

A WEB APPLICATION FOR CLIENTS TO ORDER FREELANCE SERVICES

TEVIN MULWA

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Declaration

I declare that this is my original work and has never been submitted to any institution for the award of certificate, Diploma or Degree.

Signature:

Date:

Name: Tevin Mulwa.

This project has been submitted for examination purposes with the approval of my Project. Supervisor

Signature:

Date:

Name: Samuel Karuga,
HOD Computer Science Department,
St. Paul's University.

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1 Introduction

1.1 Background information

With the gradual shift to an on-demand economy globally, there is the urge to fulfil consumer demand with immediate access to goods and services. In the recent past, digital marketplaces have stormed the internet with Jumia.co.ke being the most notable in Kenya. However, most of these platforms have emphasis on products with little or no support for services. According to a press release published on 8th January this year by Statista, the services sector makes up for 42% of the country's GDP[1] and therefore cannot be ignored.

Furthermore, there is a niche market for home services to provide assistance with activities of daily living and self management tasks to people residing in their own homes. Such include personal care, shopping, laundry and cleaning, plumbing, beauty and therapy among others. Such services can be offered by a freelance worker/casual labourer on demand. The problem though is that persons seeking these services need to have had earlier contact with the freelancer or have them referred to by a friend otherwise it would prove to be a hectic task.

The nature of freelance/casual jobs does not allow for readily available workers to perform a required task as they may also be caught up elsewhere. It is this, together with many other factors that bring about the ambiguity of casual employment as expounded on a journal by Bamidele R.[2]

This project provides a well packaged web solution to enable freelancers to interact with a vast service consumer market. It has enabled a client to search for their preferred service, find the nearest freelancer that offers the service and book an appointment with the freelancer as well as providing review options

1.2 Problem statement

Services were hard to access especially for first time clients. In the past, Given a case scenario of a person living in the suburbs of Nairobi and in need of plumbing services, this person would have to browse online and navigate from site to site before they find the seemingly perfect plumber to hire. He or she would then proceed make a phone call or meet with the plumber to discuss their terms before a simple leaking pipe is repaired. This is quite a

lengthy process and may often at times not provide the best suited freelance worker available. The client would be concerned with three things

1. The quality of service – whether the freelance worker will do the job satisfactorily
2. Pricing - whether the charges are fair.
3. Location convenience - how close the worker is so as to complete a task in the shortest time possible.

On the freelance worker's part, problems of vague requests, micromanaging clients, unreliable clients, poor communication and low or late payment arise as well expounded by Maguire [3]

1.3 Definition of terms

1. Informal economy (informal sector or grey economy) - is the part of any economy that is neither taxed nor monitored by any form of government.
2. Casual worker - a person who has temporary , as opposed to permanent or regular , employment.
3. Freelancer - a person who is self-employed and hired to work for different companies on particular assignments.
4. GPS - Global Positioning System, a radio navigation system that allows land, sea, and airborne users to determine their exact location.
5. Push notification - an automated message sent by an application to a user when the application is not open.

1.4 Objectives

1.4.1 General objective

This research was conducted to come up with a web application to provide an all-in-one solution for both freelancers and clients in the comfort of the user's device.

1.4.2 Specific objectives

Firstly, a robust searching method was used by both freelancers and clients to match searched services and within the preferred location. This addressed the issue of location convenience as well as finding the right provider .

Secondly, tracking of bookings was used to notify the parties of the progress of the whole process from ordering to service completion in real- time. This ensured accountability as the client will be sure of the service's progress as well as avoiding vague requests from the freelancer's side.

Thirdly, the project integrated a customer feedback option which rated the quality of services provided as well as client behaviour so it became a win-win for both parties in business. This proved to help separate quality service providers from quacks.

Lastly, users were bound by well worked terms and conditions which ensured safety in business and minimal conflict

1.5 Research questions

1. Did the application significantly improve the time it takes to request a service and get it offered?
2. What were the most sought after services in Kenya?
3. What technologies were required in building the system?
4. What happened when there is a system downtime?
5. Is there room for scalability?

1.6 Justification

This project, being a web based application promised to reach a wide variety of users. Over 60% of Kenyans have smartphones according to the business daily Africa[4].

In addition, the platform also provided clients with numerous choices to chose from and make an informed decision based on the ratings. It also according to my hypothesis improved the time it takes to get a required service.

Accountability was guaranteed as both clients and workers were sure that the service would be offered as tied to the terms and conditions. This also went a long way in ensuring quality customer service.

1.7 Scope

The main target for this project was the freelancers, professional or otherwise working under the informal sector of the economy as well as the general population of service consumers. This is because over 80% of the employed in Kenya work in the informal economy as revealed by the Institute of Economic Affairs[5]. It also targeted to provide home based services, that is, the point of work will be the client's residence. This project provided a platform for a diverse range of services in the fields of house cleaning and maintenance, beauty and therapy, repair, catering, child care and education among many others.

2 Literature review

This project aimed at providing a technological solution to the problem of finding casual labourers through a web application. An article by Abrosimova outlines the underlying technology stack behind the popular Uber app and argues that if one can apply the same technology to improve the quality of an existing service and offer it on demand, they could be the next uber![6] that is, meet the success levels of the application.

In the recent past, much has been done to bring on demand services closer to clients by use of web applications. However, the focus has mainly been on the services that lie in the formal economy for example taxi services. As it will be made evident in the next section, very little had been done in the informal jobs such as laundry services, hairdressing and more. What this project explores is whether such applications can thrive in the informal sector and with home based services for example a casual labourer who cleans and washes client's clothes for a living.

The informal economy sector comprises labor and business that is hidden from monetary, regulatory, and institutional authorities and it faces many challenges as outlined by the World Bank[7]. One of the prevalent problem is that it tends to employ low-skilled and less productive workers. This project included a feedback and rating system which according to hypothesis will bring the cream to the top over time as workers with a good record will be preferred over the rest.

2.1 What other researchers have done

2.1.1 Facts and findings

As established, a person in need of a home services ought to have contacts from aides that he or she has had prior interaction with. This eases the process of requesting for the service due to the familiarity that exists. However, this is not always the case and people tend to ask their friends for referrals then opt to search online if all fails.

A number of websites such as upwork.com and freelancer.com provide an on-line platform for freelancers to create their profiles and advertise themselves to clients. They however do not address the problem of quickly finding a suitable worker and ordering for a service to a client's home. A locally recognized application available in kenya is the Jiji app previously known as Olx.

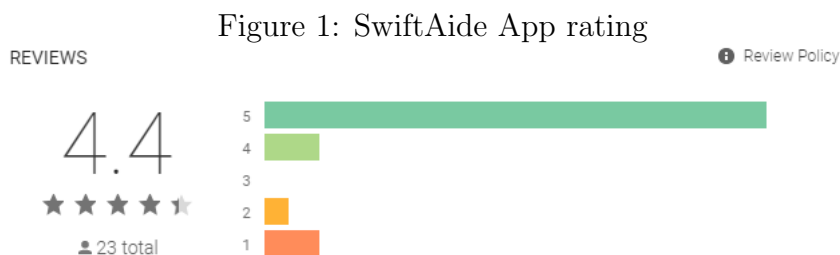
It has a services section enlisted that Kenyans use widely at the moment to interact in a non formal manner to get products and services. However, as it has a wide scope of uses, it comes short in the services sector. It is not specialized for those purposes and hence it does not address the issues of real time interaction and payment options.

