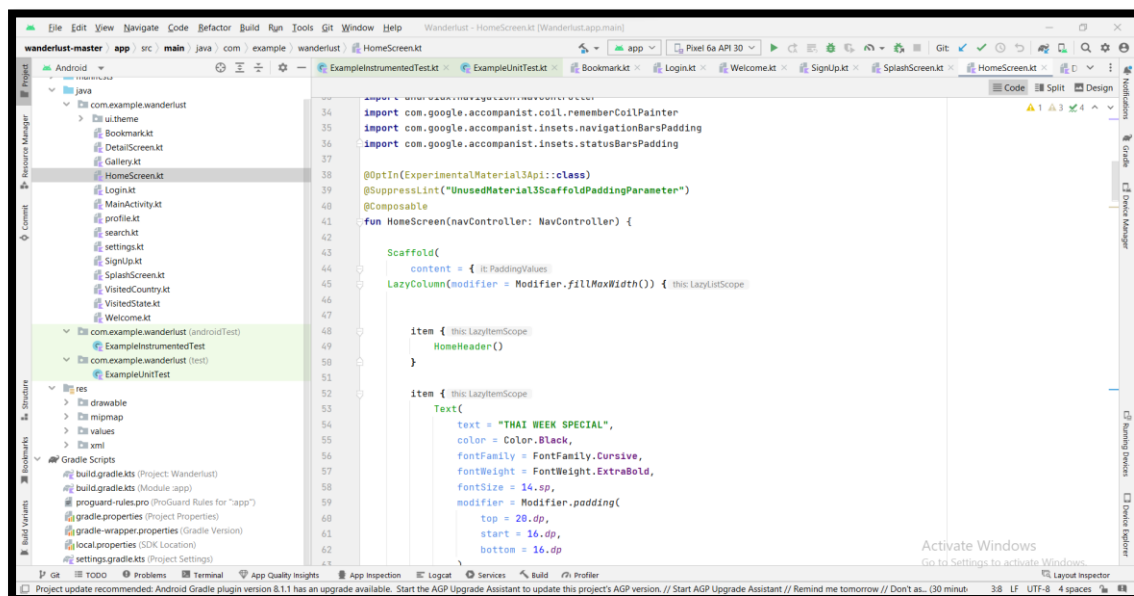
SignUp.kt –

The signup page in the travel app is designed for a seamless and quick registration process. Users will find clear fields to enter essential information such as name, email, and a secure password. The page may include an option for social media sign-up, providing a convenient alternative. A prominent "Sign Up" button initiates the registration, and users may also find checkboxes for opting into newsletters or promotional updates. To enhance security, the page may incorporate features like password strength indicators. Overall, the signup page is user-friendly, ensuring a straightforward and efficient onboarding experience for travellers.

<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/SplashScreen.kt>

HomeScreen.kt –

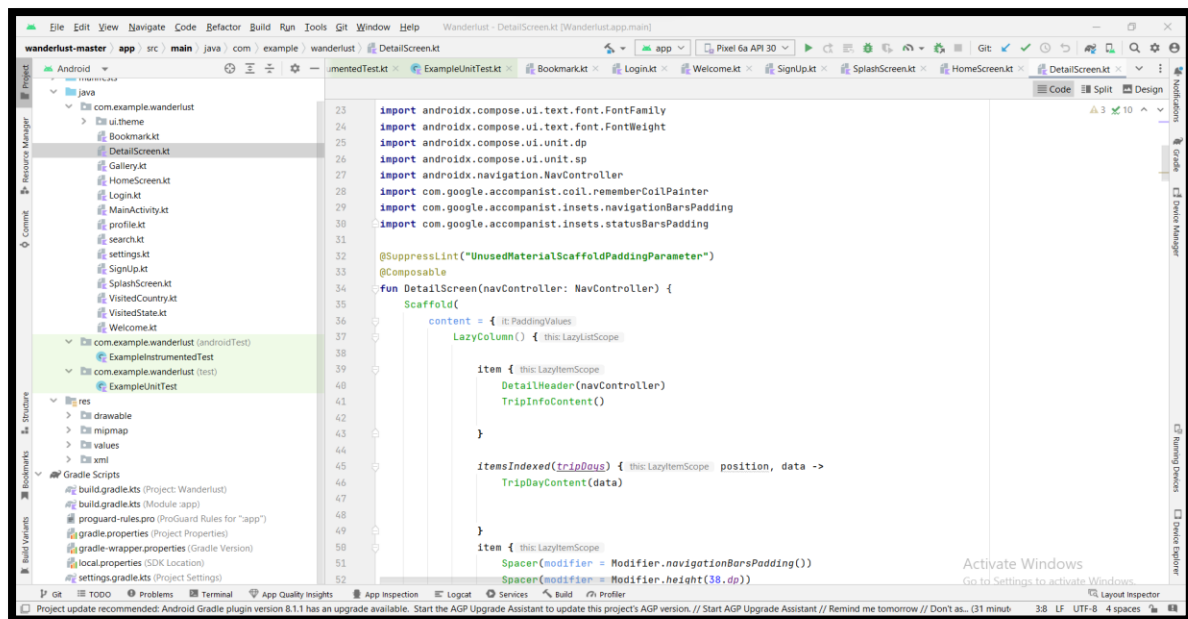
The home screen of the travel app is the central hub where users begin their journey. It typically showcases key features such as search functionalities for flights, accommodations, and activities. The home screen may display personalized recommendations, recent searches, or upcoming trips for quick access. Navigation elements, like a bottom or side menu, offer intuitive pathways to various sections of the app. Important alerts, notifications, or promotions may also be highlighted on the home screen. Overall, it serves as a user-friendly gateway, providing immediate access to essential travel information and functionalities.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/HomeScreen.kt>

