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Findigo

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Abstract

Earlier, the ways people chose services were limited to personal referrals or using random Google searches, which were inconsistent. Findigo is an innovative Android-based application designed to revolutionize the way users connect with service providers, for example, mechanics, electricians, etc. Geo-location significantly helps users find the service according to their desired radius. In addition, this application has an interactive interface and is user-friendly. The app makes sure that only service providers who are approved are provided to the users to ensure maximum security and reliability. Our system includes robust validation of data, a user-friendly interface, and real-time testing that provides an easy and efficient experience to the users. With Findigo, we look forward to reducing the effort and time invested by a user in the search for quality services, thus increasing the percentage of customer satisfaction and supporting local businesses.Other features include that the app shall integrate with a feedback mechanism where users shall rate and review service providers to build reliability and trust.

Executive Summary

Findigo is a revolutionary platform that is designed to connect the customer with the local service provider with ease. It easily addresses the problems that arose traditionally among service providers and seekers. It improves the reliability and accessibility of local services and integrates advanced technology like geolocation features to enable users to locate services like electricians or plumbers within a specific radius like 5km,10km,15km,20km. This approach not only simplifies the search process but enhances the user experience by giving an instant feeling of service availability and direct booking capabilities, with immediate assistance coming just a few clicks away.

The platform explicitly encourages the growth of the businesses by giving space to the interested parties to open and advertise their services. Findigo ensures that each listed business maintains high quality standards of service through a selective and strict admin process. This comprehensive process of distinct verification creates added assurance and trust that brings additional consumers to the platform. In addition, Active role of user allows businesses to receive feedback and analysis for enhancing services and customer retention, which results in healthy competition between the businesses served.

Findigo is supported by a strong backend system using MySQL,Node.js,third parties API calls like for email verfication and location tracking.while frontend of admin panel is build in React.js while mobile application is in React Native. Admin panel that equips it to respond efficiently to complaints and suggestions from its users, ensuring that whatever problem arises is always addressed at an instance for maintaining integrity and high quality. The admin panel plays a vital role in this ecosystem, where validations, and continuous monitoring of the quality of services are managed. Comprehensive oversight from the two sides assures user and provider experiences with a reliable, efficient, and high-quality service environment through Findigo, making it the leading solution in the local service market.

Additionally, Findigo is committed to improving its platform's usability and design to accommodate the growing user base and diverse market demands. These enhancements will focus on making the platform even more user-friendly, improving navigation and interface design, and ensuring that all features are accessible and effective across various devices and operating systems.By continually adapting to user feedback and technological advancements, Findigo aims to sustain its position in the local service industry, driving forward a more interconnected and service-oriented community.

In conclusion, Findigo is changing how people connect with local services by making it simple, reliable, and effective. Its focus on quality, trust, and supporting local businesses makes it a valuable tool for anyone looking for services nearby.

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Chapter 1 Introduction

In the modern era where convenience and efficiency reign supreme, the traditional methods of finding and booking local services can often seem outdated and cumbersome. Recognizing this gap, our project introduces Findigo, a mobile platform designed to transform how users interact with local service providers. Traditionally, users have had to rely on word-of-mouth or cumbersome online searches that do not guarantee timely or reliable service. Findigo addresses these inefficiencies by leveraging advanced technology to offer a user-friendly, reliable, and efficient platform for booking local services.

The Findigo platform makes easier the user experience in locating and scheduling services while giving them a solid system to manage bookings and expand their presence in the local market. Real-time geolocation, user review provision, and a complex reservation system are built into Findigo to ensure that both service seekers and providers benefit from an enhanced interaction model that prioritizes convenience, reliability, and accountability.

Furthermore, this platform aims to revolutionize the local service market by providing a streamlined, accessible interface that makes it easy to carry out transactions and interactions between users and service providers. Findigo's innovative use of technology not only optimizes the service booking process but also supports the growth of local businesses by connecting them with a broader customer base.

This introduction sets the stage for a detailed exploration of the functionalities and technical specifications of Findigo in relation to our objective of having the ideal easy digital solution for both a seamless user experience and provider engagement. In this document, we will be discussing specifically how Findigo overcomes certain challenges, the technological innovation it utilizes, and its impact on the local service industry.By crossing the limitations that traditional service booking methods have, Findigo attempts to create a solution of total value for users and businesses. It would help in simplifying finding, booking, and reviewing services while generally maintaining high quality standards and catering to business growth. The platform creates more connected, transparent, and efficient spaces for a local service ecosystem.

1.1 Purpose of this Document

This document provides a detailed technical and general overview of our FYP, FINDIGO. This document will provide details about every corner of our project, including analysis, objectives, design, implementation, and testing as well as limitations of our project.The project focuses on creating a user-friendly interface to help users find trusted services based on location with the main aim of enhancing the visibility of small scale businesses .This research analyzes whether app can improve access to local services

while ensuring quality and reliability through user feedback and administrative management.The primary goal is to allow users to easily connect with trustworthy service providers. The used technologies, including mobile app functionality and the backend system, are further discussed in the document. This document also addresses other challenges encountered in the development process and how the platform ensures quality of services and satisfaction of customers. By the end of this document, readers will have a good understanding of how FINDIGO works and its possible impact on the local service market.

1.2 Intended Audience

This report is addressed to professors, who will be able to appraise the technical content and overall implementation of the FINDIGO project and provide suggestions on its design, implementation, and functionality. It is also targeted towards developers and technical experts interested in cross-platform mobile applications that are developed with integration of geolocation and real-time booking systems. The report is also targeted at entrepreneurs and business owners who want to improve their presence in the local service industry through digital solutions. It also targets potential investors and stakeholders who are looking for innovative opportunities to invest in platforms that not only improve service accessibility but also support the growth and visibility of small businesses.

Finally, in the document may be useful for any future developers or teams looking to expand upon or further develop the FINDIGO platform.The report will further be of benefit to the researcher who looks to understand how mobile technology can create an interaction of local business support and user experience.

1.3 Definitions, Acronyms, and Abbreviations

This list of key terms, acronyms, and abbreviations describes technical language or concepts used across the document in order to support readers' general understanding.

1.3.1 Definitions

Scam : Scam refers to a technique used where one lies to steal money or private information from others.

Gig Economy : It is a form of work where individuals use short-term flexible jobs instead of traditional full-time employment, more so through online applications.

Real-time Location Tracking: A feature that uses GPS to identify and display the user's current location to help find nearby service providers quickly.

1.3.2 Abbreviations

UI : User Interface

UX : User Experience

SSD : Solid State Drive

QA : Quality Assurance

FYP : Final Year Project

GPS : Global Positioning System

HTTP : HyperText Transfer Protocol

MySQL: My Structured Query Language

API : Application Programming Interface

1.4 Conclusion

In conclusion, FINDIGO is a platform that make it easier for people to find and book local services nearby to their current location. By using features like geolocation, real-time booking, and admin panel, it ensures users can find reliable and trusted vendors. For small businesses, FINDIGO helps them gain more visibility and attract new customers. The platform focuses on being easy to use, functional, and secure for both customers and businesses. Overall, FINDIGO aims to improve how people connect with local services and make the process more efficient. It bridges the gap between users and local service providers, making the booking experience smoother and more reliable. Through continuous updates and improvements, FINDIGO aims to create a seamless and trustworthy ecosystem for both users and businesses. As the platform evolves, it will continue to introduce new features that enhance user satisfaction and business growth, ensuring a positive impact on the local service industry.

Additionally, FINDIGO's ensure to quality control and customer feedback ensures that service standards remain high or meet customers need, build trust and long-term relationships between customers and vendors.FINDIGO does not only facilitate easy finding and booking of local services but also ensures that the users and businesses will have an excellent experience. The platform cares about customer feedback, ensuring that businesses improve and maintain their quality of services. The more businesses involved, the better the network; therefore, better for customers as well as providers. From these efforts, FINDIGO is working its way to a trusted go-to solution for local service needs.

Chapter 2 Project Vision

This chapter will outline the project problem domain, the project statement and its elaboration, the goals and objectives, and the scope of the project. It will explain the challenges faced by users in finding reliable services and how the proposed solution addresses these issues. The chapter will also outline the main purpose of the project and the steps planned to achieve its objectives. Lastly, it will explain the areas that the project will cover and the impact it is going to create.

2.1 Problem Domain Overview

The FINDIGO application focuses on two major audiences: users who are looking for local services and business entities who wish to grow their businesses.Using the application, the users can easily find services such as an electrician or a car repair shop within a given radius of 10 km, 20 km, 30 km, or 40 km from the verified establishments.In addition, users can lodge complaints concerning the services offered, which will be looked into and resolved by the admin panel.On the other hand, for the case of businesses, FINDIGO presents a forum, in which any individual can login and wait for business verification so as to have their services displayed for the users.This makes sure that only authenticated businesses are listed, and visible to users keeping the services reliable and trustworthy. Admin panel is responsible for the security and integrity of the system by monitoring issues , reviewing the ratings given by clients and service providers, and accepting or rejecting businesses wishing to join the network.This helps to make sure FINDIGO is a suitable place for all users.

2.2 Problem Statement

The need for a platform like FINDIGO comes from the high need for a fast and dependable means to search for available trusted local services. Searching for any reviews online or requesting family and friends is often time-consuming and unreliable. Finding experienced and reliable local services has been simplified by FINDIGO. It also encourages business owners to engage more customers and expand their enterprises. If there isn't someone in charge of overseeing the platform, users might end up dealing with service providers who aren't reliable. At the same time, the service providers themselves could face problems with getting noticed and being seen as trustworthy.This type of management doesn't work well. It leads to bad service, listing services that haven't been tested, and no solutions for complaints. All of these issues harm the trustworthiness of the system.

2.3 Problem Elaboration

Finding good local services is very difficult, particularly for new town folks or someone in need. Asking people in person or trying to find an online solution consumes time and can never be as sure of vetted or quality providers. This situation is a headache for most local businesses fighting for new customers in a highly competitive market. Findigo will solve all these by providing a community-based site with abundant benefits. The users will get an opportunity to check reviews and ratings of various services that assist them in using reliable services; enable favorites for later access; and view live availability. The increased customer connections and direct access to the target market will create opportunities for more businesses to grow. The admin panel keeps the website trustworthy as this panel would vet the trustworthy providers and enable handling complaints and feedbacks. This gives a system in which users can feel confident, businesses thrive, and experience is smooth and dependable.

2.4 Goals and Objectives

Our project objectives are to be as follows:

- A platform that is reliable for the users to search and book their desired local services within their chosen radius
- Ensuring quality service, which will involve verification and approval of the business before publishing it on the app.
- Implementing a review and rating system that allows users to give feedback on their service experiences.
- Developing an admin panel to effectively manage user complaints, approve new businesses, and review feedback.
- Making the app user-friendly with a simple interface for easy navigation.
- Ensuring quick access to services with real-time updates on availability and bookings.

2.5 Project Scope

The FINDIGO project will develop a mobile application with the help of the React Native framework, which will be available for Android systems, to enable consumers to search for service providers available in their proximity range of 10km, 20km, 30km, and 40 km respectively. The app will have a map that lists the available providers in proximity, an easy-to-navigate interface as well as the ability to ac-

cess more information about the services, create a list of preferred service providers as well as receive notifications about the offered services' lower prices. Owners of services will be required to add their services which shall later be verified and approved by the admin before going live on the app. The app backend will be developed on Node.js and MySQL for effective data and user management functions. Integration of APIs will include automated email and message notifications and geo-location services. Moreover, a web-based management console built in React, which will oversee business registration, user complaints, and general feedback management to maintain the standards and performance of the platform, will be provided. The app will therefore enable users to book services simply and monitor all their service request in real-time, and it provides a secure interface for transactions that occur between clients and service providers.

2.6 Sustainable Development Goal (SDG)

The project FINDIGO supports several Sustainable Development Goals since it is offering a platform to find local services reliable for finding local services. Supporting Goal 8, FINDIGO supports micro-business by bringing the micro-enterprise to prominence and thus increasing their potential audience, thereby spurring economic growth and societal development. By connecting users with trusted service providers, this makes possible decent Local market work opportunities. Furthermore, FINDIGO contributes to Goal 16: Peace, Justice, and Strong Institutions through its transparent review and complaint system. The web-site fosters trust and fairness so that only respectable businesses are featured, making the local marketplace strong and reliable for the benefit of buyers and service providers. In addition, FINDIGO helps in job creation since it links users to local service providers. It also encourages community growth through consumer support of businesses within their locality.his ultimately contributes to building a more interconnected and resilient local economy.

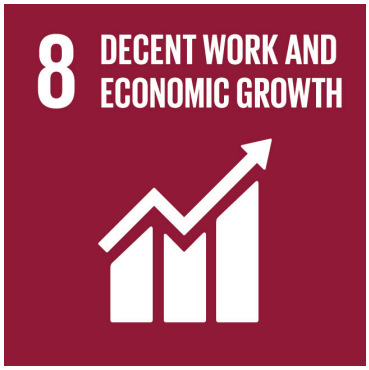

Figure 2.1: Decent Work and Economic Growth

Figure 2.2: Peace, Justice and Strong Institutions

2.7 Constraints

There are certain critical limitations or constraints that need to be studied about the FINDIGO application. First and foremost, a potential user of the service has to sign up and allow the use of his or her live location in order to use findigo. This is because the users will only be able to see the service providers who are within their vicinity, but it also demands that the users are ready to share their location information. Second, the business can only start providing its services after completing the registration to the platform and getting the administrator's approval. This measure is very important so that only legitimate and reliable business entities will be listed, however, it also means that there will be some time before new businesses will be able to serve customers. Last but not the least, while the said platform has its objectives of providing good service and high service support, during initial phases, risks will be posed limited by the absence of rigorous checks for businesses and users as such. Monitoring and upskilling will also be in a circle to sort out problems whenever participants abuse the system.Moreover, it will require an uninterrupted internet connection to use the application. This could also limit access for people living in areas where the internet connection is not stable. Last but not least, since success depends on continued user engagement, it might experience difficulties keeping users interested at its launch stage.

2.8 Business Opportunity

FINDIGO also provides an interesting platform for business owners to improve their service delivery and market expansion. When a business registers on the said platform, it is exposed to more customers, and its local presence is greatly enhanced. The verification and approval process helps to feature only credible businesses, which is a factor that can assist in winning the trust and increasing the number of customers. Such businesses have positive real-time service changes and respond positively to clients' comments which helps enhance the quality of services and customer satisfaction. In a nutshell, FIND-

IGO is a growth-oriented platform for people who want to present their capabilities to a greater audience and also grow their customer base.Customers of FINDIGO's businesses also create a great channel for increasing customer visibility through customers' reviews and ratings, an effective marketing. The site facilitates easy management of customer interaction, service requests as well as management of customer engagement, thus offering a streamlined route to managing activities. Businesses stand to gain many benefits from using FINDIGO for their online services, such as creating a better online presence while enhancing customer loyalty and providing clear insights into understanding customer needs. This can lead to higher revenues and long-term growth opportunities.

2.9 Stakeholders Description/ User Characteristics

The primary clients of FINDIGO are businesses, customers, and admins. Business owners are users who offer their services on the platform. They first have to subscribe and give them business details, then apply to the admin to accept their Services for customers. Once approved, businesses can enhance their visibility and attract more customers through FINDIGO. Customers are individuals who use the app to find, book, and review local services. They can search for service providers, view service details, and leave feedback based on their experiences. Lastly, admins oversee the platform's operations, managing business approvals, handling complaints, and ensuring the quality and reliability of the services listed. Admins also maintain the integrity of the platform by verifying businesses and resolving any issues that arise.Additionally, each stakeholder plays a crucial role in ensuring the smooth operation and success of the platform, contributing to a reliable and efficient service ecosystem.

2.9.1 Stakeholders Summary

Our system involves three primary stakeholders. The first is the business owner, who provides local services and must register and get approval from the admin before offering their services on the platform. The second stakeholder is the customer, who uses the app to find, book, and review local services based on their needs. The third is the admin, who oversees the platform's operations by managing business registrations, ensuring service quality, addressing customer complaints, and maintaining the overall integrity of the platform.Each one of these stakeholders plays an integral role in making sure that the platform is healthy and supports the needs of both service providers and users. Their collaboration, therefore, plays a central role in building a trustworthy and efficient local service marketplace.

The contribution of each stakeholder ensures smooth running of the platform and achievement of the businesses' and customers' expectations. Business owners can enjoy increased visibility and customer reach, while the customers get quality services and also share their comments. Admins are very signifi-

cant in maintaining quality on the platform by handling approval and issues, thus creating an ecosystem that's balanced, generating trust, growth, and satisfaction for all stakeholders.

2.9.2 Key High-Level Goals and Problems of Stakeholders

For FINDIGO, the core objective is to develop a robust and user-friendly system through which one can easily display services and connect businesses with customers. This involves verifying businesses and ensuring that they continually offer high-quality services. Therefore, the platform seeks to provide customers with the most trustworthy and user-friendly experience for finding and booking local services. Facilitating smooth interactions with service providers also forms part of the overall objectives. There is a need for admins to maintain the efficiency of connecting business and customers with integrity in managing the complaints or feedback from users.