A number of applications also exist in the formal sector with well worked staff to deliver the services in their catalogue. Most notable in the country is the glovo application whose tagline is "anything in Nairobi, delivered in minutes" as per their website[8]. It works with couriers and store partners to get requested goods to a clients address in the shortest time possible. In this case, they mostly deal with products such as food,gas cylinders and more with the only two services they offer being shopping and delivery. The application itself uses a similar technology stack with geo-location and an ordering system. The platform also works within the formal sector with well recognized brands such as JavaHouse, Galito's and Artcaffe from which deliverables are obtained from.

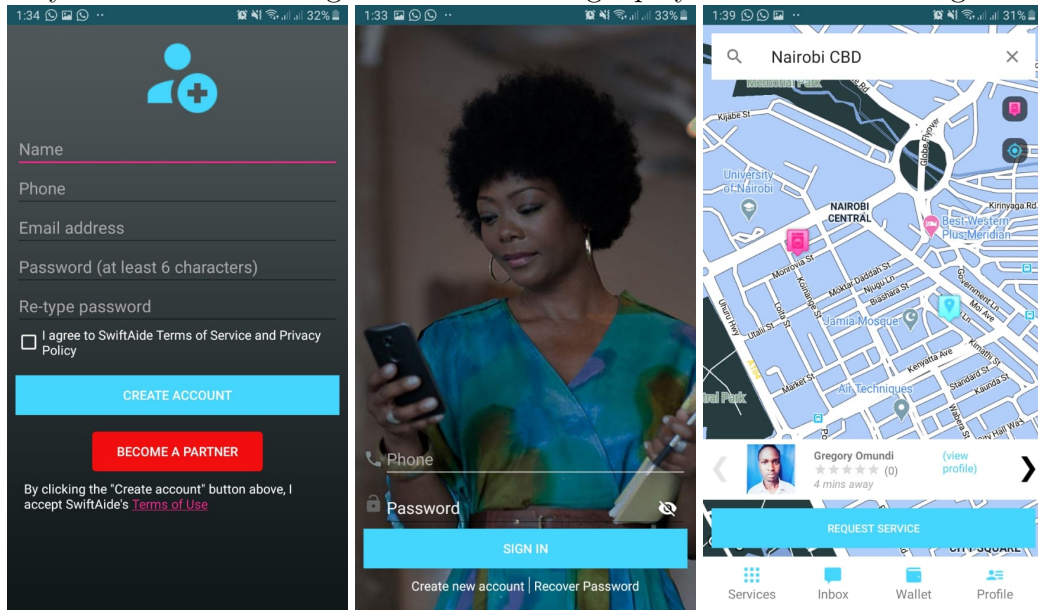
This project provided a different approach to what has already been done by using a technology stack that has been proven to work as is the case with the Uber application.

2.1.2 Case Study

As stated in the previous section 2, there has been earlier advances to the problem in hand. There is a similar project attempt by George Theuri in 2018 according to Pkemoi Ng'enh[9] and the application is the closest existing case to this project. In his project, Theuri comes up with a mobile application known as SwiftAide which is a two-sided marketplace that connects clients and aides. Both have to download the application from the playstore and fill in the requirements, including identifications, The service providers have to give more information about themselves than customers.



From there, the two parties can interact through the application and upon a successful service delivery, he gets a cut of the payment for bringing the two together. However, the app lacks a rating system which is vital for clients. It is also limited in scope as it offers a handful of service options. According to Avril V. et al[10], the informal sector is by far the most important employer of the youth in the non-farm sector and has a wide range of occupational options. This earlier work also lacked an e-payment option the Kenyan population is familiar with. It is these gaps together with other business dynamics such as marketing that the application never penetrated the market with only 23 hits and a rating of 4.4 on the Google playstore as shown in figure 1.



The images above show a similar existing application, SwiftAide, in which the following gaps were identified

- A single view which only shows the client interface.
- No feedback and rating option.

2.1.3 Importance of different User Interfaces for Aides and clients

Depending on the type of profile the user creates, that is, a client or freelancer profile, the interface should change to suit the functions associated with the respective users. The popular Uber application has different views for the driver and rider. For example, the aide wouldn't need to search for available services within the catalogue using his/her profile. The client would not

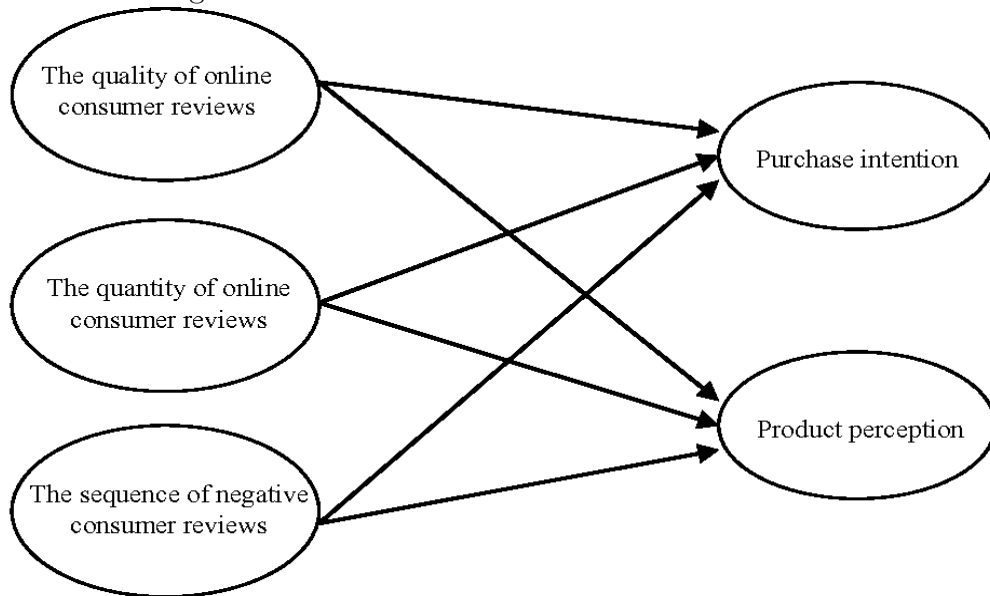
require information showing which services are most sought after and in which area. Such fine tuning is important as it also saves on space.

2.1.4 Importance Real-time tracking of bookings

It was important that clients get to know and keep track of their made bookings so as to be aware of when to expect the freelancers

2.1.5 Importance a rating system

Figure 2: effect of online reviews on consumers



Ratings have become a elemental part of our consumer lives. Clients rely on these ratings to get over their inhibition in trying out something new (community feedback), and help themselves drive decisions faster. As mentioned, most clients will be unfamiliar with the workers they invite to their homes and ratings will go a long way in making an informed decision.

Figure 2 above shows how characteristics of online reviews bias a consumer's behaviour. The quality, quantity and sequence of negative consumer reviews have an effect on product perception and purchase intention. Clients will be subjected to a mandatory review upon interaction with an aide so as to provide future clients with enough information that will influence their perception and request intentions.