DetailScreen.kt –

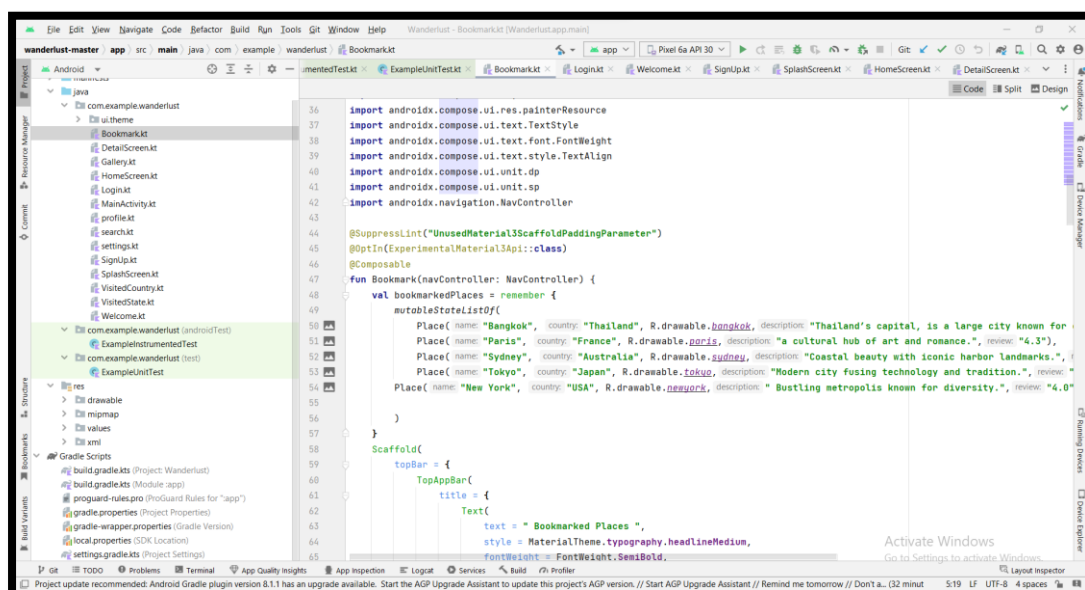
The detail screen in the travel app is where users access comprehensive information about specific elements such as flights, accommodations, or activities. It offers in-depth details, including pricing, availability, images, and user reviews. Users can make informed decisions and take actions like booking or saving items for later. The detail screen often features intuitive navigation, allowing users to easily return to the home screen or proceed with the booking process. It is designed to provide a rich and detailed user experience, presenting all necessary information in a clear and engaging manner.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/DetailScreen.kt>