However, there are several challenges that the stakeholders face. In terms of visibility, business owners may suffer through failure in attracting inquiries from customers either because the platform's promotional efforts fail or they cannot meet the quality standard set by the platforms. For customers whose businesses are not verified or whose claimed services are mismatched from the ones delivered, there would be problems for them as well. Admins would face a difficult task in handling large numbers of service listings besides complaints and the overall quality of the platform regarding issues like trustworthiness and efficiency.In brief, the challenge here concerns the maintenance of a service delivery platform through FINDIGO, upon which businesses and users can rely as reliable and effective in the management of service quality and user interaction.

2.10 Conclusion

In conclusion, FINDIGO aspires to support individuals in locating and utilizing local offerings by presenting a dependable and accessible forum. It serves three core groups: business owners, who gain enhanced exposure and reputation; consumers, who access and rate reliable service providers; and administrators, the individuals responsible for the functionality of the system. FINDIGO aims to achieve other noble objectives including enhancing local economies as well as ensuring the provision of quality services to the people. There may also be concerns in the implementation of such including verification of the businesses and dealing with user responses, however, these challenges are not an Obstacle to FINDIGO Ventures. To put it simply, FINDIGO's objective is to assist individuals in sourcing for appropriate local services.INDIGO is dedicated to improving the overall user experience by continuously updating and maintaining the platform, ensuring both businesses and customers benefit.

Chapter 3 Related Applications

In this chapter, we are going to describe how service platforms are in the market today and how FINDIGO does better. A lot of platforms allow the users to book services but they must first pick specific timeslots or pick individual service providers.

Some platforms support to be user-friendly yet leave little room for action, which may make a new learner feel let down. Not with FINDIGO, which has a special local booking approach. Instead of letting you choose a provider or timeslot, FINDIGO books a service provider near by according your current location. This means less time and energy for users. What is more, FINDIGO has a detailed business approval and complaint tracking systems

3.1 Definitions, Acronyms, and Abbreviations

Some of the important acronyms, abbreviations, and definitions are given below:

LGT : Local Got Talent

OTP : One-Time Password

GPS : Global Positioning System

API : Application Programming Interface

3.2 Detailed Related Applications Work

This section explains FINDIGO, special features with an immediate service reservation option, selection and searching of service provider through location, the complaint management system in place, and much more. All this makes it different from the others.

3.2.1 Mahir Company

Mahir Company [1] is one of Pakistan's top leading online marketplaces that connects different service providers with consumers and gives home maintenance and cleaning services, as well as personal care. Through their platform, consisting of the Mahir Company website, Mahir App, and Mahir Partner App, they have created frictionless interactions between consumers and service providers. In regards to services and geography, the company has grown over the last three years at a fast and strategic rate with a number of customers as well as diversified services.

3.2.1.1 Summary

Mahir Company was founded to make access to all kinds of house and personal services pretty friendlier to a user through a digital platform. The process of development with the company indicates strategic growth and customer satisfaction. For instance, the Mahir Partner App is an application for onboarding and training service providers in order to ensure that they offer quality services. The company is for a customer since they clearly show very accountable technicians and a responsive support team. It is through this model of technology implementation coupled with service provision that Mahir Company has really found its self in a significant role regarding service provision in Pakistan [2] .

3.2.1.2 Critical Analysis

Mahir Company is an online marketplace in Pakistan that provides customers with the shortest possible connections to providers through their website, Mahir App, and Mahir Partner App. Thus, it offers services related to home maintenance, cleaning, and personal care, making every place accessible, reliable, and affordable for everyone. The Mahir Partner App also ensures verified employment and training of local technicians for both customers and service providers. Mahir needs to enhance the system by enabling providers with real-time tracking so that their customers can get flexibility and will trust providers and allow customization on search radius for users so that they can easily find providers around their area. Another idea is that business insights like profile views or engagement can be improved so that the providers can have a better service. The value added for customers is the personalized recommendation of services based on user preference, much like the ones seen with competitors FINDIGO.

In the competitive market, Mahir must constantly innovate in order to lead. Improvement in service provider tracking, more flexible search options, and even personalized recommendations will help Mahir to be at the top tier of service marketplaces and build value for both customers and service providers within Pakistan's increasingly digital economy.

3.2.1.3 Relationship to the proposed research work

Mahir Company and FINDIGO have the same objective of connecting people with relevant service providers, which facilitate booking and management services. Both The websites put much emphasis on friendlier and more interface-oriented interfaces that authenticate the service provider to produce quality. However, FINDIGO is differentiated through the incorporation of other leading features such as real-time location tracking and automated recommendation of services. This improves user experience through tailoring of the options depending on location and preference. For example, FINDIGO offers a wider scope of services compared to Mahir Company and includes a specific admin panel for effec-

tive complaint handling. The customers of FINDIGO can also select the provided service providers in editable radius categories: 10 km, 20 km, 30 km, and 40 km. Mahir Company has not indicated about this feature. These additional features are supposed to provide a better personal and user-centric service experience, aside from further developing beyond the capabilities of Mahir.BUSINESS owners can see how many people have viewed their profile, something that Mahir Company does not have the capacity for. Those improvements enhance FINDIGO to be more personalized and responsive to both users and businesses.

3.2.2 Supertasker

Supertasker is a dynamic platform [3] in Pakistan; it connects people and businesses with service providers for a great array of tasks, ranging from skilled services to unskilled services. The platform provides many needs from home maintenance to data entry, pickup and delivery, and much more. Through a simple, user-friendly Supertasker website and app, the platform connects taskers with clients directly to facilitate easy operations on both sides.

3.2.2.1 Summary

Supertasker was formed to try and fight some of the difficulties encountered when outsourcing tasks by providing an innovative, technology-driven solution. This platform is inclusive as either skilled or unskilled people can look for and offer services. It offered a fair opportunity to all users to engage in various tasks without significant capital. The Supertasker approach contains rating on the performance of tasker, which would help a client base his choice with him based on his previous performance and enhance his trust and reliability. The platform's focus streamlines outsourcing tasks, enhancing economic stability for its users, and it plays a modern role to deal with traditional service challenges in Pakistan [4].

3.2.2.2 Critical Analysis

Supertasker has developed into an all-purpose platform within Pakistan that connects the skilled and unskilled with users in search of a variety of services, home maintenance, and data entry, and hence its open registration model serves to promote economic opportunities among a wide range of people. The user-friendly website and application widen outreach in task outsourcing involving a large audience and this may enhance its use among a large number of people. Despite its powers, Supertasker also has some areas that should be improved, especially on the open registration of skilled and unskilled workers. This will affect the reliability in terms of service quality. Confirmation of verification for the taskers may improve the customers' confidence with a specific request.

Furthermore, this improvement in the complaint management system would bring about an efficient solution to problems and will contribute to the overall betterment of the user experience. In this competitive market, Supertasker would thus need to innovate and differentiate itself. It does this by instituting stricter quality controls, enhancing customer support, and offering more resources for the taskers to hone their skills. Therefore, working on these improvements would enhance the credibility of the platform; besides, it would make the experience of service providers and users in the rapidly growing gig economy in Pakistan not only more secure but also satisfying.

3.2.2.3 Relationship to the proposed research work

Supertasker and FINDIGO both want to connect service providers with clients but in different approaches. Supertasker is open to any type of service provider, including skilled and unskilled workers. No condition needs to be met to become a registered member. This would make it possible for anyone to join and start offering services which could attract potential problems over the quality and reliability of the services provided.

FINDIGO, on the other hand, placed more emphasis on controlled services it has to offer. In fact, though Supertasker does not strictly need permission from businesses before they are licensed to offer their services on the platform, FINDIGO requires that businesses be cleared by the Admin Panel of FINDIGO before they can offer any type of services on the platform. This makes it impossible to fall prey to scams and only verified service providers are accessible to customers. In addition, FINDIGO has an overall complaint management system. All complaints and problems are managed and solved by the admin team. That is what makes it even more secure and trustworthy for its users. It not only enhances usability but focuses on the safety of customers with service quality.

3.2.3 TaskRabbit

TaskRabbit [5] is an ”all-purpose errand-running, task-completion service” in United States, United Kingdom, France, and Germany that gives customers the opportunity to identify trusted Taskers whom they can rely on to get a number of tasks done from maintaining their house to doing errands for them. Through an extremely easy-to-use application, the website ensures an easily used basis from which to request assistance with tasks such as furniture assembly, grocery shopping, and moving help. Through its integrated approach, TaskRabbit ensures that its clients will quickly find the right Tasker based on ratings, skills, and availability.

3.2.3.1 Summary

TaskRabbit was supposed to facilitate the outsourcing of task work by presenting a tech-enabled solution. For the user, it presents a wide pool of Taskers, both for special and generalist work. It is flexible enough in scheduling one-off needs and ongoing ones and comes complemented by a strong rating system to entrench trust and reliability. The focus on efficient management and access of tasks is what makes TaskRabbit a pioneer in changing the way one organizes home and personal tasks - an important part of the phenomenon known as the gig economy [6].

3.2.3.2 Critical Analysis

TaskRabbit is, in fact an online marketplace that connects freelance labor with local demand, helping in personal assistant work, furniture assembly, moving, delivery, handyman, and all other sorts of tasks. The founders were Leah Busque, who started the service as early as 2008. The company provides support to more than 200,000 independent workers. The reason for relying on pre-scheduled appointments is that it ensures organized completion of the task and for easier use by the consumers. It has an easy user interface, serving as much a wide range of tasks, that made the place so popular with people who needed help with tasks in everyday life.

Several limitations of the TaskRabbit website can be addressed to improve user satisfaction and service quality. For one, very high service fees amounting to up to 70 percent of the original bid are a strong deterrent against consumers and reward taskers less. Requiring appointment scheduling ahead of time constrains flexibility such that help is not available in just a minute and issues with quality control and trust still exist, even with the existence of a rating system. TaskRabbit is also faulted on possible biases in its recommendation algorithms, as well as a complaint resolution process that is not transparent, so grievances remain unaddressed. More added service coverage in a given geographic area and enhanced interface design would help TaskRabbit stay competitive in the gig economy.

3.2.3.3 Relationship to the proposed research work

Both TaskRabbit and FINDIGO offer services to their customers. However, both companies operate differently in regard to booking and service availability. Here, on TaskRabbit, users have to schedule appointments by selecting a date and time when their tasks' will be done, hence pre-booking is necessary. On the other hand, FINDIGO is more direct because clients may opt to choose a location, view providers in the vicinity, and seek services there with no scheduling in advance. This makes FINDIGO appropriate for users who need an immediate service. Again, FINDIGO provides an in-built complaint management feature whereby users can report complaints and follow the outbrows of the complaint.

The admin panel is actively solving these complaints and ensures only verified businesses will be approved for offering their services on the platform. Business owners on FINDIGO also profit from features that allow them to track how many customers view their profiles, which is a great way of gauging the visibility and performance of a business. This makes FINDIGO both efficient as well as secure and transparent for customers and service providers alike.

3.2.4 Local Got Talent

Local Got Talent (LGT) [7] by Red Sun IT Services connects customers with professional service providers including event planners, tutors, plumbers, and electricians. Using the service, you will find the right help anywhere in your town in no time,. This innovative platform allows skilled workers to offer their services most efficiently on time, regardless of where they may be at a certain moment.

3.2.4.1 Summary

Local Got Talent connects talented employees to the households and businesses that badly need the services. In fact, this is an easy sign-up platform that will require only your phone number and personal details. You can then choose the service you want, your preferred location, pick the service provider, and then select your preferred mode of payment. It has an application with a booking and delivery systems, which mark a place on the map to confirm a reservation. The process is simple; this makes access to a wide scale of services quite easy and efficient for users, positioning Local Got Talent at a versatile position in business for services [8].

3.2.4.2 Critical Analysis

Local Got Talent is the new access point that has been created between users and a variety of services providers, ranging from event planners to tutors and plumbers. At the same time, it has a friendly interface with a rather simple registration process for those who plan to provide services. Therefore, it will not take long to find such perfect professionals through LGT's efficient booking and delivery system. Thus, this ensures that the provided services are delivered effectively. This makes LGT a competitive player in the gig economy, particularly in areas that require immediate assistance.

While LGT has many advantages, its limitations can interfere with the growth and user satisfaction of this application. Service verification on the platform is a major point of contention. It is unclear how thoroughly the service providers are being checked in the background, which then raises questions over the quality and reliability of services provided. In addition, since it is more target-oriented towards convenience, LGT might not be able to stretch out and touch base with niche needs, and users will not like the need to wait for pre-booked appointments for their immediate requirements. Processes for

complaints resolution are also not so developed, which can be a potential risk for dissatisfaction by the complaining customers. If LGT addresses some of these shortcomings, such as upgrading the vetting process and increasing real-time availability, the levels of user trust and satisfaction will surely move up, and the consolidation of market share will be cemented.

3.2.4.3 Relationship to the proposed research work

Local Got Talent and FINDIGO connect the customers with different service providers within their locality. They offer interfaces that are friendly to the customers, and easy booking procedures, thus, hence making it not a tough job searching for the services. However, FINDIGO takes it a notch higher, and it incorporates a bit of extra features, including real time location tracking and a feature where one can get services without necessarily scheduling for them in advance.

FINDIGO also involves a much more controlled registration process, with business approval through the admin panel to ensure only verified providers are listed. Another point is the complaints management system, integral and actively reacting to customer issues, which gives an increased sense of trust and great service. Whereas LGT allows business owners to see the number of customers who view their profile, FINDIGO allows business owners to choose between customizable distance ranges, 10 km, 20 km, 30 km, and 40 km. It makes FINDIGO much more suited, secure, and data-driven to deliver an experience of extra goodness to users and service providers.

3.2.5 Thumbtack

Thumbtack [9] is one among the US-based tech companies that connects people with local service providers in the realm of home improvement, home maintenance, and event planning. One can regard it as an online directory; it has a website where users can easily search, rate, and book services.

3.2.5.1 Summary

Thumbtack connects homeowners to a diverse community of local professionals, providing personalized guidance on what to do and whom to hire. The platform hosts over 500 categories of projects, and it gives customers real-time search results with profiles and ratings. Thumbtack supports the local economies and, at the same time, provides businesses with ways to grow by finding profitable jobs. In millions of funding and also growing user bases-there is the Thumbtack's important role in the economy while stimulating community building and economic development [10].

3.2.5.2 Critical Analysis

Thumbtack is a great website that connects homeowners with various local service providers who help in home improvement, maintenance, and planning of events. Its friendly interface simplifies the search, ratings, and bookings of more than 500 categories of projects, which enables homeowners to be in the best-informed decision they would ever need. In addition, Thumbtack's passion for ensuring small businesses flourish in the local economies is a great strength for community development and economic growth.

Despite its advantages, Thumbtack has several disadvantages and challenges most likely to adversely affect its long-term future. A major limitation is that it does not offer live services; though the platform can take advance bookings, which most of the others do not, in cases of urgency, customers will be disappointed with this tactic and will need to take their search activities to competing platforms that tend to offer a more on-demand service. The process, although professional, with little transparency, checks service providers, raising questions about the quality control over the services being provided. Ineffectuality of these mechanisms towards solving customer complaint through this platform only expands the discontent of customers. Finally, it constantly must invent itself in response to increasing competition within the gig economy because if service providers find alternatives with more attractive terms of service that are not commission-based then it may not be sustainable.

3.2.5.3 Relationship to the proposed research work

FINDIGO and Thumbtack attempt to assist consumers in getting the right local service providers by helping in promoting community development. Both have a friendly interface that offers real-time searching with rankings of service providers for the assurance of proper choice for the customers.

FINDIGO differs since it provides direct booking for a service immediately using a real-time location tracking with selection of distance options (10 km, 20 km, 30 km, 40 km) while with Thumbtack, the booking is pre-arranged in advance. FIndigo has an admin-panel-controlled complaint management system, which ensures service quality and security.Business owners on FIndigo can also check the count of users who visited their profile, and this lets them have an idea about their exposure, which Thumbtack does not provide. These features make FIndigo more personalized and flexible to adapt to each business need so that therefore, a better platform for businesses.

3.2.6 HomeAdvisor

HomeAdvisor [11] is an American web-based service providing a marketplace for US householders to find local craftsmen for home improvement, repair, and maintenance works. It serves as a digital library

and helps users to look, rate and book all the service offerings in a home with ease. HomeAdvisor ensures that every service provider has gone through all necessary background checks, building trust and reliability for users of the platform, making it easier and faster to obtain home services.

3.2.6.1 Summary

HomeAdvisor is a web-based platform which connects homeowners with pre-screened, local service professionals to execute home improvement, maintenance, and remodeling projects. It contains an enormous database of professionals like plumbers, electricians, carpenters, and many more. Here, homeowners can read reviews, request quotes, and schedule appointments [12].

