

Development of an Android Application for the rental of your location

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project/internship titled “**Development of an Android Application for The Rental Network of Your Location**”, submitted by K. M. Nasir Uddin Hridoy, ID No:191-15-2471 and Md Reduan Shahriar, ID No:191-15-2365 Student ID to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on *January 2023*.

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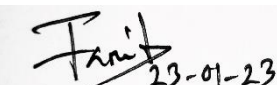
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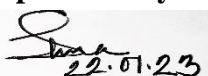
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We hereby declare that, this project has been done by us under the supervision of **Ms. Taslima Ferdaus Shuva, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

Home Rent System is an android application which allows users to quickly find and rent homes. It offers a comprehensive search feature that allows users to search for homes based on their specific needs. Here a user can control both the tenants and the home owner. The app also offers detailed information about each property, including photos, floor plans, amenities, and estimated rental prices. Additionally, users can book and pay for a home through the app, making it easy to secure a rental home. Home Rent System also provides a convenient way for homeowners to list their properties for ren. This Android project is a Home Rent System which aims to simplify the renting process of houses and apartments. It is designed to help both landlords and tenants to manage their rental agreements, schedule payments and communicate with each other. The system provides a comprehensive toolset which allows landlords to list their properties, search for suitable tenants, and keep track of rental payments. Tenants can also use this system to search for rental properties, view details, and communicate with landlords. The system also allows both parties to securely store and transfer documents and payment information. With this system, landlords and tenants can easily manage their rental agreements, making the process of renting a home or apartment faster, easier, and more secure.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The development of an Android application for the rental network of a specific location can greatly benefit both property owners and renters. Such an app can streamline the rental process, making it easier for individuals to find and secure the perfect rental property, and for property owners to manage their rentals and reach a wider pool of potential tenants.

The first step in developing an Android app for the rental network of a specific location is to conduct market research. This involves understanding the needs and preferences of both property owners and renters in the target location. This can be done through surveys, focus groups, and other forms of research. By understanding the needs of both parties, the app can be designed to meet their specific needs and preferences.

Next, it is important to identify the key features that will be included in the app. These features will depend on the specific needs and preferences of the target market, but some common features may include:

A property search function that allows users to filter properties based on location, price, size, and other criteria.

1. A messaging system that allows property owners and renters to communicate with each other
2. A calendar system that allows property owners to manage bookings and availability
3. A payment gateway that enables renters to securely pay rent and deposit fees
4. A review system that allows users to rate and review properties and property owners

Once the key features have been identified, it is time to begin the design and development process. This typically involves creating wireframes and prototypes to visualize the user interface and user experience, as well as developing the back-end infrastructure to support the app's functionality. It is important to ensure that the app is user-friendly, visually appealing, and intuitive to use.

During the testing phase, the app should be thoroughly tested on a variety of devices to ensure that it is stable and performs well. This may involve conducting user testing to gather feedback and identify any issues that need to be addressed.

Once the app is fully developed and tested, it can be launched and made available to the public through the Google Play Store. To ensure the app's success, it is important to have a strong marketing strategy in place, which may include social media advertising, search engine optimization, and other forms of online marketing.

Overall, the development of an Android app for the rental network of a specific location can greatly improve the rental process for both property owners and renters. By streamlining the process and providing a convenient platform for communication and payment, the app can make it easier for individuals to find and secure the perfect rental property, and for property owners to manage their rentals and reach a wider pool of potential tenants.

1.2. Motivation

As a developer, I am always looking for new and exciting projects to work on. When I heard about the opportunity to develop an Android application for the rental network of my location, I was immediately motivated to get involved.

One of the biggest motivators for me is the opportunity to create something that will be used and appreciated by others. The rental network in my area is used by a large number of people, and being able to contribute to the development of an application that will make their lives easier and more convenient is extremely rewarding.

Another motivation for me is the opportunity to use my skills and knowledge to solve real-world problems. Developing an Android application for the rental network will require me to use my expertise in programming and app development to create a user-friendly and efficient tool that meets the needs of the community.

Furthermore, working on this project gives me the chance to learn and grow as a developer. The rental network is constantly evolving, and developing an Android application for it will require me to stay up-to-date with new technologies and best practices. This will not only help me to improve my skills and knowledge, but it will also give me the opportunity to explore new areas of development and potentially discover new passions.