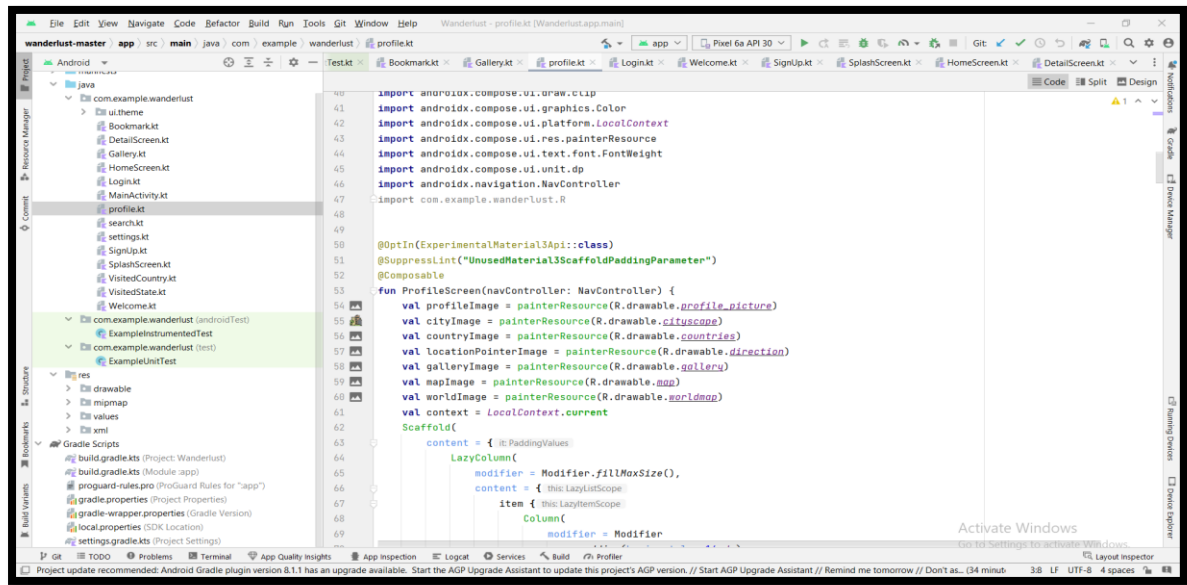
Bookmark.kt –

In the context of a travel app, the bookmark feature allows users to save and organize specific flights, accommodations, or activities for future reference. This functionality is typically represented by a "bookmark" or "save for later" icon on the detail screen or search results. Users can easily access their bookmarked items from a dedicated section in the app, facilitating quick decision-making or booking when they are ready. The bookmark feature enhances user convenience by providing a personalized and efficient way to track and revisit travel options of interest.



The "profile" section in a travel app is a personalized space where users can manage their account information and preferences. Within the profile, users can typically view and edit details such as their name, contact information, and password. Additionally, users may have the option to set preferences related to travel, such as favourite destinations, travel history, or communication settings. The profile section ensures a tailored and user-centric experience, allowing individuals to customize their interactions with the app based on their

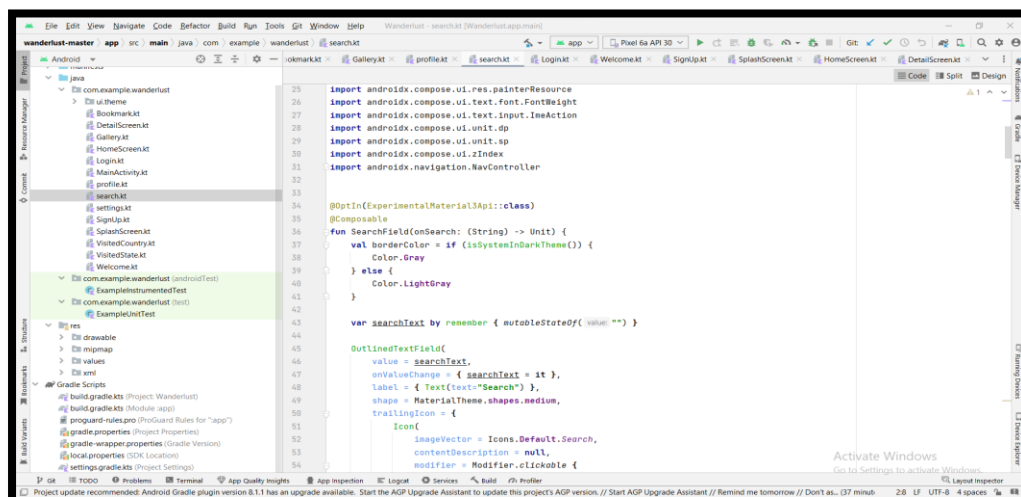
preferences and needs.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/profile.kt>