3.2.6.2 Critical Analysis

HomeAdvisor has really made it easier for getting home service professionals and really made the whole process streamlined. What would be hectic, complicated home remodeling and repairs certainly became easier. This site relies on a strong verification system for the providers. All the professionals found here are licensed and vetted, which raises consumer confidence highly. However, some drawbacks have been encountered, like inconsistencies in the service quality across different regions and occasional differences in user expectations based on reviews. In fact, this lead generation model by HomeAdvisor lead to higher costs for the service providers which may be transferred to the consumers.

3.2.6.3 Relationship to the proposed research work

HomeAdvisor and FINDIGO strive to make the relationship between service providers and consumers much smoother. Each website checks and verifies credentials for service providers, thus increasing user trust. But what sets FINDIGO above others is the addition of live location tracking and a more versatile search radius, thereby better allowing the user to discover services tailored closely to the needs that may be precise to his or her specific location. On the other hand, while HomeAdvisor is more of a home-centered services platform, FINDIGO is focused on a wider range of service categories that would enhance the quality and the variety of services available. Also, the fact that FINDIGO employs a user complaint management system that is administered and controlled would most likely lead to an enhanced and effective service, thereby increasing satisfaction and trust of the users.

3.2.7 Urban Company

Urban Company [13] is one of the leading home services platforms in India, providing a wide range of service-from beauty and wellness, plumbing, cleaning to appliance repair. It is a mobile application that brings together users in need of a particular service with the relevant skilled workers. Consumers

can find, assess, and book services in real-time through the Urban Company app. The platform focuses on the satisfaction of its users and makes sure that every service provider reaches a very high level of training as well as quality checks; this is one of the reasons why Urban Company has been able to create a trusted brand in home services across several cities.

3.2.7.1 Summary

Previously known as UrbanClap, Urban Company is a top services-orientated platform based in India connecting customers with professionals for everything-from home cleaning to beauty and wellness, plumbing, electrical work, and much more. It functions with the purpose of uplifting the millions of service providers by introducing services at home through an approach that has never been encountered before. With respect to the user, the application makes it possible to order any services delivered through the app, ensuring a quality and excessive standard service delivery [14].

3.2.7.2 Critical Analysis

Urban Company can meet the demand for services provided in India, though it has a demanding hiring process with its service providers: background checks, training, and certifications to ensure customers have an effective experience. Technology has also helped to solve some common problems in the service industry; amongst them is the lack of quality and unavailability. Despite this, they face difficulties in expanding to new areas and markets, maintaining good quality services as more firms join them, and competing with the advent of new companies to the market.

3.2.7.3 Relationship to the proposed research work

The FINDIGO platform shares various objectives with Urban Company through mainly connecting the service providers and consumers on a technology-driven platform. They enhance user experience through reliable and trustworthy services offered thereby building confidence through verified listings. Unlike FINDIGO's emphasis on real-time location-based services having immediate booking, Urban Company focuses mainly on scheduled bookings emphasizing quality and providing an all-round customer service experience. Since they share similar features, the two can learn from one another or even work together to improve operations and technology, services becoming better and easier for users.

3.2.8 Handy

Handy [15] is a mobile application designed for easy and quick booking of housekeeping services, such as cleaning, installations or repairs. Handy guarantees fast service from skilled professionals after appropriate background checks.

3.2.8.1 Summary

Handy is an app which offers a friendly interface for booking all of the household services, such as cleaning, installations, repairs, and much more home maintenance. It connects users with pre-screened professionals who are skilled and have a great background check. Handy makes it easy to secure reliable home services because the user is able to make appointments directly through its website or mobile app in a convenient and efficient manner [16].

3.2.8.2 Critical Analysis

Handy has been able to do well in the markets by presenting an effective interface that eliminates the inconvenience often experienced by customers hiring home care services. Nevertheless, even though it provides excellent booking services, the platform needs to work on its pricing integrity and the consistency of services offered. For instance, some users experienced differences in the quality of work done which means that there is still room for improvement in Handy's provider's vetting process. Market position and overall customer satisfaction would be improved by bettering customer support and dealing with conflicts in a more efficient manner.

3.2.8.3 Relationship to the proposed research work

Like FINDIGO, Handy aims to make service finding and booking at home easier. Both platforms assure high-quality service and client security by thoroughly checking their providers. However, features fitted to the needs of local markets such as real-time location tracking and customizable search radii would single out FINDIGO, which Handy does not seem to have put much emphasis on. Furthermore, the admin panel of FINDIGO checks and regulates the complaints given by users and the service providers with their approvals, meaning that there is a more controlled and safer marketplace compared to the open marketplace being advertised by Handy.

3.2.9 FixDar

FixDar [17] is one kind of a service platform in Karachi, Pakistan. The home and business maintenance and construction services variety are offered to this platform. Skilled workers are linked to clients who require speedy and reliable services. Through its easy-to-use app, FixDar ensures that the service providers are trusted by checking them properly and has the aim to increase the satisfaction of customers.

3.2.9.1 Summary

FixDar is one of the solutions for individuals and businesses operating in Karachi that require reliable service providers for repair and construction jobs. This way, the application guarantees allows for easy finding, booking, and managing of services making it easier for the users to seek help whenever in need [18].

3.2.9.2 Critical Analysis

Although FixDar is a powerful platform having services in Karachi, the limitation to one city is a point against it. The service can be extended to other areas and addition of features like real-time service tracking and more service categories to it so that it may expand and improve for better user convenience. Quality focus along with customer satisfaction shall give it a good base for further growth and new feature addition.

3.2.9.3 Relationship to the proposed research work

Like FINDIGO, FixDar connects users with service providers through an online platform, focusing on trust and convenience. Both platforms make sure service is good by carefully checking the workers to build trust with users. However, FINDIGO serves a larger area, while FixDar is only available in Karachi right now. Expanding FixDar's coverage could help it reach more customers and grow its user base.

Additionally, FINDIGO has real-time location tracking, allowing users to find a provider quickly based on their current location. FixDar could use similar technology to speed up its services and make them more convenient for customers. It also improves user experience with search options and detailed profiles for each service provider, helping users make better choices. If FixDar added these features, it could offer a more personalized experience and be more competitive. This way, FixDar could attract more customers and give service providers more opportunities.

3.2.10 MistriBabu

MistriBabu [19] is an Indian portal connecting home owners and business persons with a number of handymen who have varied different trades to complete any maintenance, repair, or renovation work. It also provides a very simple method for booking services like electrical work, plumbing, painting, and more-of-everything that helps the users easily discover what they need. Even though it offers easy access to home-improvement services, better technology and user engagement features can aid in opening up the space.

3.2.10.1 Summary

MistriBabu is an Indian marketplace of service providers which connects homeowners to businesses allowing them to reach out to trained tradespeople for maintenance, repair, and renovation works. Using it enables customers to meet their needs of electricity supply, plumbing, painting, among others. It thus makes it easier for the users to have various kinds of solutions for home repair through a straightforward booking process [20].

3.2.10.2 Critical Analysis

Although MistriBabu provides some easy-to-use design elements to reach various home improvement services, it still lags in some technology features that can facilitate user participation compared to bigger sites. The website can really take this platform to a new level if it included functionalities like real-time tracking or more dependable rating systems to enable users to navigate through the services being delivered. This would contribute to better trust and satisfaction with the users. More so, strengthening digital marketing and improving customer engagement may help place it better in the market.

3.2.10.3 Relationship to the proposed research work

The two services have a similar aim of connecting service providers and customers who require home assistance but they do differ operationally. MistriBabu follows a more traditional model whereby services need to be booked ahead of time by the customer which requires some preparation. However, FINDIGO uses the global positioning system and hence its customer can seek for the services whenever the need arises and even within seconds. FINDIGO is also more advanced in that it has mobile application features that support bookings on the go. In addition to that, FINDIGO platform has an elaborate service provider verification process and a complaint management system hence high trust and security levels are maintained among users. This makes FINDIGO a richer and more user-centered service than Mistribabu.

3.3 Applications Review Summary Table

The Applications Review Summary Table provides a brief comparison of many of the applications by comparing their strengths and weaknesses as well as some of their most important features. The table acts as a handy reference for users to evaluate and compare services, thus making an informed choice that takes into account the person's needs and requirements. The process of summarizing core information improves the user's perception of each application's offering and performance in the market.

Table 3.1: This is summary Table of 10 Related Research Application

Application	Features	Relevance	Limitations
Mahir Company [1]	User interface design	Facilitates easier access to household and personal services through digital platforms.	Needs better real-time tracking and service customization options
Supertasker [3]	Competitive analysis	Connects users with a wide range of services, including both skilled and unskilled tasks.	Open registration may impact service quality due to lack of checks
TaskRabbit [5]	Technical infrastructure	Offers a broad platform for task completion across multiple countries, emphasizing quality and reliability.	High service fees and prescheduled appointments limit flexibility.
Local Got Talent [7]	User experience testing	Connects customers with local professionals quickly, focusing on a wide variety of services.	Verification process for service providers is unclear.
Thumbtack [9]	User interface design	Provides a broad directory of service providers with detailed profiles and customer reviews.	Does not support immediate service bookings; advance booking needed.
HomeAdvisor [11]	Technical infrastructure	Offers a reliable platform for finding verified local home service professionals.	Inconsistencies in service quality and higher costs for providers
Urban Company [13]	User experience testing	Provides a comprehensive range of home services with an emphasis on quality and trained professionals.	Challenges in scaling services and managing service quality.
Handy [16]	Competitive analysis	Simplifies booking of home care services with a user-friendly interface and vetted professionals.	Pricing issues and inconsistent service quality affect trust
Fixdar [17]	User-friendly platform	Provides a trusted, easy-to-use platform for those in Karachi seeking reliable services.	Lacks advanced features like real-time service tracking.
MistriBabu [19]	Technical infrastructure	Acts as a marketplace for users in India to access a range of home-improvement solutions.	Lacks advanced technology features like real-time tracking or user engagement tools. Could improve user experience with better technology integration

Table 3.2: Comparison of Different Apps

Applications	**Real-time Location Tracking**	**Instant Service Booking**	**Service Provider Verification**	**Complaint Management System**	**Business Insights**	**Availability of App**
Findigo	Yes	Yes	Yes (Admin Panel)	Yes (Admin Panel)	Yes (Provide View Tracking)	Mobile App (Android)
Mahir Company	No	No (Pre Booking)	Yes (Verify Technicians	No	No	Website, Mobile App
Supertasker	No	Yes	No (Open registration)	No	No	Website, Mobile App
TaskRabbit	No	No (Pre Booking)	No (Open registration)	No	No	Mobile App
Local Got Talent	No	Yes	No (Open registration)	No	No	Mobile App
Thumbtack	No	No (Pre Booking)	No (Open registration)	No	No	Mobile App
HomeAdvisor	No	No(Pre Booking)	Yes (Verify Professionals)	No	No	Mobile App
Urban Company	No	No (Pre Booking)	Yes (Admin Panel)	Yes	No	Mobile App
Handy	No	Yes	Yes (Verify Professionals)	No	No	Mobile App
Fixdar	No	Yes	Yes (verify)	No	No	Mobile App
HomeAdvisor	No	Yes	No	No	No	Mobile App

3.4 Conclusion

In short, FINDIGO is the kind of platform that connects users quickly and easily to any reliable local service provider. Some of its key features are instant location tracking, distance options, and complaint management systems, which ensure quality and trustworthiness. The difference between FINDIGO and other platforms is instant booking, provider verification, and business insights, which makes this a safer and more personalized experience both for the customer and the provider. FINDIGO is convenient, quality, and user-pleasing, transforming the way people find and access their local services. Further, FINDIGO's continuous improvement and update ensure that the user and the service provider remain updated on the latest features and technologies. The design of the platform on user-friendly and smooth interaction will improve the experience of access to services in a simple and efficient way. It is a great community that is business and customer friendly due to a growing network of trusted providers. In this way, FINDIGO creates a trusted environment through transparent reviews, secure payments, and responsive customer support that allows users to book services and expands the reach of the providers.

Chapter 4 Software Requirement Specifications

The requirements of the Findigo software platform are as follows: the platform is designed to connect users.With local service providers, it effectively meets the functional requirements and the design constraints. and all other necessary details that provide a full and comprehensive description of what the Software what it does and how it works under different conditions. Diagrams and figures will be Integrated to explain complex ideas and make the system/result replicable by anyone who will read the paper.

4.1 List of Features

The key features that define the operational capabilities of Findigo are enumerated in the section that follows. It forms a backdrop to know what kind of functionalities an application is bringing for the users and administrators.

- Geo-Location Services
- Reporting and Analytics
- User Registration and Login
- Ratings and Feedback System
- Service Provider Management
- Complaint Management System
- Admin Dashboard for Monitoring and Management

4.2 Functional Requirements

Here are some functional requirements for FINDIGO tailored for admin customer and businesses:

- Admin should check the business registration request and approve/reject the request.
- Admin can suspend/deactivate any business account that violated the platform policy of the administration.
- Admin can monitor the services the businesses provide and hence can also work on service issues and provisions.
- Admin can assign or change service categories for every business.
- Admin can assist the customers whose complaints or issues are being raised through the help desk

given by the platform

- Admin can create a new category of service and can launch it on the platform.
- Admin can diagnose and respond to the technical issues easily which may be thrown up by business or the customers.
- Admin generates reports about the business activities, usage of the services, and platform revenue.
- Business can sign up and submit a request for approval by admin.
- Business can update its profile information, which includes contact information and service offerings on offer.
- Business can create or modify or delete their services being offered.
- Business can manage their customer's appointments, approve or reschedule bookings.
- Businesses can respond to reviews and feedback of customers.
- Businesses can gain insights into customer preferences for customized services.
- Businesses received service requests.
- Customers can create an account from the sign-up page from the app
- Customers can modify their profile information and preferences.
- Customers can search for businesses or services by location, category, or service type.
- Customers can view past bookings and upcoming bookings.
- Customers can leave reviews and ratings for businesses after a service.
- Customers are permitted to give feedback about their service.
- Customers are enabled to view a transaction history together with records for services.
- Customers are permitted to contact businesses about making an inquiry or solving issues regarding services.
- Customers are enabled to report concerns with respect to platform support to get help.
- Customers can also add their favourite businesses.
- Customers can also set a preference for the services to base recommendations on it.

4.3 Quality Attributes

The Quality Attributes of FINDIGO outline the key non-functional characteristics essential for the system's overall performance, usability, and maintenance. Here are some important quality attributes:

- Security
- Usability
- Scalability
- Reliability
- Flexibility
- Availability
- Performance
- Maintainability

4.4 Non-Functional Requirements

Here are the non-functional requirements for FINDIGO of admin,customer and business

- At normal traffic conditions, the admin panel shall load and process business approvals, user requests, and service management in about 2 seconds of time.
- The admin panel should always be up and available 99.9 percent of the time to constantly monitor the system, manage services, and troubleshoot.
- The admin actions must be logged to ensure auditing with clear evidence of all modifications made in the system.
- The admin interface should be scalable enough so that users do not experience loss in performance up to 100 simultaneous users.
- Operational activities on business accounts, in a secure environment that can handle operations compliant as well as data protection, must be maintained.
- The UI of the business interface must respond to user activities within 3 seconds.
- To ensure business uptime to manage services, the uptime is supposed to be at 98 percent.
- The application should be able to provide scalability to the business that would like to add more services to service more clients while performance will not degrade.

- Customer data must have to be encrypted during transit as well as rest to guarantee privacy and security.
- The system should be accessible 99 percent of the time to ensure that the customers are accessing services without interruptions.
- The mobile app ought to be compatible with all versions of Android so that it can achieve accessibility to all users.

4.5 Assumptions

It is assumed that each user, including admins, businesses and customers, has a basic level of digital literacy to use the FINDIGO platform fluently. FINDIGO will be expected accessed primarily on modern web browsers and mobiles with latest operating systems.Infrastructure such as the Internet, and devices, is considered available to the user with sufficient availability to effectively use FINDIGO services. When registering, it shall be assumed that users provide correct, up-to-date information to enable proper management of their accounts and provision of services by the company.Business offers are assumed to adhere to the policies and directions of the system in offering services to a customer. The system should be able to accommodate the dynamic loads that might fluctuate at different times but should also have such anticipation of even peak hours or events when user activity may reach its highest usage. Acceptable resources will be provided for maintenance, upgrades, and customers service so that the platform functions properly. Also, all of the user's data will respect pertinent data protection laws, and enough security mechanism will be designed before handling the said data. It is also assumed that the platform will expand with the changing feedbacks from the users and market condition changes in order to stay current and user-friendly. Lastly, the design will be fully operated by well-trained personnel who are equipped with knowledge on handling the system and all safety features installed.

4.6 Use Cases

Below we present some of the main use case tables for the FINDIGO platform, specifically developed for the three main user roles: Admin, Customers and Businesses. Each table has listed the essential interactions and functionalities that these user groups will have access to, how they will go about interacting with the platform to satisfy their respective needs.

4.6.1 Verify Business Profile

Name	Verify Business Profile		
Actors	Admin		
Summary	Admin verifies business profiles to ensure credibility and reliability of vendors on the platform.		
Pre-Conditions	Admin is logged in and there are unverified business profiles available.		
Post-Conditions	Business profiles are verified and updated in the system.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Admin selects the ”Unverified” tab under the ”Business” section.	2	The system displays unverified business .
3	Admin reviews the details of an unverified business profile.		
4	Admin clicks the ”Verify” button to approve the business profile.	5	The system updates the business profile’s status to ”Verified.”
Alternative Flow			
4	The system fails to verify the business.	4-A	The system displays an error message: ”Verification failed. Please try again.”