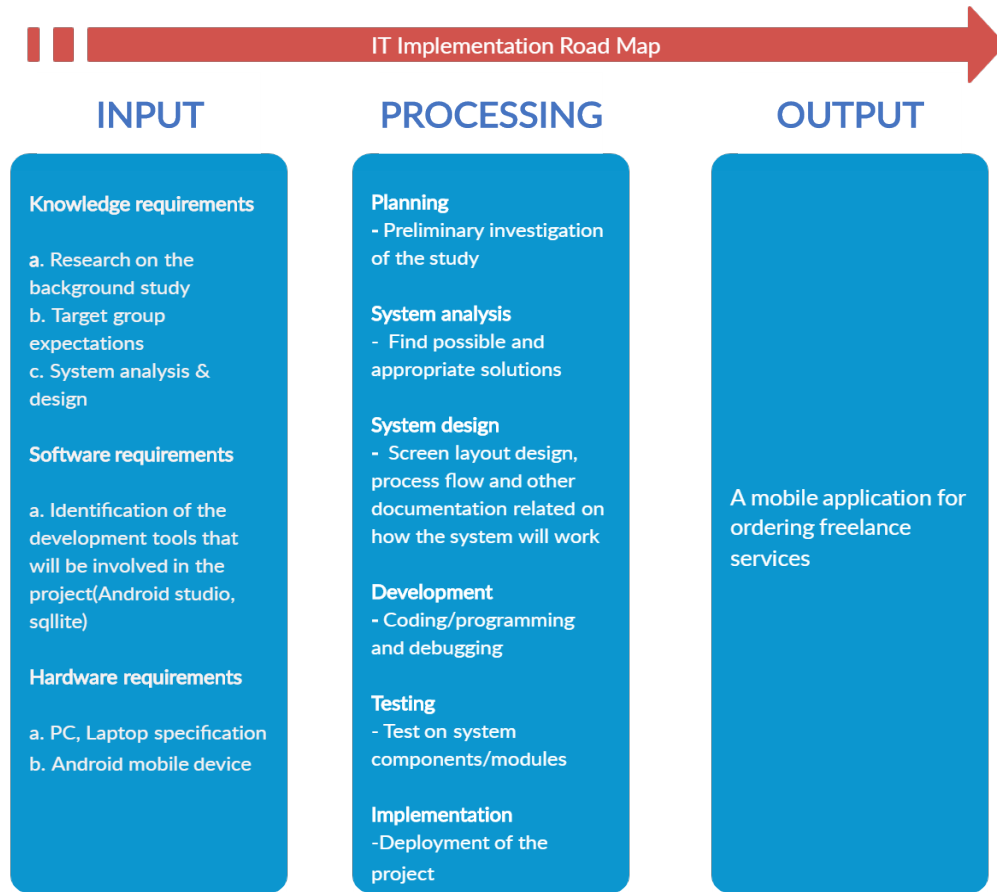
2.2 Conceptual diagram

Figure 3: Conceptual framework use case



Figure 3 shows the use case diagram of the proposed project. It includes the freelancer and client as participants with the assumption that the system is also a participant so as to show vital roles it will play in the interaction between the real participants. It shows the design requirements of the system as well as its functionality.

Figure 4: Conceptual framework input,processing and output



The above diagram(Figure 4) shows the conceptual diagram for the application.

2.2.1 Knowledge requirements

These included an in depth understanding of the freelance business within the informal sector. With the catalogue of services to be enlisted in the system, it is necessary to understand how each field works as well as the terms of business within it. Another useful concept in this area is the real time order and delivery concept so as to avoid vague requests and non repudiation. These problems were solved by code as shown in the implementation. System design and analysis is vital in gathering the right requirements and data for the proposed system.

2.2.2 Software requirements

These include html and css for front end, php, javascript and sql for back end and a suitable IDE. This is where most of the coding occurred while building the application.

2.2.3 Hardware Requirements

A computer will be used to run an IDE where the coding and configuration will be done. A physical server is needed to host the application while web enabled devices and web browsers were used in the process of testing. These same devices are the target for this project once completed.

2.3 Conclusion

This project clearly identified the problem of finding casual workers for home management tasks and suggests a viable solution exploring the technology avenue. It promised to make it easy for clients to request services from the most suitable workers around

3 Methodology

3.1 Research design

The research sought relevant data to address the research questions in 1.5. The target audience was casual workers with a professional background or otherwise as well as Nairobi city residents. Existing platforms were used to measure the time it takes to finally have a casual worker to do a certain task at your home so as to compare the response times to this project. The websites and platforms also provided data on which services are required the most in a specific region. Random questionnaires were issued in a target area to find out what services clients need the most and how frequently they need them. Google playstore ratings and user comments for the attempted project by George Theuri were checked to provide a clear understanding of why the application reception was poor and what improvements can be made. This called for a number of research designs such as predictive, comparative and descriptive research approaches.

3.2 Data

The service ordering system dealt with client and freelancer data that entails login credentials and profile information. A new user was able to access a create profile page where he or she chose between the client or freelancer modes from which data such as names, contacts and passwords were saved. This then created an account for the user and he or she can login and start exploring what the application has to offer. Data on the various services that are most sought after was required to create a fitting catalogue for an array of services within the platform. Data on communication made between the freelancer and the client was also needed to ensure non-repudiation. SQL transactions were used as they ensured data integrity[11]. This is fundamental data that is the backbone of the application as per its functionality.

There was however data that needed to be collected to optimize the application as seen in the research design. This called for data collection from the target population.

3.3 Data collection

Given the nature of data required, the following data collection methods used include structured questionnaires, Observation and a case study of the SwiftAide app.

Structured questionnaires were especially useful for collecting data from service seekers and casual workers to solicit information such as the most sought after services, relative charges for a given service just but to mention a few. The questionnaires were open ended so in nature so as to gain a deeper understanding of the freelance community.

Observation was vital in learning more about the freelance community too. I have in the recent past got to witness how the the sector works when a hairdresser was called to offer her services within our household. It is an exchange process where the worker gets to the agreed location with his or her tools of work to offer a service in exchange for money.

The mentioned case study of the swiftAide application was especially useful in getting to know what has proven to work before as the project seeks to fill in the gaps. This called for extra data collection methods such as interviews. It provided data that hastened the design and development process. This case study was extensive as it also reached out to people who have interacted with the application to find out their experiences. Parts of freelancer.com website can also prove useful in learning the technology stack applied in building the app.

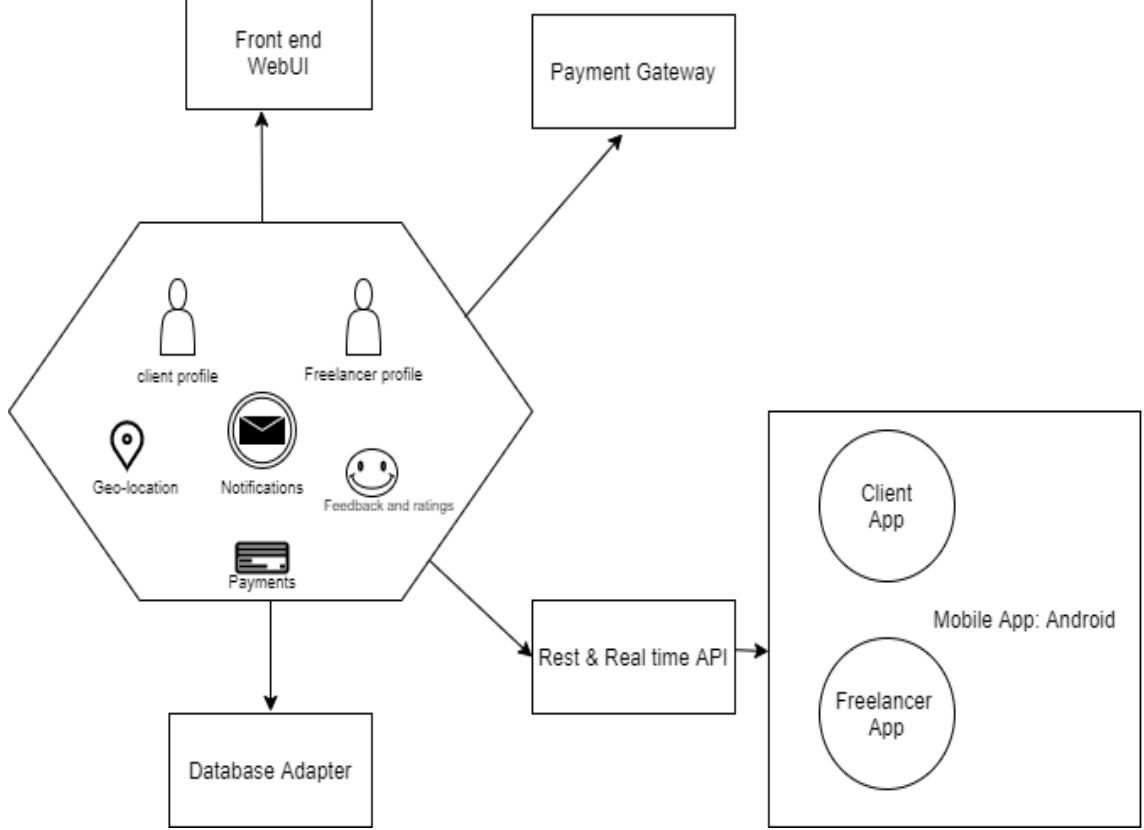
A simple experiment can also be carried out to find out the time it takes to find, say a barber to provide his services in the comfort of one's house. Let's say the person in search of this service does not have contacts to any barber besides not having a regular barber. A timer can be set from the time this person thinks of getting the service to the time he actually has a barber on his doorstep. A similar experiment can be carried out once the application is up and running and has an acceptable outreach to compare the two times. This will show whether the application has shortened the time it takes to have a service delivered to your home.