Overall, the development of an Android application for the rental network of my location is a project that I am extremely motivated to work on. It gives me the chance to create something useful and appreciated by others, solve real-world problems, and learn and grow as a developer. I am excited to be a part of this project and can't wait to see the positive impact it will have on the community.

1.3 Objectives

The main objective of developing an Android application for the rental network of our location is to provide a convenient and efficient platform for individuals to rent out their homes, apartments, and other properties to interested tenants. Through this application, we aim to streamline the process of finding and booking rental properties, making it easier for both landlords and tenants to find suitable accommodations.

One of the key objectives of this project is to increase the visibility and accessibility of rental properties in our location. By providing detailed information about available properties, including photos, descriptions, and pricing, we hope to attract a wider range of potential tenants to the rental network. We also aim to improve communication between landlords and tenants by providing a platform for direct messaging and booking requests.

Another important objective is to enhance the overall user experience for both landlords and tenants. We plan to implement user-friendly features such as a user-friendly interface, easy navigation, and quick search capabilities to make the process of finding and booking rental properties as smooth as possible.

Finally, we aim to create a secure and trustworthy platform for individuals to rent out their properties. We plan

to implement strict verification processes for both landlords and tenants to ensure that all parties involved in the rental network are legitimate and reliable.

In summary, the main objectives of developing an Android application for the rental network of our location are to:

1. Increase the visibility and accessibility of rental properties
2. Enhance the overall user experience for landlords and tenants
3. Improve communication between landlords and tenants
4. Create a secure and trustworthy platform for individuals to rent out their properties

1.4 Expected Outcome

The expectation from this application is discussed below in short:

1. Increased efficiency in managing and organizing rental information for the network.
2. Improved communication between renters and property owners.
3. Increased convenience for renters in searching and booking rental properties.
4. Ability to easily track and manage rental payments.
5. Enhanced security for both renters and property owners through secure payment processing and verification processes.
6. Increased visibility and accessibility of the rental network through the use of a mobile application.

CHAPTER 2

BACKGROUND

2.1 Terminologies

The development of an Android application for the rental network of our location has been a long-term project that has undergone various stages of planning and execution. The initial idea for the application came about due to the increasing demand for a more efficient and convenient way for renters to search for and connect with landlords and property managers in our area.

To begin the development process, a team of experienced software developers and designers was assembled to work on the project. The team conducted extensive market research to understand the needs and preferences of renters in our location, as well as to identify the most effective features and functionalities for the application.

The team also worked closely with a group of focus testers to ensure that the application was user-friendly and intuitive for all users. This included designing a clean and simple interface, as well as implementing features such as in-app messaging and location-based searching to make it easier for renters to find properties in their desired location.

The development process also involved extensive testing and debugging to ensure that the application was fully functional and stable upon its release. This included testing on various devices and platforms to ensure compatibility, as well as conducting user acceptance testing to ensure that the application met the needs and expectations of renters.

Overall, the development of the Android application for the rental network of our location has been a complex and challenging process, but we believe that the end result will greatly benefit renters in our area by providing them with a more convenient and efficient way to search for and connect with landlords and property managers.

2.2 Related Works

There are several examples of related work in the field of rental network applications for Android devices. One such example is the Zillow Rentals app, which allows users to search for rental properties, submit rental inquiries, and negotiate with landlords through the app. Another example is the Airbnb app, which allows users to search for and book short-term rentals, as well as communicate with the host. Another relevant example is the Rent.com app, which allows users to search for rental properties, submit rental applications, and pay rent through the app. This app also includes features such as a roommate finder and a maintenance request system.

In terms of more specialized rental network apps, the Cozycozy app is a property management platform that allows landlords to list properties, communicate with tenants, and manage payments and maintenance requests through the app. Similarly, the Tenant Cloud app is a property management platform that allows landlords and tenants to communicate and manage the rental process, including payment and maintenance requests.

Overall, these examples demonstrate the various ways in which Android applications can be used to facilitate the rental process, and provide inspiration for the development of a rental network app for a specific location.

