SOFTWARE ENGINEERING PROJECT

SYSTEM DOCUMENTATION

WALLACE WAMBULWA: BITC01/1085/2022

INTRODUCTION

Presently, individuals, businesses and organizations are experiencing the shortage of fields expertise in sectors such as engineering, research, marketing and teaching. One the other hand, people with the necessary skills and knowledge are challenged by the absence of potential clients to whom they can offer the services. It is not a platform to facilitate connection between the client and freelancer, hence this leads to many missed chances for clients and freelancers.

For that reason, the quest of establishing the system for solving these issues is ahead. This is achieved by Collaborating the architect between those who seek a service and the professionals, designing out the traits and security aspects in a single platform. Our goal is to build a platform and connect clients to relevant professionals with guarantee of full time.

By bringing all the projects and jobs in one place, we have developed an efficient freelancing platform that would offer fast, reliable and secure communication and be time-effective as well. Our main aim is to connect clients and freelancers in one platform with centralized services

We decided to develop the system on our own instead of acquiring custom made software because of the following reasons

By developing the system on our own, it would open our minds on how to create, develop implement and deploy a software while following the rules, this is also a learning point since we gained much knowledge while developing the system on our own

This allowed us to have full control of the system as we developed on our own, this enabled us to locate errors, learn how to integrate different components and also we observed the requirement specification in depth as we developed the system

BACKGROUND INFORMATION

After conducting a research noticed that there is a grow demand in of experts in various fields and the problem is how to access them easily this issue is growing and affecting not only businesses but also individuals and organizations therefore we decided to take the issue in our hands and develop a system that will be able to come in handy and solve this issue by connecting freelancers and clients together in a single platform

FEASIBILITY STUDY

The feasibility study was conducted to know weather the project can be implemented or not in order to address and solve the issue faced by people and organizations in finding experts in different areas who can solve their needs and tasks effectively. The study involved technical,assessment,operational and economic feasibility

Technical feasibility:

We conducted technical feasibility to evaluate the available technology, equipment and resources so as to determine whether they would be compatible with the new system. Necessary software and hardware equipment that would be required included the following

- Computers/laptops
- Stable power source and internet connectivity
- Software for running and developing the system including:
- An operating system, visual studio code, code compilers and necessary packages required

Economic feasibility

This study was necessary as it provided a startup and a summary of the cost and the expenses that would be incurred during the process of developing the system. Cost estimation for development was done to ensure that we don't spend too much or too low but cost effective. The following were the various sources of revenue to finance the project :Sponsorship from the university and other costs we incurred on our own

The following was the total amount rquired:5000,since most of the software we were to use were free and this really helped cut the cost, we spent more on the purchasing of domain for the system and the hosting fee

Operational feasibility

We collected the users information and feedback on our system through the use of surveys, forms and interviews to know weather our system would be viable, accepted and operational. We identified some challenges that users could face while adapting and using the system and we found out the following

Some users claimed that it would be hard to use the new system since some were computer illiterate

Therefore we took measures to ensure that the users would be comfortable with the new system one of them being creating awareness and educating them about the importance of using the digital platform and also told them the advantages it would bring to them

Legal and regulatory feasibility

We ensured that our system meets and adheres to the laws and regulation governing information security and also must not violate the ethics and the laws. We developed terms and conditions for our system, this is to create awareness for the user to be able to operate the system under certain conditions so as not to violate any of them

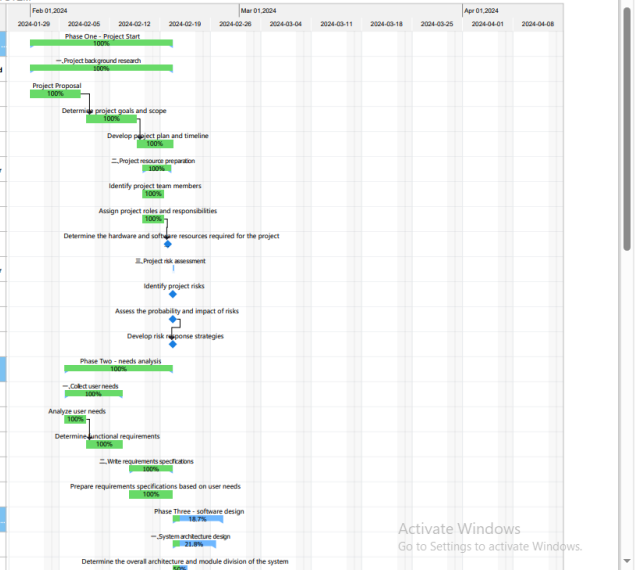
PROJECT PLAN

This is necessary as it outlines the key components and scope we need to look into while developing the system and the following are the major key elements

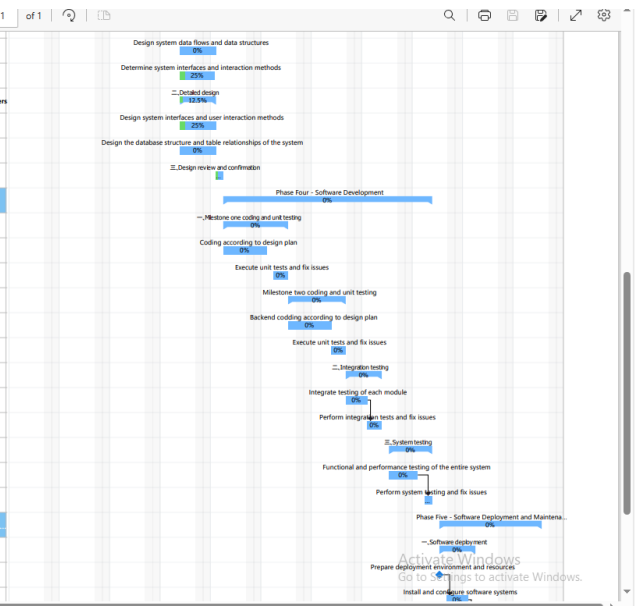
1) TIME PLANNING

This involved creating a schedule on how we would carry out the process of developing the system by managing the time effectively. We divided the whole development process into stages and assigned timestamps to each stage and this helped us okow how long it would take us to finalize and complete the whole project. The schedule is outlined in the following Gantt chart below

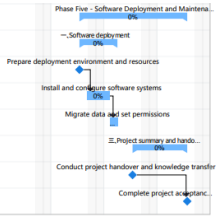
Task	Start	Finish	Duration	Predecessors	Progress	Resources
Phase One - Project Start	**2024-02-01**	**2024-02-20**	**13.8 Workdays**		**100%**	**All Members; System Analyst; Project ...**
—, Project background research	**2024-02-01**	**2024-02-20**	**13.8 Workdays**		**100%**	**All Members; System Analyst; Project Lead**
Project Proposal	2024-02-01	2024-02-07	5 Workdays		100%	All Members
Determine project goals and scope	2024-02-08	2024-02-15	5 Workdays	3FS	100%	All Members
Develop project plan and timeline	2024-02-15	2024-02-20	3 Workdays	4FS	100%	System Analyst; Project Lead
二, Project resource preparation	**2024-02-16**	**2024-02-20**	**2 Workdays**		**100%**	**Project Lead; System Analyst; DB Designer**
Identify project team members	2024-02-16	2024-02-19	1 Workday		100%	Project Lead; System Analyst
Assign project roles and responsibilities	2024-02-16	2024-02-19	1 Workday		100%	System Analyst; Project Lead
Determine the hardware and software resources required for the project	2024-02-19	2024-02-20	1 Workday	8FS	100%	DB Designer; Project Lead; System Analyst
三, Project risk assessment	**2024-02-20**	**2024-02-20**	**0 Workday**		**100%**	**Project Lead; System Analyst; DB Designer**
Identify project risks	2024-02-20	2024-02-20	0 Workday		100%	Project Lead; System Analyst
Assess the probability and impact of risks	2024-02-20	2024-02-20	0 Workday		100%	DB Designer; System Analyst
Develop risk response strategies	2024-02-20	2024-02-20	0 Workday	12FS	100%	System Analyst; Project Lead
Phase Two - needs analysis	**2024-02-05**	**2024-02-20**	**11 Workdays**		**100%**	**System Analyst**
—, Collect user needs	**2024-02-05**	**2024-02-13**	**6 Workdays**		**100%**	**System Analyst**
Analyze user needs	2024-02-05	2024-02-08	3 Workdays		100%	System Analyst
Determine functional requirements	2024-02-08	2024-02-13	3 Workdays	16FS	100%	System Analyst
二, Write requirements specifications	**2024-02-14**	**2024-02-20**	**4 Workdays**		**100%**	**System Analyst**
Prepare requirements specifications based on user needs	2024-02-14	2024-02-20	4 Workdays		100%	System Analyst
Phase Three - software design	**2024-02-20**	**2024-02-27**	**5 Workdays**		**18.7%**	**UI/UX designer; Developers; All Mem...**
—, System architecture design	**2024-02-20**	**2024-02-26**	**4 Workdays**		**21.8%**	**UI/UX designer; Developers; All Members**
Determine the overall architecture and						



Design system data flows and data structures	2024-02-21	2024-02-26	3 Workdays		0%	Developers
Determine system interfaces and interaction methods	2024-02-21	2024-02-26	2.8 Workdays		25%	UI/UX designer; Developers; All Members
二, Detailed design	**2024-02-21**	**2024-02-26**	**3 Workdays**		**12.5%**	**System Analyst; UI/UX designer; Developers**
Design system interfaces and user interaction methods	2024-02-21	2024-02-26	3 Workdays		25%	System Analyst; UI/UX designer
Design the database structure and table relationships of the system	2024-02-21	2024-02-26	3 Workdays		0%	Developers
三, Design review and confirmation	**2024-02-26**	**2024-02-27**	**1 Workday**		**25%**	**System Analyst; Project Lead**
Phase Four - Software Development	**2024-02-27**	**2024-03-27**	**21 Workdays**		**0%**	**Developers; Test Engineer**
—, Milestone one coding and unit testing	**2024-02-27**	**2024-03-07**	**7 Workdays**		**0%**	**Developers**
Coding according to design plan	2024-02-27	2024-03-04	4 Workdays		0%	Developers
Execute unit tests and fix issues	2024-03-05	2024-03-07	2 Workdays		0%	Developers
Milestone two coding and unit testing	**2024-03-07**	**2024-03-15**	**6 Workdays**		**0%**	**Developers**
Backend codding according to design plan	2024-03-07	2024-03-13	4 Workdays		0%	Developers
Execute unit tests and fix issues	2024-03-13	2024-03-15	2 Workdays		0%	Developers
二, Integration testing	**2024-03-15**	**2024-03-20**	**3 Workdays**		**0%**	**Test Engineer**
Integrate testing of each module	2024-03-15	2024-03-18	1 Workday		0%	Test Engineer
Perform integration tests and fix issues	2024-03-18	2024-03-20	2 Workdays	37FS	0%	Test Engineer
三, System testing	**2024-03-21**	**2024-03-27**	**4 Workdays**		**0%**	**Test Engineer**
Functional and performance testing of the entire system	2024-03-21	2024-03-25	2 Workdays		0%	Test Engineer
Perform system testing and fix issues	2024-03-26	2024-03-27	1 Workday	40FS	0%	Test Engineer
Phase Five - Software Deployment and Maintenance	**2024-03-28**	**2024-04-11**	**10.2 Workdays**		**0%**	**Developers; System Analyst; Project L...**
—, Software deployment	**2024-03-28**	**2024-04-02**	**3 Workdays**		**0%**	**Developers**
Prepare deployment environment and resources	2024-03-28	2024-03-28	0 Workday		0%	Developers
Install and configure software systems	2024-03-29	2024-04-01	1 Workday	44FS	0%	Developers



Migrate data and set permissions	2024-04-01	2024-04-02	1 Workday	45FS	0%	Developers
三, Project summary and handover	**2024-04-04**	**2024-04-11**	**5.2 Workdays**		**0%**	**System Analyst; Project Lead**
Conduct project handover and knowledge transfer	2024-04-04	2024-04-04	0 Workday		0%	System Analyst; Project Lead
Complete project acceptance and settlement	2024-04-11	2024-04-11	0 Workday	48FS	0%	Project Lead; System Analyst



2) BUDGET

This involved managing and estimating the financial requirements that would be needed during the development phase. In order to estimate the cost, we used the expert judgement method, this involved consulting experts so as to estimate cost on how much would be needed based on their knowledge and their experiences, we finally came out to a budget of 5000ksh since most of the tools and equipment we would be using were free ,this cost mainly was for hosting the system and purchasing the domains, also it was inclusive of transportation and meetings, also we purchased the premium version of adobe photoshop on which we used during our design phase of the system

3) RISKS AND MITIGARIONS

During the development process, we were faced by a number of risks but we find out a way on how to mitigate and resolve the issues the following were some of the risks that we faced while developing the system

- **Resource constraints**

Cost of purchasing premium software, domains and paying for hosting services, this was a challenge since it required us to seek money to purchase these software and acquire necessary equipment that was needed

- **Mitigation**

We implemented a contingency plan to identify and resolve the risk as early as possible and we found out sources where we could get free software and necessary tools to use during the development process

- **Security vulnerabilities**

This was a crucial element as we noticed that our system could be exposed to hackers and people with bad intentions to our system, the following were some of the security risks that we could possibly face

- SQL injection
- Hacking
- Unauthorized access to the system
- Data breaches

Mitigation

In order t resolve the above risk, we implemented security features in the system that will prevent violations f private information and the terms and conditions of the system including the following

- We implemented strong password policy
- Encryption of data before its stored in the database
- Form validations
- Secure sessions for the users

- **Change in user needs**

We identified potential change in user needs this could occur when the user decides he wants something new that is not similar to what he or she stated first this can impact negatively on the project viability therefore we decided to take the following mitigations

Mitigations

- We monitored trends in user requirements and we were keen enough to spot a change in order to act swiftly and ensure user meets his or her needs
- We established communication with the users to keep them involved and let them report a complain or any other issue they may be facing

4) THE SCOPE

Aims of the system

- To develop a system that will allow clients to post their issues and seek help in their projects and tasks
- To create a section of freelancers with a wide skill set in different categories
- To ensure fast and reliable communication and cooperation between the clients and freelancers in the system
- To create part time employment opportunities for the freelancers
- To bring together clients and experts across the country

Key Features of Our Platform:

- ❖ User registration and verification
- ❖ Client dashboard for creating and posting projects
- ❖ Freelancers dashboard for searching and applying projects and tasks.
- ❖ Messaging system to establish communication between clients and freelancers
- ❖ A file sharing system to allow for resource sharing between the client and freelancer
- ❖ Project categories with search functionality
- ❖ Ratings and reviews section in system.