Search.kt –

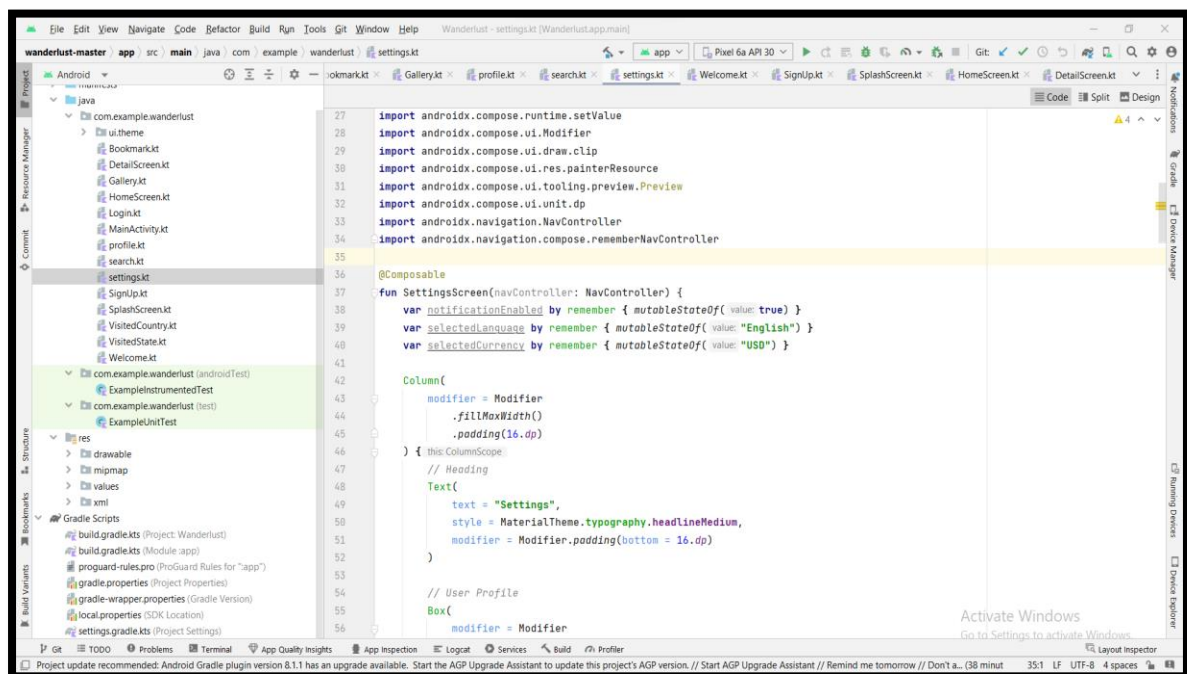
The "search" feature in a travel app is a fundamental tool that enables users to explore and find specific information within the app. Typically located prominently on the home screen, the search functionality allows users to enter keywords, destinations, or specific criteria related to flights, accommodations, activities, or other travel services. The search results provide users with relevant options, helping them quickly locate and access the information they need. A well-designed search feature contributes to the app's user-friendliness and efficiency, ensuring users can easily navigate and discover the travel options that best suit their preferences and requirements.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/search.kt>

Settings.kt –

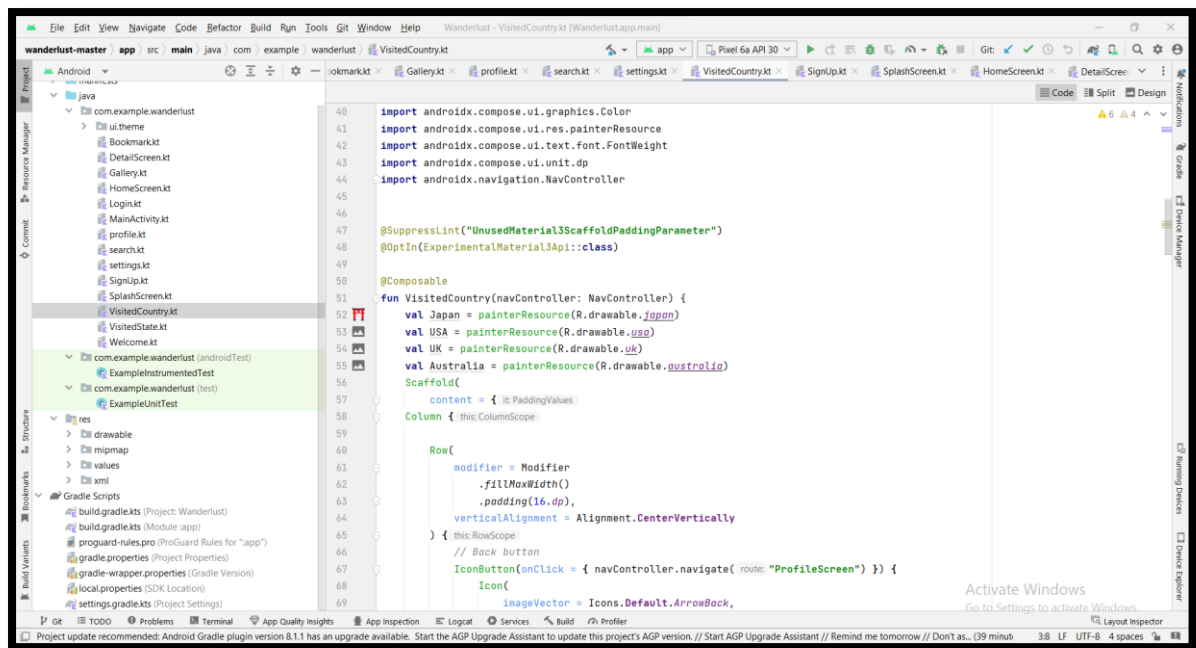
The "settings" section in a travel app is a dedicated area where users can customize and manage various aspects of their app experience. Within the settings, users typically could adjust preferences such as notification settings, language preferences, and account-related configurations. This section may also include options for privacy and security settings, providing users with control over their data and account information. The settings section is essential for delivering a personalized and user-friendly experience, allowing individuals to tailor the app to their specific needs and preferences.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/settings.kt>