3.4 Architectural design

According to Thinkmobiles.com , Uber app which is very similar to this project has already released its API to the public for developers to interact with. This can be used as a reference which this project will rely on. The system design of this project is as shown in figure 4.

Within the application will be separate views for the client and the casual worker complete with a login page for them to input their credentials to ac-

Figure 5: System design



cess the App's services. Geolocation API will be used to track user's current location for ease of pairing requests to available workers. An in built messaging service will facilitate communication between the two parties. A suitable payment gateway will facilitate payments.

3.4.1 Back end implementation

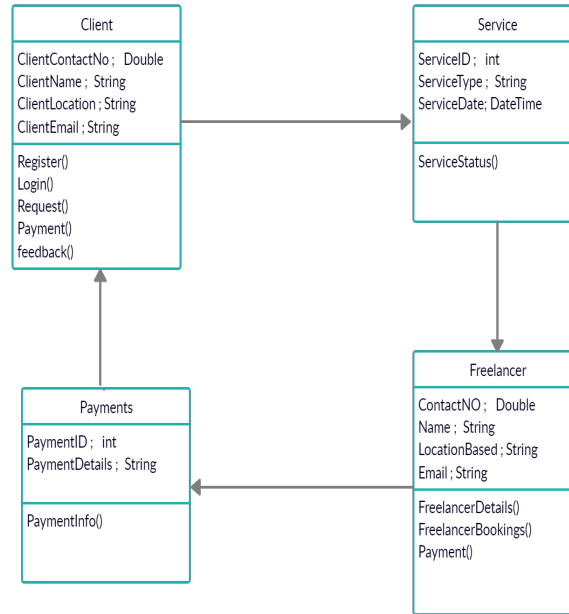
Programming language for back-end will be javascript, php and sql for creating the core of the application.

3.4.2 User interface implementation

Html and css will be used vastly in designing the user interface as well as navigation. Modern UI dashboard and tools will be useful in designing user menus, services catalogues, search bars .Different views/modes for the client and worker were necessary as per the varying functionality requirements. The then created front end user interface was linked to the app's core.

3.4.3 Database implementation

Figure 6: database class diagram



For the database adapter, sql was integrated to the application with the aid of xampp and phpmyadmin. The database was responsible for storing client and freelancer profiles and updating where necessary. The diagram above shows the class diagram for the database which was implemented. The entities users, freelancer and bookings with their respective attributes.

3.4.4 Testing

Various testing techniques were used in this project. Unit testing will be widely used as the project was majorly done by single programmer allowing for component testing as the development process progresses. Test driver modules were used as testing is done incrementally after the completion of a given application component. On completion of the development process, a beta test was carried out. The system was then feeded dummy data with several profiles to test the functionality of the application

To test application's core, two things were to be put into consideration. One was setting up a test environment. This was achieved by using web browsers in which the application would run. After setting up the test environment,

Figure 7: core suite test procedures

Type	Test	Description
Core Suite	CR-0	Navigate to all parts of the app – all screens, dialogs, settings, and all user flows. a. If the application allows for editing or content creation, game play, or media playback, make sure to enter those flows to create or modify content. b. While exercising the app, introduce transient changes in network connectivity, battery function, GPS or location availability, system load, and so on.
	CR-1	From each app screen, press the device's Home key, then re-launch the app from the All Apps screen.
	CR-2	From each app screen, switch to another running app and then return to the app under test using the Recents app switcher.
	CR-3	From each app screen (and dialogs), press the Back button.
	CR-5	From each app screen, rotate the device between landscape and portrait orientation at least three times.
	CR-6	Switch to another app to send the test app into the background. Go to Settings and check whether the test app has any services running while in the background. In Android 4.0 and higher, go to the Apps screen and find the app in the "Running" tab. In earlier versions, use "Manage Applications" to check for running services.
	CR-7	Press the power button to put the device to sleep, then press the power button again to awaken the screen.
	CR-8	Set the device to lock when the power button is pressed. Press the power button to put the device to sleep, then press the power button again to awaken the screen, then unlock the device.
	CR-9	For devices that have slide-out keyboards, slide the keyboard in and out at least once. For devices that have keyboard docks, attach the device to the keyboard dock.
	CR-10	For devices that have an external display port, plug-in the external display.
	CR-11	Trigger and observe in the notifications drawer all types of notifications that the app can display. Expand notifications where applicable (Android 4.1 and higher), and tap all actions offered.
	CR-12	Examine the permissions requested by the app by going to Settings > App Info.

similar test procedures were performed as borrowed from the core quality guidelines provided by android developers platform by google[13]. The test procedures are as shown in figure 7.

Testing the user interface ensured that users do not encounter unexpected results or have a poor experience when interacting with the app. This was achieved by running the created html and css scripts

The database will be tested by adding dummy data and checking the database adapter in phpmyadmin. Tests were also performed on the host machine to check for correctness of queries.

3.5 Relationship between System Design and Conceptual Framework

The difference between system design and conceptual framework was that conceptual framework only provided an overview of how the system would look like just like an overview of the system design. All operations done by the system were addressed in the architectural framework whereby the author introduced other modules like the system database in which all data in the system was stored and accessed if need be or for the running of the system

4 Implementation

4.1 Table design

In the implementation of the project, eight tables were created each with very important roles. The project used the tables to sufficiently enhance the connection of various entities important in the functionality of the project. These tables are; a Login table, Admin table, Users table, Categories table, sub categories table, freelancer table, Booking table and contacts table. A Login table was created to store user names, user passwords and the Login ranks of users in the database, where a user can either be an admin or a client. The project also created a user table to store user details which include user name, email and mobile for both the admin and users. A category table was also created to store category details of services eg service name and description. All these tables were created with a smooth flow with connections as shown below:

LOGIN TABLE

- Login_id(PK)
- Login_username
- Login_password
- Login_User_id(FK)
- Login_Admin_id(FK)
- Login_Freelancer_id(FK)
- Login_Rank

ADMIN TABLE

- Admin_id(PK)
- Admin_username
- Admin_creationDate
- Admin_updatationDate

USERS TABLE

- User_id(PK)
- User_firstname

- User_lastname
- User_email
- User_mobile
- User_address
- User_creationDate

CATEGORIES TABLE

- Category_id(PK)
- Category_categoryName
- Category_creationDate
- Category_updationDate