5 COMMUNICATION PLAN

Purpose of the communication plan

- To keep all members updated of the project progress
- To create awareness in case there is change in how we are supposed to do something
- To share new ideas
- To share new tools and better equipment that we could use
- To ensure that all members are performing their respective roles in the group
- To allow anyone to be able to seek clarity and help where needed
- To ensure collaboration in the project as it is a group work

Communication channels

We ensured communication and collaboration by using the following methods so as to achieve the aim of the project

Online zoom meetings every Monday and Thursday. This was done to ensure that everyone is updated on the progress of the project and provided a channel to share new ideas, we utilized tools such as google meet and also git and GitHub for project collaboration

Physical meetups this was done once per week to ensure that we discuss in details any issue that may have risen during the project development period

The above meetups were mainly done to discuss the following

- General progress of the project
- To share new ideas
- To share knowledge on how to debug errors while developing
- To share new system designs and discuss better methods of implementing

The following were the roles of different members in the group

Wallace wambulwa	**Developer**

Alan Isaac	Developer
David juma	System analyst
Naomi chepkorir	Tester
Beth owala	Database designer
Grace kabera	UI UX designer
Vincent ndereba	Project lead

QUALITY METRICS AND ASSURANCE

While developing our system we prioritized to ensure high quality work so as to satisfy the user requirements and goals, for example we conducted tests to establish accuracy and security during the development process to ensure good work that meets the standards

Quality metrics

- **Accuracy:** This was established through tests that were conducted on the system to ensure accuracy and that the system meets the user requirements
- **Completeness**: we evaluated the functionality of the system to ensure that it met all the needs and that all components are working well without any errors and lagging
- **Reliability:**
- We focused on consistency and stability of our system to ensure it does not crash or produce errors but works perfectly as needed by the user
- **User satisfaction:**
- We gathered feedback from the users and stakeholders to know if they were experiencing any errors and if they were satisfied with the system and if there was any need to make corrections was done as soon as possible

INSPECTIONS

Through out the development period, we conducted inspections around the system and this included the code, the user interface an the database to ensure that it met the standards and that there were no possible errors that could bring down our system

We used the following criteria for inspections which included, we made sure to adhere to coding standards that we had agree on, consistency in the design and ensuring that there were minimal changes

REVIEWS

We set out two days where we met physically and everyone conducted a review of the system based on the progress to access any issue that may arise or any error this ensured consistency and minimal errors during the development phase

During the reviews we focused on evaluating the requirement specifications of the system to ensure that the system was performing according to the standards and it was meeting the requirements and needs

We used the feedback that we got from the review to improve the system and make corrections where it was needed as soon as possible

TESTS

This was among the crucial part as we evaluated and carried out several tests to know weather our system was performing well and if any errors occurred we corrected them instantly the following were some of the tests that we carried out in the system

Unit tests

In the system during the ratings ad review section, we had a function that was able to recommend whether a review done by a user is viable to be displayed on the platform or not, this was achieved by the admin side where the admin side had power to approve or deny a review made on the system by a user since some users may just key in some vague statements which must undergo validations before bang accepted

Integration testing

This was done in the system when we wanted to integrate new components in the system and make them work with the existing ones, we did this testing when we wanted to integrate couple of API in the system like for instance the google maps Api and the WhatsApp business Api. This testing was crucial as it made us know whether the components could work with other components within the system

System tests

This was done to evaluate the overall functionality of the system and know whether it met the requirement specifications according to the aims of the system, the following were sample system tests that we conducted in our platform

- **Creating a post:**
- This was a major component that allowed the client to create a post citing his or her inquiries and then the post will be submitted for validation before being processed and allowed, if the post was meaningful and it makes sense, the post would be automatically accepted and submitted on the freelancers page so that it could be visible to experts
- **Hiring and expert**
- This was tested to ensure that the client could easily hire an expert after he or she went through the profile and resume of the expert. By a click of a button the function will be called and a

recommendation algorithm will be triggered to recommend to the client an expert who is close to him and also who meets his or her expectations

- **Search functionality**
- We carried out search functionality testing to ensure that the search function was working as expected and produced the desired results.in this case, the search functionality was majorly aimed to allow the users to search for various categories of services they wanted in the platform
- **File sharing**
- Since we integrated a file sharing mechanism in our platform that will allow freelancers to be able o share files with the clients ranging from documents pdfs and images, we tested using different file types and sizes and in any case of error, necessary correction was done instantly
- **Messaging system**
- This test was done to evaluate whether the messaging feature that we implemented in our platform was working as expected, this included the sending and receiving of messages from the clients page to the freelancers page and vise versa

SDLC METHODOLOGY

We used the waterfall model during the development since we divided our development phases into phases and we completed one phase before moving to the other phase. We found it to have the following advantages over the other models

- It offers a structured approach as the phases of project development are well structured and planned out in phases
- We found it easier to use and apply
- We found the method stable since we did not have to constantly change or shift anything during development
- Minimal errors as the methodology offers a chance to check for errors after every phase and correct them therefore it allowed our system to be concise and have minimal issues

REQUIREMENT ANALYSIS

Functional Requirements:

These specifications outline the objectives that our system must meet to its users. including account registration ,communication between clients and experts, each is important for service delivery and ensuring the system achieves its aims

CLIENTS

- ❖ Clients are able to create and register accounts and create their profiles
- ❖ Clients are able to log in and log out securely.

- In the system clients are able to post tasks or projects and specify what kind of service they want
- In our system clients are able to browse and find services they want in the system
- Clients are able to make a review of the system
- Clients are able to Report any issue that may arise within the system to help and support
- Clients are able to establish secure communication in the platform with freelancers in the system

EXPERTS

- Freelancers are able to create profiles ,register and log I to the system securely
- Our system allows freelancers to be able to browse for specific tasks using precise search functionality
- Freelancers are able to submit their resumes and post so that they may market their skills and expertise
- Freelancers are able to initiate secure communication between them and the clients
- Freelancers are able to give reviews of our system and rate its performance
- Freelancers are able to Report any issue that may arise within our system to help and support

Non-Functional Requirements:

- Our system is able to handle a large number of users while ensuring fast responses
- in order to ensure that our users data is secured we have enforced the following security measures
- Protected routes meaning no one can access the services in our system without being signed in
- We have ensured that users passwords are strong
- Password encryption: users passwords are encrypted and stored in the database
- Data validation
- Our system is reliable with few instances of lagging and failure
- Our system is able to process data with precision and accuracy
- Regular updates are performed on the system to improve its performance and security.
- We designed the user interface to be friendly enough so as to offer good user experience
- The user interface is responsive and adaptive, ensuring it accommodates and fits in different screen sizes accordingly
- our system is able operate in different operating systems namely linux windows and android

METHODS USED TO GATHER REQUIREMENTS

- **Interviews**
  We conducted sample interviews with relevant stakeholder so as to get information from th ground regarding the challenges that are faced by clients and freelancers in their daily lives this was helpful as it enable us to find useful information that was to be used during identifying our target audience
- **Surveys**
  We conducted survey studies on different key elements to know what our users wanted and the way they needed service delivery
- **Questionaries**
  They were used t collect information from relevant stakeholders regarding their location name and opinion about the proposed system
- **Forms**
  These are data collection tools they came in handy in the places where questionnaires w not useful we used form which were easy to use and allowed the user to provide information based on the inquiries
- **Observations**
  This method came in handy as we observed the user interaction with the existing systems and how the were managing their needs, during this we were able to find out potential problems and we took necessary measures to know how we could handle this situations

CHALLENGES FACED DURING REQUIREMENT GATHERING

- During the process we faced the following challenging issues
- Some stakeholders were not willing to give out information
- Some information provided was not clear
- Some stakeholders found it hard to use questionnaires and forms
- Some were illiterate making the process of collecting information hard
- We faced communication challenges due to language barriers
- We had minimal time to conduct the process
- Technological constrains

USERS OF THE SYSTEM

Clients

The main goal of developing this project was to allow clients that is those who have complaints and they

want a channel to air out their enquiries to be able to be linked with the freelancers and experts in different fields who will come in helpful and handy to their pleas and tasks

Businesses

These may include organizations or group usually like bigger companies and saccos that can benefit from the platform Example, they may need someone who can develop and implement the software, read the data, provide them advice over major strategic decisions, and to lead them from projects of all kinds.

Experts:

Freelancers

These are the ones who practically worked, and make things for other people to benefit. Some of them are cartoonists, web designers, writers, counsellors, or experts, all of which cannot be exactly known. In general, they are the ones who rent their services and can hold various jobs.

Advisors:

There are lots of advisers who guide business people or individuals in certain issues. The extent of knowledge could start from, owning a company, fixing a laptop to marketing well or managing finances.

professionals in different areas

They are those who have learned subjects lately, mostly because of the types of jobs they have. You might need all sorts of experts regardless of their fields – from engineers to scientists, teachers, marketers and researchers, it is possible that they might happen to be available when you need them for your complex struggles.

Service Providers

they will offer their services to the other people in the society or business. They could create web pages; offer web development services, help with sales, legal issues or financial management are some of the services they can give.

SYSTEM ARCHITECTURE OVERVIEW

Our system ensures security, dependability, and scalability also facilitating easy communication and collaboration between clients and experts. The architecture is fundamentally made up of a number of important parts that interact to provide the required functionality. An outline of the key elements, and technologies employed is shown below:

Frontend Interface:

This is the side upon which the user interacts with the system components it is programmed using languages which include HTML CSS JAVASCRIPT AND BOOTSTRAP

The backend:

