"FLEX LAB" - A WEB APPLICATION
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This Report is Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Computer Science and Engineering.

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DHAKA, BANGLADESH

JANUARY 2023

APPROVAL

This Project is titled **"Flex Lab - a Web Application"**, submitted by Asadullah Al Imran, Koushik Nag Shuvo, Bipro Roy to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 05 January.
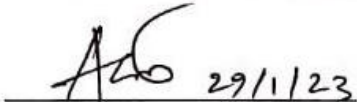
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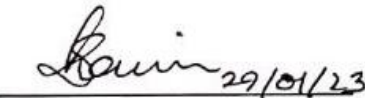
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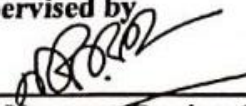**Dr. Shamim H Ripon**
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DECLARATION

We hereby declare that this project has not been done by us under the supervision of **Mr. Narayan Ranjan Chakraborty, Associate Professor, Department of CSE,** Daffodil International University. We also declare that neither this project nor any part of this project has not been submitted elsewhere for award of any degree or diploma.
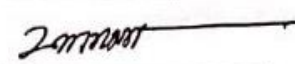
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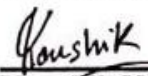Daffodil International University.

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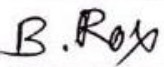Department of CSE,
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ACKNOWLEDGEMENT

First, we express our heartfelt thanks and gratitude to almighty Allah for his divine blessing, which made it possible for us to complete the final year project/internship successfully.

We are really grateful and wish our profound indebtedness to **Mr. Narayan Ranjan Chakraborty,** Associate Professor, Department of CSE, Daffodil International University, Dhaka. Deep knowledge and keen interest of our supervisor in the field of "Flex Lab "to carry out this project. His endless patience and scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts, and correcting them at all stages have made it possible to complete this project.

We would like to express our heartfelt gratitude to **Prof. Dr. Touhid Bhuiyan** Head, Department of CSE, for this kind help to finish our project and also to other faculty members and the staff CSE department of Daffodil International University.

We would also like to thank our entire course mate Daffodil International University, who took part in this discussion while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

Flex Lab is a web application made to help freelancers find and sell their services and products online. The platform aims to make it easy for freelancers to sell their digital products and skills and for buyers to find and hire professionals who meet their requirements. Flex Lab's bidding system, which lets users compete to buy or sell their products, is one of its most important features. Buyers looking to get the most value for their money and freelancers looking to gauge demand for their services and products can both benefit from this. Flex Lab provides freelancers and buyers with a variety of additional features and tools in addition to its bidding system. This includes a user-friendly interface, safe payment options, and tools for communicating with buyers and freelancers to make it easier to work together. In general, Flex Lab is a platform with a lot of different services and products for buyers and freelancers. It stands out from other similar platforms because it focuses on user experience, security, and digital products. This makes it an appealing option for professionals who want to sell their skills and products online.

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INTRODUCTION

1.1 Introduction

The world and every technology of today are moving ahead. Furthermore, our freelancers put in long hours to develop this technology. In Bangladesh, freelancing is becoming an increasingly popular and exciting career option and within six to ten years freelancing in Bangladesh will be another major source of remittance like the clothing industry labor industry market [1]. The concept implies offering your time, abilities, and talents in exchange for payment. In addition, freelancers and premium assets of the highest quality are needed by the majority of large businesses in Bangladesh. Be that as it may, they don't get every one of the advantages in a similar spot. As a result, our goal is to solve this issue by creating a platform where everyone can find digital products of the highest quality and professional freelancers in the same location.

1.2 Motivation

We discovered, through extensive research and our own experience as freelancers, that the length of time in our country and other southern nations prevents the majority of qualified freelancers from obtaining freelance jobs. Additionally, on numerous websites, Bangladeshi freelancers cannot work because there are many payment gateway systems that are not available in Bangladesh [2] and there are additional issues, such as issues with authentication and many more. However, they have every opportunity to compete with freelancers from other countries.

There are 650 thousand registered freelancers in Bangladesh, according to "Freelancers Bangladesh"[3]. Additionally, it will continue to rise. Freelancing has been the basis for our research.

Figure 1.1 shows the percentage of students and beginner freelancers who are interested or not interested in freelancing or else.