SUB CATEGORIES TABLE

- Subcategory_id(PK)
- Subcategory_category_id(FK)
- Subcategory_name
- Subcategory_creationDate
- Subcategory_updationDate

FREELANCER TABLE

- Freelancer_id(PK)
- Freelancer_category_id(FK)
- Freelancer_subcategory_id(FK)
- Freelancer_firstname
- Freelancer_lastname
- Freelancer_email
- Freelancer_mobile
- Freelancer_address

- Freelancer_experience
- Freelancer_rate
- Freelancer_location
- Freelancer_image
- Freelancer_status
- Freelancer_regdate

BOOKING TABLE

- Booking_id(PK)
- Booking_user_id(FK)
- Booking_freelancer_id(FK)
- Booking_category_id(FK)
- Booking_subcategory_id(FK)
- Booking_service_date
- Booking_service_time
- Booking_remark
- Booking_orderDate
- Booking_bookStatus
- Booking_service_rating
- Booking_price_rating
- Booking_values_rating
- Booking_review

CONTACTS TABLE

- Contact_id(PK)
- Contact_name
- Contact_email
- Contact_mobile
- Contact_message

4.1.1 Table Implementation

The screenshot shows the phpMyAdmin interface for a MySQL database named 'test'. The left sidebar displays a tree view of the database structure, including tables like 'admin', 'booking', 'category', 'contacts', 'freelancer', 'login', 'subcategory', and 'users'. The main panel shows the 'Structure' tab for the 'login' table. A table of 8 tables is displayed, with columns for Table, Action, Rows, Type, Collation, Size, and Overhead. The 'login' table is highlighted, showing it has 6 rows and is of type InnoDB with a latin1_swedish_ci collation.

Table	Action	Rows	Type	Collation	Size	Overhead
admin	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	1	InnoDB	latin1_swedish_ci	16.0 K	-
booking	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	7	InnoDB	latin1_swedish_ci	16.0 K	-
category	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	5	InnoDB	latin1_swedish_ci	16.0 K	-
contacts	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	0	InnoDB	latin1_swedish_ci	16.0 K	-
freelancer	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	3	InnoDB	latin1_swedish_ci	16.0 K	-
login	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	6	InnoDB	latin1_swedish_ci	64.0 K	-
subcategory	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	6	InnoDB	latin1_swedish_ci	16.0 K	-
users	[Browse] [Structure] [Search] [Insert] [Empty] [Drop]	3	InnoDB	latin1_swedish_ci	16.0 K	-
8 tables	Sum	31	InnoDB	utf8mb4_general_ci	176.0 K	0

The screenshot shows the phpMyAdmin interface for the 'login' table. The 'Browse' tab is selected, displaying the table data. A green banner at the top indicates 'Showing rows 0 - 5 (6 total, Query took 0.0022 seconds)'. Below the banner, the SQL query 'SELECT * FROM `login`' is shown. The table data is displayed with columns: login_id, login_username, login_password, login_user_id, login_admin_id, login_freelancer_id, and login_rank. The data includes 6 rows of user information.

login_id	login_username	login_password	login_user_id	login_admin_id	login_freelancer_id	login_rank
4	you@gmail.com	81dc9bdb52d04dc20036dbd8313ed055	12	NULL	NULL	user
5	admin	21232f297a57a5a743894a0e4a801fc3	NULL	1	NULL	admin
6	me@gmail.com	81dc9bdb52d04dc20036dbd8313ed055	NULL	NULL	12	freelancer
7	today@gmail.com	81dc9bdb52d04dc20036dbd8313ed055	13	NULL	NULL	user
8	tevlm@gmail.com	3630bf15a3270274304b07e1c301c7b3	14	NULL	NULL	user
9	fund@mail.com	3ae49963efdec86d900d95bed461483	NULL	NULL	13	freelancer

phpMyAdmin

Recent Favorites

- New
- got_it
- information_schema
- mysql
- performance_schema
- phpmyadmin
- test
 - New
 - admin
 - booking
 - category
 - contacts
 - freelancer
 - login
 - subcategory
 - users

Server: 127.0.0.1 > Database: test > Table: admin

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 0 (1 total, Query took 0.0022 seconds)

SELECT * FROM `admin`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table

+ Options

	admin_id	admin_username	admin_creationDate	admin_updateDate
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	1	admin	2017-01-24 19:21:18	02-12-2021 08:50:43 PM

Check all With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table

Query results operations

Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query

Label: ☐ Let every user access this bookmark

phpMyAdmin

Recent Favorites

- New
- got_it
- information_schema
- mysql
- performance_schema
- phpmyadmin
- test
 - New
 - admin
 - booking
 - category
 - contacts
 - freelancer
 - login
 - subcategory
 - users

Server: 127.0.0.1 > Database: test > Table: booking

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 6 (7 total, Query took 0.0023 seconds)

SELECT * FROM `booking`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

	booking_id	booking_user_id	booking_freelancer_id	booking_category_id	booking_subcategory_id	booking_service_date	booking_time
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	46	12	11	1	3	12/31/2021	1:00 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	47	12	11	1	3	12/30/2021	1:15 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	48	12	11	1	3	12/30/2021	6:30 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	49	12	12	1	3	01/03/2022	6:45 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	50	13	12	1	3	01/04/2022	7:00 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	51	14	11	1	3	12/21/2021	9:45 AM
<input type="checkbox"/> Edit <input type="checkbox"/> Copy <input type="checkbox"/> Delete	52	14	13	2	2	12/21/2021	9:45 AM

Check all With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

phpMyAdmin

Recent Favorites

- New
- got_it
- information_schema
- mysql
- performance_schema
- phpmyadmin
- test
 - New
 - admin
 - booking
 - category
 - contacts
 - freelancer
 - login
 - subcategory
 - users

Server: 127.0.0.1 > Database: test > Table: category

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 4 (5 total, Query took 0.0022 seconds.)

`SELECT * FROM `category``

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

				category_id	category_categoryName	category_creationDate	category_updateDate
<input type="checkbox"/>	Edit	Copy	Delete	1	Plumber	2020-01-13 13:04:40	02-12-2021 08:59:07 PM
<input type="checkbox"/>	Edit	Copy	Delete	2	Electrician	2020-01-13 13:06:42	NULL
<input type="checkbox"/>	Edit	Copy	Delete	3	Home Cleanings	2020-02-14 09:13:08	14-02-2020 11:52:59 AM
<input type="checkbox"/>	Edit	Copy	Delete	4	Parlour	2021-11-26 11:56:43	NULL
<input type="checkbox"/>	Edit	Copy	Delete	5	Cleaning	2021-12-19 17:48:52	NULL

Check all | With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

phpMyAdmin

Recent Favorites

- New
- got_it
- information_schema
- mysql
- performance_schema
- phpmyadmin
- test
 - New
 - admin
 - booking
 - category
 - contacts
 - freelancer
 - login
 - subcategory
 - users

Server: 127.0.0.1 > Database: test > Table: contacts

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0023 seconds.)