VisitedCountry.kt –

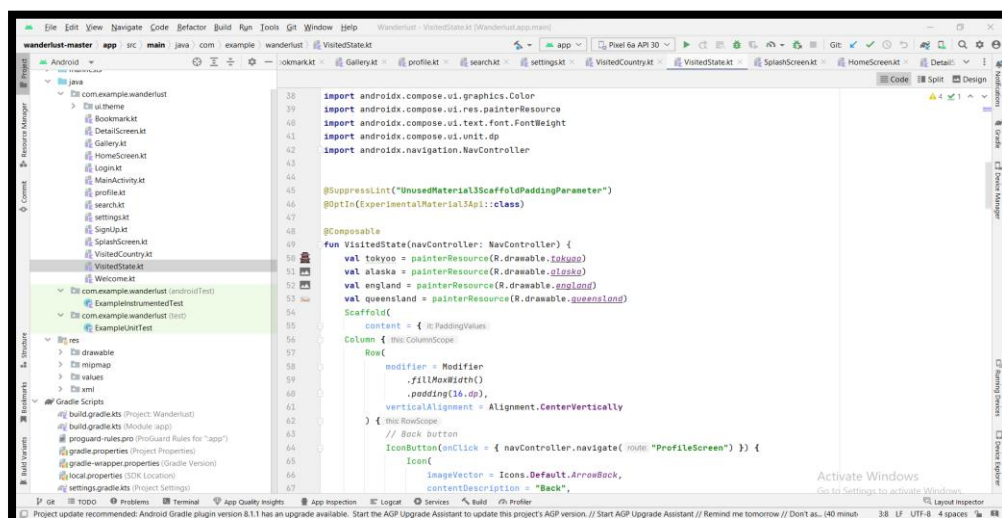
The "visited country" feature in a travel app is a component that allows users to document and track the countries they have visited. Users can typically input or mark the countries they have explored, creating a visual representation or list of their travel achievements. This feature serves as a personal travel log within the app, allowing users to reminisce about their journeys and share their travel experiences. It adds a personalized touch to the app, fostering a sense of accomplishment and nostalgia for users who enjoy keeping a record of the places they have visited.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/VisitedCountry.kt>