Freelancing Profession
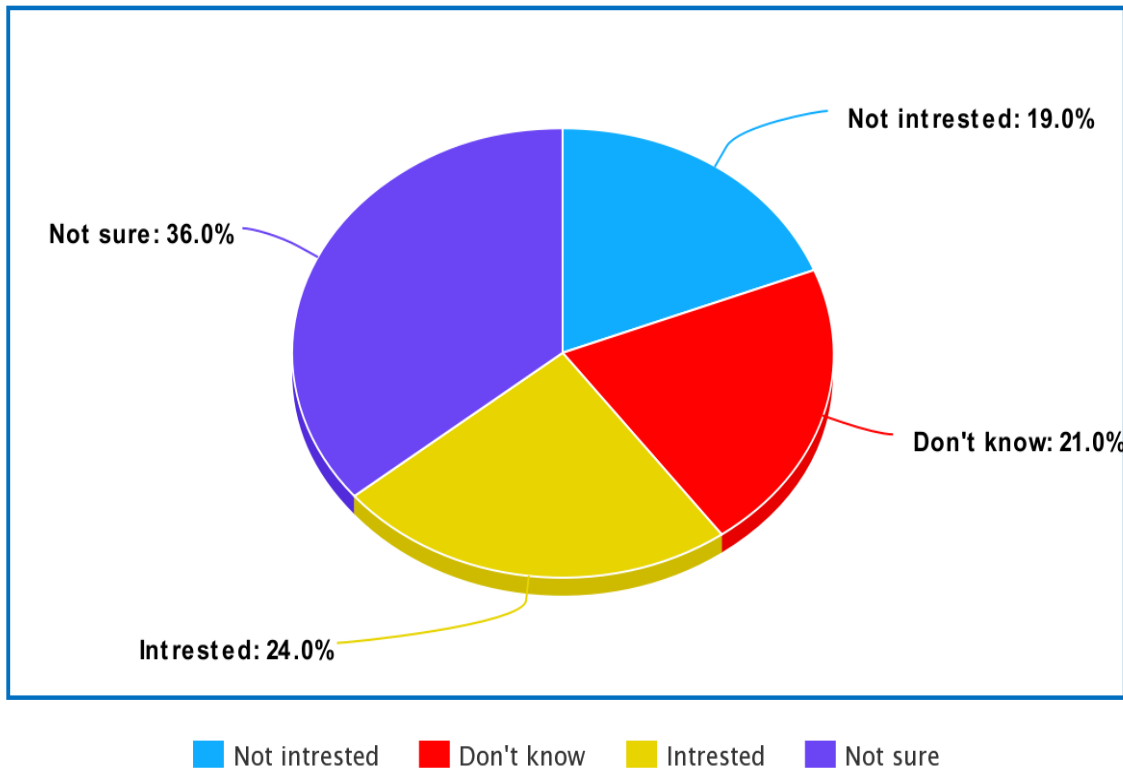
Figure 1.1: Statistics of freelancing profession.

Our research says among a good number of college students and beginner level freelancers there are 24% of them who are interested in building their career on freelancing. And 36% of them are not sure but they have a little bit interest in freelancing. 21% of them have no idea about freelancing and 19% of them are not interested in freelancing.

Figure 1.2 shows the number of students and beginner level freelancers who want to choose freelancing as part-time or full-time or create their own studio.

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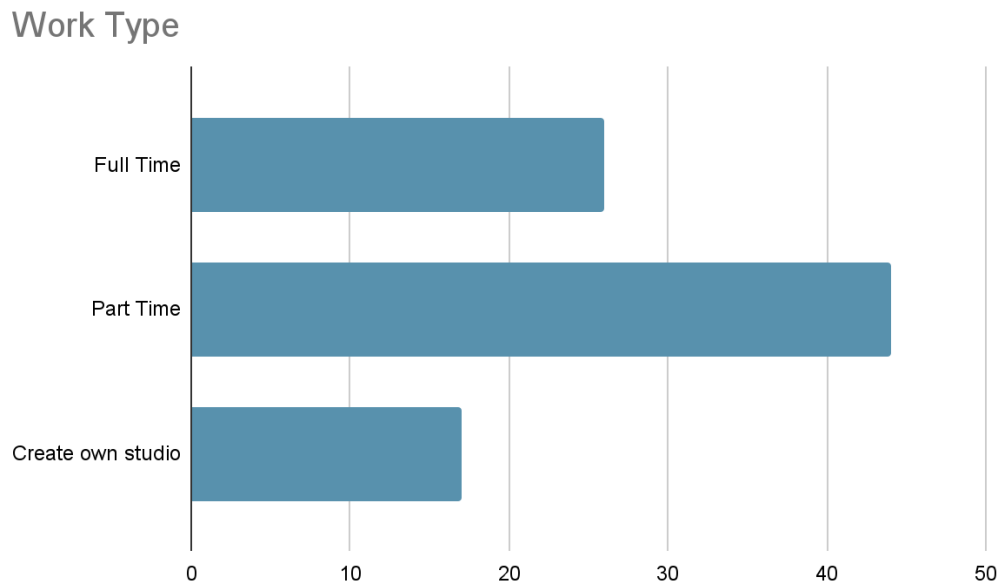
Figure 1.2: Statistics of part-time and full-time freelancers.

Among those who are interested in freelancing, most of them want to do freelancing part-time because of time management. As they have academic studies for that they can't do the freelancing as full time.