4.6.2 Manage Complaints

Name	Manage Complaints		
Actors	Admin		
Summary	Admin Summary Admin manages, resolves, or deletes complaints submitted by customers to ensure satisfactory service delivery and maintain service quality.		
Pre-Conditions	Admin is logged in and has access to the complaints section		
Post-Conditions	Complaints are either resolved or removed from the system.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Admin navigates to the “Complaints” section.	2	The system displays a list of all current complaints.
3	Admin navigates to either ”Unresolved Complaints” or ”Resolved Complaints” based on the action intended.	4	The system displays the list of complaints corresponding to the selected category.
Alternative Flow			
3	The system fails to resolve a complaint due to system errors.	3-A	The system displays: ”Failed to resolve the complaint. Please try again.” .

4.6.3 Manage Services

Name	Manage Services		
Actors	Admin		
Summary	Admin can view all the existing services, edit their details, delete unnecessary services, and add new services to the platform to ensure a comprehensive service offering to users.		
Pre-Conditions	The user must be in the database records, either added by any of the authorized users or added manually by a developer. The user must not already be logged in.		
Post-Conditions	Admin is logged in and has navigated to the ”Services” section.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Admin selects ”Add new service.”	2	The system presents a form to enter the details of the new service.
3	Admin chooses to edit or delete an existing service	4	The system edits and deletes the service from the database and updates the list of services.
Alternative Flow			
4	System fails to add the new service.	4-A	The system displays an error message: ”Service addition failed. Please check the input and try again.”

4.6.4 Manage Categories

Name	Manage Categories		
Actors	Admin		
Summary	Admin can add, edit, or delete categories of services provided.		
Pre-Conditions	Admin is logged in.		
Post-Conditions	Categories are updated as needed.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Admin accesses the ”Category” section from the sidebar.	2	The system displays all existing categories.
3	Admin reviews the list of categories.		
4	Admin chooses to add a new category by clicking ”Add New Category”	5	Upon adding, the system updates the category list and confirms the action.
6	Admin can edits/deletes an existing category.	7	Upon editing the system updates the category list and confirms the action.
Alternative Flow			
4	The system fails to update the category.	4-A	The system displays: ”Unable to update category. Please try again.”

4.6.5 View Bookings

Name	View Bookings		
Actors	Admin		
Summary	Admin reviews and monitors all booking activities within the platform.		
Pre-Conditions	Admin is logged in.		
Post-Conditions	Admin has an updated view of all bookings.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Admin clicks on the ”Booking” section.	2	The system displays all bookings.
3	Admin browses through the list of all current and pending bookings.	4	The system displays all bookings, including details like booking ID, customer ID, vendor ID, service type, and status (Pending/Completed).
Alternative Flow			
3	System fails to browses	3-A	The system displays an error message.

4.6.6 Home-Page

Name	Home Page		
Actors	User (Customer)		
Summary	The home screen displays top-rated services near the user’s location, allows the user to explore special savings and promotions, and provides an option to add a business.		
Pre-Conditions	It is only possible for the user, who has been logged in with enabled location services, to get top-rated local services, savings options,and the option to add businesses-all working towards lifting this convenience and community engagement experience for him on the platform.		
Post-Conditions	The user can view top-rated nearby services, explore savings, or use the ”Add Business” feature.		
Special Requirements	Location services must be enabled to show top-rated services		
Basic Flow			
Actor Action		**System Response**	
1	Users click the ”Savings” section to explore special promotions.	2	The system displays current special savings and promotions offered by various businesses.
3	User clicks the ”Add Business” button.	4	System navigates to the ”Add Business” page, where the user can input business details for listing on the platform.
Alternative Flow			
2	Location services are disabled on the user’s device.	2-A	No savings or promotions are available.

4.6.7 Services-Page

Name	Services with Radius Filter		
Actors	User (Customer)		
Summary	All services the application offers are accessible to browse for the user, and selected service can be combined with a radius filter for the output of business owners offering the same service in that selected area		
Pre-Conditions	The user, logged into their account, can access detailed service and business owner data, including location information, for a more personalized experience.		
Post-Conditions	The user views a filtered list of business owners offering the selected service within the specified radius.		
Special Requirements	Location services must be enabled on the user's device .		
Basic Flow			
Actor Action		**System Response**	
1	User navigates to the "Services" section in the application	2	System displays a list of all services offered by the application, with options to view details or select each service
3	User sets the desired radius using a radius slider or input field. .	4	System retrieves and displays a list of business owners offering the selected service within the specified radius.
5	User browses the list of business owners and selects one to view more details. .	6	The system displays detailed information about the selected business owner
7	User Click on the Subserices shown in the application by the Admin .	8	The system displays all the subservices information which is in the app
Alternative Flow			
4	No business owners are found within the specified radius.	4-A	system displays a message: "No business owners found offering this service within the selected radius. Please try a different radius."
5	User cancels the selection of the business owner and chooses to change the radius.	5-A	The system returns to the radius selection screen and allows the user to modify the radius.
7	User clicked on the selection of the appear subservices and no vendor appears	7-A	The system remain in the same screen with the message display

4.6.8 Discounts-Page

Name	View Nearby Discounts		
Actors	User (Customer)		
Summary	The user can view all available discounted services offered by nearby business owners in the ”Discounts” section.		
Pre-Conditions	The user is logged into their account, with location services enabled to identify nearby discounts. The application provides access to discounts data for various services, enhancing the user’s experience.		
Post-Conditions	The user views a list of discounted services offered by nearby business owner		
Special Requirements	Location services must be enabled on the user’s device.		
Basic Flow			
Actor Action		**System Response**	
1	User navigates to the ”Discounts” section in the application.	2	System displays a list of all discounted services offered by nearby business owners based on the user’s current location
3	User browses through the list of discounted services.	4	System allows the user to scroll through the list, showing details such as business name, discount percentage, service description, and distance from the user’s location.
5	User selects a specific discounted service to view more details	6	System displays detailed information about the selected discount, including the terms and conditions, expiration date, and business contact information.
7	User click on the view rate of discounted service will shown	8	System displays percentage of disscount offers by a nearby vendor
Alternative Flow			
2	No discounts are available nearby	2-A	system displays a message: ”No discounted services available nearby at the moment. Please try again later or increase your search radius.”
4	System fails to load discounts due to a network issue.	4-A	System displays an error message: ”Unable to load discounts. Please check your network connection and try again.”
5	System fails to load profile due to a network issue.	5-A	System displays fail to load vendor profile load
7	Discounts offers by vendors are not show on the app	7-A	System displays an error message: ”Unable to load discounts. Please check your network connection and try again.”

4.6.9 Favorites-Page

Name	Favorites		
Actors	User (Customer)		
Summary	Users can view and manage services they have added to their favorites. To view favorite services, the user must first add them to their favorites list.		
Pre-Conditions	User is logged into their account		
Post-Conditions	All selected services are successfully added to the favorites list and can be viewed by the user.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	User selects multiple services and clicks the ”Add to Favorites” button for each selected service. .	2	System adds each selected service to the user’s favorites list and displays a confirmation message: ”Service added to favorites.” for each addition.
3	User navigates to the ”Favorites” section. .		
		4	System displays the list of all services added to the user’s favorites.
5	In the like services page user can navigate its a page to view profile view of the vendor	6	System show the profile view to the user’s when he clicked on the button user can able to see all the detailed of the vendor in the page
Alternative Flow			
1	User attempts to add a service that is already in the favorites list.	1-A	System displays an error message: ”Service already added to favorites.”
4	System fails to load the favorites list due to a network issue.	4-A	System displays an error message: ”Unable to load favorites. Please try again later.”
5	System fails to load the Profile of vendor due to a network issue.	5-A	System displays an error message: ”Unable to load Profile. Please try again later.”
6	System cannot add the vendor profile to the favorites list due to a network issue.	6-A	System displays an error message: ”Unable to add the profile of vendor. Please try again later.”

4.6.10 Add Business-Promotion

Name	Add Business - Business Registration and Promotion
Actors	User (Customer)
Summary	A promotion ad to add a business is shown on the home page. On clicking, the user will be diverted to the business registration page where he needs to fill out the business form and then join the platform as a business owne
Pre-Conditions	User is logged into their account.
Post-Conditions	The user is successfully navigated to the business registration page and can register their business on the platform.
Special Requirements	None

Basic Flow			
Actor Action		**System Response**	
1	User clicks on the ”Add Your Business” ad.	2	System navigates the user to the ”Business Registration” page, displaying a form with fields for business name, address, contact details, services offered, and promotional options.
3	User fills out the form with the required business information	4	System validates the input fields to ensure all required information is correctly entered.
5	User clicks the ”Submit” button to complete the registration.	6	System processes the registration, confirms the user’s status as a business owner, and displays a message: ”Your business has been successfully registered and is now listed on the platform.”
7	User clicks on the page of login	8	System navigates when the user click to the login page but cannot able to login as to the account before sign up the account and register its account then able to login the account
9	User clicks on the back button to naviagate the page he was before	10	System take the user to the home page of the customer now user is on the side of the customer and enjoy and use account as a customer
Alternative Flow			
1	User clicks the ”Add Your Business” ad but is not logged in.	1-A	System prompts the user to log in with a message: ”Please log in to register your business.”
9	User clicks but not response shown or remain in the home page	9-A	System display the user to unable to load due to network issue and connectivity

4.6.11 Businesss-SignUp

Name	SignUp		
Actors	User (Business Owner)		
Summary	Business owners register their businesses on the platform by entering detailed personal and business information to create an account and list their services.		
Pre-Conditions	The business owner does not have an existing account.		
Post-Conditions	Business owner's account is created and pending verification.		
Special Requirements	Email server is functional to send authentication codes.		
Basic Flow			
Actor Action		**System Response**	
1	Business owner fills out the form with all required details.	2	System validates the email format and Phone number and CNIC
3	Business owner submits the form.	4	System processes the submission and sends a verification code to the business owner's phone.
5	Business owner enters the verification code received.	6	The system verifies the code and prompts the business owner to proceed to the next step.
7	Business owner enters detailed business address information.	8	The system collects the address details including Full Address, Postal Code, and City.
9	Business owner clicks the "Continue" button.	10	The system confirms the address and prompts the business owner to select their business category.
11	Business owner navigates to the "Select Your Business" page and selects a service category and sub-categories.	12	The system displays sub-categories for detailed selection.
13	Business owner enters specific service details and submits the completed business details	14	The system finalizes the registration and displays a confirmation message: "Account created successfully. Please wait for business verification."
Alternative Flow			
4	Data entered does not meet validation criteria.	4-A	System displays an error message: "Invalid details. Please enter valid details."
6	System fails to send the authentication code to the phone number.	6-A	System displays an error message: "Failed to send authentication code.Please try again later."

4.6.12 Business-Login

Name	Login		
Actors	User (Business Owner)		
Summary	Business owners log in to manage their service offerings, view booking requests, and access administrative features		
Pre-Conditions	The business owner has an active and verified account.		
Post-Conditions	The business owner successfully logs into their account		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Business owner navigates to the ”Login” page.	2	System displays the ”Log In” form with fields for phone number and password.
3	Business owner enters their registered phone number and correct password.	4	System validates the entered credentials
5	Business owner clicks the ”Log In” button	6	System authenticates the credentials and grants access, displaying the Business owner account dashboard.
Alternative Flow			
1	Business owner enters an incorrect password.	1-A	System displays an error message: ”Incorrect password. Please try again.”
1	Customer enters an unregistered phone number.	1-A	System displays an error message: ”No account found with this phone number.Please check the phone number.”

4.6.13 View Business Profile

Name	View Profile		
Actors	User (Business Owner)		
Summary	Business owners access their business profile to view and verify the information listed on the platform.		
Pre-Conditions	Business owner is logged in.		
Post-Conditions	Business owner has accessed and reviewed their profile information.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Business owner selects ”View Profile” from the menu	2	The system retrieves and displays the profile details including business name, address, service details, and contact information.
Alternative Flow			
1	If the system fails to load the profile due to a network or server issue	1-A	”Unable to load profile. Please check your connection and try again.”

4.6.14 Submit Feedback

Name	Submit Feedback		
Actors	User (Business Owner)		
Summary	Business owners provide feedback on their experience using the platform, focusing on aspects such as user interface, customer service, and overall satisfaction		
Pre-Conditions	The business owner has logged in.		
Post-Conditions	Feedback is submitted and recorded for platform improvement.		
Special Requirements	None		
Basic Flow			
Actor Action		**System Response**	
1	Business owner selects ”Feedback” from the menu.	2	The system presents a feedback form with questions regarding platform effectiveness, ease of use, customer interaction quality, and recommendations for improvements.
3	Business owner completes the feedback form and submits it.	4	The system processes the feedback and acknowledges the submission with a message: ”Thank you for your feedback. We value your input to improve our services.”
Alternative Flow			
1	If there is an error during feedback submission.	1-A	System displays an error message: ”Feedback submission failed. Please try again later.”

4.7 Hardware and Software Requirements

This section addresses the hardware and software requirements that must be available during the development and deployment stages of the FINDIGO platform.

4.7.1 Hardware Requirements

To sum it up, FINDIGO hardware requirements are very minimalistic so that the app will naturally enable users to access it from any Android device. The platform automatically adjusts to the different sizes of the screens coming from the respective phones. It is essentially an admin panel that is only intended for use by FINDIGO admins and can be accessed on laptops. The platform is pretty light so it runs very efficiently on devices with moderate processing powers and memory. Users should have a stable internet connection that would provide uninterrupted access to the application. The responsiveness of FINDIGO allows users to have the same kind of experience on different screen sizes and resolutions, which makes it versatile enough for any potential needs among its users.

4.7.2 Software Requirements

This is well-designed software, so it will provide the best performance and safety on all supported devices. Modern technologies have been used there: React Native has been used for the mobile app and React.js for the admin panel. To set up the backend operations for the application, one needs to install Node.js and a MySQL database. The FINDIGO admin panel is only accessible with a modern web browser, namely Google Chrome, Mozilla Firefox, Safari, Opera, and Microsoft Edge. the FINDIGO mobile application works perfectly; on any other Android device, it will run with Android version 6.0 or later. JavaScript needs to be enabled within a user's web browser to allow working dynamically. Therefore, it would need to keep a good internet connection so that the communication and interaction with back-end services could be smooth. This would allow the user experience to be smooth.