2.3 Comparative Studies

We have observed some similar kinds of apps for comparing with ours and tried to solve these problems in our app as much as possible. With “BD To-let” comparing study has shown below:

Table 2.3: Comparison between Our App and Related Apps

Mobile Application	Application Name	Key Features	Pros and Cons
Application	BD To-let	User Friendly	Costly
Our	Perfect Home	Easy and Smooth	Less Cost

2.4 Scope of the Problem

The development of an Android application for the rental network of our location is a crucial project that will address several problems currently faced by the rental industry. One of the main problems is the lack of a central platform for listing and booking rental properties. Currently, rental properties are listed on various websites and platforms, making it difficult for renters to compare prices and amenities. This results in a fragmented market with high transaction costs for both renters and property owners.

Another problem is the lack of transparency and trust in the rental process. Many renters have had negative experiences with fraud or scams when booking properties online. This has led to a lack of trust in the rental industry, which is detrimental to the growth and success of the industry.

The development of an Android application for the rental network of our location will solve these problems by providing a central platform for listing and booking rental properties. It will also introduce several features that will increase transparency and trust in the rental process, such as verified property listings, real-time availability, and secure payment options.

The scope of this project will include the design and development of the Android application, as well as the integration of various features and functionality. It will also involve the testing and deployment of the application to ensure that it meets the needs and expectations of both renters and property owners. Overall, the development of an Android application for the rental network of our location will greatly improve the rental industry by providing a more efficient and trustworthy platform for booking and managing rental properties.

2.5 Challenges

1. Developing a user-friendly interface for the Android application that is easy to navigate and understand for users of all ages and technical backgrounds.
2. Ensuring compatibility with a wide range of Android devices, including tablets and smartphones of different sizes and operating system versions.

3. Integrating the application with the rental network's existing database and payment systems to allow for seamless reservations and transactions.
4. Implementing security measures to protect user data and prevent unauthorized access to the application.
5. Creating a notification system to alert users of important updates and new rental listings.
6. Implementing features that allow users to search and filter rental listings based on location, price, and availability.
7. Integrating social media integration to allow users to share their rental experiences with their friends and followers.
8. Adding a review and rating system to allow users to leave feedback on their rental experiences.
9. Implementing a messaging system that allows users to communicate with rental property owners and managers.
10. Developing a loyalty program that rewards frequent users of the rental network with discounts and perks.
11. Adding a feature that allows users to save their favorite rentals and receive updates on availability and price changes.
12. Implementing a virtual tour feature that allows users to view 360-degree images of rental properties before booking.
13. Adding a map feature that shows the location of rental properties in relation to nearby attractions and amenities.
14. Implementing a calendar system that allows users to see the availability of rental properties in real-time.
15. Adding a feature that allows users to make reservations for activities and services in the area, such as tours and restaurant reservations.
16. Developing a chatbot that can answer frequently asked questions and assist users with booking and reservation inquiries.
17. Implementing a referral program that rewards users for inviting friends and family to join the rental network.
18. Adding a feature that allows users to track their rental history and upcoming reservations.

19. Developing a virtual assistant that can help users plan their vacations and suggest activities and rentals based on their interests and preferences.
20. Implementing a system that allows users to earn rewards for completing surveys and providing feedback on their rental experiences.

2.5.1 User Friendly

User friendliness is a crucial aspect of any successful application. In the development of an Android application for the rental network of a specific location, it is essential to ensure that the app is easy to use and navigate for all users.

One way to ensure user friendliness is to make the app visually appealing with a clean and intuitive design. This includes using clear and concise language and providing easy-to-follow instructions for users to follow. Additionally, it is important to consider the needs of different users, such as those with disabilities, and ensure that the app is accessible to them. Another key aspect of user friendliness is providing a smooth and seamless user experience. This means that the app should be responsive and free of bugs or glitches that can hinder the user's ability to navigate the app effectively. It is also important to include features that make the app more convenient for users, such as the ability to save and share listings, view past rentals, and make payments securely.

By focusing on user friendliness in the development of an Android application for the rental network of a specific location, it is possible to create an app that is both functional and enjoyable for users to use. This can ultimately lead to increased user satisfaction and engagement, making it a valuable asset for the rental network.

2.5.2 Use Internet Connection

To use our system, internet connection is required for some specific feature. It will provide less cost to tenant.

2.5.3 Keeping the name in Bangla Version

We have collected our data which is English version, which is not efficient for all user. Still, we can't convert it Bengali version.