When a beginner level freelancer finds work in the marketplace like Fiverr, Freelancer.com, Up Work etc. no one wants to hire him and the only reason is experience. So, by facing all those problems as a freelancer, we decide to build a platform to solve all those problems and help Bangladeshi freelancers. Through this platform, the Bangladeshi freelancing community will grow much faster than before.

1.3 Objectives

Time matching and proper utilization of time is the main motive of this project. The maximum number of buyers of other markets are from the other region. That's why there is a long-time gap between buyers and sellers of our country. Nowadays, freelancing is one of the most demanding workspaces worldwide. We will reveal this project to them to make it easier for those interested in freelancing but who don't get the opportunity because of

time. If anyone wants to take it as a part-time job, they can do their preparatory work at their peak hour, and then they will work here at their convenient time. It will be possible because of the bidding system.

1.4 Expected Outcomes

Through this project we try to eliminate the problem of unemployment from our society. Our young generation will benefit the most. You can work here as a freelancer. This web-based application system will be a marketplace for freelancers where they can Sell your digital products online and all those products. The self-employed become employed through this scheme. Save valuable time and benefit financially. This market also helps customer party. You can buy and organize the digital products you need Compete to get the best product. The main features of this project are that clients get all digital products and also arrange contests to select the best product at the same platform. Freelancers do not go to different platforms to sell their products and to collect equipment to design their products. The overview part of this document provides an overview product performance. Describes informal requirements and is used Provide context for the specification of technical requirements in the next chapter. Chapter three, the requirements specification section of this document, is written Mainly for developers and describes it in technical terms product performance. However, both sections of the document fully describe the same software product target different audiences and therefore use different languages.

1.5 Project Management and Finance

The Flex Lab project's goals, objectives, milestones, and deliverables will be outlined in a comprehensive project plan. The project team will be guided by this plan to keep the project on track and within budget. As required, the project will receive allocations of personnel and equipment. This includes locating team members, recruiting them, and controlling their workloads and performance. To keep the project on track and within budget, the progress of the project will be closely monitored, and any necessary adjustments will be made. This includes providing regular updates on the project's progress, identifying and mitigating risks, and making any necessary adjustments to the project plan. The Flex Lab project will be given a budget that will cover things like development, testing, deployment, and

ongoing support and maintenance. The Flex Lab project's financial performance will be predicted using historical data and industry trends, and recommendations will be made on how to maximize revenue and cut costs. In order to provide insight into the Flex Lab project's financial performance, regular financial reports will be produced. Decisions regarding cost management and resource allocation will be based on these reports. Management of Revenue: The Flex Lab project's revenue will be managed, including the distribution of earnings to freelancers and payment collection from buyers. In accordance with applicable laws and regulations, all financial transactions will be handled securely. In order to guarantee that expenses are effectively tracked and managed, a plan for cost management will be implemented. This includes keeping an eye on and analyzing costs, figuring out where you can save money, and taking steps to cut costs. In conclusion, the Flex Lab project cannot succeed without effective project management and finance. The finance team will ensure that the project is financially viable and sustainable, while the project management team will ensure that it is completed on time and within budget. In order to guarantee the project's technical and financial success, they will collaborate.

1.6 Report Layout

An overview of the Flex Lab web application, its purpose, and its intended audience ought to be provided in the introduction section. Additionally, it should explain the significance of the issue and the problem that the application aims to resolve. The freelancing industry and the markets that are currently in place ought to be discussed in some detail in the background section. It should also describe how Flex Lab intends to address the issues that freelancers currently face. The Flex Lab application's requirements ought to be described in detail in the requirement specifications section. Non-Functional Requirements, such as security and performance, as well as functional requirements, such as the application's core features and functionality, are included in this. The Flex Lab application's user interface, database design, and overall architecture should all be described in the design specifications section. additionally, it should describe how the application will be evaluated for usability. The Flex Lab application's implementation and testing procedures should be described in the implementation and testing section. Unit testing, integration testing, and acceptance testing are just a few of the testing methods that should be described in detail.

The section on impact on society, environment, and sustainability ought to investigate how Flex Lab will affect society, the environment, and the freelance industry. additionally, it should explain how the application will be long-lasting. the section titled "conclusion and future scope" ought to provide a synopsis of the main findings and conclusions of the report as well as a description of any work that will need to be done in the future to enhance or expand the Flex Lab application. Additionally, it ought to offer suggestions for additional research and development.

CHAPTER 2
BACKGROUND

2.1 Preliminaries/Terminologies

Flex Lab is a web platform connecting freelancers with buyers needing professional services and digital products. On Flex Lab, freelancers can offer a wide range of services, including web design, graphic design, content creation, and more. In addition, Flex Lab also allows freelancers to sell downloadable digital products such as WordPress themes, UI templates, and stock art. With its easy-to-use interface and secure payment system, Flex Lab is a go-to destination for freelancers looking to sell their skills and digital products. Whether you're a freelancer looking for new opportunities or a buyer seeking top-quality services and products, Flex Lab is the perfect place to connect and do business.