4.8 Graphical User Interface

Here is a fine-tuned description for the graphical interface, UI, of the FINDIGO platform that combines the admin panel, customer side, and business side:

Admin Panel Website

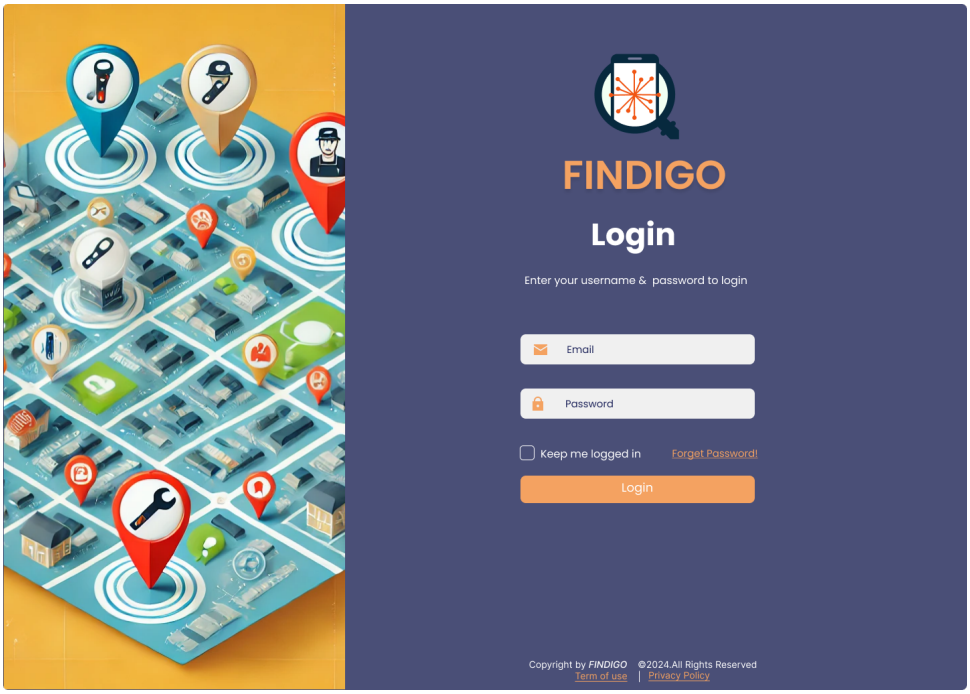

Figure 4.1: Admin Login

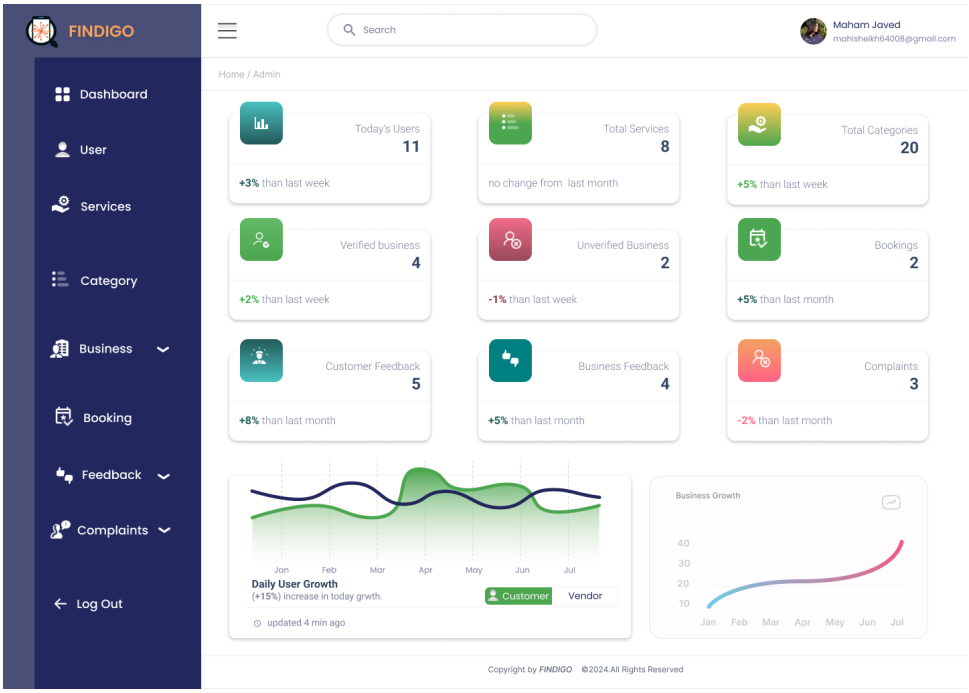

Figure 4.2: Admin-Dashboard

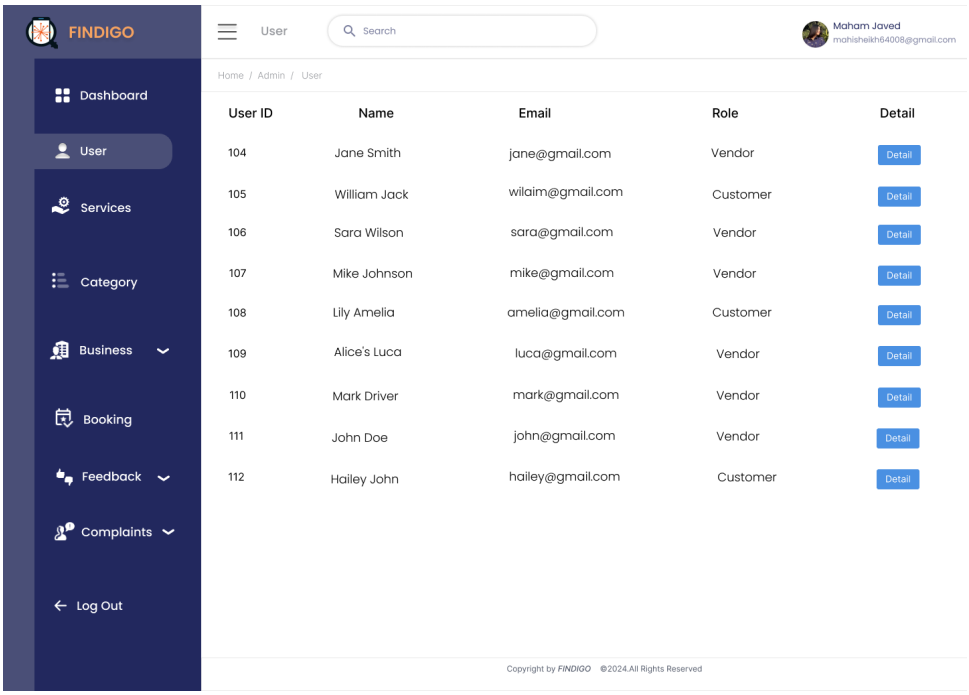

Figure 4.3: Admin-User Details

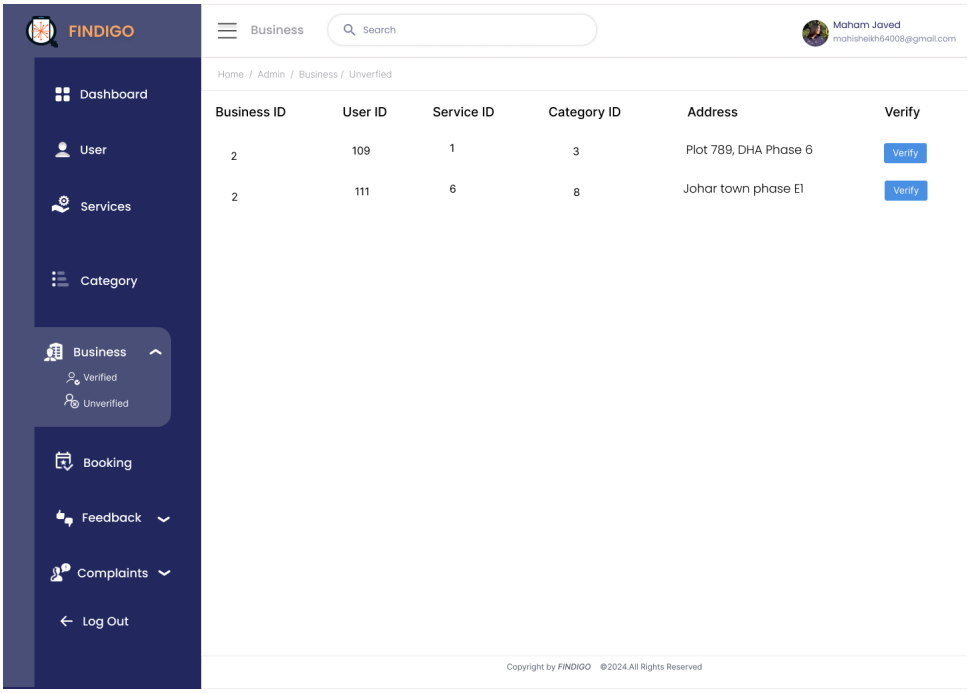

Figure 4.4: Admin-Business Verification

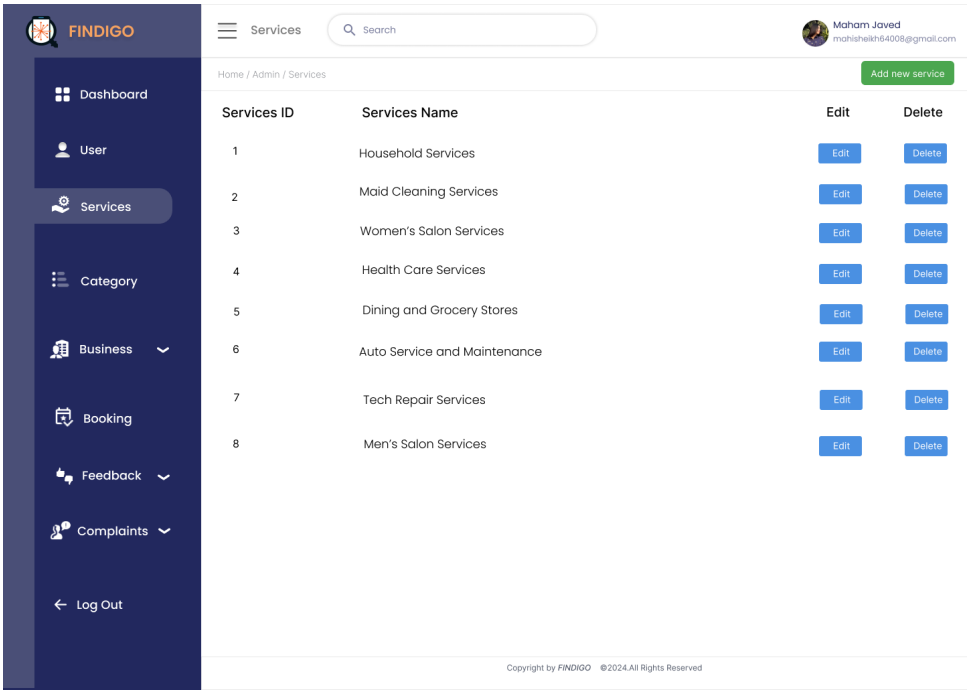

Figure 4.5: Admin-Services for app

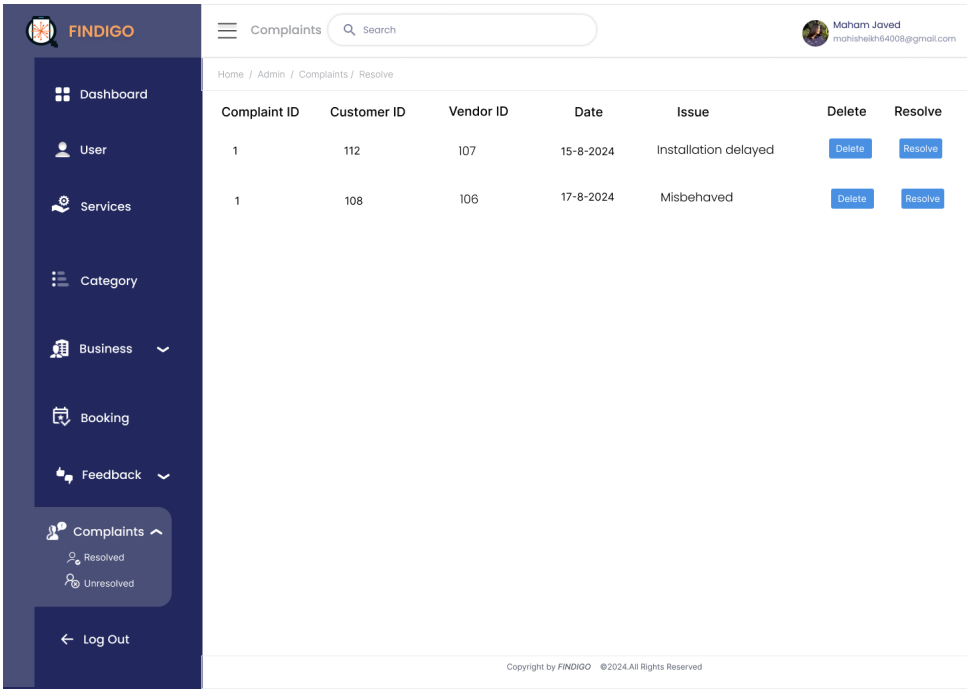

Figure 4.6: Admin-Complains Handling

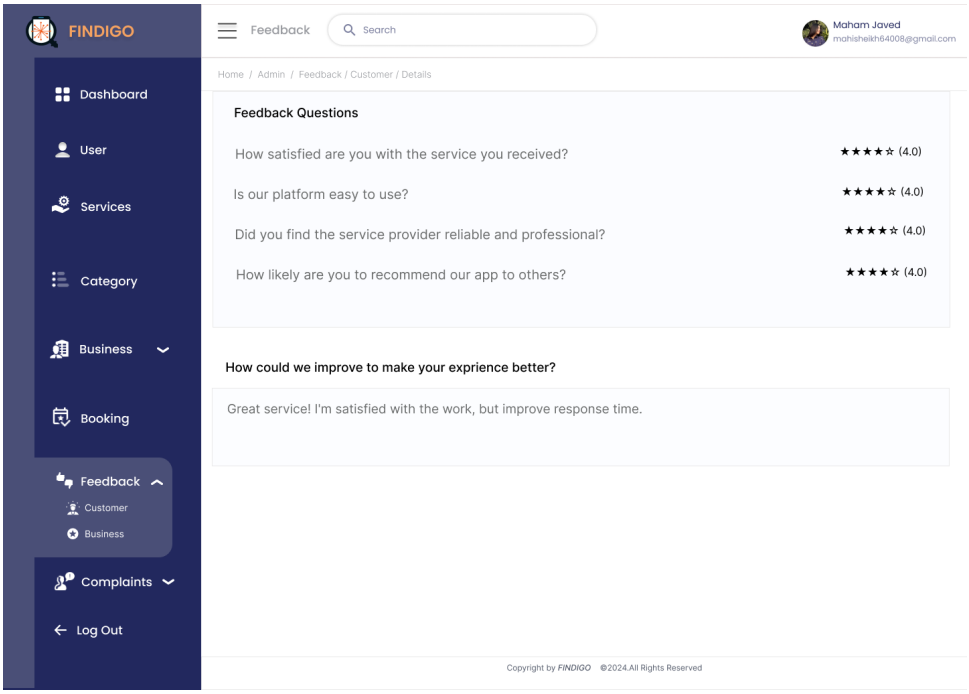

Figure 4.7: Admin-Feedback

Findigo Application

Figure 4.8: Findigo-Logo

Figure 4.9: Findigo-choose Role

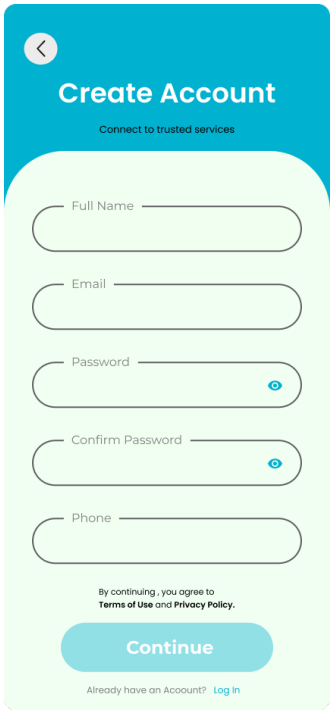

Figure 4.10: Customer-SignUp

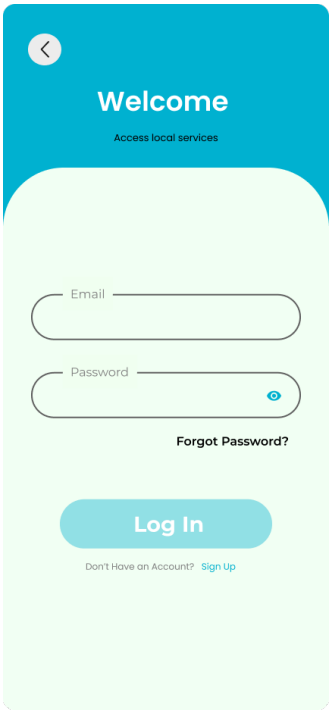

Figure 4.11: Customer-Login

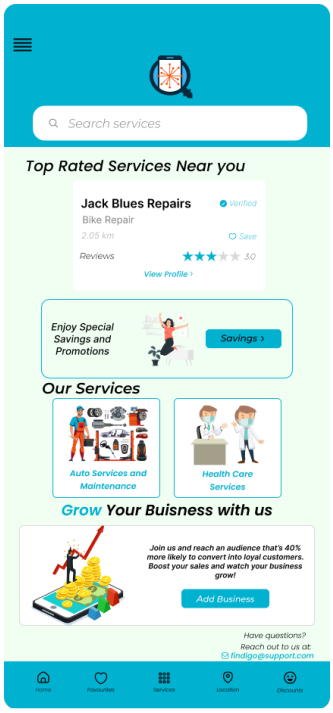

Figure 4.12: Customer-HomePage

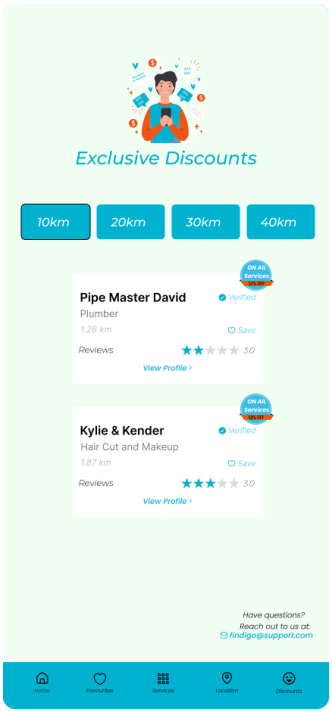

Figure 4.13: Customer-DiscountPage

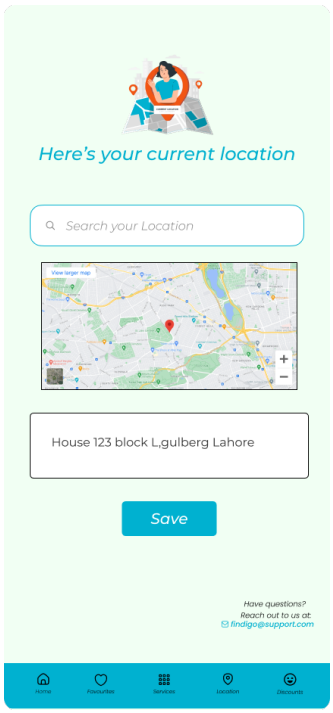

Figure 4.14: Customer-LocationPage

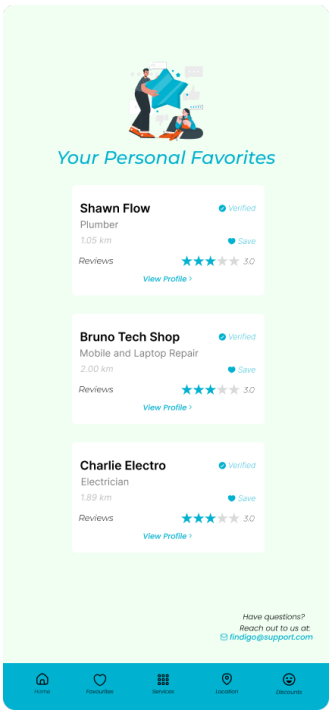

Figure 4.15: Customer-FavoritesPage

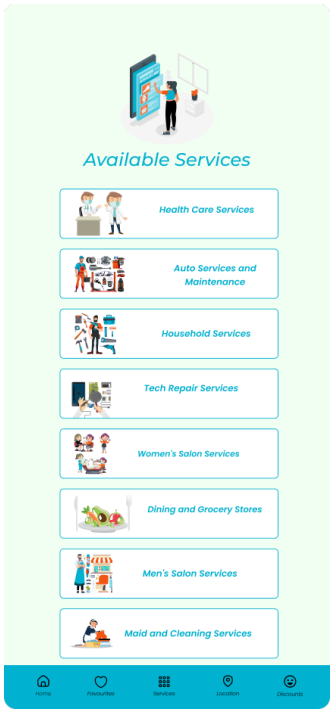

Figure 4.16: Customer-Category

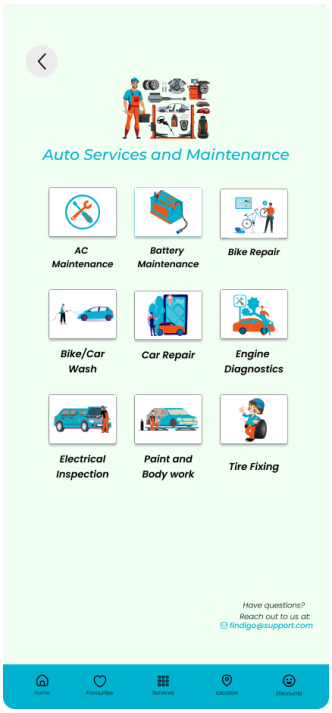

Figure 4.17: Customer-AutoService

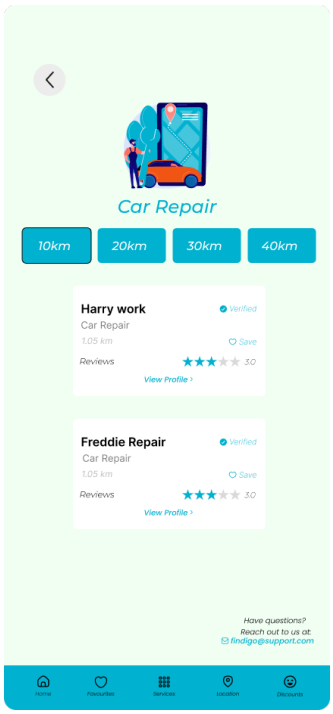

Figure 4.18: Customer-Car Repair

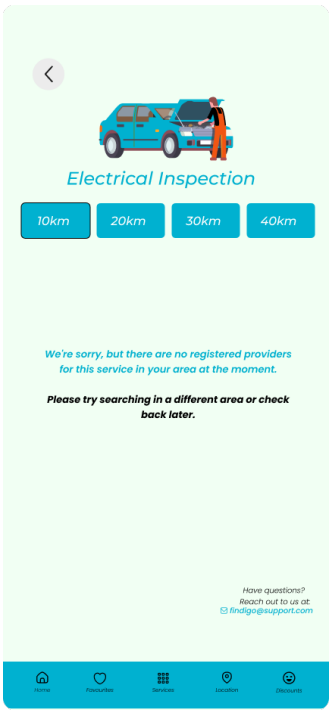

Figure 4.19: Customer-Car Inspection

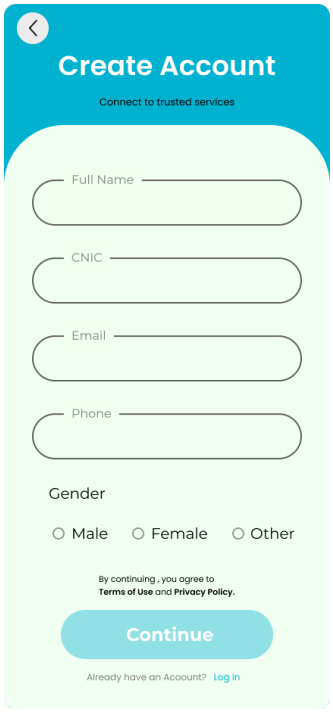

Figure 4.20: Business-SignUp

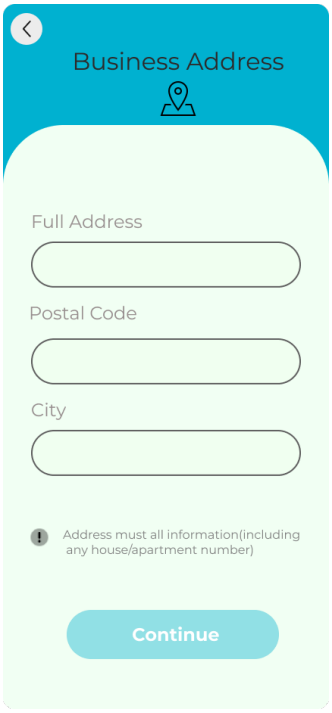

Figure 4.21: Business-Address

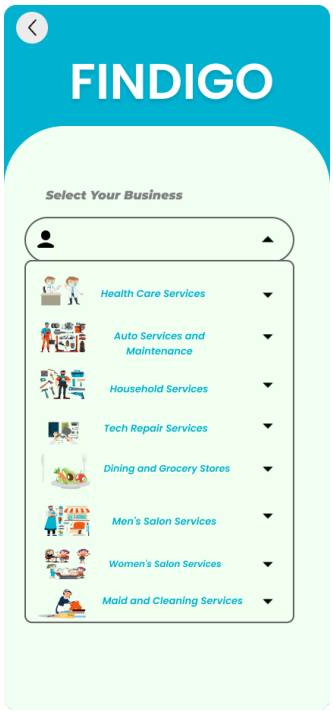

Figure 4.22: Business-Category

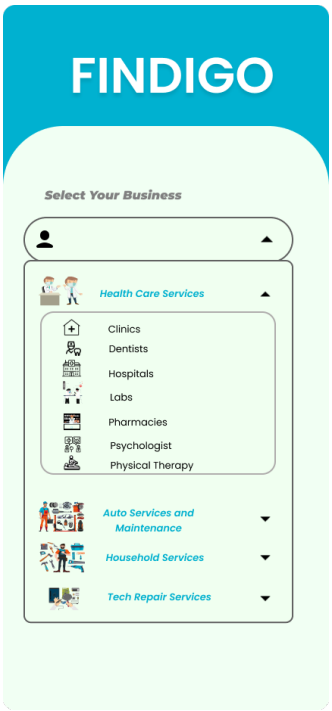

Figure 4.23: Business-Services

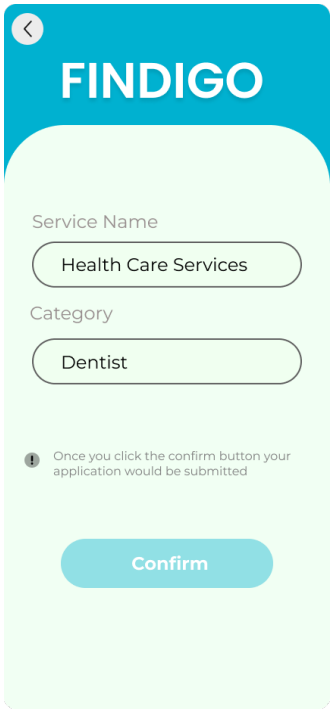

Figure 4.24: Business-Selection

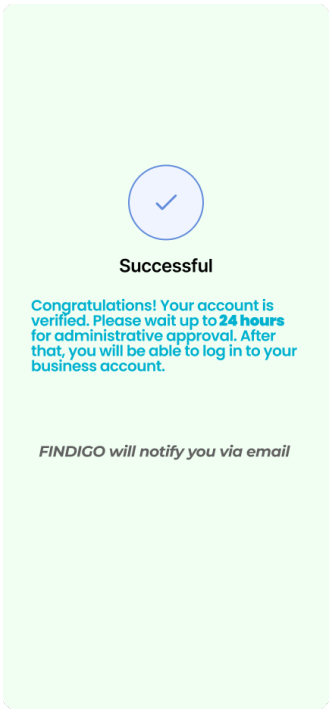

Figure 4.25: Business-Verification

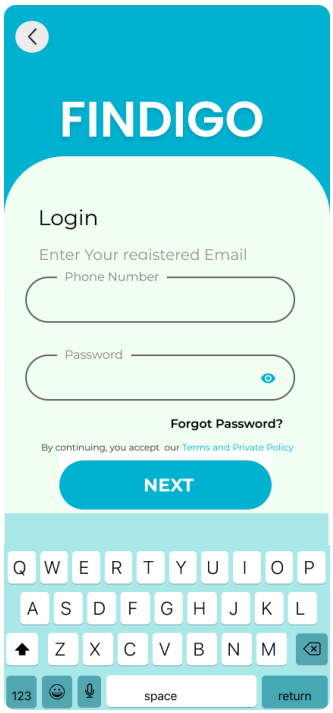

Figure 4.26: Business-Login

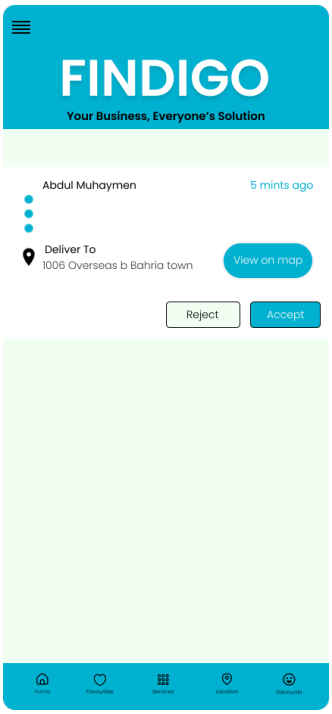

Figure 4.27: Business-HomePage

4.9 Database Design

The database design makes sure that both the app and admin panel are able to store and retrieve data efficiently. Relationships between entities are defined using an ER diagram and detailed table structures are given in the data dictionary. This design will support seamless integration and scalability, and also supports data integrity and security for the reliable and consistent operations of the whole platform.

4.9.1 ER Diagram

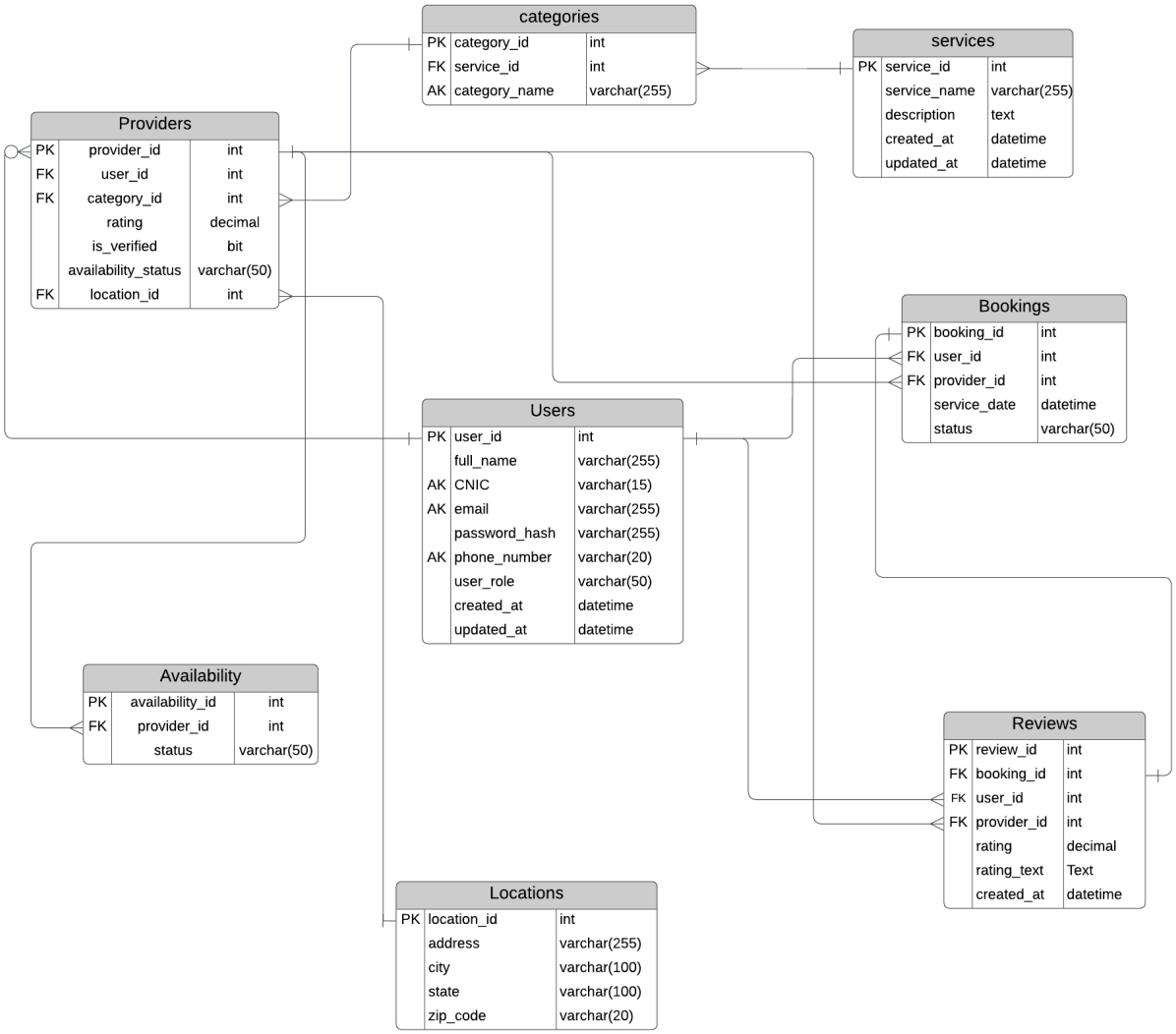

Figure 4.28: ER Diagram

4.9.2 Data Dictionary

Table 4.1: Data Dictionary

Entity	Attribute	Data Type	Relation To	Nullable	Description
Users	User_id	Identity(1,1)		No	Unique ID of the user assign primary key
	Full_Name	Varchar(55)		No	Full name of the user
	CNIC	Varchar(20)		No	CNIC number of the user
	Email	Varchar(255)		Yes	Email address of the user
	Password_hash	Varchar(255)		No	Hashed password of the user
	Phone_number	Varchar(11)		No	Phone number of the user
	User_role	Varchar(20)		No	Role of the user (Admin,Providor,user)
	Created_at	Datetime		No	When the user was created