VisitedState.kt –

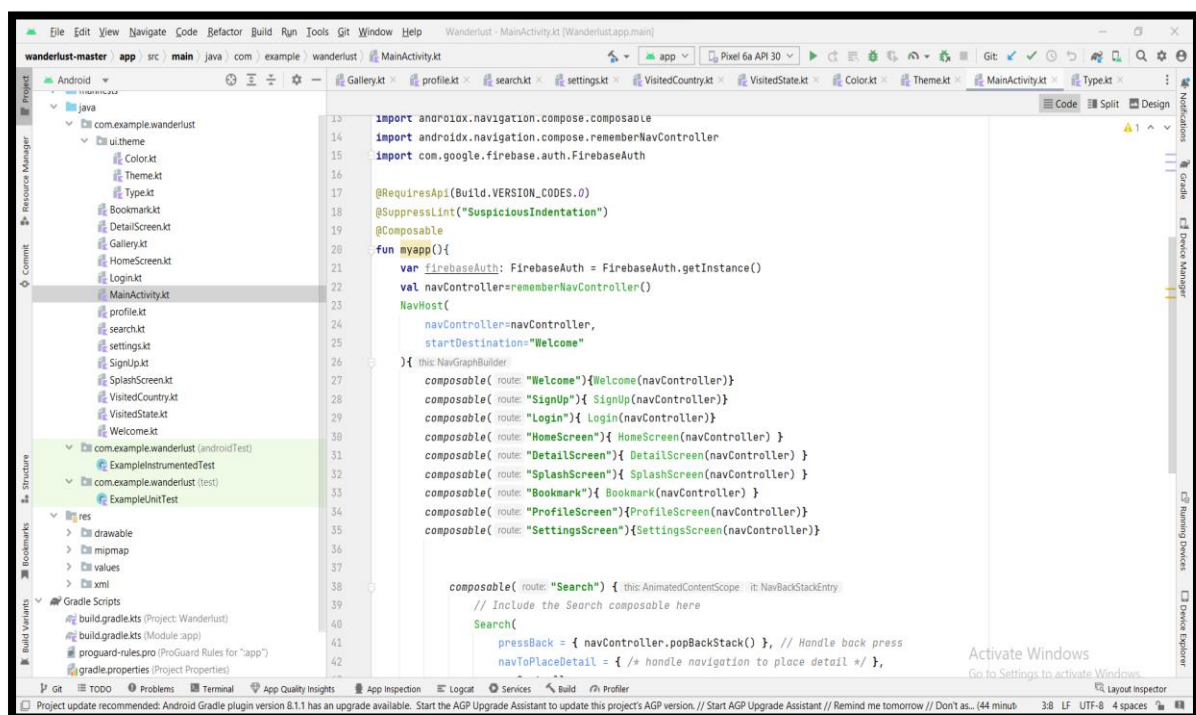
The "visited state" feature in a travel app is a functionality that enables users to record and keep track of the various states or regions within a country that they have visited. Like the "visited country" feature, this component allows users to document their travel experiences at a more granular level, showcasing the specific states or provinces they have explored. It provides a personalized and detailed record of their travel history, allowing users to reminisce about their adventures and share their regional experiences with others. This feature adds a nuanced layer to the user's travel profile within the app, offering a comprehensive overview of their journeys.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/VisitedState.kt>

MainActivity.kt –

In Android app development, the MainActivity is a crucial component. It serves as the entry point for the app and is responsible for initializing and coordinating various elements of the user interface. The MainActivity typically contains the main layout and hosts other fragments or activities as needed. It handles user interactions and navigation within the app, connecting with other components such as databases, APIs, and services to provide a seamless user experience. Essentially, the MainActivity is the central orchestrator of the app's functionality, connecting the user interface with the underlying logic and data sources.



<https://github.com/Agrima5115/wanderlust/blob/master/app/src/main/java/com/example/wanderlust/MainActivity.kt>

8. PERFORMANCE TESTING

Sno	Parameter	Values
1.	Metrics	App Launch Time = 720-750 ms Screen Render Time = 300ms Code Quality - 91% from static code analysis tools and 33 actionable task

2.	Usage	App Size - 35MB Customer Experience- Average of 22MB
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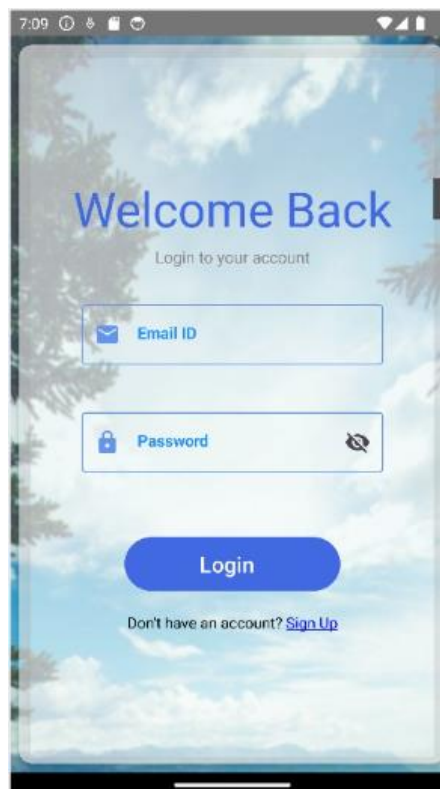
3.	Performance	Error and Crash Rates- Crash rate below 1%, Error rate below 0.5% Database Query Performance- Average database query time of 20 milliseconds
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9. RESULTS