Preliminaries terminologies of Flex Lab are the basic terms and definitions that are used in the development and operation of the platform. Understanding these terms is important for understanding how the platform works and how to use it effectively. Here are some examples of preliminary terminologies that may be used in Flex Lab:

Freelancer: An individual who offers their skills and services for hire on the Flex Lab platform. They can sell their digital products and services on the platform.

Buyer: A person or organization that hires freelancers on the Flex Lab platform to complete a project or task.

Bidding System: A system that allows freelancers and buyers to compete for projects and products, by placing bids on them.

Digital Product: A digital item that can be sold on the platform, such as a WordPress theme, UI template, or stock art.

Service: A skill or task that a freelancer can offer to a buyer on the Flex Lab platform, such as writing, graphic design, or web development.

User interface: The way users interact and navigate through the platform to get the information they need.

Profile: An online representation of a freelancer or buyer, which includes information such as their name, contact details, and portfolio.

- Payment gateway: A system that enables freelancers and buyers to make and receive payments through the platform.
- Authentication: A system that verifies the identity of freelancers and buyers and ensures that only authorized users can access the platform.
- Security: Measures to protect the platform and its users from unauthorized access, hacking, and other security risks.

By understanding these preliminary terminologies, you will be able to navigate and use Flex Lab more effectively, and understand how the platform works and how it can be used to benefit freelancers and buyers.

Flex Lab, as a web-based platform for freelancers and buyers, has several ethical aspects that need to be considered. These include:

Privacy: Flex Lab must ensure that the personal and professional information of its users is kept private and secure. This includes not sharing or selling user data to third parties without consent.

Fairness: The platform should provide equal opportunities for all users, regardless of their background or location. This includes ensuring that the bidding process is fair and unbiased and that all freelancers and buyers are treated with respect and professionalism.

Transparency: Flex Lab should be transparent about its operations and policies, including its fees, commissions, and dispute resolution process. This will help users understand how the platform works and what to expect.

Authenticity: Flex Lab should take steps to ensure that the digital products and services offered on the platform are authentic and not counterfeit or plagiarized. This can be done by verifying the identity of sellers and ensuring that they have the rights to sell the products they offer.

Compliance: Flex Lab should comply with all relevant laws and regulations, including data protection and consumer protection laws.

Social responsibility: Flex Lab should take steps to minimize any negative impact on the community and the environment.

Respect for intellectual property: Flex Lab must ensure that the digital products and services offered on the platform are not infringing on any intellectual property rights of third parties.

By considering these ethical aspects, Flex Lab can ensure that it is providing a fair, secure, and trustworthy platform for freelancers and buyers to connect and conduct business.

2.2 Related Work

When we decided to build this platform for our final year project, we went to the internet and found platforms with the same functionalities. We find some platforms with some similar functions like ours, but the disadvantage they have creates many differences between them and us. Upwork, Fiverr, Freelancer.com, and Theme Forest are identical platforms that offer the majority of the same features. Websites like Upwork, Fiverr, Freelancer.com, and Theme Forest let clients hire freelancers for various projects and provide a platform to offer their services [4].

2.2.1 Upwork

"Upwork " allows freelancers to find and apply for jobs in various fields, including writing, design, web development, and more. Clients can post job openings, receive bids from freelancers, and search for and directly hire freelancers with the skills and experience they need.

2.2.2 Freelancer.com

Freelancer.com is a platform that allows freelancers to find and apply for jobs in various fields, including writing, design, web development, and more. Clients can post job openings, receive bids from freelancers, and search for and directly hire freelancers with the skills and experience they need. [6]

2.2.3 Fiver

Fiverr is a platform that allows freelancers to offer a wide range of services, such as writing, design, marketing, and more. Freelancers can create profiles that showcase their skills and experience, and clients can browse through these profiles to find the right freelancer for

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their projects.

2.2.4 Theme Forest

Theme Forest is a platform that allows designers and developers to sell website templates and other digital assets. It is a marketplace for pre-designed templates and themes for various websites, including WordPress, Joomla, and more. Theme Forest allows designers and developers to upload their templates and themes for sale and provides a platform for clients to browse and purchase these assets [5][6].

2.3 Comparative Analysis

We have wanted to develop a web application that is a freelancing marketplace with some beneficial features for users. Of Course, financially, it will help them a lot. We designed our project as much as a complete package for the freelancers. While freelancers use this platform, they can consider it a part-time job. This will open up their versatile source of income.