`SELECT * FROM `contacts``

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

contacts_id	contacts_name	contacts_email	contacts_mobile	contacts_message
-------------	---------------	----------------	-----------------	------------------

Query results operations

Create view

Bookmark this SQL query

Label: ☐ Let every user access this bookmark

Bookmark this SQL query

Server: 127.0.0.1 > Database: test > Table: freelancer

Showing rows 0 - 2 (3 total, Query took 0.0029 seconds.)

```
SELECT * FROM `freelancer`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

		freelancer_id	freelancer_category_id	freelancer_subcategory_id	freelancer_firstname	freelancer_lastname	freelancer_email	freelancer_phone
<input type="checkbox"/>	Edit Copy Delete	11	1	3	You	youou	you@gmail.com	5678
<input type="checkbox"/>	Edit Copy Delete	12	1	3	me	mee	me@gmail.com	5432
<input type="checkbox"/>	Edit Copy Delete	13	2	2	Fundi	mpoa	fundi@mail.com	0798

Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

[Print](#) [Copy to clipboard](#) [Export](#) [Display chart](#) [Create view](#)

[Bookmark this SQL query](#)

Server: 127.0.0.1 > Database: test > Table: subcategory

Showing rows 0 - 5 (6 total, Query took 0.0023 seconds.)

```
SELECT * FROM `subcategory`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

		subcategory_id	subcategory_category_id	subcategory_name	subcategory_creationDate	subcategory_updateDate
<input type="checkbox"/>	Edit Copy Delete	2	2	A/C Refrigerator/Washing Machine	2020-01-16 10:11:45	17-01-2020 04:02:44 PM
<input type="checkbox"/>	Edit Copy Delete	3	1	Basin & Sink, Bath-Fitting	2020-01-16 10:12:26	NULL
<input type="checkbox"/>	Edit Copy Delete	4	2	Geyser, Water-Purifier, TV	2020-01-16 10:14:32	14-02-2020 12:19:41 PM
<input type="checkbox"/>	Edit Copy Delete	5	1	Minor Re-pairing, Blockages	2020-01-16 10:15:29	17-01-2020 04:03:37 PM
<input type="checkbox"/>	Edit Copy Delete	6	4	Full Body Waxing	2021-11-26 11:57:03	NULL
<input type="checkbox"/>	Edit Copy Delete	8	5	house cleaning	2021-12-19 17:49:29	NULL

Check all | With selected: [Edit](#) [Copy](#) [Delete](#) [Export](#)

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

phpMyAdmin

Server: 127.0.0.1 - Database: test - Table: users

Browse Structure SQL Search Insert Export Import Privileges Operations Tracking Triggers

Showing rows 0 - 2 (3 total, Query took 0.0021 seconds)

SELECT * FROM `users`

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

+ Options

		user_id	user_firstname	user_lastname	user_email	user_mobile	user_address	user_creationdate
<input type="checkbox"/>	Edit Copy Delete	12	You	youu	you@gmail.com	5678	limuru	2021-12-20 00:54:09
<input type="checkbox"/>	Edit Copy Delete	13	today	todayy	today@gmail.com	4343	limuru	2021-12-20 06:50:20
<input type="checkbox"/>	Edit Copy Delete	14	Tevin	Mulwa	tevslim@gmail.com	0798167774	Mama Ngina 23	2021-12-20 09:19:15

Check all | With selected: Edit Copy Delete Export

Show all | Number of rows: 25 | Filter rows: Search this table | Sort by key: None

Query results operations

Print Copy to clipboard Export Display chart Create view

Bookmark this SQL query

4.2 System Interface

The system was created using a combination of PHP, javascript, HTML and CSS. With the help of these markup and scripting languages, the project was designed to meet the project users' requirements. On the client's side, the designed interface comprises of a connection from the registration page which is easy to use to the login page, after which the user can access the services page where the user can view and book their desired services then view their booking status whether approved or not on the status page. On the Admin's side, the interface was created with a smooth and clear flow where admins can easily log in to the system, after which they can add another admin by registering them on a registration page on the add new admin page, then the admin could add and edit or delete service categories and its details as well as manage freelancers by approving their profiles before they go public. The admin also views bookings. The freelancer can create an account, choosing a category, setting their location and service charge rates as well as viewing and approving bookings. on the set status page. The project used Phpmyadmin framework for the creation of tables and all the database functionality.

Figure 8: client registration

JOIN US
Register Now

First name

Last name

Email ID

Mobile No

Address

Password

Confirm Password

Register

We will follow Backlinker & we will be your best friend

Figure 9: client profile page

YOUR PROFILE
All Account Details

Welcome to Got-It

Start your Service with us. I


Your Fstname

Your Lastname


Your Email-Id

Your Conatct No

Your Address

 **You youou**
Plumber/Basin & Sink,Bath-Fitting
limuru
you@gmail.com 5878
Track Booking

Add Rating & Review

 **Fundi mpoa**
Electrician/A.C./Refrigerator/Washing Machine
Mama Ngina 23
fundi@mail.com 0798187773
Track Booking

Add Rating & Review

Figure 10: client track booking pop up

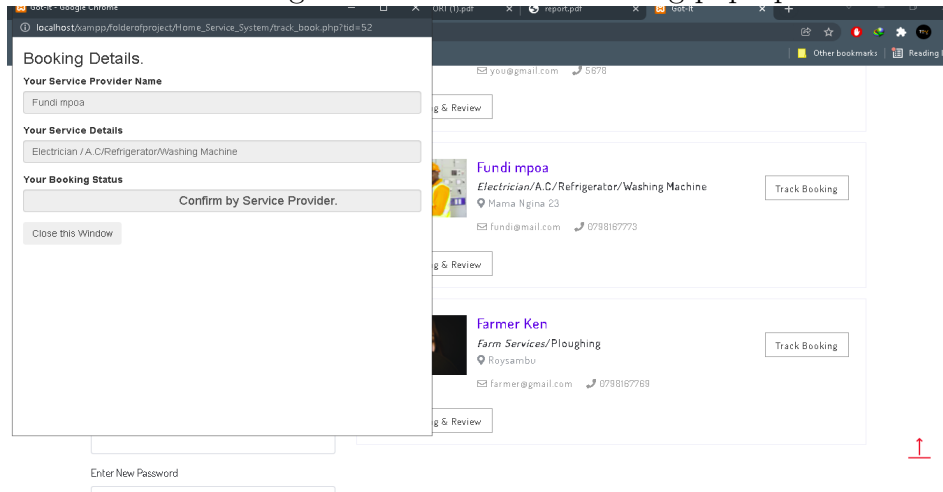


Figure 11: client rating and review page

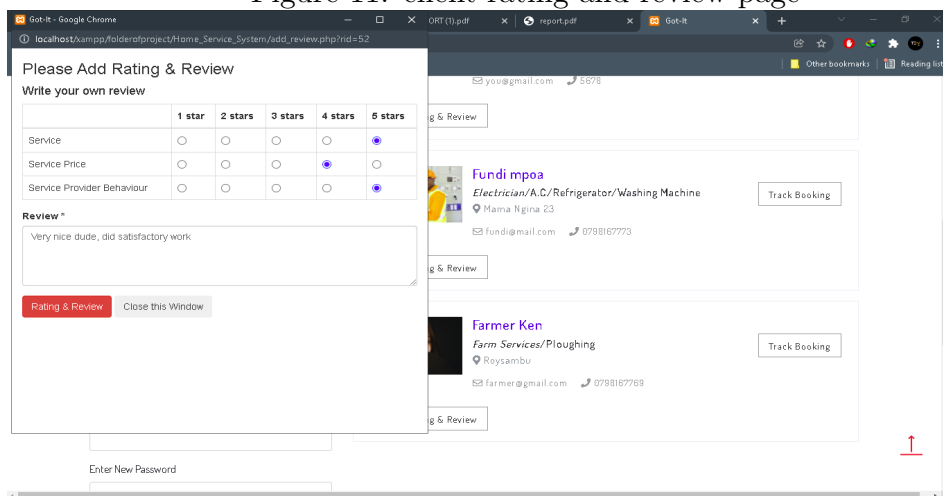
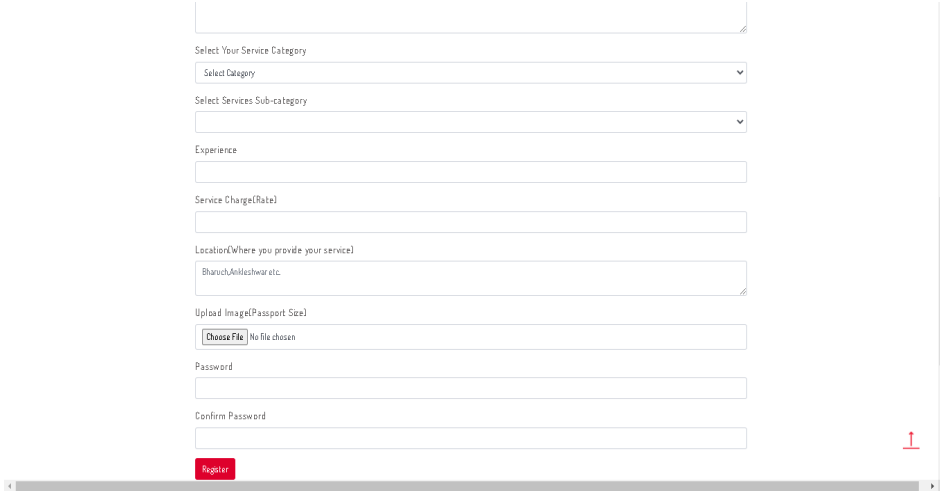