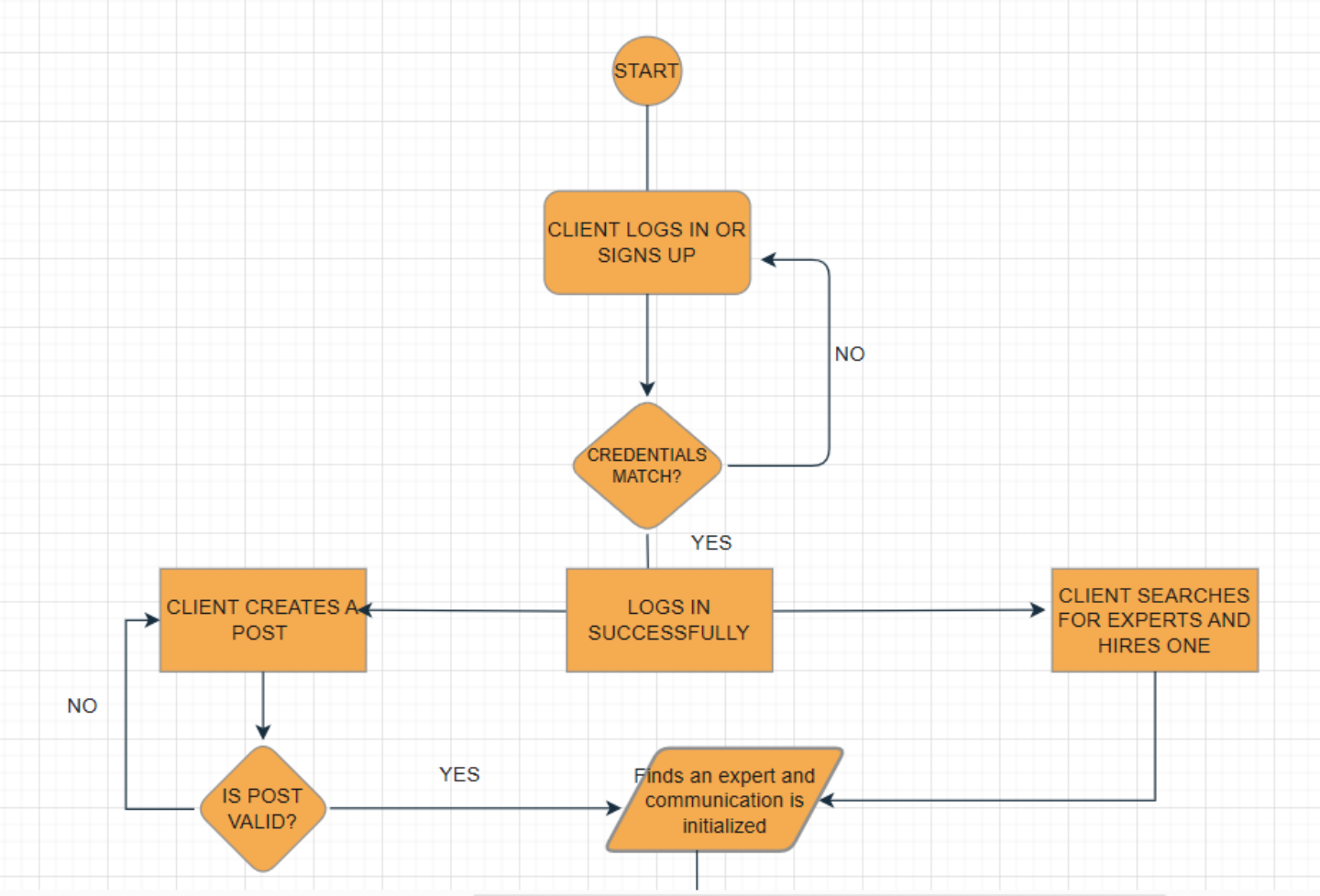
This is the server side component that is responsible for performing functions that are not visible to the user this includes, handling the logic for data processing,storage,fethingand implementing security features in the platform. Written in Node js and express framework

Database:

This is the main storage that captures and securely stores users details ranging from the name, passwords and other important features our database model is relational and we used MYSQL for data storage

SYSTEM DIAGRAMS

Activity diagram for the client



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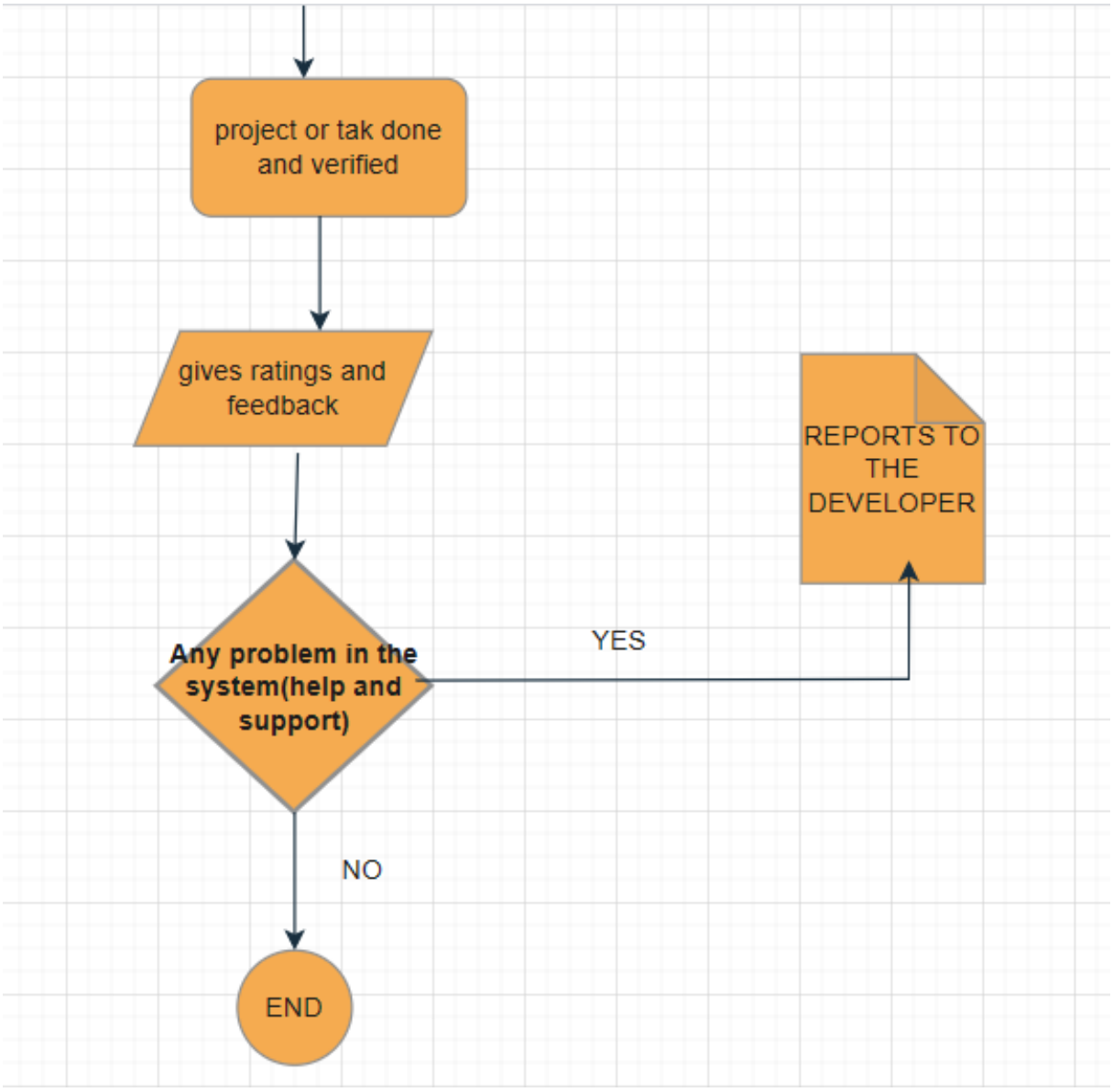
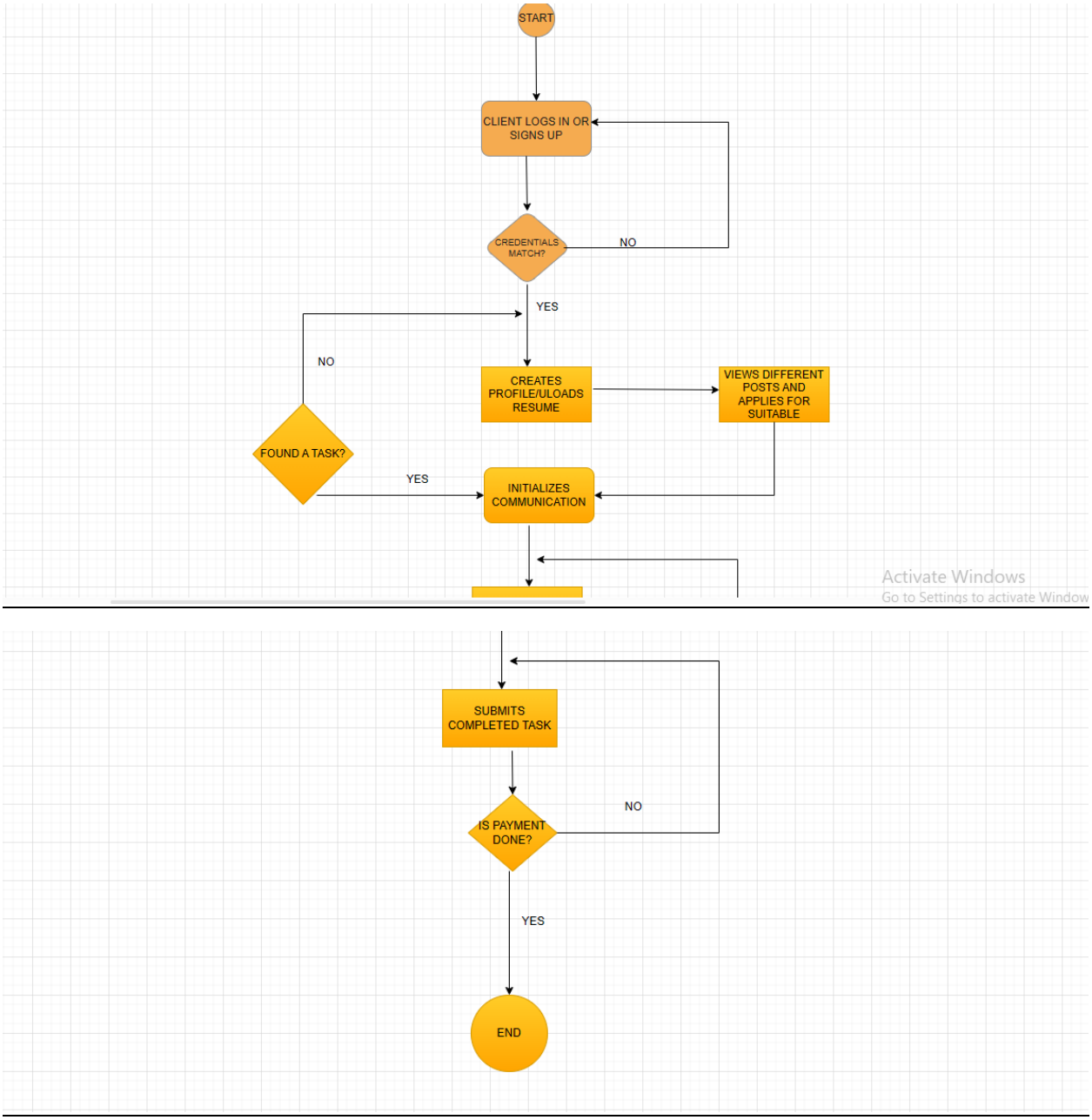

project or tak done and verified
gives ratings and feedback
REPORTS TO THE DEVELOPER
Any problem in the system(help and support)
YES
NO
END

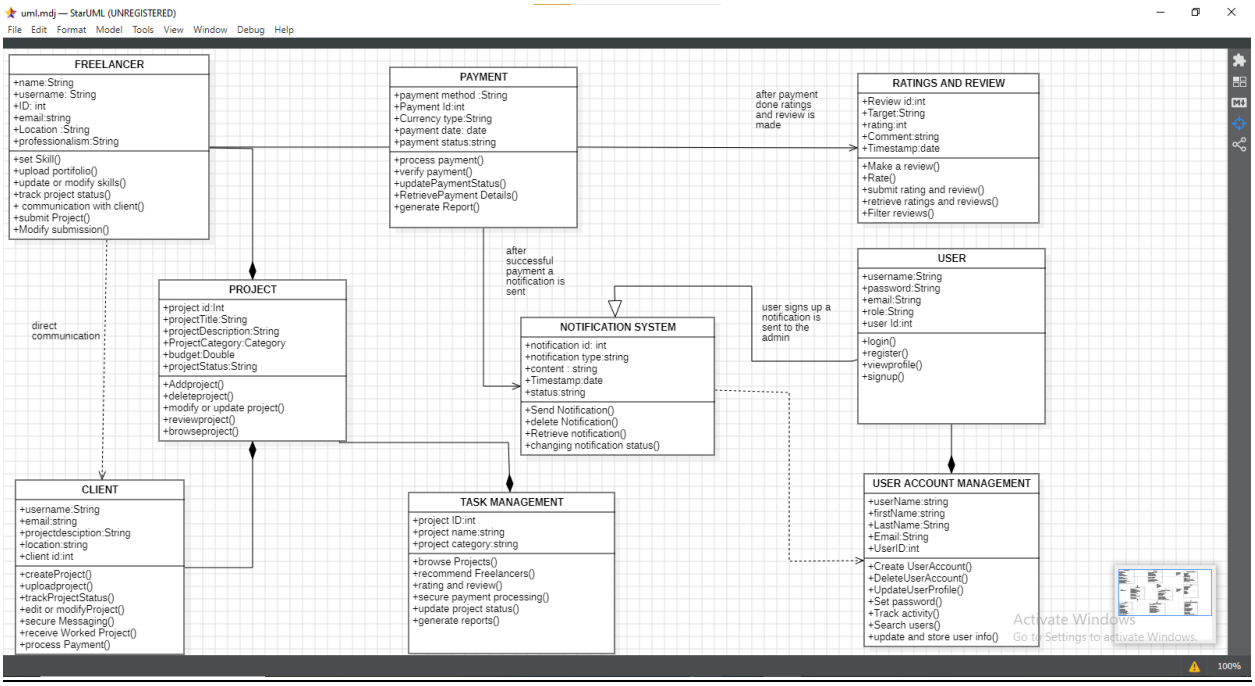
ACTIVITY DIAGRAM WHEN LOGGED IN AS A FREELANCER OR EXPERT



The freelancer or the guy who is offering the expertise and solution logs in or alternatively if he or she does not have an account he creates one then proceeds to create his or her profile, this is the crucial part since he needs to upload his resume and give detailed information about his expertise and his knowledge so that he can be secure a chance and get hired by a client, after that communication is initialized in the system through a messaging application that offers file transfer mechanisms in the system, after linking up with the client, and successfully doing the task, payment is done and the freelancer can give feed back and rate the experience in the system, additionally there is a section for making inquiries suppose the system is misbehaving or having any other problems