Several other web platforms offer similar services to Flex Lab, including Upwork, Fiverr, and Freelancer.com. However, Flex Lab distinguishes itself from these competitors in several ways. One key difference is the focus on digital products. While other platforms primarily cater to services, Flex Lab allows freelancers to sell digital products such as WordPress themes and UI templates. This gives Flex Lab a unique offering that sets it apart from other platforms. Another notable difference is the user interface and user experience. Flex Lab is designed to be easy to use and navigate, making it more straightforward for freelancers to find and apply for opportunities and for buyers to search for and hire the right freelancers.[5]

Table 2.1: Comparison among Flex Lab and others freelancing marketplace.

Other Marketplace	Flex Lab
Fiverr: A seller on fiverr has to create a gig to sell his services. Then when the Giga Buyer	01. In this marketplace neither seller nor buyer spent more time for getting work

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request comes in, the seller has to send a bid to the buyer for that particular job. Fiver only works on this single process. [6]	or purchasing digital products. On the other hand, most of the case sellers need to be active on the marketplace most of the night for getting work. IF anyone cannot be active most of the time, he has to face two problems. One is he won't get work and another is his profile reach will be decrease. Flex Lab at present there are two major functionalities. One is when buyers create a post about the work category wise, freelancers will bid on it. Buyer sets the time how long the bid will run. After the end of the bid, the buyer chooses one among all the bidders. After creating or placing the bid buyer or seller don't need to be active at the platform till end time for this particular bid. In that time, they will do their other work.
Freelancer.com: Freelancers can find and apply for jobs in various fields and clients can post job openings, receive bids from freelancers, and search for and directly hire freelancers with the skills and experience they need.	
Upwork: In Upwork also freelancers to find and apply for jobs in various fields, including writing, design, web development, and more. Clients can post job openings, receive bids from freelancers, and search for and directly hire freelancers with the skills and experience they need.	
Theme Forest: In Theme Forest freelancers and developers sell website templates and other digital assets. Buyer buys those when they need.	02. The second functionality of this project is freelancers upload their digital products any time and buyers can buy whenever they need. The extra specialty of Flex Lab than Theme Forest is Theme Forest is for only website template design selling marketplace and Flex Fab is all kind of digital product selling marketplace.

Finally, Flex Lab also has a strong emphasis on security and trust. The platform uses secure payment systems and has measures to ensure that freelancers and buyers are protected. Overall, Flex Lab is a well-rounded platform that caters to freelancers and buyers looking for various services and digital products. Its focus on user experience, security, and digital products set it apart from similar platforms.

2.4 Scope of the Project

Generally, this application is developed with more importance towards users' time. Freelancers can spend less time and earn more money here. The buyer's product will show well decorated by category and subcategory wise. We use a bidding system, so both the seller and the buyer should be active on the platform for a short time. Flex Lab will be the most flexible platform for freelancers and clients.[9]

2.5 Challenges

Whenever developers want to develop something new, they must face many challenges. In his continuation, we also have faced some challenges. As discussed earlier, as it is a web application for that, we used Laravel (a framework of PHP) in the backend, and for the front end, we used HTML and Bootstrap (CSS framework). For the database, we used the MySQL database system. As the freelancer community is so large worldwide, our users will be giants. The biggest challenge for us is to manage these vast amounts of user data. Since we will have many users, we must remember that the server stays up and keeps up when many users are active on the platform simultaneously.[7]

The security issue is another big challenge for us. Hackers will have a keen eye here as there is an issue with money transactions. We tried our best to get the correct and valid information from the sellers and buyers so that no one gets cheated.

It will be suitable for all-level freelancers. Our application has some limitations regarding features, and we are trying our best to include those extraordinary features. Also, if the project gives any error or users face any problem, we are always ready to sort out the problem and fix it quickly.

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CHAPTER 3
REQUIREMENT SPECIFICATION

3.1 Business Process Model

The process of representing an organization's processes to improve, automate, and analyze the existing processes is known as business process modeling (BPM). As a result, the term "business model" is widely used to describe a wide range of informal descriptions of fundamental aspects like purpose, structures, operational processes, and policies. The methodology's main features are based on a diagram known as a "flow diagram." Here we are attempting to depict our undertaking's action plan utilizing an Information Stream outline. Google's Data Flow Diagram typically explains how data flows through a system or project.[8]

A data flow diagram (DFD) shows the system's input and output and the data's path through the system and storage location. In contrast to a conventional structure flowchart, which focuses on control flow, it does not display information about process timing or whether processes will operate simultaneously or sequentially, which remains in every application. Since this is the fundamental design for an application and understanding. The main point is that a user can understand how it works through the business model. Where it is utilized as well as its use case. The developer always tries to come up with their business model. Each application is unique, meaning they are distinct. A UML activity workflow diagram shows data and control flows as a single model.[14]