	Updated_at	Datetime		No	When the user details were update
Providers	Provider_id	Identity(1,1)		No	Unique ID of the provider (PK)
	User_id	Int	Users	No	
	Category_id	Int	Categories	No	
	Rating	Decimal		Yes	Combined average rating of the provider
	Is_verified	Bit		No	Verification status of the user
	Availability_status	Varchar(50)		No	Availability of provider
	Location_id	Int	Locations	No	

Entity	Attribute	Data Type	Relation To	Nullable	Description
Categories	Category_id	Identity(1,1)		No	Unique ID of the category (PK)
	Service_id	Int	Services	No	
	Category_name	Varchar(255)		No	Name of the category
Services	Service_id	Identity(1,1)		No	Unique ID of the service (PK)
	Service_name	Varchar(255)		No	Name of the service
	Description	Text		Yes	Description of the service
	Created_at	Datetime		No	When the service was created
	Updated_at	Datetime		No	When the service was updated
Locations	Location_id	Identity(1,1)		No	Unique ID of the location (PK)
	Address	Varchar(255)		No	Full address
	City	Varchar(100)		No	City name
	State	Varchar(100)		Yes	State name
	Zip_code	Varchar(20)		No	Zip code
Bookings	Booking_id	Identity(1,1)		No	Unique ID of the booking (PK)
	User_id	Int	Users	No	
	Provider_id	Int	Providers	No	
	Service_date	Datetime		No	Date of the service
	Status	Varchar(50)		No	Booking status
Reviews	Review_id	Identity(1,1)		No	Unique ID of the review (PK)
	Booking_id	Int	Bookings	No	
	User_id	Int	Users	No	
	Provider_id	Int	Providers	No	

Entity	Attribute	Data Type	Relation To	Nullable	Description
	Rating	Decimal		No	Rating given by the user
	Rating_text	Text		Yes	Text feedback
	Created_at	Datetime		No	When the review was submitted
Availability	Availability_id	Identity(1,1)		No	Unique ID of the availability record (PK)
	Provider_id	Int	Providers	No	
	Status	Varchar(50)		No	Availability status

4.10 Risk Analysis

The following are some of the risks involved in the Findigo platform:

- Technical errors or server errors would not allow customers and businesses to access the app.
- Vulnerabilities in the application can result in un-authorized access of customer information and business information or the same would be made vulnerable to cyber attacks.
- Problems Third-party services, for instance, APIs, could hamper the correct working of an app or create a problem in the interface being used by customers.
- With more numbers of users, poor infrastructures are causing apps to load tardily or crash sometimes.
- Having Inadequate customer support.It results in unsolved problems that eventually cause dissatisfaction among the users.
- Failure to update the system leads to old features and vulnerabilities.
- Intense competition from the other apps will decrease Findigo's market penetration.
- Poor internet connections or unstable network infrastructure could negatively impact user experience, causing interruptions in app usage and potential loss of business transactions.
- Changes in data protection laws and regulations might make it harder to remain compliant, thus risking legal penalties or restricting access in some regions.
- Poor navigation, confusing user interface, or slow responses can cause negative user experiences, resulting in higher abandonment rates and reduced customer retention.