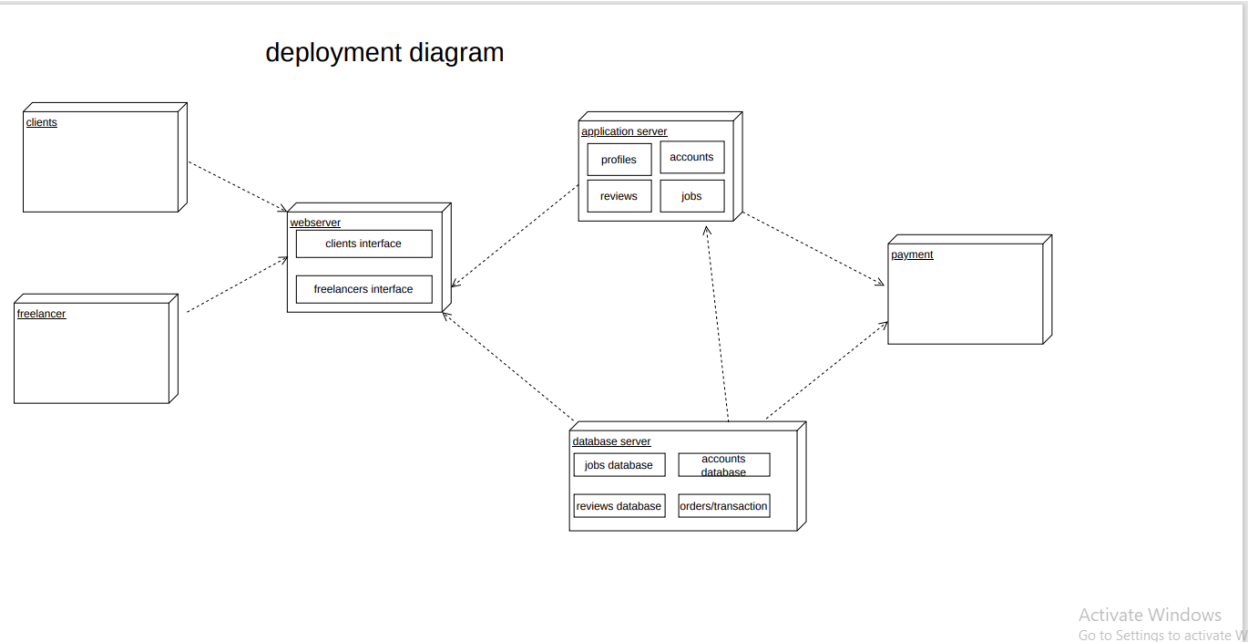
2) UML CLASS DIAGRAM

This diagram represents the structure of the system by depicting the classes attributes and operations



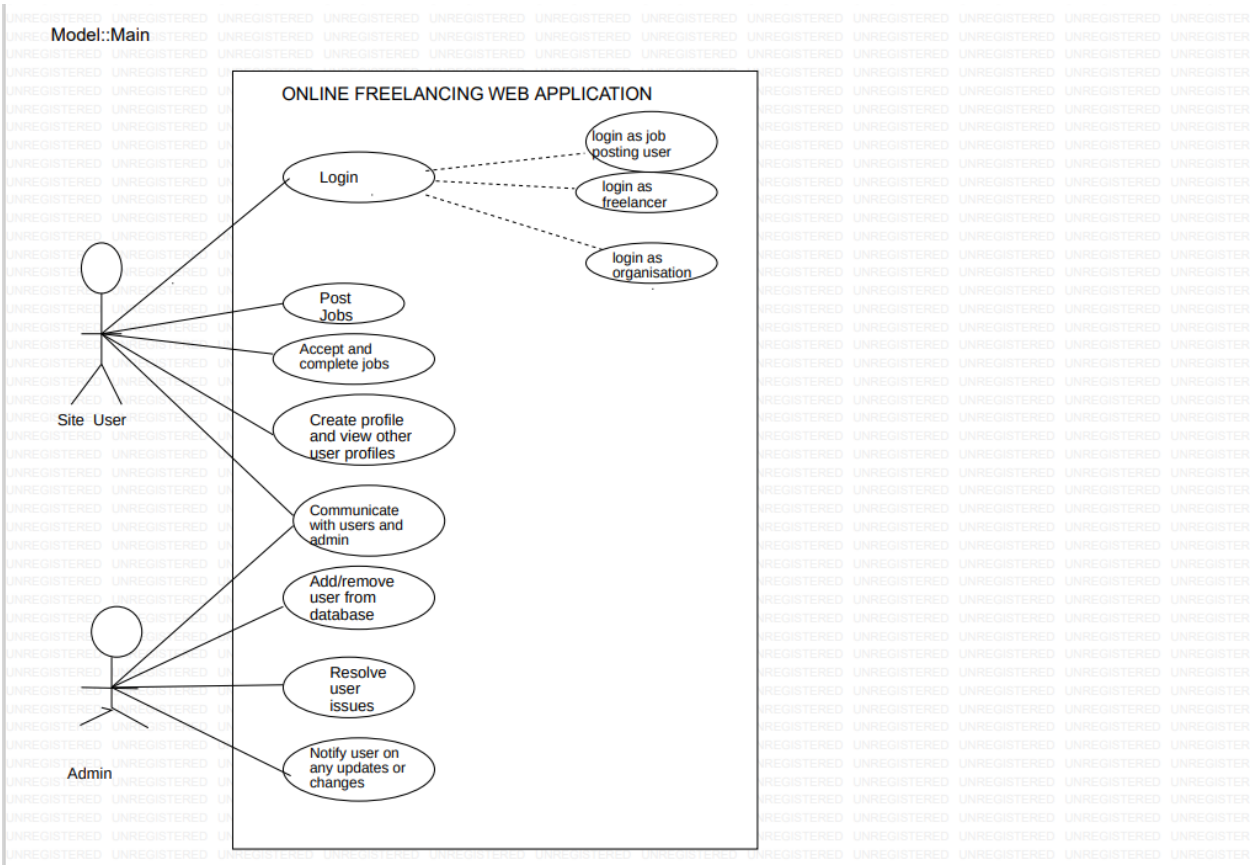
DEPLOYMENT DIAGRAM

A deployment diagram illustrates the deployment of software components within a system It shows how software tools are distributed across hardware servers, computers, and devices in a networked environment.

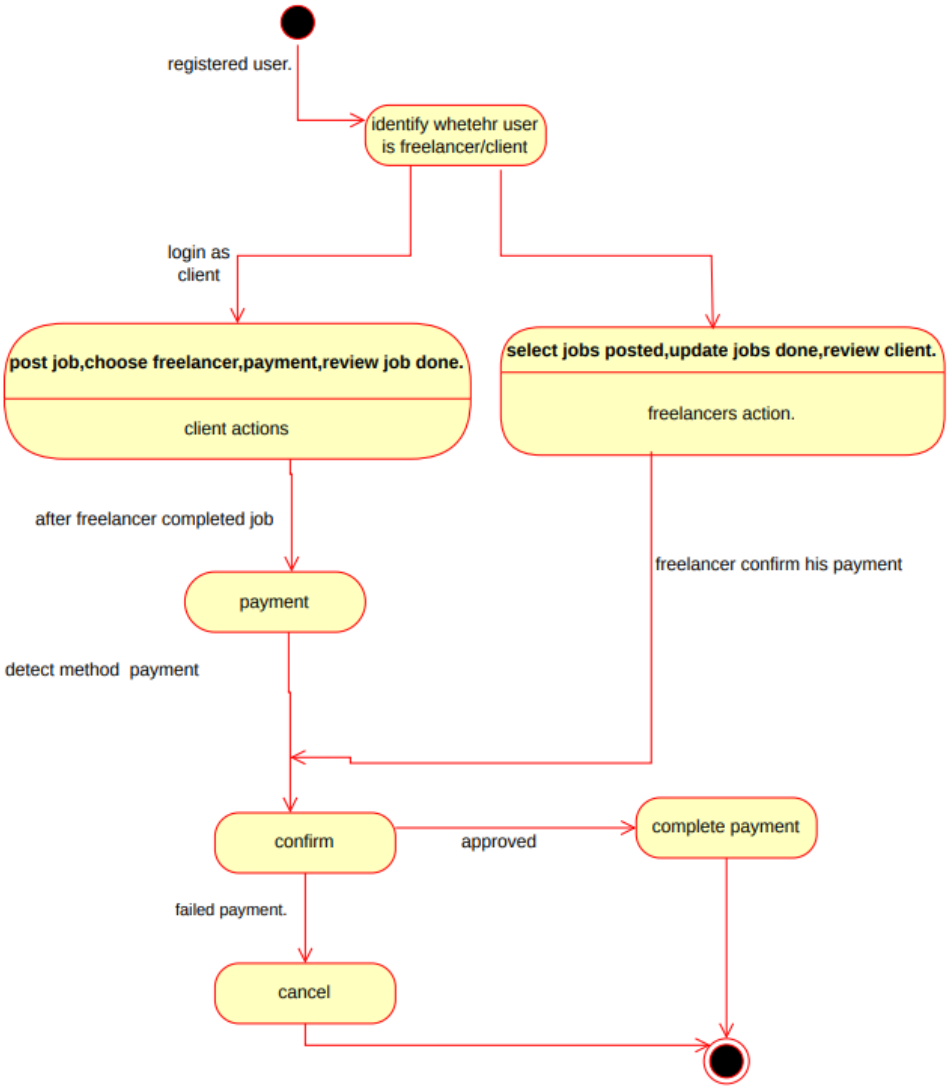


3) USE CASE DIAGRAM

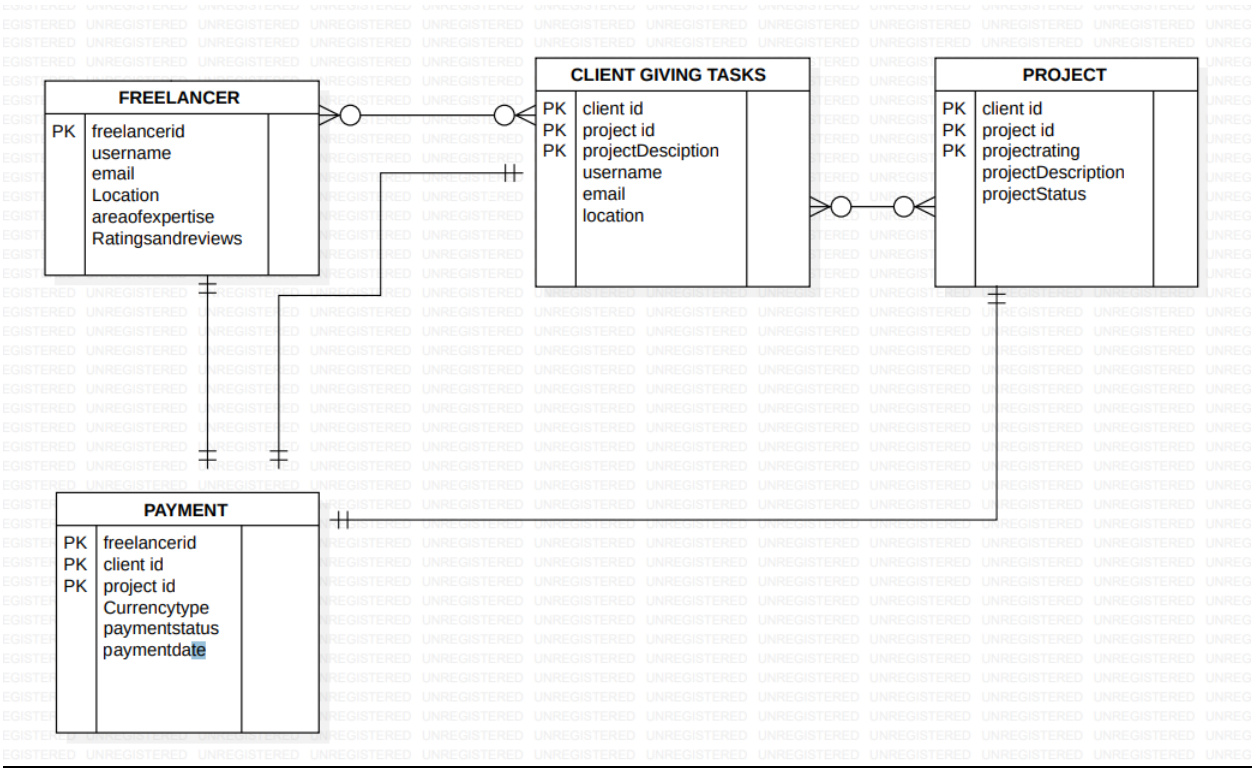
This one shows how users interact with the system and it depicts various use cases and functionality in the system