2.5.4 Accurate Result

Our application always gives the accurate result because it depends how much accurate you input your details on our application. Accurate results are crucial for the success of the development of an Android application for the rental network of a specific location. In order to ensure the accuracy of the results, several key factors must be considered. Firstly, the data collected for the statistical analysis must be reliable and representative of the user population. This may involve the use of random sampling techniques and the implementation of robust data collection protocols. Secondly, the statistical analysis must be conducted using appropriate statistical methods and techniques, to ensure that the results are valid and reliable. Finally, the results of the analysis must be properly interpreted and communicated, to ensure that they are

accurately understood and effectively utilized by stakeholders. By carefully considering these factors, the development team can ensure that the results of their research are accurate and useful, and can inform the ongoing development and refinement of the application.

CHAPTER 3

METHODOLOGY

3.1 subject and specification

The subject for the development of an Android application for the rental network of a specific location is focused on improving the convenience and efficiency of the rental process for both the landlord and the tenant. The main objective of this research is to design and implement an application that can facilitate the communication and negotiation between the landlord and the tenant, as well as streamline the payment and maintenance processes.

The specification of this research involves several key components. Firstly, the application should be able to allow the landlord to post listings of available properties, including detailed information such as location, size, and price. Secondly, the application should provide a platform for the tenant to search and filter properties based on their preferences and budget. Thirdly, the application should allow the tenant to submit rental inquiries and negotiate with the landlord through a messaging system. Finally, the application should facilitate the payment process, including the ability to securely transfer rent payments and security deposits.

Overall, the development of this Android application has the potential to significantly improve the rental experience for both the landlord and the tenant, by providing a convenient and efficient platform for communication and negotiation. This research has the potential to make a significant impact on the rental market in a specific location, and could potentially be adapted for use in other locations as well.

3.2 Data Acquisition

The data input from users will be a crucial aspect of the development of an Android application for the rental network of a specific location. This data will be used to populate the listings of available properties and to facilitate the communication and negotiation between the landlord and the tenant.

The data input from users will include both mandatory and optional information. The mandatory information will include the basic details of the property, such as the location, size, and price. This information will be required in order to post a listing on the application. The optional information will include additional details about the property, such as the amenities and features, as well as photos and descriptions. This information will be provided at the discretion of the landlord and will be used to attract potential tenants.

In addition to the data input from landlords, the application will also require data input from tenants. This will include the search criteria for properties, such as the location, size, and budget. This data will be used to filter the available properties and present the most relevant options to the tenant. The tenant will also be required to provide basic information about themselves, such as their name and contact details, in order to submit rental inquiries and negotiate with the landlord.

Overall, the data input from users will be a vital component of the Android application, and will be used to facilitate the rental process and improve the convenience and efficiency for both the landlord and the tenant.

3.3 Statistical Analysis

The statistical analysis for the development of an Android application for the rental network of a specific location will be focused on evaluating the effectiveness and usability of the application. The main objectives of this analysis will be to determine the level of satisfaction among users, the frequency of use, and the overall impact on the rental process.

The specification of this analysis will involve several key components. Firstly, the analysis will involve the collection of user feedback through surveys and focus groups, to determine the level of satisfaction with the application and identify any areas for improvement. Secondly, the analysis will involve the analysis of usage data, including the frequency of use and the number of properties rented through the application, to assess the impact on the rental market. Thirdly, the analysis will involve the comparison of rental data before and after the implementation of the application, to evaluate the overall impact on the rental process.

Overall, the statistical analysis of this Android application will provide valuable insights into the effectiveness and usability of the application, and will inform future development and refinement of the application. This analysis will also provide valuable data for stakeholders, such as landlords and tenants, to understand the impact of the application on the rental market and to make informed decisions about the use of the application.