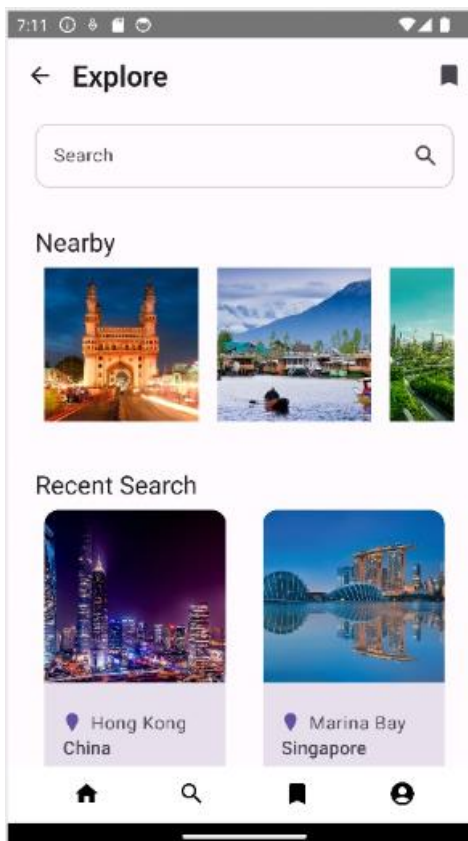
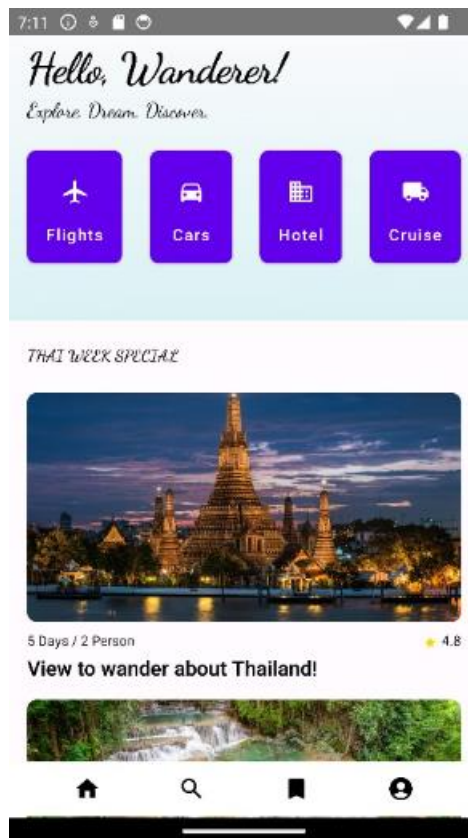
Welcome Screen –