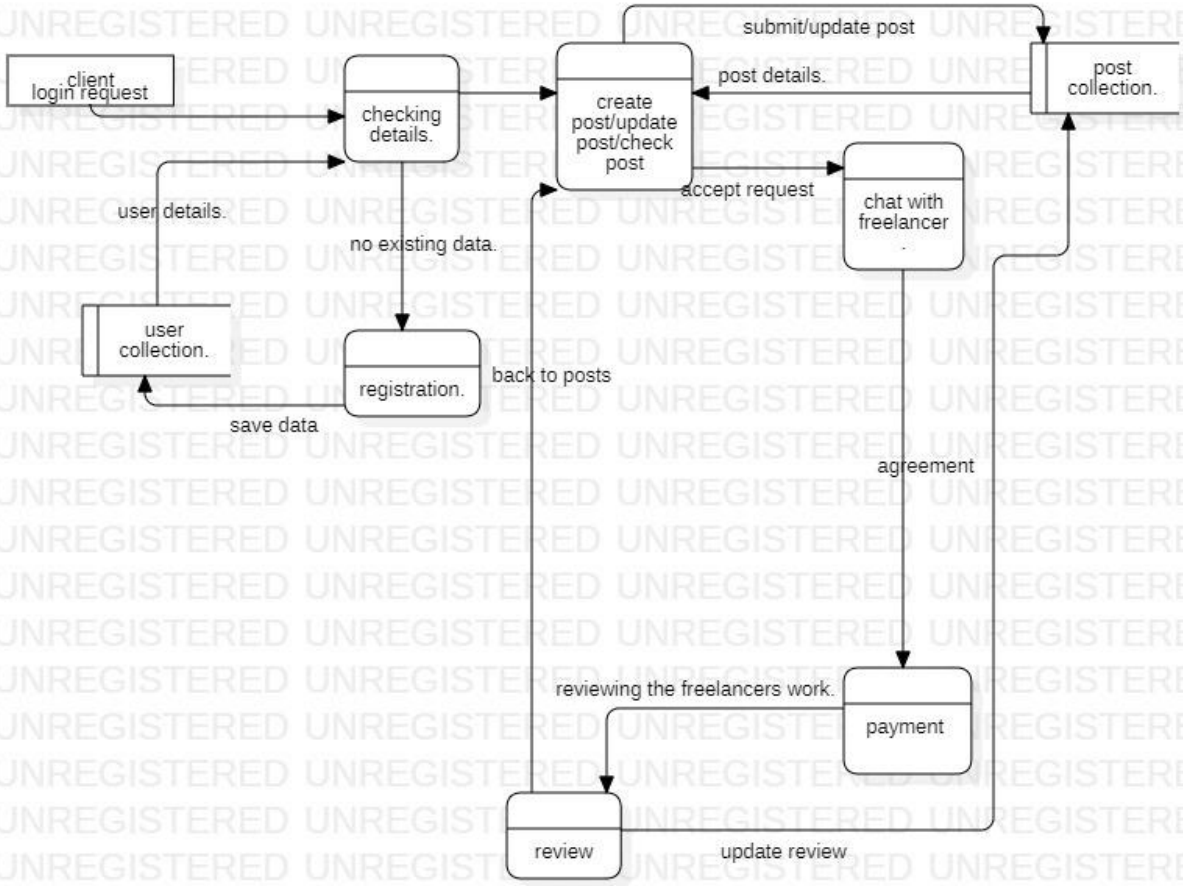
4)STATE CHART DIAGRAM



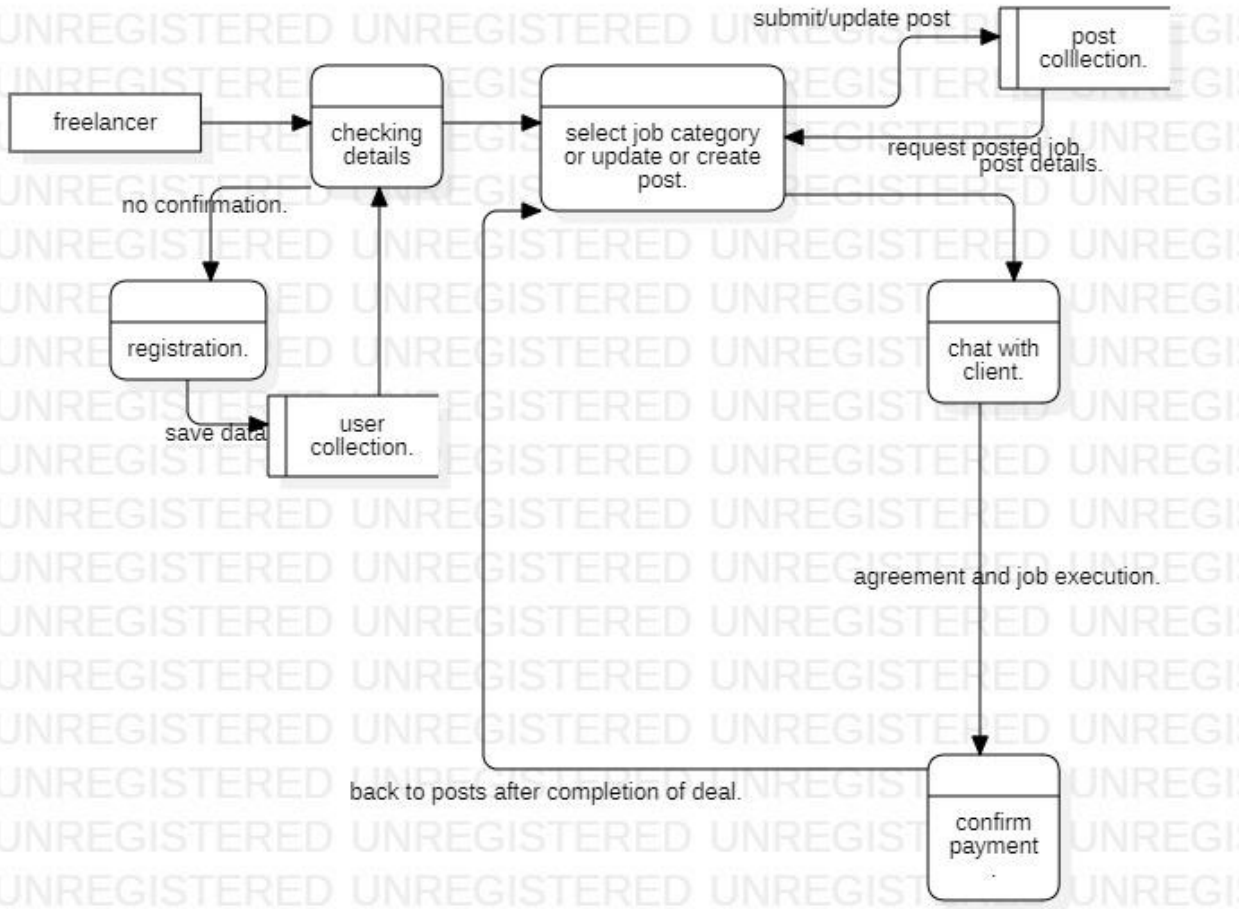
5) ERD DIAGRAM



6 DATA FLOW DIAGRAM FOR THE CLIENT



7 DATA FLOW DIAGRAM FOR THE FREELANCER



DATABASE DIAGRAMS

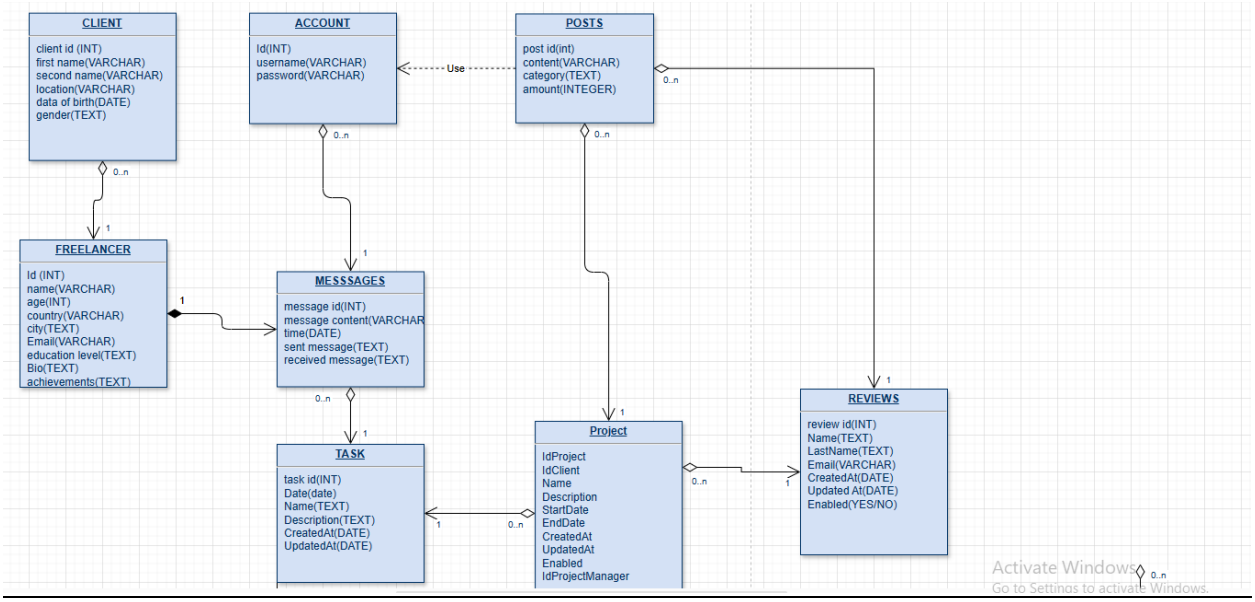


	Table	Action	Rows	Type	Collation	Size	Overhead
☐	account	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	clients	Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	files	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	176.0 KiB	-
☐	notifications	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	page1	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	page2	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	posts	Browse Structure Search Insert Empty Drop	4	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	profiles	Browse Structure Search Insert Empty Drop	1	InnoDB	utf8mb4_general_ci	32.0 KiB	-
☐	reviews	Browse Structure Search Insert Empty Drop	2	InnoDB	utf8mb4_general_ci	16.0 KiB	-
☐	users	Browse Structure Search Insert Empty Drop	37	InnoDB	utf8mb4_general_ci	16.0 KiB	-
	10 tables	Sum	49	InnoDB	utf8mb4_general_ci	336.0 KiB	0 B

```
SELECT * FROM `users`
```

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

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

Extra options

	id	username	password
☐ Edit Copy Delete	1	wallace	W1&ji9jdi*9
☐ Edit Copy Delete	3	trixie	#@Trixie123
☐ Edit Copy Delete	4	Peter	Peter#@123
☐ Edit Copy Delete	5	wallac	@As@^yyb t^5
☐ Edit Copy Delete	6	wallacewambu	J
☐ Edit Copy Delete	15	yusuf	W@g5E&0j
☐ Edit Copy Delete	17	juma	W1&ji9jdi*9
☐ Edit Copy Delete	18	Grace	QWert12/
☐ Edit Copy Delete	19	wambu	#!/usr/bin/enA6
☐ Edit Copy Delete	20	666	535 x65x2$E
☐ Edit Copy Delete	21	quinter	<meta charset="UTF-8" />

IMPLEMENTATION

SAMPLE SERVER SIDE CODE FOR THE SYSTEM

JS MAIN_SERVER.js MAIN_SERVER.js

```
const express = require("express");
const bodyParser = require("body-parser");
const mysql = require("mysql");
const path = require("path");
const session = require("express-session");
const http = require("http");
const WebSocket = require("ws");
const multer = require("multer");
const fs = require("fs");
const app = express();
const port = 5011;
const server = http.createServer(app);
const wss = new WebSocket.Server({ server });
app.use(express.static(path.join(__dirname, "public")));
app.use(bodyParser.urlencoded({ extended: true }));
app.use(
  session({
    secret: "85N?_[}fj8hgg%66>>*5AA23SUSS^^68288DH@@__99D9w22h8YYu8h  777",
    resave: true,
    saveUninitialized: true,
  })
);
// MySQL database connection
const connection = mysql.createConnection({
  host: "localhost",
  user: "root",
  password: "",
  database: "taskify",
});

connection.connect((err) => {
  if (err) {
    throw err;
  }
  console.log("Connected to MySQL database");
});
app.get("/", (req, res) => {
  res.sendFile(path.join(__dirname, "public", "login_page.html"));
});
```

System implementation/ deployment / release planning

- **Completing system configuration**
  We have ensured that all the hardware and software components are integrated and are working well, all the requirements specifications have been met and the system is performing as expected according to the users needs
- **Setting up the deployment environment**
  This is done to ensure that the system can be deployed without any conflict and perform as expected, we achieved this by ensuring that the server environment is well configured and enough security measures is implemented .The system will be hosted on the internet after we have purchased a domain only after we have ensured that it meets security requirements
- **Setting up the infrastructure**
  We have prepared the necessary equipment that will be required for deployment including configuring the servers, ensuring that the databases are working well and al other major components in the system
- **Testing and support**
  We have carried out the necessary test on the system to ensure it performs as expected without errors and downtimes, this is important phase as we also ensured we enabled customer support in the platform by allowing the user to be able to report any issue or contact the relevant support team through the email or phone number provided in the platform
- **Rollout plan**
  We have backed up our system securely and incase of any issue we have a rollout plan that will allow us to go back to the initial or previous system implementation

INTEGRATION WITH EXISTING SYSTEM

In our case we chose to use continuous integration where we shall be regularly integrating the code changes into a shared repository, we chose this approach since it allows us to evaluate the code and we fix errors during texts this minimizes chances of system failure. We found this helpful because it enhances collaboration and also there is early detection of issues that may arise in the system. This approach ensures that the system id generally stable. This was beneficial since it ensures that changes are continuously validated and integrated with other system components

TRAINING USERS

This is an important phase as it allows the users of the system to be aware of the system and how to use the system appropriately, we employed the following mechanisms to ensure that we train the users effectively

Through online campaigns

We used articles and well documented instructions to train the users about the system and how to use this allowed us to reach a great audience in a large area at a time.