Chapter 5 High-Level and Low-Level Design

This section provides a detailed overview of the high-level and low-level design for the FINDIGO system, including both the user application and the admin panel.

5.1 System Overview

The FINDIGO system offers various interfaces both for the customers and the business owners, with all their login and verification processes exclusively stored in the database. For the customers, it will begin with the sign up process, which contains an API wherein after verification, they will be sent a verification code by email, and login and the credentials will match in the database. After the login process, the customers can browse through services offered by business owners in their locality by sharing their location. Through the live GPS API, they can filter services according to a distance such as 10km, 20km, 30km, and 40km. Through this, customers get an opportunity to contact these service providers to request services and if there are any issues with their services, they might need to file complaints which are solved by the admin. Registration is done through a phone number verification where the owner enters the verification code gotten via SMS, and thus after using the code, their login details are matched with the database to complete the verification process. Once logged in, they can update their present service offering, define the service areas specific to the business location, and show their availability. They can also add new services to listings. That allows them to respond according to a customer's request based on his location and their availability and manage their services well. The administrative dashboard will be used to oversee both the customers as well as business owners. Administrators can look at the concerns whether raised by business owners or customers, allow/block users, and watch over every activity on the platform in a bid to ensure everything is running smoothly and compliant with the policies that will be enforced. In this system, you'll find a safe login interface, service distribution handles, and complaint management; hence, everyone on the system will have no difficulties using it.

5.2 Design Considerations

In the development of the FINDIGO system, there are key issues that must be considered as it seeks to become a robust and user-friendly platform. These considerations come in terms of assumptions, constraints, and requirements that have to be handled with care so that the quality of services offered will be satisfactory.

5.2.1 Assumptions and Dependencies

The following is the list of assumptions that would have to be made to achieve an effective design:

- Users will be allowed to use the FINDIGO app on a smartphone
- Users shall have a basic understanding of English while using the FINDIGO platform.
- The app user must have a steady internet connection to access and use the app.
- Users are aware of how to access and navigate the app correctly.
- Users can give their location via the app so that the system will be able to offer different services based on where they are.

5.2.2 General Constraints

There are several major constraints that limit the design and functionality of the FINDIGO system. These limitations would affect the performance of the developed system as well as the expected performance by the users during intended use. More over, issues such as connectivity to the internet, compatibility with devices, and data privacy may also impact features and user experience.

5.2.2.1 End-User Environment

The FINDIGO application is mobile oriented application which needs to be installed through an appropriate application store; it cannot be accessed through a web browser. Users will need to have some knowledge of mobile applications to use the system. The application is developed for Android operating systems. This opens app use to local customers as well as business owners without limitations.

5.2.2.2 Hardware and Software Environment

The FINDIGO mobile and web application, including the web-based administrative panel, functions on the stability of internet access. Access to the website of FINDIGO is restricted exclusively to FINDIGO staff, whereas only clients and business managers are permitted to exclusively use services from the mobile application designed to accommodate their specific requirements. Worth mentioning, though, is that FINDIGO is not a web application but a smartphone application built from a mobile-specific and tablet-oriented point of view to ensure it functions as optimally as possible on the device.

5.2.2.3 Hardware, Software, and Standards Compliance

The access required for users before operating the FINDIGO application comprises of proper internet and other specified devices. Also, it includes a clean platform with coding; this is expected to be set

using Visual Studio Code for fluent coding and more streamlined codebase. As to database, operations at the back-end are very much necessary hence MySQL Server. These resources and tools are necessary to maintain the proper functioning and smooth performance of the application. Further, the application will follow standards in the industry to ensure best performance, security, and scalability at all times during its design and deployment processes.

5.2.2.4 Interface, Data, and Security Requirements

The FINDIGO application will be developed on React Native to ensure that the application is highly responsive to the interface across those mobile devices that support its operating system. All connections will be HTTPS. It will ensure that there will be secure communication between the users and the server. Password strength will also be required both for the users and admins so that there will be high security standards across the platform. FINDIGO's mobile application will always encrypt both transference and storage of passwords, personal data, and all else, hence minimizing the possibilities of unauthorized access to the system. It will hold periodic security reviews to find potential vulnerabilities that should be fixed for the safety and integrity of the platform, coupled with its user's trust in it.

5.2.2.5 System and Performance Requirements

It is advised that the FINDIGO app runs on a system with at least 2GB of RAM and 32GB of internal storage, preferably on an SSD. The Core i3 processor or higher is suggested; however, it is not required to have a dedicated graphics card. Active internet is also a requirement so that the app functions smoothly. Ideal code for this app ensures that the perfect result delivers, and works with no issues on supported devices.

5.2.3 Goals and Guidelines

The FINDIGO system has goals and guidelines for the fulfillment of key audience needs and usability. Accessibility, speed, and ease of use will allow it to give a frictionless user experience. Guidelines on intuitive design, and efficient service delivery are priorities of both the users and service providers.

5.2.3.1 Streamline Service Discovery

The primary reason for doing so is to ease the entire process of looking for and getting local services. FINDIGO is made to increase the effectiveness of the service by making it available relevant information to users and service providers with respect to their geographical location.It also helps service providers reach a larger audience in their local area, ultimately benefiting both parties and fostering a more efficient service delivery process.

5.2.3.2 Enhance Trust and Reliability

FINDIGO would like to create a secure space for both users and owners of businesses alike. The implementation of verification processes, including email and phone number verifications, is aimed at improving the reliability of both customers and service providers, thereby improving the overall credibility of the system.Furthermore, continuous monitoring and feedback mechanisms will ensure continuous trustworthiness and accountability within the platform.

5.2.3.3 Facilitate User Interaction

The objective of the platform is to facilitate better engagement of customers with the service providers. This covers aspects such as placing service requests, providing reviews, and submitting complaints, all of which are managed under an admin. The intention is to offer a means of communication that enables the delivery of services and the resolution of problems effectively.

5.2.3.4 Service Area Customization

Business operators will be allowed to define particular geographic areas and change the services provided accordingly. This means that a user or a business can occupy a certain locality and provide services that are relevant to that locality ensuring that customers are provided with appropriate services.Additionally, this feature will enable businesses to focus on specific regions, thereby improving their ability to respond to local demands while increasing operational efficiency.

5.2.3.5 Modifiability

The development of this system will follow the KISS principle which means keep it simple, stupid. This is done in order to maintain a high degree of simplicity during the design and implementation stages and avoid introducing unnecessary complications. As a result, the code would be more understandable, manageable, and adjustable and will aid in future modifications.

5.2.3.6 Performance and User-Friendliness

FINDIGO will be designed in a manner that allows it to achieve high speed, which means users will face little delays and quick responses.The user interface will incorporate colors and design elements that are easy on the eyes, enhancing user comfort and interaction. FINDIGO will primarily support English to get to a global audience. The system will focus on providing a user-friendly interface that supports easy navigation and interaction. This includes responsive design principles to ensure compatibility of apps across various devices and admin panel across all size screens.

5.2.4 Development Methods

In the course of developing the FINDIGO system, we had considered two primary models of software development: the Waterfall model and agile Scrum methodology. We discarded the Waterfall model due to its reserved nature and the difficulty that occurs in the event one wants to make changes after the end of a phase. As we expect to have to modify the system in response to some feedback and even have multiple iterations during the course of development, the Waterfall model was not appropriate for our purposes. Rather, we chose for the Scrum framework as it provides the much-needed adaptation for our project. Scrum enables the team to work in short, defined intervals known as "sprints," where development and testing are carried out in a sequential manner. This way, we are able to adapt and improve the system as we get feedback, even in the course of its development. Furthermore, the iterative approach introduced to us by Scrum enables us to introduce the new functionalities of the system while the requirements are still in change. The process of development that we followed had several stages. It began from stage one and was also referred as the implementation stage in comprehensive research and analysis of the market for the existing solutions and the needs of the end users. With a focus on the project tool, a great deal of work was done to carry out a requirements analysis and a technological analysis. An appropriate and concisely designed interface was of high importance, as a friendly user interface is always easier to navigate by the target audience. We took design tools scheduled for the end system development and built a prototype afterward. This helped us to evaluate ideas and gather feedback for improvements in the early stage of the project. Our development model was incremental, which meant that every stage of development added to the last one allowing for constant enhancement. In the course of the project, we also prepared a great deal of documentation enabling the development process and its integrity. Thus, using Scrum and an iterative model, we managed to develop a system that is user-friendly and at the same time, it is highly efficient and flexible.

5.3 System Architecture

FINDIGO's system architecture should, therefore, support an end and admin-friendly experience as provided by its modern structure with high efficiency. The cross-platform application is to be constructed using React Native to ensure that the app integrates all the features and collaborates smoothly on the Android platforms. APIs between the mobile application and backend can provide location-based services, email verifications, and data management. Admin panel development using React.js and Node.js, it is the web interface for the system administrators to manage a user and services and thereby be able to troubleshoot the issues. The realization of backend can be depicted through the use of Node.js with MySQL wherein data processing, user management and business logic which can support effective communica-

tion about the frontend and database is being handled. This architecture supports scalability-adapting system requirements and users' growth with respect to security and performance.

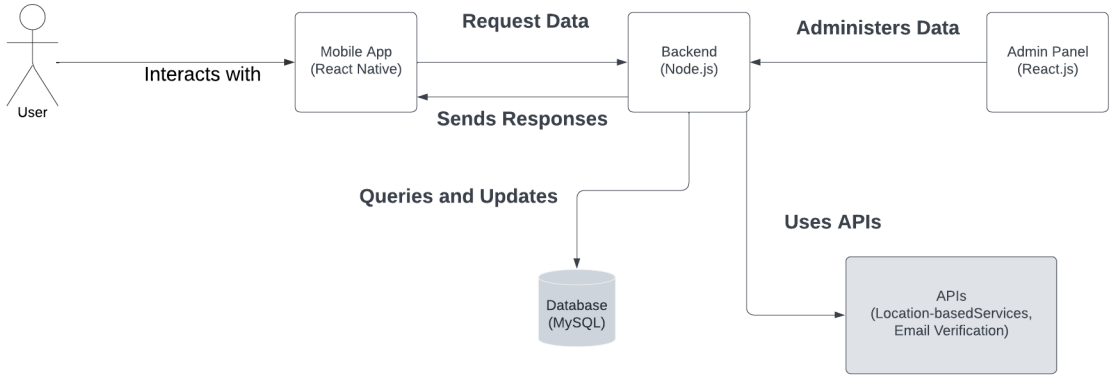

Figure 5.1: System Architecture

5.3.1 Subsystem Architecture

The FINDIGO platform architecture is divided into the subsystem architecture of the mobile app and the admin panel. The mobile app, built with React Native, is actually the main interface through which users interact with different services across Android devices. It does integrate services provided through API with the backend services so that location tracking, secure email verification, and more are guaranteed. With Node.js and MySQL as the backend, it handles user data, business registrations, and service management.

Admin panel, which is designed using React.js, is responsible for managing businesses, applications, and the activities of users through the web interface. The same back-end system used both by the application and the admin panel allows for synchronization in data; thus the front-end and back-end systems maintain efficient communication with each other. Such kinds of subsystem architectures allow for flexible, scalable, and safe interaction for the users as well as administrators with the FINDIGO platform. It becomes easy to add new services and functionalities since it grows.

The subsystem architecture of FINDIGO ensures that the mobile app and the admin panel work harmoniously to ensure smoothness for all users. The platform has a consistent and responsive interface, as it is developed with React Native for the mobile app and React.js for the admin panel. Moreover, the backend with Node.js and MySQL is powerful enough to accommodate increasing data and new service integrations for scalability and further system expansion. This architecture also supports real-time synchronization between the front-end and back-end systems to ensure accurate data flow.

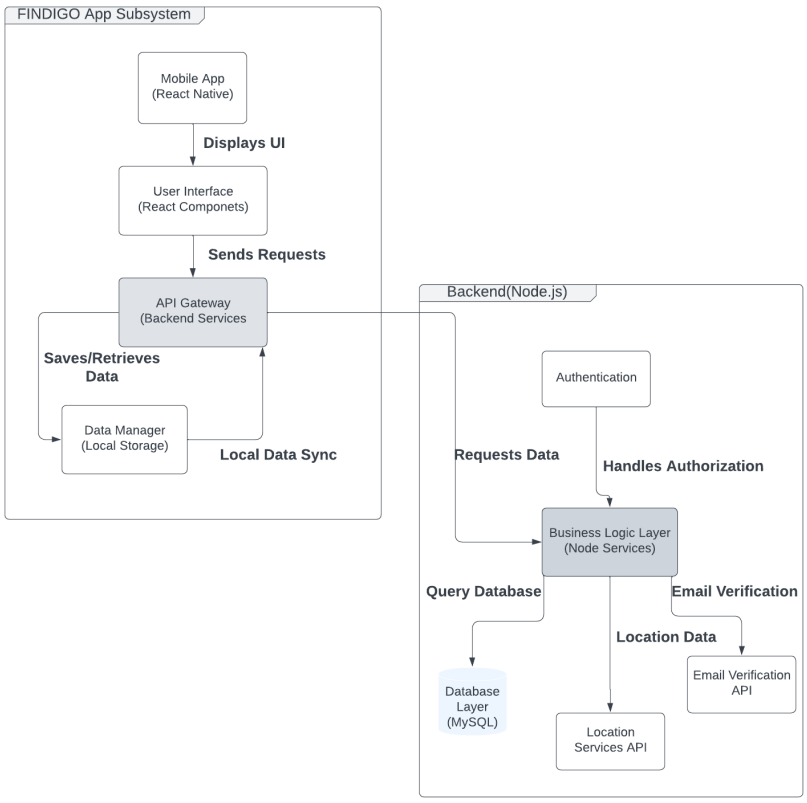

Figure 5.2: SubSystem Architecture

5.4 Architectural Strategies

Architectural strategies for developing the FINDIGO platform are built around scalability, flexibility, and security. By using a modular architecture with React Native for the mobile app and React.js for the admin panel, the system provides a responsive user interface. Node.js and MySQL in the backend support data management efficiently and real-time synchronization of data as well as smooth integration of new services as the platform evolves.

5.4.1 Programming Language and Frameworks

The FINDIGO app is based upon the use of modern technology for creating an easy and adaptive platform - thus ensuring smooth function across a diverse range of devices. When built, it was originally using React Native, which does mean that one code base supports on Android phones, automatically adapting for different screen sizes for a smooth user experience. The backend is managed by Node.js, which manages data, tracks locations, handles email verifications, and does store the information in the efficient MySQL database system.

For frontend, an admin panel and website are developed using React.js. Node.js and MySQL manage the

backend operations. Thus, the system responds very well with the adoption to computers, tablets, and smartphones. The functionality of the app has also been enhanced by APIs for location-based services and secure email verification, which allows better communication between the app, backend services, and the external systems making the system more secure and robust.

5.4.2 Product Enhancement and Extensibility

The main concept of FINDIGO is to support the growth of the business and improve the experience of the users through the provision of a wide range of services. As the system develops, businesses are allowed to cater for more services for their customers, which mean that the customers' possibilities to use different services and options continue growing. In this regard the admin panel is very important since it allows the administration to approve new businesses, manage the current services and support cycles and troubleshoot issues with users. Moreover, the admin panel helps in the introduction of new services, thus, enhancing the platform to meet the current and existing customers' demands. This model provides an uninterrupted and high-quality service to both businesses and clients, thus supporting ongoing growth and flexibility within the FINDIGO environment.

5.4.3 User-Interface Paradigm

For the Findigo app, we will follow key design rules to ensure this interface is user-friendly, and very easy to understand. We shall follow Schneider's eight golden principles to implement the rules that will lead us to developing a clean and simple design for the mobile application and the website. This implies it is easy to use for users. Thus, the app should be easy to navigate and use, without the need for any extra training or help. Our goal is to make it all clear, easy to use, the latter of which would guarantee that what the user is looking for will be found as soon as possible.