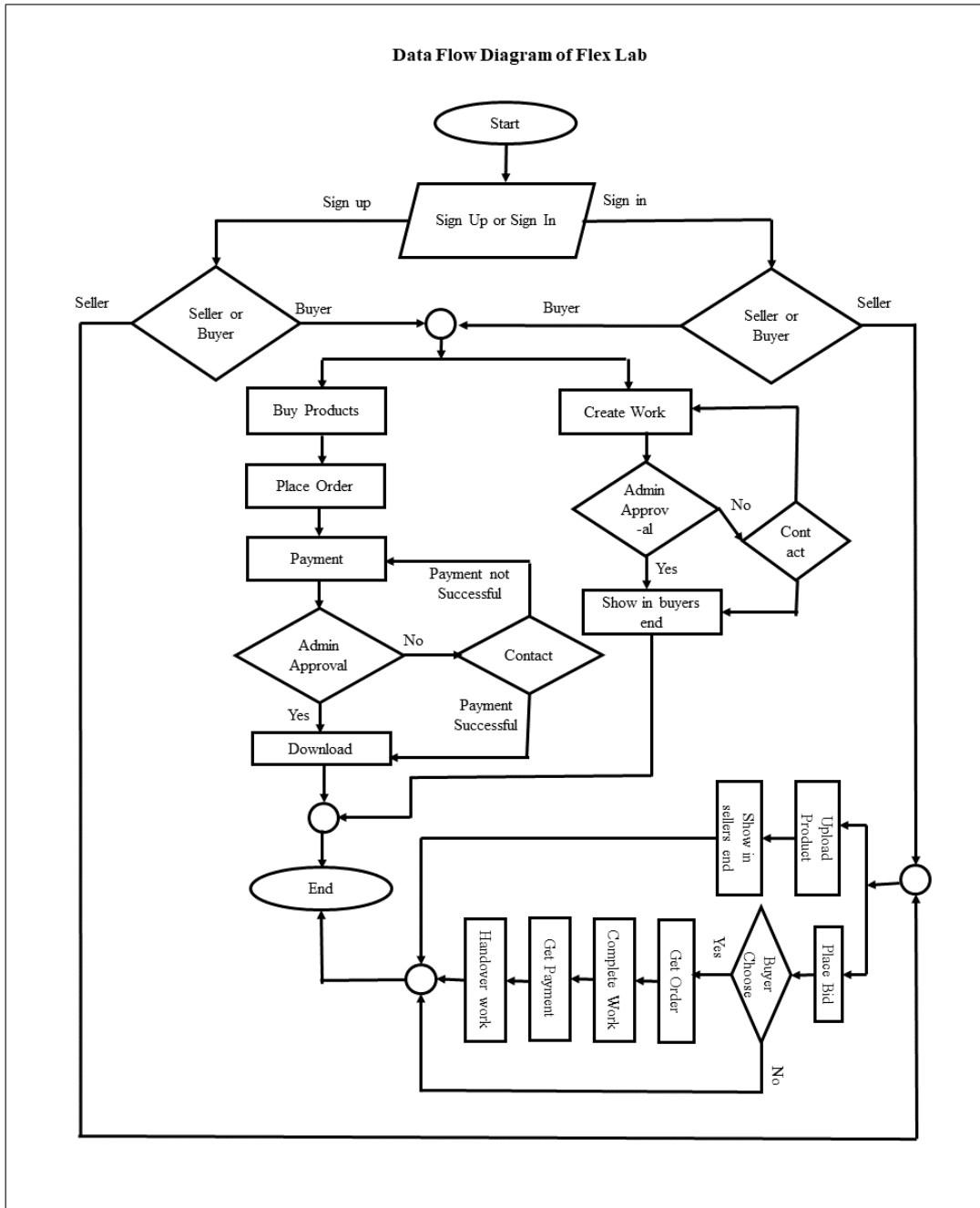Figure 3.1: shows the Data flow Diagram of "Flex Lab."

Data Flow Diagram of Flex Lab

Figure 3.1: Business Process Model of Flex Lab.

Figure 3.1**.** A possible data flow diagram for the flex lab. In this diagram, there are two main types of freelancers and buyers, but there are admin and super admin, which are external users who control the entire system. The Flex Lab system's various actions, such as registering, looking for freelancers, applying for jobs, and making payments, are

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represented by process boxes. The data stores represent the user profiles, work listings, and payment information stored within the Flex Lab system. The arrows depict the data flow between processes, stores, and external entities. For instance, the "Freelancer Profiles" data store holds a freelancer's personal and professional information when creating a Flex Lab profile. The "Search Freelancers" process processes the search criteria and results when buyers search for freelancers. The buyer sees the resulting data through the user interface. This is only one possible Flex Lab data flow diagram. The application's requirements and features may influence the diagram's elements and relationships.