3.4 The Landlord Diagram

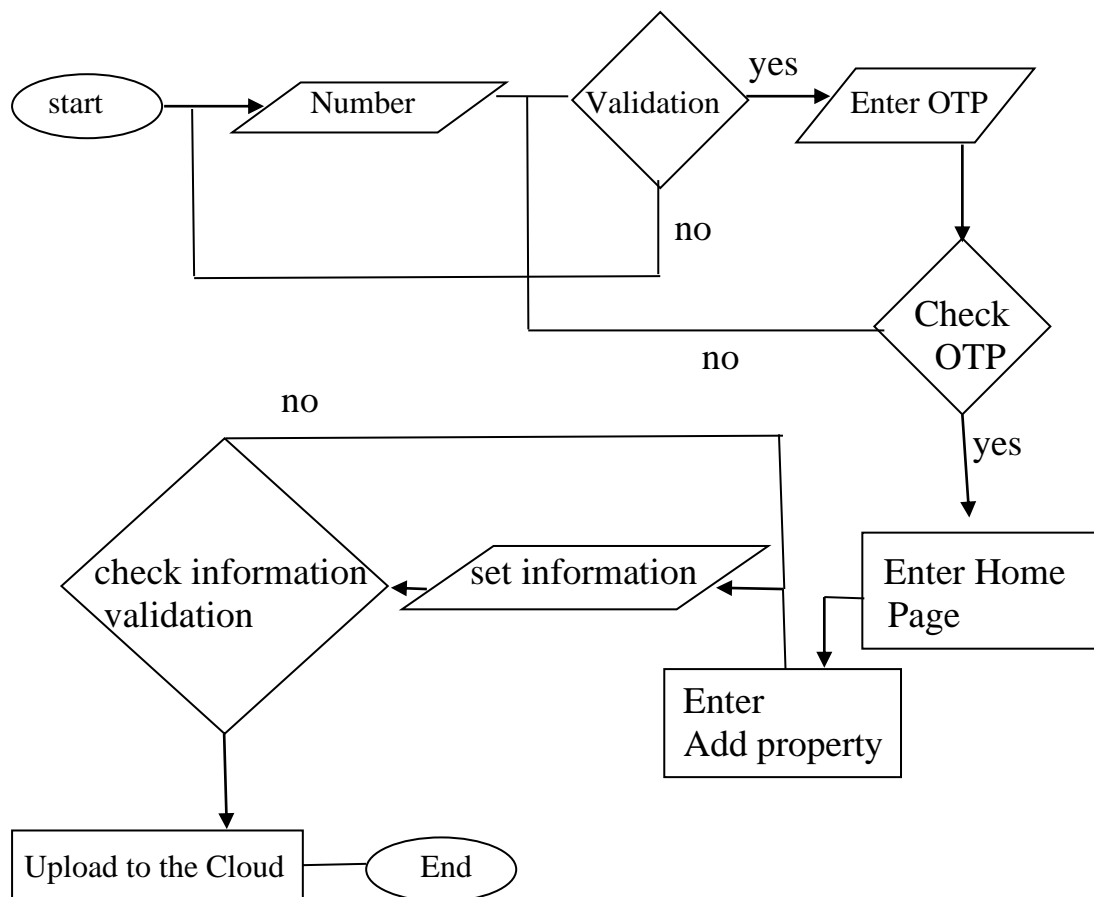


Diagram: 3.4 Landlord Diagram

3.5 Tenants Diagram

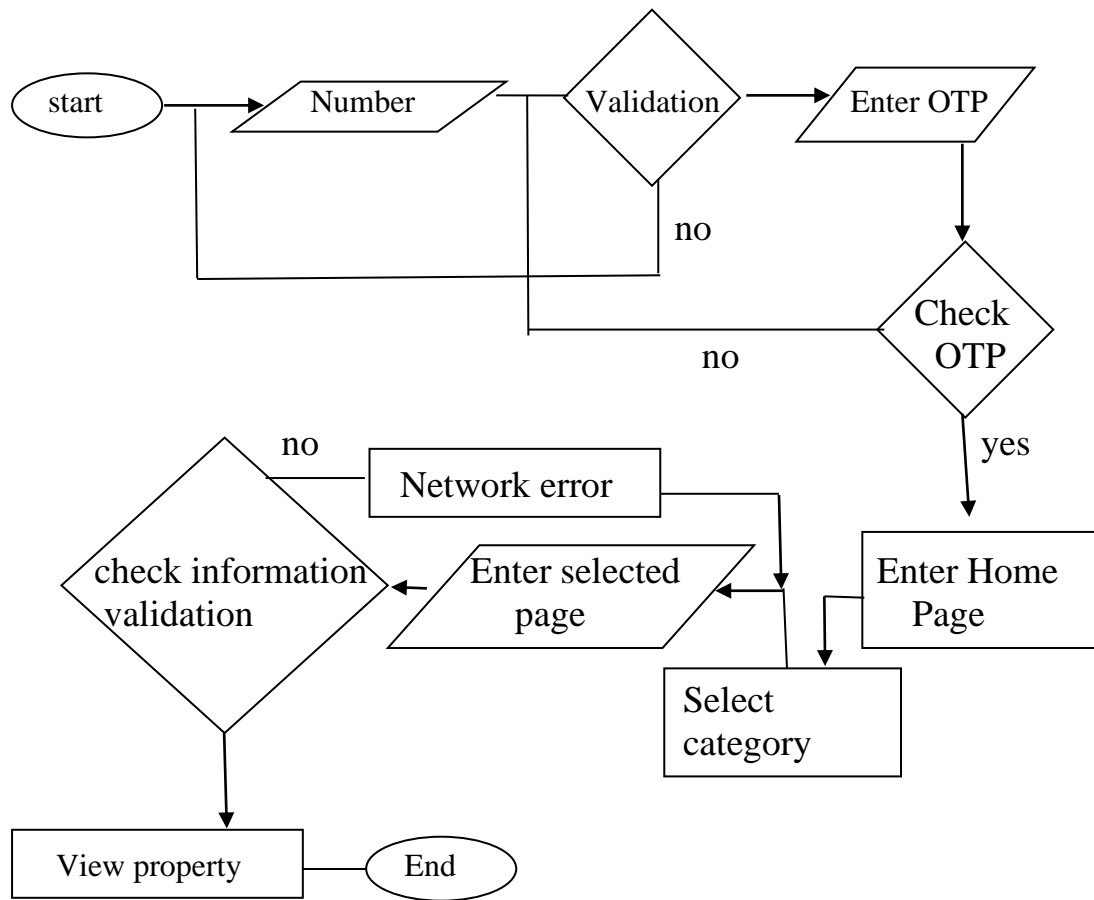


Diagram: 3.5 Tenants Diagram

CHAPTER 4

REQUIREMENT COLLECTION AND ANALYSIS

4.1 Business Process Modeling

Business procedure modeling is a technique for identifying possible improvements in a business procedure or work process. It is an important part of Business Process Management because it visually displays the sequence of business activities and information flows required to complete a process.

4.2 Requirement Collection and Analysis

The requirement collection and analysis phase are a crucial step in the development of an Android application for the rental network of a specific location. This phase involves the identification and evaluation of the needs and preferences of the stakeholders, including landlords and tenants, to ensure that the final product meets the desired requirements. The requirement collection phase involves several key activities. Firstly, it involves the identification of the stakeholders and their needs and preferences through interviews, focus groups, and surveys. Secondly, it involves the identification of the functional and non-functional requirements of the application, including the features and capabilities that the application should have. Thirdly, it involves the identification of the constraints and limitations of the application, such as technical and financial constraints. The requirement analysis phase involves the evaluation and prioritization of the requirements collected in the previous phase. This phase involves the use of tools and techniques such as requirement traceability matrix and impact analysis to assess the impact of each requirement on the final product. The requirement analysis phase also involves the identification of any conflicts or gaps between the requirements and the capabilities of the application, and the development of strategies to address these conflicts or gaps.

Overall, the requirement collection and analysis phase play a crucial role in the development of an Android application for the rental network of a specific location. It ensures that the final product meets the needs and preferences of the stakeholders and is feasible and viable within the constraints and limitations of the project.

4.2.1 Access to the app

- Tenant and landlord directly can access the app. Need to log in.

4.2.2 Take image

- It takes image from landlord when the user adds his property details.

4.2.3 Upload Data to server

- After adding data directly uploaded on firebase server.

4.3 Use Case Modeling and Description

A use case diagram is given below where the interaction is shown between user and system. Also, the diagram specifies the users' goals and the system's expected behavior.

Table 4.3.1: Use Case of Tenant

Use case name	Use Case of Tenant
Actor	Tenant
Description	The tenant will search and find his rental service.
Pre-conditions	Must have to authentic and create account through our application
Standard flow	1. Open the app. 2. Log in to account 3. Search the rental service 7. Get the appropriate result

4.4 Design Requirements

Some requirements are given below that have been implemented in our project.