5.4.4 Concurrency and Synchronization

As for the FINDIGO app and admin panel, some smart strategies shall be employed to keep everything smoothly running. On the user side, the app shall use asynchronous operations; that is, the processes shall run in the background so that users do not have to wait around for the system to get done with loading data or making requests, for instance. This means the app will have a faster feel to it. On their part, the system will process several tasks in parallel and, on the admin interface, also using parallel processing. This has enabled the FINDIGO team to attend to many user requests and administrative tasks like granting new business applications or ascertaining complaints without making it seem like the system has come to a screeching halt. This approach makes the experience both for users and admins seamless.

5.5 Class Diagram

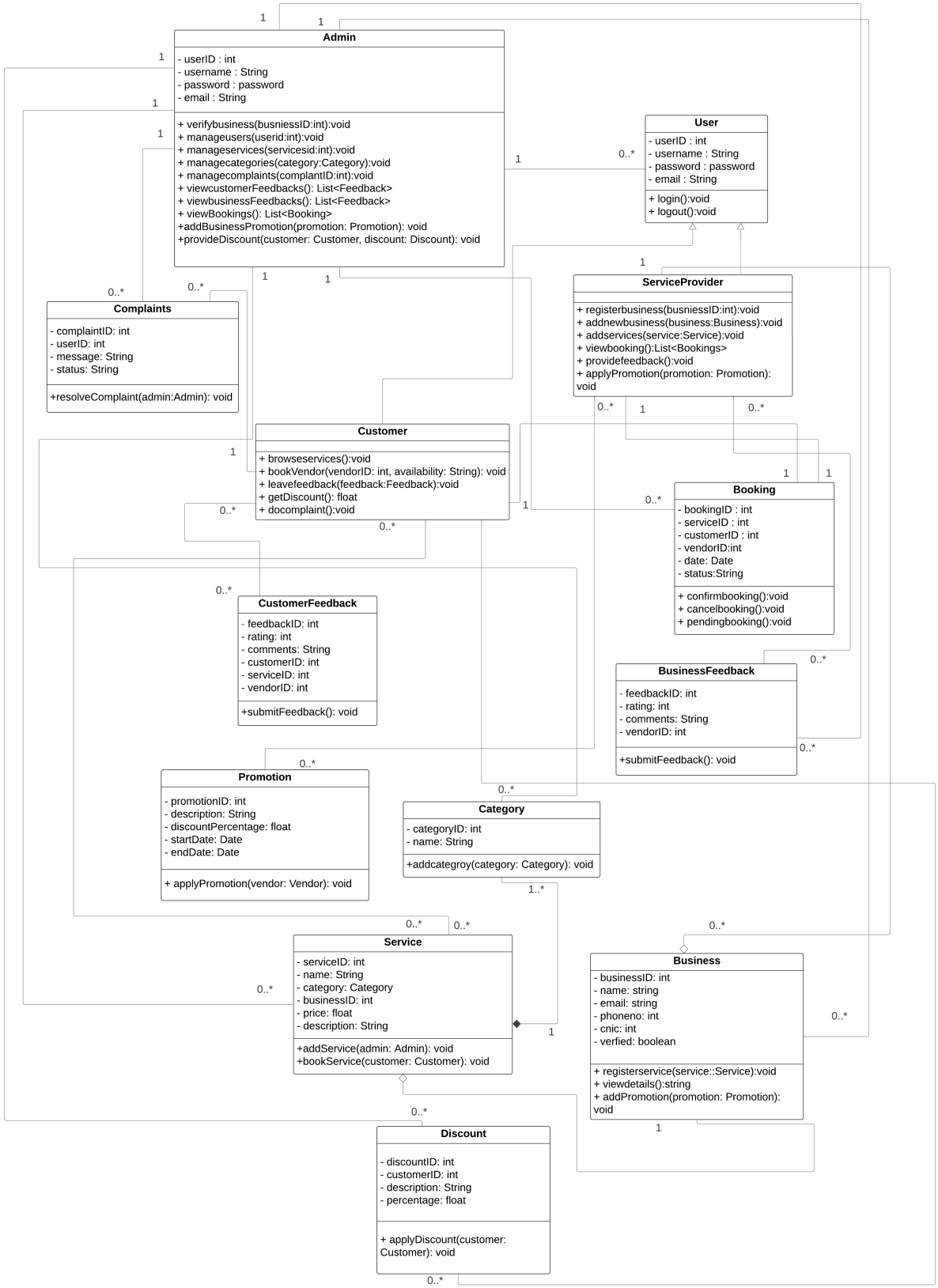

Figure 5.3: UML Class Diagram

5.6 Policies and Tactics

Here are the policies and tactics we'll use for the FINDIGO project:

5.6.1 Conventions

We will be using the MERN stack in developing the FINDIGO app, which constitutes MySQL, React Native, and Node.js. This particular stack uses JavaScript for the both the app and the admin panel. The admin panel will comprise of React.js and Node.js while the MySQL will be used in handling the data. To ascertain that everything works well, we will test the app as much as possible using tools, including Selenium.

5.6.2 Testing the Software

We will test the FINDIGO app using white box as well as black box testing approaches. This will allow us to completely check the different modules of the software and pinpoint and rectify potential errors for the best possible product.Additionally, usability testing will be conducted to ensure an user experience and app and admin panel functionality.

5.6.3 Maintenance of Software

Updates will be performed frequently on the FINDIGO software. This involves integrating new desirable functionalities and rectifying any defects or shortcomings that have been brought to notice. Regular maintenance will assist in the smooth and efficient operation of the system.

5.6.4 Vulnerability Check

We will make use of the npm audit feature, which shows the vulnerabilities that have occurred. This tool scans our dependencies of known security issues and will alert us if there are any. We can then use the fix update to the patched versions and correct these security flaws.

5.6.5 End User Interface

The FINDIGO app is designed to work seamlessly on both Android devices, providing a smooth experience for mobile users.The admin panel, however, is web-based By doing so, administrators are in a position to easily administer the system from any desktop or laptop. computer. The configuration of the system will ensure that the users have an excellent experience while using it on a mobile device while The administrator will, therefore, have access to control and use the system using their preferred web browsers.

Chapter 6 Implementation and Test Cases

In this chapter, the authors describe the general development progression of the FINDIGO platform, which is essentially what makes up the functional system framework: the core, algorithms, and workflows of the system. Implementation puts emphasis on developing the user-friendly mobile application in React Native frontend with an admin panel in React.js, implementing the backend structure in Node.js and MySQL databases for and combining APIs for location-based services and secure email verification. All these come together to make up the FINDIGO operational prototype that promises balanced maintenance of administrative functionality side by side with user convenience along with its capability to scale up, adaptability and security within its operations.

6.1 Implementation

This section describes the general development and integration of the FINDIGO platform, particularly the implementation of its key components. The system has a cross-platform mobile application for customers and businesses and website for an admin panel for managing operations. The technologies used were React Native, React.js, Node.js, and MySQL in creating a responsive, scalable, and efficient system.

6.1.1 Frontend Implementation

The FINDIGO frontend utilizes React Native for mobile application to make a responsive, user-friendly mobile application on Android. while admin panel website is based on React.js.Some of the interface of application and website explanation is given below

6.1.1.1 Customer Mobile App

The customer-facing app, developed using React Native, includes the following pages:

- Login/Signup: Supports email, phone, and password with APIs for email verification.
- Home Page: The Customer Home Page features service sliders, an ”Add Business” button for business registration, a ”Saving” button for discounts, and a footer with navigation buttons to Home, Services, Discounts, Location, and Favorites sections.
- Services Page: The Customer Service Page lists all available services, includes buttons to select a preferred service radius (5, 10, 15, or 20 km), and displays nearby vendors based on the selected radius.

- Discount Page: Lists services offering discounts based on location.
- Location Page: Shows the user's current location.
- Favorites Page: Displays saved services for quick access.
- Business View Profile:The View Business Profile page displays detailed information about the business, including offerings, ratings, and contact details, with buttons allowing users to request a service directly from the profile.
- Complain Page: Display a page where results of complains and pending complains will show.
- Customer Profile: User can view and able to edit its profile.

6.1.1.2 Business Mobile App

The business-facing app, also built with React Native, includes:

- Business Login Page: Allows business users to log in using their email or phone number.
- Business Sign-Up Page: Enables new businesses to register by providing their email, phone, password, and selecting the services they want to offer and fill the detail.
- Business Home Page: Displays all service requests received from customers in an organized list.
- Business View Profile: Displays all the service of the vendor which are offering,their price and location.

6.1.1.3 Admin Panel

The admin panel, developed using React.js, features:

- Business approval Page:The Admin Business Approval Requests page displays a list of all pending business approval requests, with buttons to view details, approve, or reject each request.
- Complaint Resolution Page: It lists all customer complaints and includes a resolve button to address the complaints, updating the resolution status visible to the customer.
- Add Services Page: It allows the admin to add new services, which are then made visible to customers in the app.
- Business Details Page: Display all the businesses which are registered and their informations.
- Feedback Page:Display all Customers and vendors feedbacks.
- App Services Page: Display all the services which are offering in the application.

6.1.2 Backend Implementation

The backend of FINDIGO is written in Node.js and MySQL, so it supports some of the important operations like authentication of users, data management, and API integration. It thus ensures secure processing of business registrations, service tracking, and interaction with the frontend. The architecture of the backend is also developed to be scalable and robust for performance.

6.1.2.1 User Authentication

The User Authentication component uses Firebase Authentication to secure user accounts and simplify the login process. This feature supports authentication methods including email and password, as well as third-party logins like Google and Facebook. It ensures that all user data is securely managed and provides easy access to user-specific features and settings, enhancing the overall security and user experience of the Findigo application

6.1.2.2 Service Provider Data Management

Service Provider Data Management utilizes Firebase Firestore to enable the management of service providers' profiles and services that they offer, so this system stores extensive provider profiles and listings of their services and makes them easily accessible to users. It supports real-time updates and queries and facilitates dynamic interactions between the application and its backend database, so the data is always current and accurate.

6.1.2.3 Geolocation Integration

The Geolocation Integration feature employs the Google Maps API to enable users to find services within their specified radius. This component is crucial for tailoring service searches to user locations, enhancing the app's utility by filtering service options that are within a convenient distance. This not only improves the user experience by providing relevant results but also optimizes the operational efficiency of service providers.

6.1.2.4 Booking and Scheduling System

The Booking and Scheduling System is designed to handle and organize appointments between users and service providers on the Firebase Realtime Database. It simply manages the logistics of booking requests whereby the appointments get scheduled without conflicts and are also synchronized across both user and provider calendars. The system is hence key in making sure a reliable scheduling process occurs, yet this process is transparent to both the user and the service provider

6.1.2.5 User Data Storage

The backend consists of a MySQL-based safe User Data Storage System, which stores user profiles, preferences, and interaction histories. This ensures data consistency, allowing for personalized experiences and services by allowing users to access services tailored to their needs. Organizing and indexing user data efficiently also supports quick retrieval and updates, which enhance overall performance. It has powerful security mechanisms within its designs to protect users' rights and privacy. Also, from the perspective of central storage, it helps allow seamless communication between the components of the system and its back, such as the booking application and geolocation.

6.1.2.6 Admin-Customer-Business Link

Admin-Customer-Business Link is the backbone of the operational framework of FINDIGO. This is a point where all the key stakeholders are connected through a single interface. Administrators get the facility to track what users and providers are doing, handle complaints, and help the platform run smoothly. This directly gives customers a channel for seeking help and providing feedback. It also provides business scope to manage their profile, respond to reviews, and answer queries. It is helpful in maintaining a smooth workflow by allowing communication and collaboration in real-time, thus building trust and transparency. It also allows for automated notifications and updates of important activities like bookings and promotions

6.1.2.7 Recommendation System

FINDIGO's backend has an advanced Recommendation System that provides suggestions for services based on reviews, proximity, and user preferences. This system analyses the reviews and ratings of users to point out the best service providers in order to ensure that recommendations are trustworthy and reliable. It also integrates geolocation data to prioritize services closest to the user's current location, improving convenience and accessibility.

6.1.2.8 Feedback and Review Management System

The Feedback and Review Management System is key in creating transparency and ensuring that users and service providers develop trust. This ensures that customers can rate the experience they have had. It allows them to have very detailed feedback and recommend different ways of improving. Providers can look at reviews, address them if necessary, or compliment a user for their great idea. Feedback data is aggregated and analyzed to maintain service quality. This helps administrators identify recurring issues or exemplary performances.

6.1.3 Integration of Frontend and Backend

The integration of the frontend and backend in Findigo is made possible by RESTful APIs. This allows for communication to take place between mobile applications of both customers and businesses with the admin panel, hence the backend server. The APIs allow seamless processes such as user authentication and location-based service filtering.The frontend makes requests to the backend for user authentication, service data retrieval, location-based services, and complaint resolution. The backend will then query the MySQL database for processing the requests; critical data such as user credentials, services, complaints, and business information is stored there. After processing by the backend, the relevant data is sent back to the frontend. Customer applications, for instance, request service data based on location; the backend filters the results before returning them. Further, the admin panel resolves complaints for business approval and complaints against the status of which. Admin is talking directly to the backend; these records are managed as well as updated in real-time. This smooth conversation between the frontend and the backend ensures a unified experience of the user on that platform.

6.1.4 Prototype Description

The FINDIGO prototype contains both a mobile app and an admin panel, thus making it good user experience. The mobile app built with React Native gives the customers and businesses an clear and responsive interface, hence easy interaction across Android devices. The sections include services, discounts, location, and favorites. It also features location-based filters and direct service requests. On the other hand, an admin panel built with React.js presents a very streamlined interface to handle business approvals, complaints from customers, and addition of services. Admin panel integrates very well with the mobile app and is also used for real-time updation and proper management of user and business data. Both these platforms offer a seamless experience as mock APIs simulate key functions when a full backend is not there.

6.1.5 Conclusion

In conclusion, the FINDIGO platform is designed to make it easy for people to find and book local services quickly,easily and efficiently. By using features like geolocation(current location), real-time bookings, and secure user authentication, it offers a smooth and user-friendly experience for users. The platform helps small businesses get more visibility and attract new customers, while also making the process simple and secure for users. With both the customer and business apps, along with an admin panel for managing operations, FINDIGO is a well-rounded solution that improves how people connect with local services.

Chapter 7 Conclusion and Future Work

7.1 Conclusion

The FINDIGO mobile application and the admin panel website have passed the initial development stages successfully and established the basis for a more effective and user-friendly interface bridging the gap between service providers at local levels and customers. The mobile app, which is built on React Native,can work on Android. The admin panel, which is developed using React.js, also provides smooth navigation to the administrators who are supposed to supervise the whole functionality of the platform.
The FINDIGO mobile application provides an easy user experience both for the customers and the businesses. The customer can easily register, get a list of services, contact service providers, and submit complaints if need be to ensure proper communication with the administrators. while Business-side FINDIGO provides streamlined interfaces for local service providers to manage their operations efficiently. Businesses can register, create profiles, list services, and manage customer requests. This function enables service providers to deal with incoming service requests, and fulfill orders in an efficient manner so that the interaction between the service provider and the customer is smooth and timely. The responsive design of the app ensures that businesses can easily interact with customers, thus improving service delivery and increasing their market reach. Responsiveness and accessibility of the platform make it easier for customers and businesses alike.
On the other hand, the admin panel allows administrators to manage business registrations, customer complaints, and service requests. It allows administrators to add new services for the customers. This is a great way to maintain smooth backend operations that help in managing services and interactions with users. The RESTful APIs ensure the smooth integration of the backend with the frontend, providing a secure data exchange and smooth functionality for optimal performance throughout the platform.
The FINDIGO system uses multiple technologies for proper functionality between the mobile app and the admin panel. In this, the mobile app is built with React Native, on Android operating system. On the other hand, the admin panel is designed with React.js, allowing the administrator an easy and friendly interface while managing the services and engaging with the customers. The backend is Node.js, which manages the logic and operations on the server-side, while the database management is done using MySQL to ensure that user information and business information are saved efficiently and securely. API is used for current location tracking and email verification.Therefore, this application allow customers to easily access and book services, while helping vendors expand their reach to local customers, enhancing their business growth

7.2 Future Work

In FYP-1, we completed the UI/UX design for both the mobile app and admin website, ensuring they are user-friendly, and finished most of the documentation. In FYP-2, we updated the documentation and developed the frontend for both the admin panel and mobile app (for customers and businesses), integrating features like authentication, live location tracking, and email verification APIs. We also connected the database to the admin panel and designed the database for efficient data storage in the mobile app.

The remaining tasks are to connect the database to the mobile app, ensuring proper data retrieval and storage, and to establish smooth communication between the customer side, business side, and admin panel for seamless data exchange and functionality. Approximately 80-85% of the work is completed, with the remaining 15-20% focusing on backend integration and ensuring seamless communication.

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