3.2 Requirement Collection and Analysis

Requirement engineering is another name for requirement analysis, which is the process of figuring out what users want from a new system. These features, which are referred to as requirements, must be specific, relevant, and quantifiable. Prerequisites examination includes incessant correspondence with framework clients to decide explicit component assumptions. Avoiding feature creep, resolving conflicts or ambiguities in requirements as demanded by various users or groups of users, and documenting every step of the project development process from beginning to end are all goals.

There are two types of requirements for the project development process. There are two types of requirements: functional and non-functional. One is Functional Requirement. Functional requirements are requirements for the system's technical functionality. The application must comply with and be testable with the applicable requirements, which specify how users will interact with the application. The functional requirements for Doctrine, an online collaboration platform, may include descriptions of the following: Content that will be created and made available on the system Activities carried out by each screen Process for content approval in the workflow Reports on participation and use[13]. Other one is Non-functional Requirement. Non-utilitarian necessities determine measures that can be utilized to pass judgment on the activity of a framework specifically. Rather than specific behaviors, these are conditions. Non-functional requirements, on the other hand, specify how a system ought to function, while functional requirements define what a system ought to accomplish. Non-functional requirements are frequently referred to as a system's "quality attributes" [2]. DocTeam examples might include [13]

Scalability: Performance is the amount of time it should take for each page to load. Will the system be able to cope with the ever-increasing number of users?

Capacity: How much space is going to be required?

Availability: Application availability and downtime

Security: This includes encryption and content safety.

3.3 Use Case Modeling and Description

A use case diagram is a graphical representation of the interactions between a system and its actors. In the case of Flex Lab, the system would be the web platform itself, and the actors would be the platform users, including freelancers and buyers. Here are some potential use cases for Flex Lab.

This web application is generally a freelancing marketplace-based application. There are two types of general users in this application and for controlling we use a two-step admin panel like super admin and admin. The two general users one of is the seller; the other is the buyer. Sellers sell their digital products in two ways. The first way is for sellers to upload their products and set a base price, and buyers bid on it. The bid will continue for how long the buyer wants to run the bid. When a buyer creates a service buying post at that time, he needs to select the end time of the bid. The highest bidder will purchase the product. After ending the bid, the product is no longer available for the others. The other way is for sellers to upload their products as usual, and the buyers can buy them anytime they need. In this way, one product can buy multiple buyers.

Freelancer registers on the platform: This use case represents the process of a freelancer creating an account on Flex Lab and providing their personal and professional information.

Buyer searches for a freelancer: This use case represents the process of a buyer searching for a freelancer with specific skills or services on Flex Lab.

- Freelancer applies for a job: This use case represents the process of a freelancer applying for a job or project posted by a buyer on Flex Lab.
- Buyer hires a freelancer: This use case represents the process of a buyer selecting and hiring a freelancer for a project on Flex Lab.
- Freelancer delivers work: This use case represents the process of a freelancer completing and providing their work to the buyer on Flex Lab.

- Buyer makes a payment: This use case represents a buyer paying the freelancer for their work on Flex Lab.

- These are just a few examples of the potential use cases for Flex Lab. There may be many others depending on the specific needs and goals of the platform and its users.

Here, we present various use case diagrams for our platform's various user types.

3.3.1 Buyer Use Case Diagram

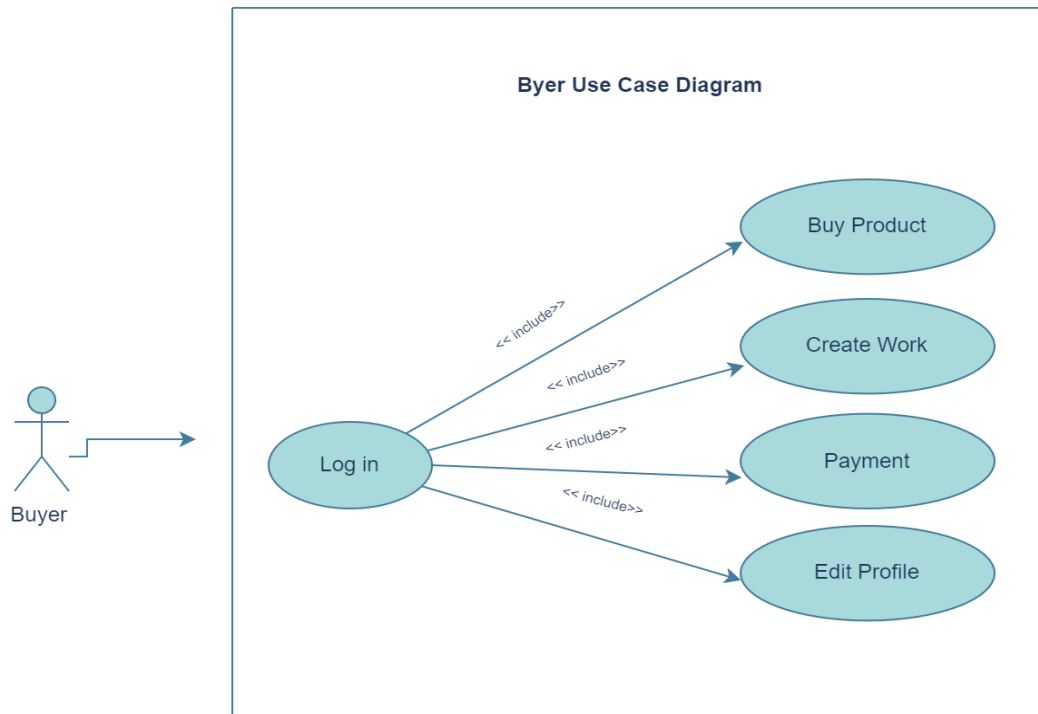Figure 3.2 shows the Use Case Diagram of Buyer.