Physical training sessions

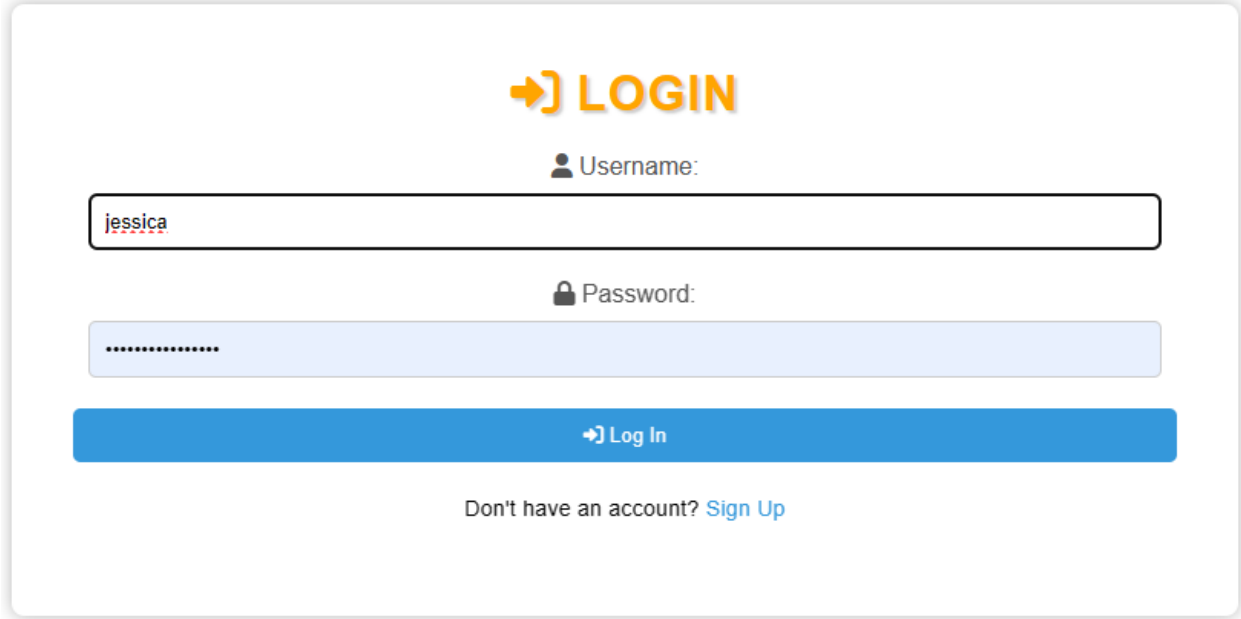
This was important as it allowed us to directly interact with the users and provide the training guides to them, it also allowed the users to raise questions and we gave them solutions instantly, this was a good method since it provides structured and well informed content to the users

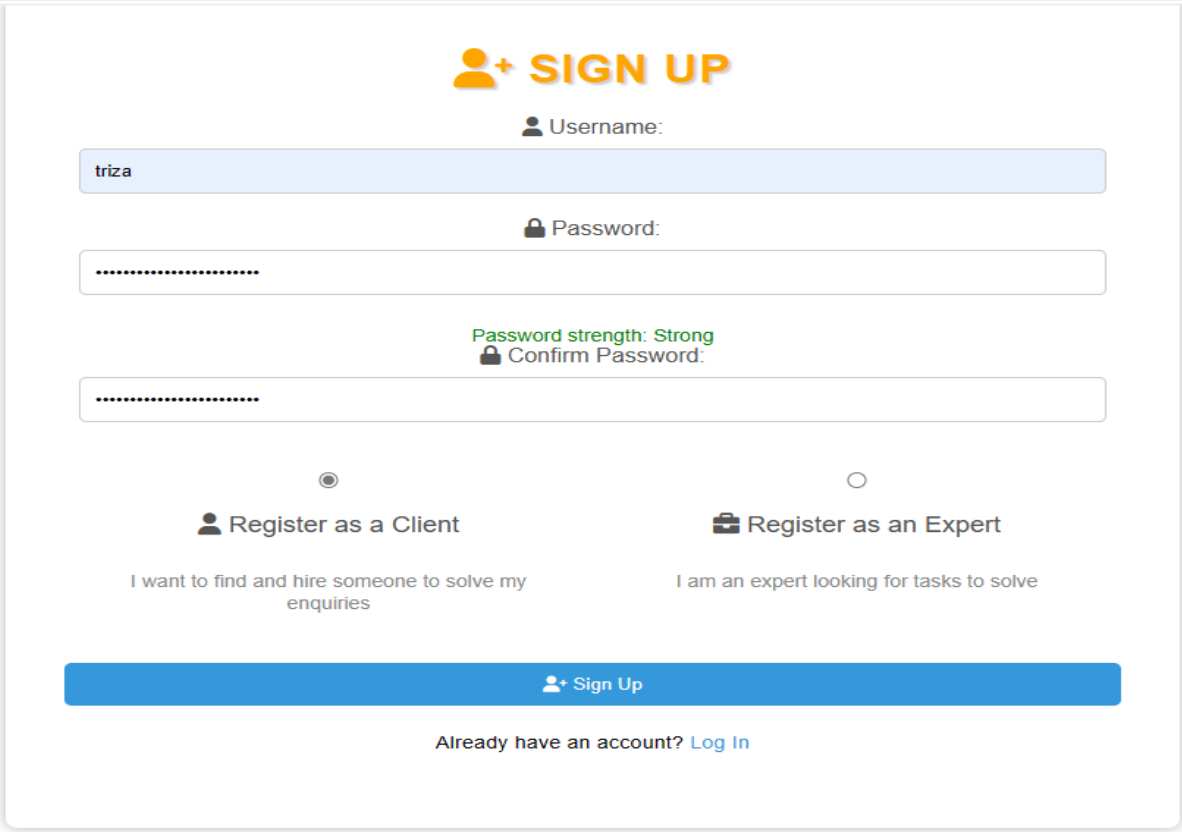
SYSTEM IMPLEMENTATION APPROACH

We used parallel system implementation approach this allowed us to evaluate and run the two systems simultaneously and we tested both systems to ensure that the new system is working well without any issues and finally we fully implement the new system, we found this approach good since it minimizes the risks of system failure and allows us to evaluate and carry out necessary tests

TESTING OF FUNCTIONAL AND NON FUNCTIONAL REQUIREMENTS

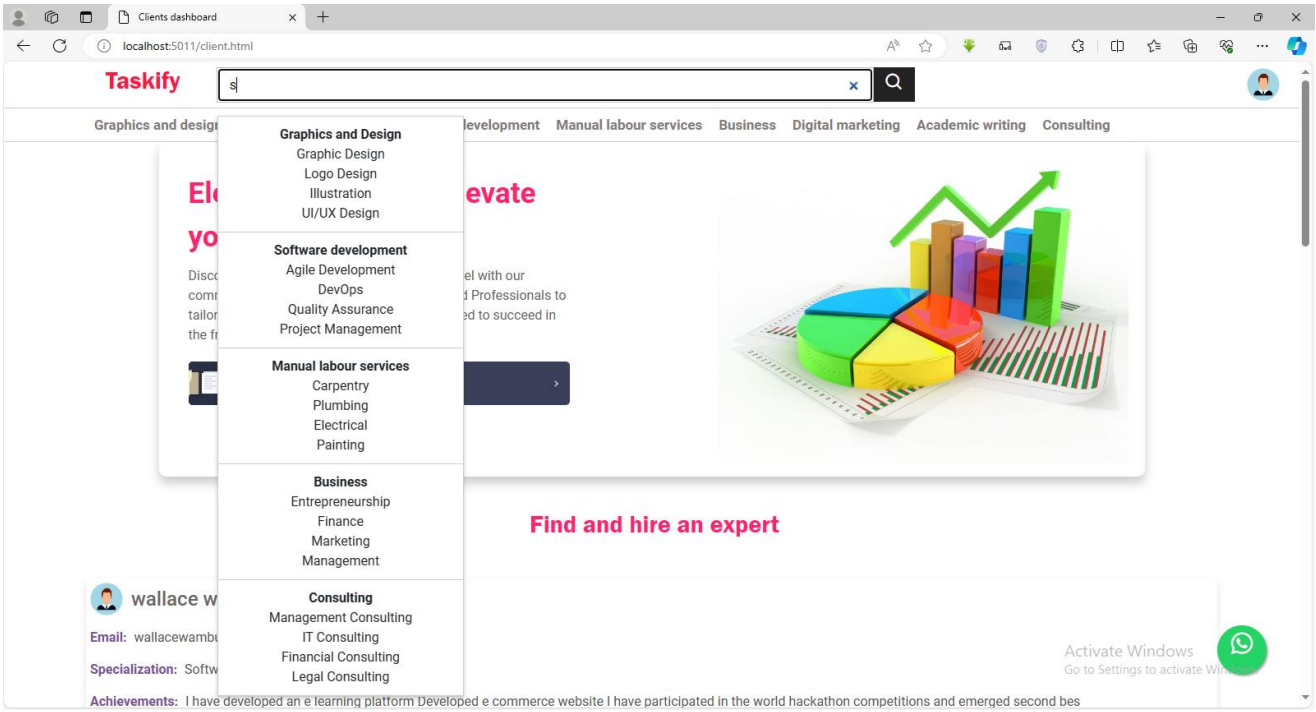
Login and Registration:
First the client logs in the system If you are a new user, you can register as a client by providing the required information and creating an account.

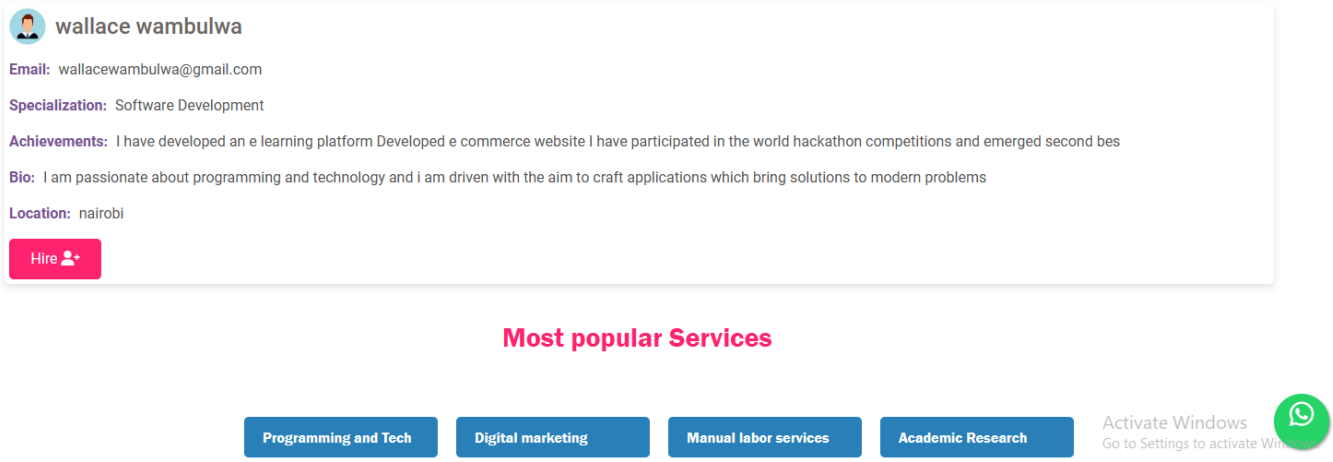

LOGIN
Username:
jessica
Password:
Log In
Don't have an account? Sign Up


SIGN UP
Username:
triza
Password:
Password strength: Strong
Confirm Password:
Register as a Client
I want to find and hire someone to solve my enquiries
Register as an Expert
I am an expert looking for tasks to solve
Sign Up
Already have an account? Log In