1. User-friendly App.
2. Identify rental service accurately.
3. User can use only network connection to see the result.
4. Initial subscription.
5. Easy to use Application.

CHAPTER 5

DESIGN SPECIFICATION

5.1. Java.XML

For the implementation of our android user interface, we have worked on java.xml to establish the systematic structure of our app. Using this, we can write descriptions for different sorts of data to have the data behave in different ways using Java programming code, and then utilize and update those descriptions.

5.2 Back-End Design

For the back-end design of our application, we have worked on the Firebase. With the help of firebase, we can write our code and run it on any platform. It is an excellent solution for mobile application development.

5.2.1 java. Main

For the back-end design, it is an excellent backend development technology. Because it is more feasible and at the same time it permits the server to execute several instances.

5.3 Interaction Design and UI/UX

UI design is commonly used to refer to graphical user interfaces. For a better client experience and expectation, it is the most important aspect.

5.3.1 Splash Screen



Fig 5.3.1 Splash Screen

5.3.2 Home Page



Figure 5.3.2: Home Page

5.3.3 Search



Figure 5.3.3: Search

5.3.4 Add Property



Figure 5.3.4: Add Property

5.3.5 Add to Cart



Figure 5.3.5: Add to Card

5.3.6 Communicate Us

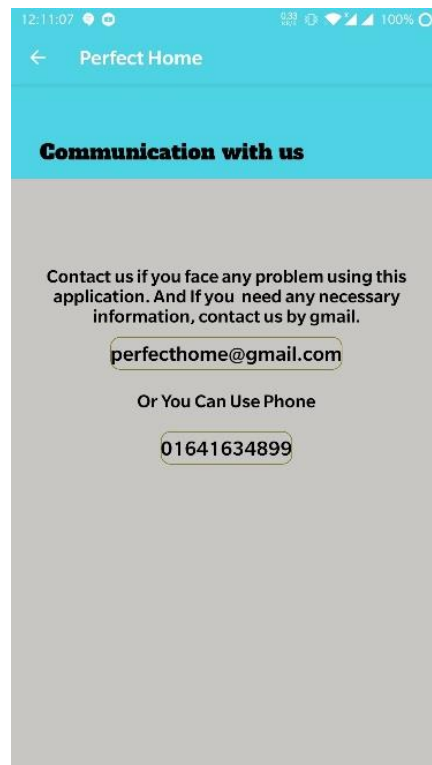


Figure 5.3.6: Contact Us

5.3.7 Navigation Drawer

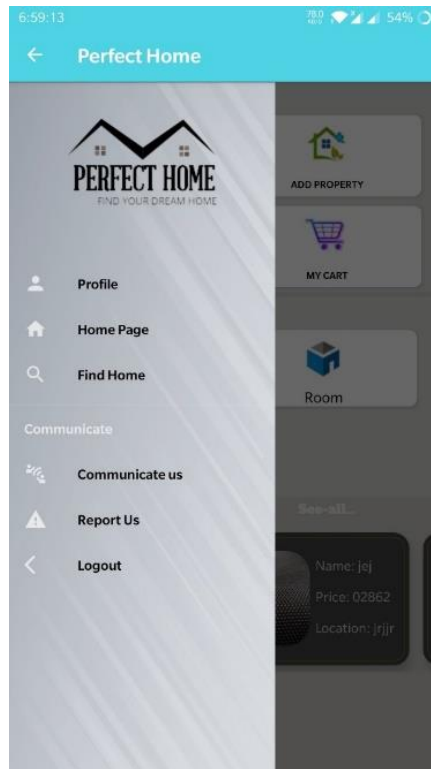


Figure 5.3.7: Navigation Drawer

5.3.8 Payment Gateway

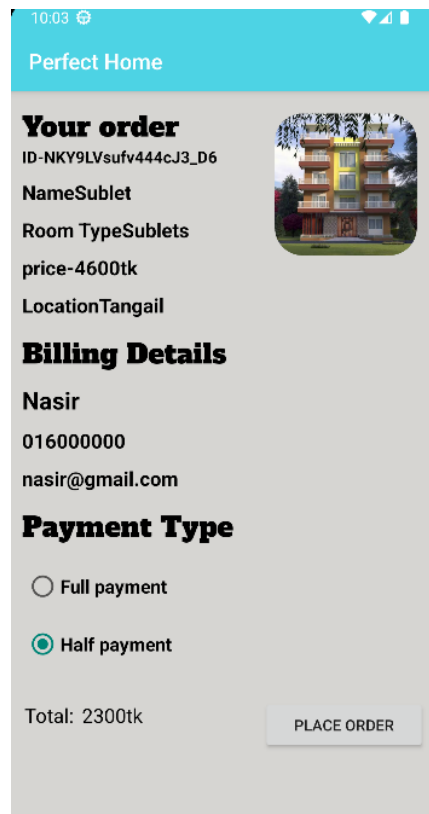


Figure 5.3.8: Payment Gateway

5.3.9 Profile



Figure 5.3.9: Profile

CHAPTER 6

TESTING & IMPLEMENTATION

6.1 TESTING IMPLEMENTATION

To be sure that the application works perfectly, we have done a series of tests on our project. Several tests are presented below to indicate the application's absolute readiness to function.

Table No 6.1.1 Testing

No	Tested Case	Expected Out Come	Actual Out Come	Result
1	Entre The Apps	Splash Screen, Home Page Comes Up	Splash Screen, Home Page Comes Up	Add property information
2	Click On the Button	Another activity will open for taking the pictures	Another activity will open for taking the picture if the user can click the button Properly	Search rental details
3	Take Image	Open Camera of Mobile.	Open Camera of Mobile.	Add to property image
4	Done	Show House, Price, Details, Location	Show House, Price, Details, Location Show House, Price, Details,	See the price

6.2 Test Results and Reports

Table 6.2.1: Test the Site Navigation

Test Case	Test Data	Result
Home	Check-in different device	image slider works perfectly
Categories	Check-in different device	Can search for different type service
Hotline	Check-in different device	Works greatly
E-mail	Check-in different device	Works perfectly
Logout	Check-in different device	Works perfectly
Add Property	Check-in different device	Works perfectly

6.3 Test the Contents