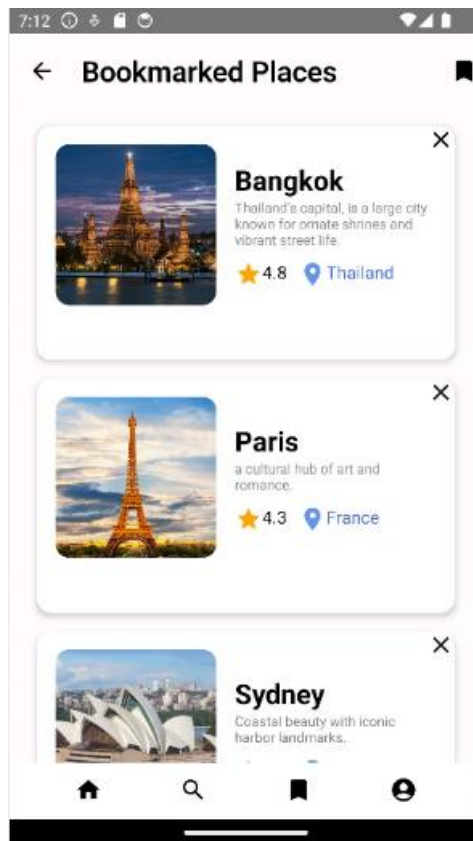
Login Screen –



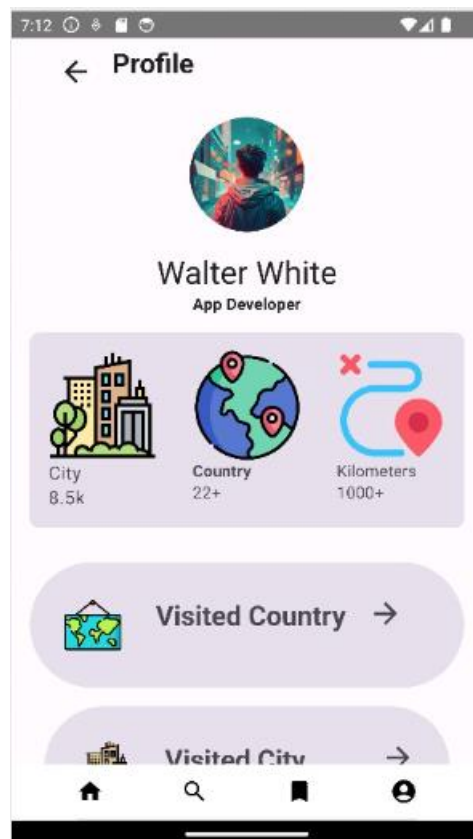
Home Screen –



Bookmark Screen –



Profile Screen –



10. ADVANTAGES & DISADVANTAGES

Advantages

Travel apps provide unparalleled convenience, enabling users to seamlessly plan and manage trips from their smartphones. With real-time updates, personalized recommendations, and navigation features, they offer a comprehensive and user-centric travel experience.

Disadvantage

However, travel apps come with drawbacks, including reliance on technology, potential inaccuracies in information, privacy concerns due to required personal data access, a lack of the personal touch found in traditional travel planning, and a tendency to emphasize popular tourist spots, leading to potential overcrowding and a dearth of authentic local experiences.

11. APPLICATION

Traveling apps offer versatile applications, aiding users in planning and navigating their trips comprehensively. These apps furnish information on flights, hotels, attractions, and activities, streamlining the trip planning process. With maps, directions, and real-time navigation, users can efficiently manoeuvre unfamiliar territories. Language translation features bridge communication gaps in foreign locales, while recommendations for local establishments enhance the overall experience. Some apps assist in managing travel expenses, provide safety information, and offer support during unforeseen events. Additionally, community features allow users to share insights and recommendations. Despite these advantages, users should be mindful of potential limitations, such as reliance on technology and the need for internet connectivity. Evaluating the reliability of the provided information remains crucial for a seamless travel experience.

12. CONCLUSION

In summary, traveling apps present a plethora of advantages spanning trip planning, navigation, language translation, local recommendations, budgeting, safety, community engagement, and transportation booking. They significantly enrich the travel experience by providing accessible information, services, and social networking opportunities. While acknowledging these benefits, users should remain vigilant about potential drawbacks, including reliance on technology and information accuracy. The growing affordability and simplicity of developing travel mobile apps have democratized access to the market, allowing businesses of all sizes to leverage their convenience and cost-effectiveness. As mobile apps become increasingly integral to the travel industry, businesses should explore this avenue for growth and revenue generation. Embracing mobile apps is essential for staying competitive and meeting the evolving needs of modern travellers in the dynamic landscape of

the travel and tourism industry.

13. FUTURE SCOPE

The outlook for traveling apps is expansive, presenting opportunities for innovation and advancement. Key areas of potential development include:

Augmented Reality (AR) and Virtual Reality (VR) – Utilizing AR and VR technologies to offer immersive experiences, such as virtual destination tours, interactive maps, and 360-degree views.

Artificial Intelligence (AI) and Machine Learning (ML) – Implementing AI and ML to enhance personalization, providing tailored travel recommendations based on user preferences, history, and real-time data.

Sustainable and Responsible Travel – Focusing on promoting sustainable and responsible travel practices through features like eco-friendly accommodation suggestions, responsible tour operators, and fostering local community engagement.

Seamless Travel Booking and Payment Integration – Streamlining the booking and payment process by integrating with various travel providers, offering users secure and seamless booking options directly within the app.

Multilingual Communication and Translation – Enhancing language translation capabilities for seamless communication between travelers and locals, even in remote destinations.

Smart Travel Guides and Itineraries – Providing intelligent travel guides and itineraries based on user preferences, interests, and travel history. These guides could offer personalized recommendations, day-to-day itineraries, and real-time updates, enhancing the convenience and customization of travel planning and navigation.

The future of traveling apps lies in harnessing these technologies to create more immersive, personalized, and sustainable travel experiences, catering to the evolving needs and preferences of modern travellers.

14. APPENDIX

The appendix of traveling apps boasts diverse applications catering to different travel aspects. Popular examples include Booking.com for accommodations, Skyscanner for comprehensive flight searches, and Google Maps for essential navigation. Airbnb allows booking unique accommodations directly from hosts, while Lounge Buddy facilitates finding and booking airport lounges globally. These apps enhance travel planning, booking, and

navigation, contributing to a more seamless and enjoyable travel experience.

LINKS FOR REFERENCES

Source Code for the Project – <https://github.com/Agrima5115/wanderlust>

Project Demonstration – https://drive.google.com/file/d/1r_KsLZMW77c2XS-FzFWspoBI96oDpPSW/view?usp=sharing