- **Search for Freelancers(experts):**

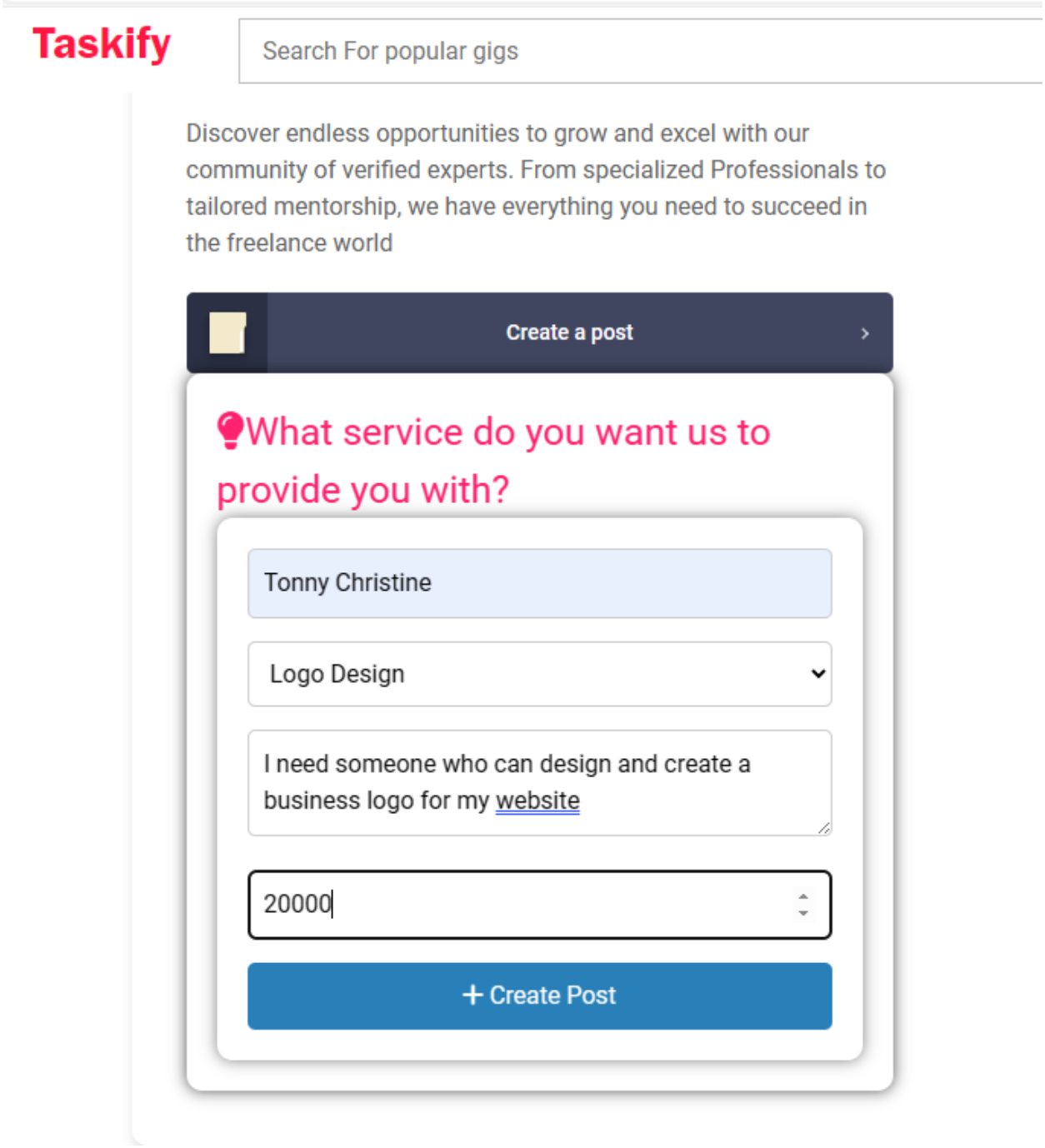
Once the user has been successfully logged in our system he can search for different categories of projects and





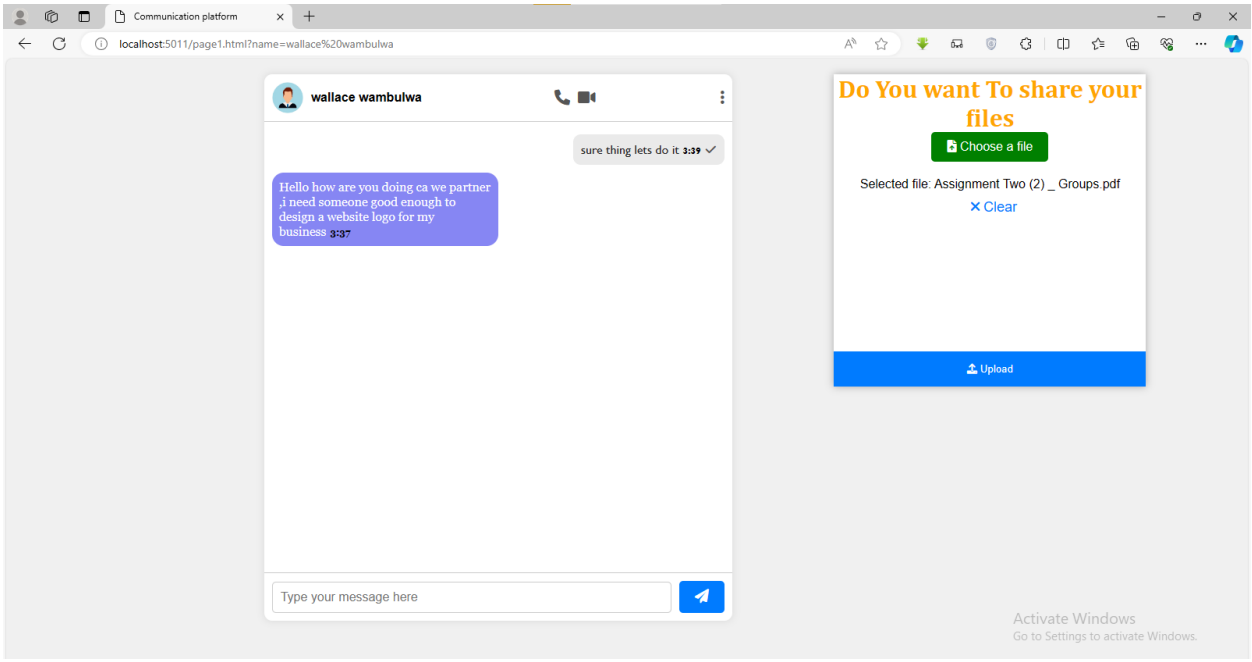
Create a Post:

After the client has logged in to our system he can create a post saying what he wants and the post will be dynamically fetched and appear on the freelancers page

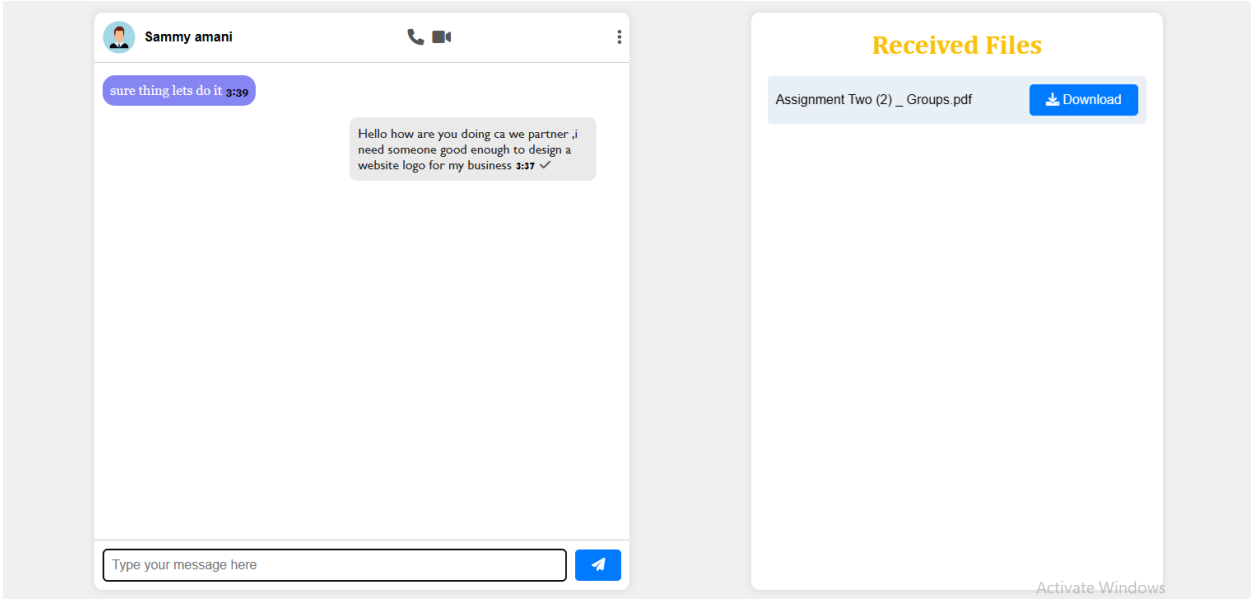


- **Communication and Collaboration:**

  We implemented a messaging system in our platform to ensure fast communication and also file sharing



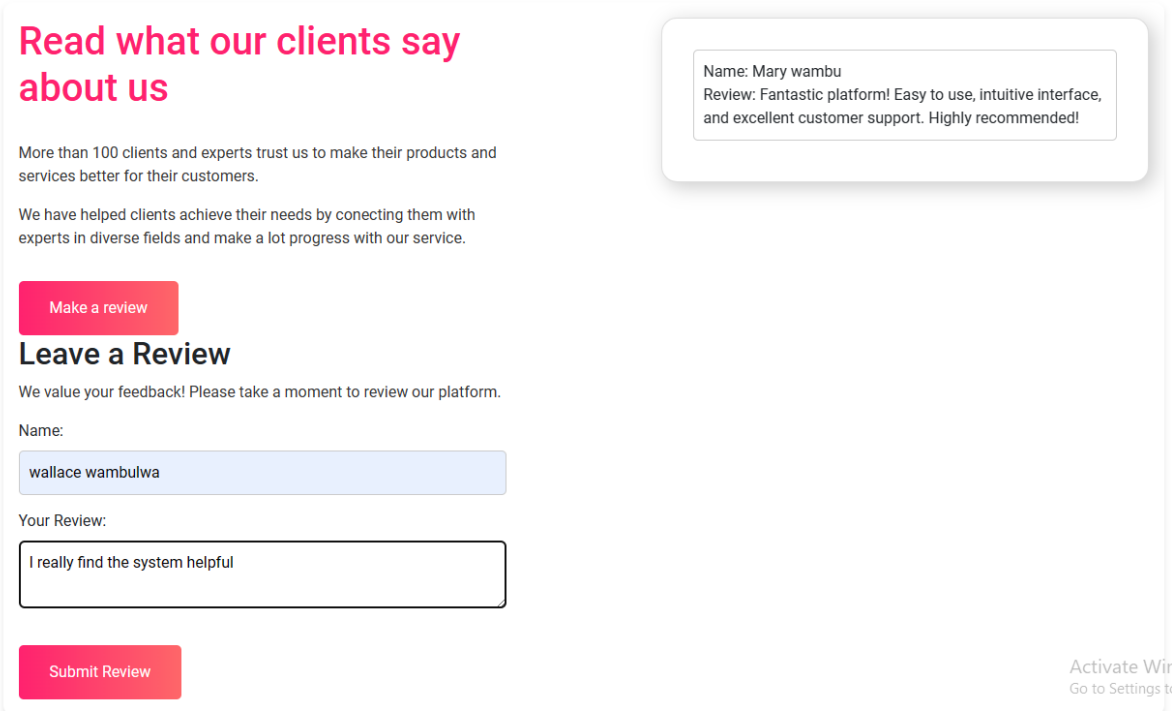
A real time messaging and file sharing system to enhance the communication between clients and freelancers



- **Review and Payment:**
  Upon completion of the project, the client reviews the results for the task he wanted and ensure they meet expectations