Table 6.3.1: Test the Content

Test Case	Test Data	Output
Images	include "alt" text	Accurate
Content	Easily readable and error-free	Accurate

6.4 Interface Testing

Table 6.4.1: Application Interface Testing

Test Case	Test Data	Output
From the Client's Perspective	The test request is successfully uploaded to the server.	Accurate
To Client's Perspective	To the Client's Side, the data is shown correctly.	Accurate

6.5 Crowd Testing

Table 6.5.1: Crowded Testing of Application

Test case	Test Data	Output
Application	Always didn't Response in the same manner as the application runs without an internet connection	Accurate
Crash Occurrence	Due to peak load, the crash doesn't occur.	Not Accurate

CHAPTER 7

CONCLUSION

In conclusion, the development of an Android application for the rental network of a specific location is a complex and multi-faceted process that requires a thorough understanding of the needs and preferences of the landlords and tenants. The application should facilitate the communication and negotiation between the landlord and the tenant. The development process should involve several key stages, including requirement collection and analysis, design and implementation, testing, and deployment. The requirement collection and analysis phase are critical in ensuring that the final product meets the needs and preferences of the stakeholders. It also involves the identification of the functional and non-functional requirements of the application, including the features and capabilities that the application should have, as well as the constraints and limitations of the application. The design and implementation phase involves the creation of a detailed design of the application, including the user interface and the database. This phase also involves the coding of the application using appropriate programming languages and tools. The testing phase is critical in ensuring that the application meets the quality standards and the requirements of the stakeholders. This phase involves the use of different testing techniques such as unit testing, integration testing, and acceptance testing. The deployment phase involves the release of the application to the target users, including landlords and tenants. This phase also involves the provision of support and maintenance services to ensure that the application continues to meet the needs and preferences of the stakeholders. In summary, the development of an Android application for the rental network of a specific location can significantly improve the rental experience for both the landlord and the tenant, by providing a convenient and efficient platform for communication and negotiation. The development process should involve a systematic approach to requirement collection and analysis, design and implementation, testing, and deployment to ensure that the final product meets the needs and preferences of the stakeholders, is feasible and viable, and is of high quality.

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