Figure 12: freelancer registration



Select Your Service Category

Select Category

Select Services Sub-category

Experience

Service Charge(Rate)

Location(Where you provide your service)

Bharuch,Ahmednagar etc.

Upload Image(Passport Size)

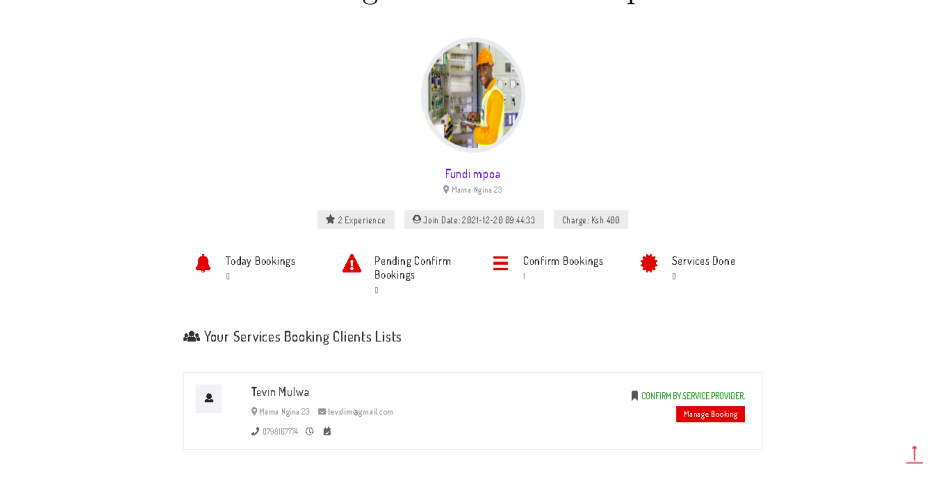
Choose File No file chosen

Password

Confirm Password

Register

Figure 13: freelancer profile



Fundi mpoa

Hama Rgina 23

★ 2 Experience

Join Date: 2021-12-20 09:44:33

Charge: Ksh 400

Today Bookings 0

Pending Confirm Bookings 0

Confirm Bookings 1

Services Done 0

Your Services Booking Clients Lists

Tevin Mulwa

Hama Rgina 23 tevinm@gmail.com

0768182774

CONFIRM BY SERVICE PROVIDER

Manage Booking

Figure 14: freelancer manage booking

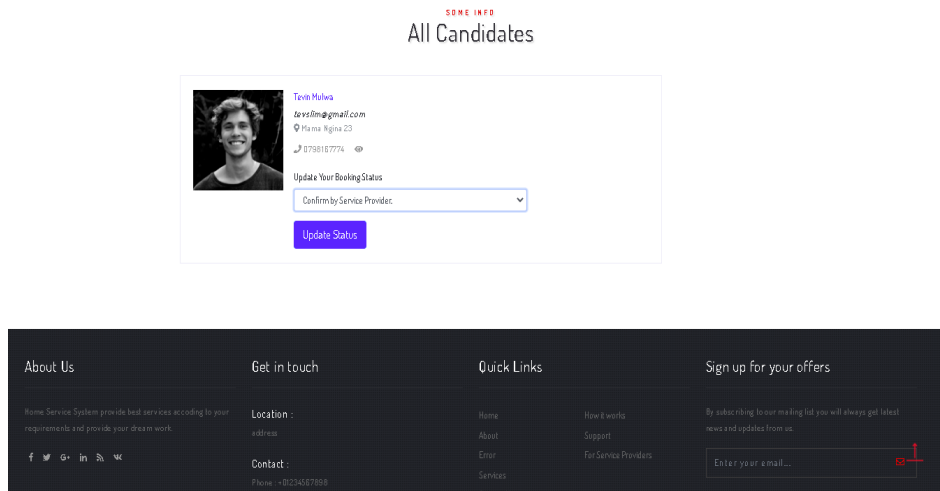


Figure 15: admin home page

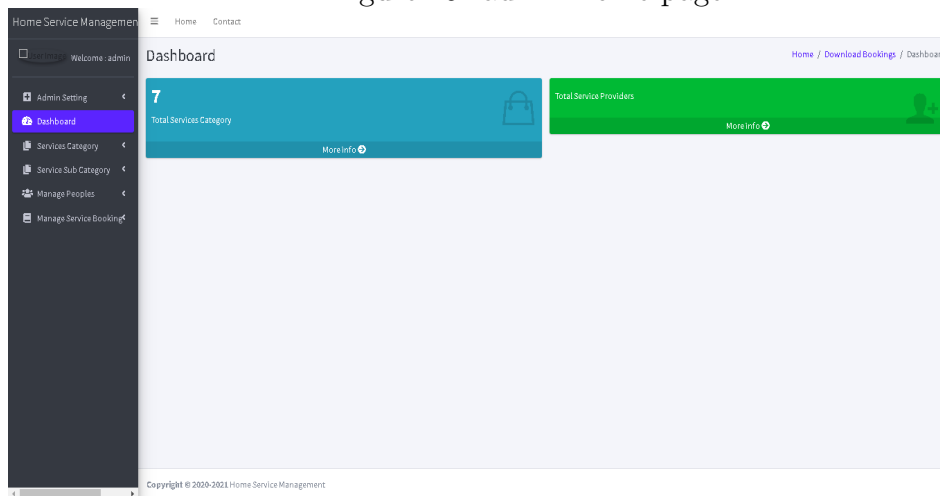


Figure 16: admin manage freelancer page

Home Service Management

Welcome admin

Admin Setting

Dashboard

Services Category

Service Sub Category

Manage Peoples

Manage Service Booking

Home Contact

Manage Service Providers

Home / Manage Service Providers

Manage Service Providers

Show 10 entries

Search:





S.No	Service Category Name	Service Sub-Category Name	Service Provider Name	Contact Number	Email-Id	Profile Image	Experience	Service Charge	Locations	Status	Joining Date	Action
1	Plumber	Basin & Sink,Bath-Fitting	You youou	5678	you@gmail.com		6	600	Imuru	Profile is Approved. Profile is under Confirmation.	2021-12-20 00:56:19	Edit Delete
2	Plumber	Basin & Sink,Bath-Fitting	me mee	543	me@gmail.com		6	600	Imuru	Profile is Approved. Profile is under Confirmation.	2021-12-20 06:29:08	Edit Delete
3	Electrician	A.C./Refrigerator/Washing Machine	Fundi mpoa	0788167773	fundi@mail.com		2	400	Kasarani	Profile is Approved. Profile is under Confirmation.	2021-12-20 09:44:33	Edit Delete
4	Farm Services	Ploughing	Farmer Ken	0788167769	farmer@gmail.com		1	500	Roytambu, Nairobi	Profile is Approved. Profile is under	2021-12-21 09:18:11	Edit Delete

Figure 17: admin approve freelancer

Home Service Management

Welcome admin

Admin Setting

Dashboard

Services Category

Service Sub Category

Manage Peoples

Manage Service Booking

Home Contact

Edit Service Provider

Home / Edit Profile

Edit Service Provider

Service Provider Name

Farmer

Service Provider Joining Date

2021-12-21 09:18:11

Profile Status

Profile is under Confirmation.