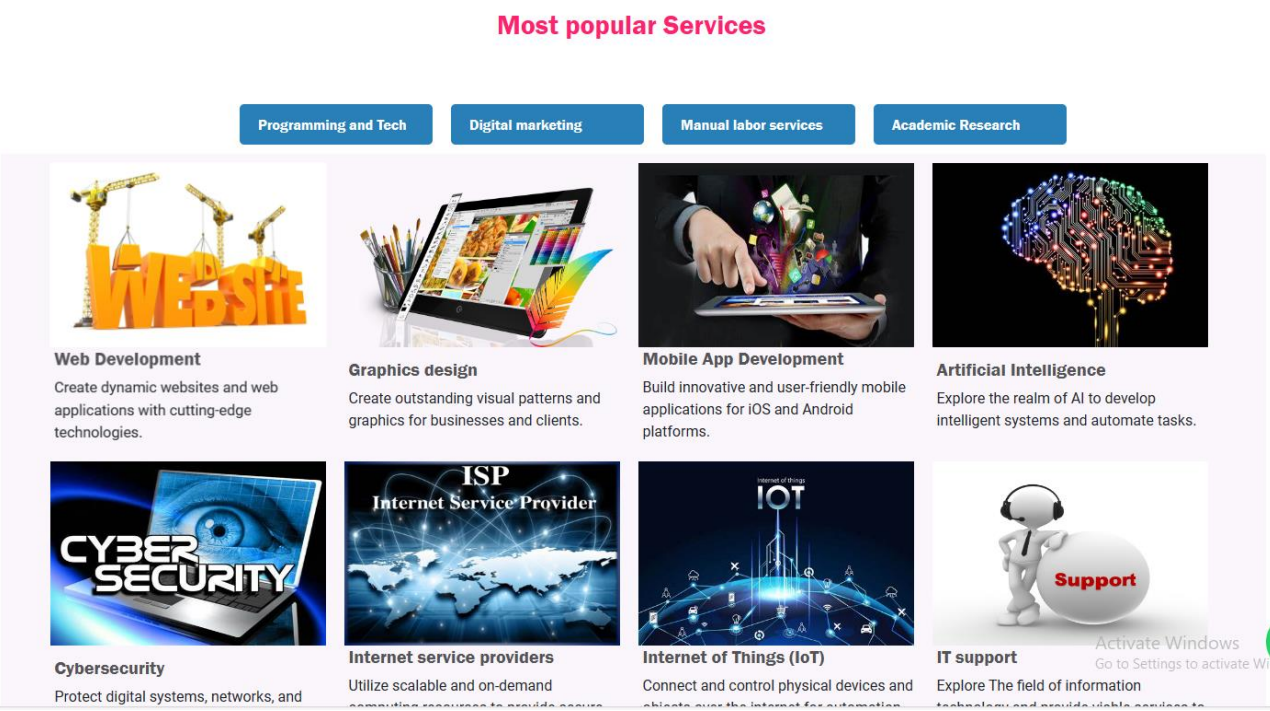
- **Rate and Review**

we have introduced a feature in our system that allows users to be able to rate our system and give a review of their experiences in the system

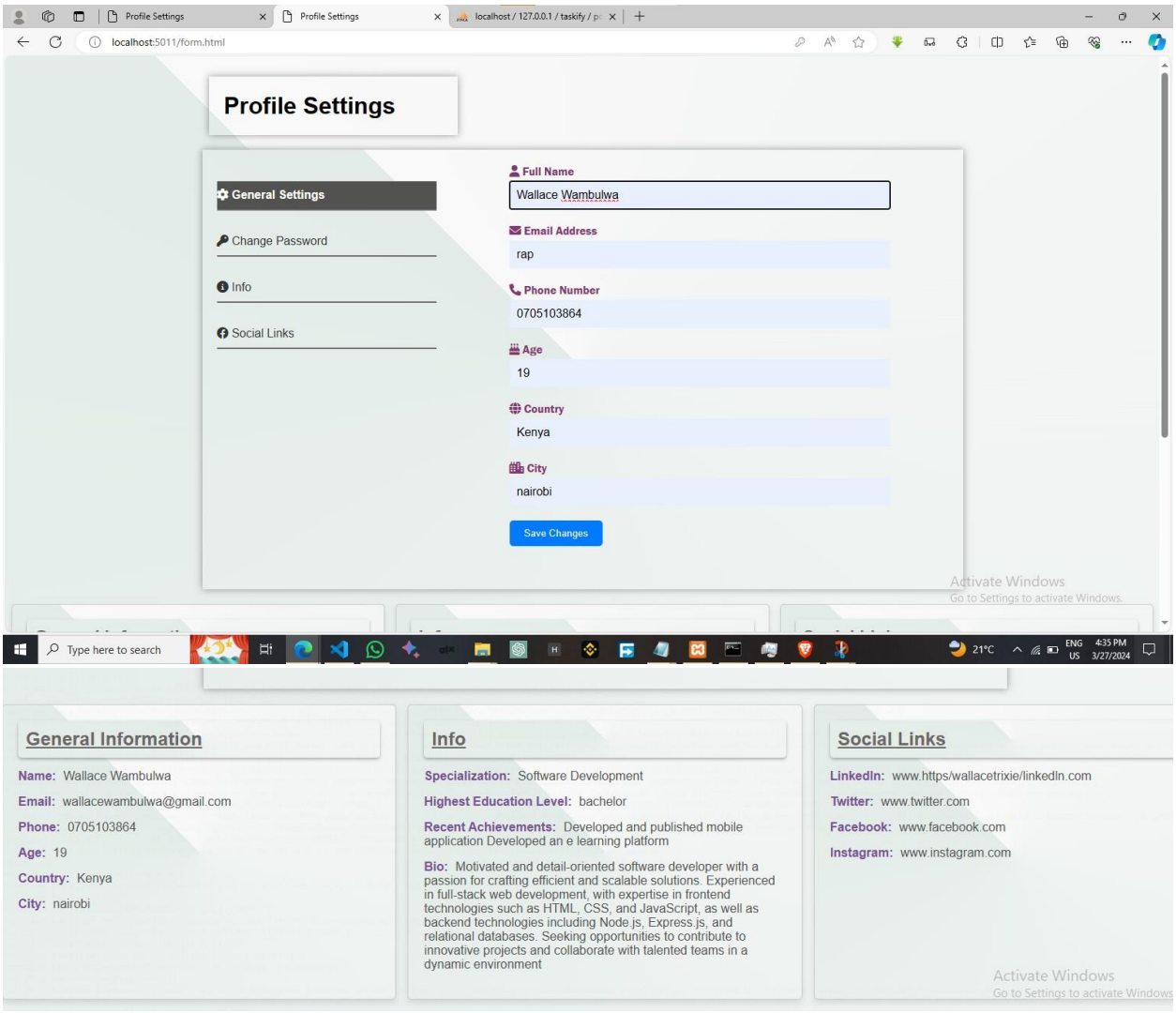


Browsing among various services offered by the platform

The client can then browse and view different categories of services that are provided by the platform ranging from programming and technology, manual labor services, research and many more

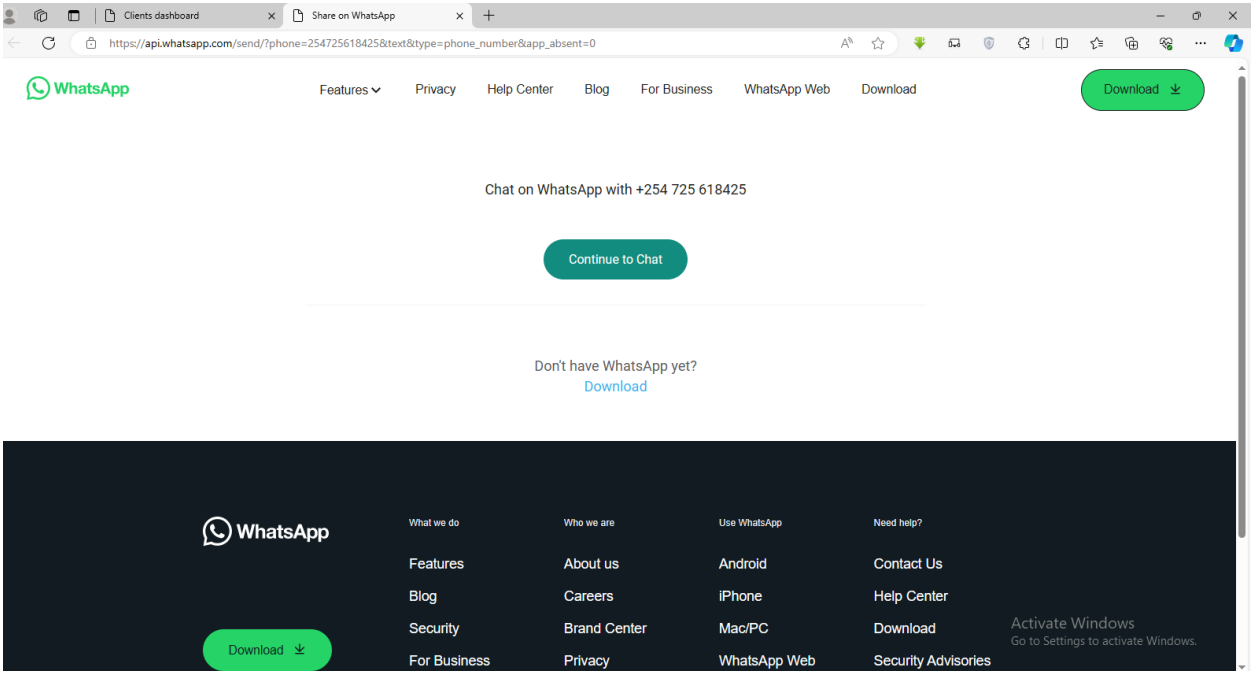


CREATING AND UPDATING PROFILE INFORMATION



Help and support

Incase the client has come across any error or malfunctioning in the system, we have integrated **WhatsApp using WhatsApp API from meta for developers** in the system for help and support to the developer and the support team additionally we have provided necessary contact and email to report any issue in the system



A footer section for more information regarding the system

MANTAINANCE AND DOCUMENTATION

CORRECTIVE MANTAINANCE

This was one to correct the errors that occur in the system, we fixed the defects by troubleshooting the system and by considering the users feedback of our system, this came in handy as we corrected any defects that occurred in the system as we fixed the system and restored functionality

PREVENTIVE MANTAINANCE

This approach is used to identify any issue and work on it before it occurs in the system by preventing and correcting the issue as early as possible, we intend to use regular system inspection mechanism to identify and fix any issue that may occur and also by monitoring the overall performance of the system

DOCUMENTATION

I am providing a system documentation this one describes the system architecture, the functionality the operations and maintenance methods of the system. This one will be used as reference for system administrators, the developers, the staff and all the necessary stakeholders who will be involved in designing, building using and deploying the system

ETHICAL CONSIDERATIONS

While developing the system it was important to align and adhere with the terms, conditions and ethical considerations to ensure that we do not violate any terms, we aligned ourselves with the following considerations

- We have ensured quality and reliability of the system
- Wee have ensured transparency of the system and accountability at any point
- We have aligned with the data privacy and regulations laws
- We have ensured security and data protection for our users

BARRIERS TO THE DEPLOYMENT OF PROJECT

We have been faced with a number of challenges during the deployment including the following

- High cost of purchasing domains
- High cost of hosting the project on the internet

LESSONS LEARNT

- I have learnt a couple of lessons through out the development process of the system from the start to the finalization, below are some of the lessons I have learnt
- The importance of collaboration
- I have learnt to use modern technologies and frameworks like Node js and also Git and GitHub collaboration
- I have learn that great things can be achieved through teamwork
- I have learnt and gained more knowledge from my friends through cooperation the project
- I have learnt that there is always a room for improvement and learning

- I have been exposed to new knowledge mostly in suing APIs and integrating with the system something which I found more productive
- I have leant that we can achieve great things when it comes to teamwork
- I have learnt more in research since overall development I have bee dong research on different topics and concepts and I have acquired research skills that could be beneficial

SYSTEM DESIGN GOALS

- **Performance:**
  We designed the system to allow for greater performance and with minimal failures and downtimes so as to be able satisfy user needs and the requirements and to allow for fast data processing, fetching and retrieval
- **Reliability:**
  Our system is reliable to cater and serve the user with minimum or no failure at ay given time we have ensured consistence performance and the system is able to meet its aims as expected to
- **Security:**
  The system is able to secure users data and personal information such as names and passwords against any breaches like hacking and unauthorized access. This is achieved by using strong password policy and also encryption of passwords and personal details, therefore proper user authentication is enforced
- **Robustness:**
  Our system is able to resist failure, downtime and errors this may occur due to several reasons like when a user with malicious aims tries to hack into the database by injecting suspicious queries, we have employed mechanisms that validate the data before being stored to the database so as to avoid data breaching and violation of integrity
- **Flexibility:**
  The system is designed well enough to be able to changes and emerging new technologies and also be maintained and upgraded with ease
- **Compliance:**
  The system is designed well enough so as to ensure it complies with laws and ethical considerations that adhere to data privacy

CONCLUSION

The system which main aim is to link freelancers and clients in one platform and enable them to collaborate and help each other in different fields and satisfy each others need. The system is completed and done and it is tested to ensure that it meets and adheres to the aims and the specifications that was needed. The system effectively performs its roles by allowing users to sign up create profiles and satisfy their needs, it also offers employment opportunities as it provides freelancers with a platform to showcase their skills and they may get hired based on the clients criteria and demands. The system adheres to the legal laws ensuring it meets all the minimum regulations and ensures data and information privacy.