[Edit Profile](#)

Copyright © 2020-2021 Home Service Management

Figure 18: admin manage booking








Manage Bookings											
Manage Bookings											
Show 7 entries											
S.No	Client Full Name	Client Email	Client Address	Client Mobile No	Booked Service & Details	Service Provider Full Name	Service Provider Address	Service Provider Email	Service Provider Mobile No	Service Provider Images	Current Booking Status
1	You youu	you@gmail.com	Imuru	5678	Plumber (Basin & Sink,Bath-Fitting)	You youou	Imuru	you@gmail.com	5678		Not Yet Confirm.
2	You youu	you@gmail.com	Imuru	5678	Plumber (Basin & Sink,Bath-Fitting)	You youou	Imuru	you@gmail.com	5678		Not Yet Confirm.
3	You youu	you@gmail.com	Imuru	5678	Plumber (Basin & Sink,Bath-Fitting)	You youou	Imuru	you@gmail.com	5678		Not Yet Confirm.
4	Tevin Mulwa	tevin@gmail.com	Mama Ngina 23	0798167774	Plumber (Basin & Sink,Bath-Fitting)	You youou	Imuru	you@gmail.com	5678		Not Yet Confirm.
5	You youu	you@gmail.com	Imuru	5678	Plumber (Basin & Sink,Bath-Fitting)	me mee	Imuru	me@gmail.com	543		On the way to reach you Location.
6	today today	today@gmail.com	Imuru	4343	Plumber (Basin & Sink,Bath-Fitting)	me mee	Imuru	me@gmail.com	543		Not Yet Confirm.
7	Tevin Mulwa	tevin@gmail.com	Mama Ngina 23	0798167774	Electrician (A.C/Refrigerator/Washing Machine)	Fundi mpoa	Mama Ngina 23	fundi@mail.com	0798167773		Confirm by Service Provider.

Figure 19: admin edit subcategory

Manage Service Category											
Manage Service Category											
Show 7 entries											
S.No	Service Category Name	Service Sub-Category Name	Creation Date	Action							
1	Electrician	A.C/Refrigerator/Washing Machine	2020-01-16 10:11:45	Edit Delete							
2	Plumber	Basin & Sink,Bath-Fitting	2020-01-16 10:12:26	Edit Delete							
3	Electrician	Geyser, Water-Purifier, TV	2020-01-16 10:14:32	Edit Delete							
4	Plumber	Minor Re-pairing, Blockages	2020-01-16 10:15:29	Edit Delete							
5	Parlour	Full Body Waxing	2021-11-26 11:57:03	Edit Delete							
6	Cleaning	house cleaning	2021-12-19 17:49:29	Edit Delete							
7	Farm Services	Ploughing	2021-12-21 09:13:04	Edit Delete							

Showing 1 to 7 of 7 entries

Previous [1](#) Next

Figure 20: admin add category

The screenshot shows the 'Add Service Category' form in the Home Service Management system. The form has a sidebar on the left with navigation links: Home, Admin Setting, Dashboard, Services Category, Service Sub Category, Manage Peoples, and Manage Service Bookings. The main content area has a header 'Add Service Category' and a sub-header 'Service Category Name'. Below this is a text input field labeled 'Category' and a blue 'Add Service' button. The footer of the form contains the text 'Copyright © 2020-2021 Home Service Management'.

Figure 21: system report

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I
	Client Full Name	Client Email	Client Address	Client Mobile-no	Booked Service & Details	Service Provider Full Name	Service Provider Address	Service Provider Email	Service Provider Mobile-no
1	You	you@gmail.com	limuru	5678	Plumber	You	limuru	you@gmail.com	5678
2	You	you@gmail.com	limuru	5678	Plumber	You	limuru	you@gmail.com	5678
3	You	you@gmail.com	limuru	5678	Plumber	You	limuru	you@gmail.com	5678
4	Tevin	tevsim@gmail.com	Mama Ngina 23	798167774	Plumber	You	limuru	you@gmail.com	5678
5	You	you@gmail.com	limuru	5678	Plumber	me	limuru	me@gmail.com	543
6	Today	today@gmail.com	limuru	4343	Plumber	me	limuru	me@gmail.com	543
7	Tevin	tevsim@gmail.com	Mama Ngina 23	798167774	Electrician	Fundi	Mama Ngina 23	fundi@gmail.com	798167773
8	Tevin	tevsim@gmail.com	Mama Ngina 23	798167774	Farm Services	Farmer	Roysambu	farmer@gmail.com	798167769

4.3 Testing

Each module in the architectural framework was tested for various tests to ascertain that the functionality worked as planned. The requirements for testing the system's modules was through use of a computer. The project carried out system and integration testing, performance testing and the user preview testing. For the registration and user data collection module, the project carried out a test on how well the module was integrated to the database and how easy it was to use. The project tried registration and on the other end checked how the data collected was saved in the database. Here, the project used a user's name, email, and rank as the registration data. The data was recorded and reflected in the database. In the performance testing, the project checked for the performance of the system in terms of how the system run the input and output data in the system such as if an admin added a category in the admin page then the category would reflect in the database and also on the front end user interface, where the user would be able to view the services. The system also tested whether a user was able to book a service and receive information about their booking status, after a freelancer set the status as (accepted/denied), after which all these records would be reflected in the database. This testing was to prove that the data management system, model management system, data resources and system database models in the architectural framework were well integrated and data flowed between them consistently. In the user preview testing, the project checked whether the front end user interface system model in the architectural framework run efficiently by showing all controls for a user to view services. A test was also carried out to check whether the system could remember sessions of the current logged in user without having to sign in again. Finally, the project carried out a whole system and integration test on how the modules related and responded to each other. The system provided a perfect integration between the modules giving a user a very smooth flow.

4.4 Future work

The problem of finding suitable home service providers has been a problem for many people for a long time. The home services system project was created and implemented for this reason. In future, it would be important that the project implement precise geolocation so that in the same way a person can track their uber till it arrives to the exact street requested, a client can check when a freelancer is tipped by the system to arrive right at the client's doorstep. The project was also unable to meet its objective of being completely mobile and having an android and ios application so that it

could be optimized for smartphone devices. In future, it would be important that the project will be able to implement this, especially for the users who would prefer to use applications rather than web browsers

5 Appendix

5.0.1 Questionnaire

1. Have you had any experience in searching for a home freelance service?
2. In your experience of searching for a home freelance service please elaborate on the methods you used.
3. Approximately how long did it take you to find a freelance service provider you needed?
4. How was the experience in general?
5. If you had a way to make your experience of searching for freelancers better, what would you do?

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