Figure 3.2: Buyer Use Case Diagram.

Figure: 3.2 is a visual representation of the buyer role and the buyer use case diagram of our website. A buyer who is able to buy the product, create work, make payments, edit the profile and both chatting options (live chat with admin and seller).

3.3.2 Seller Use Case Diagram

Figure 3.3 is given below which is a seller use case diagram.

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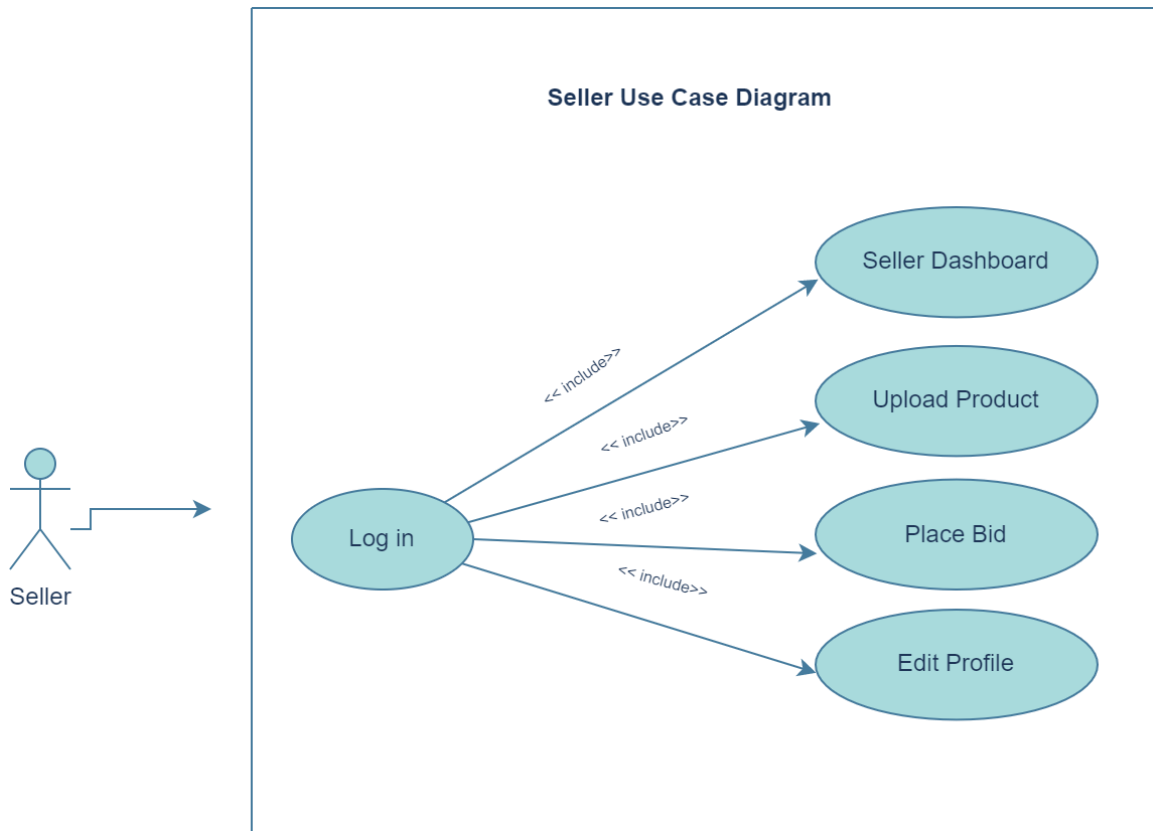
Figure 3.3: Seller Use Case Diagram.

The above use case diagram (figure 3.3) is the seller diagram of our system. Sellers can sell their service and digital product as well through this platform as well. A seller can upload his/her digital products, place bid on freelance work which is created by the seller, edit his/ her own profile in this platform. In seller dashboard seller will find the no. of products upload by him/her and how many products is sold.

3.3.3 Admin Use Case Diagram

Figure 3.4 shows the Use Case Diagram of Super Admin.

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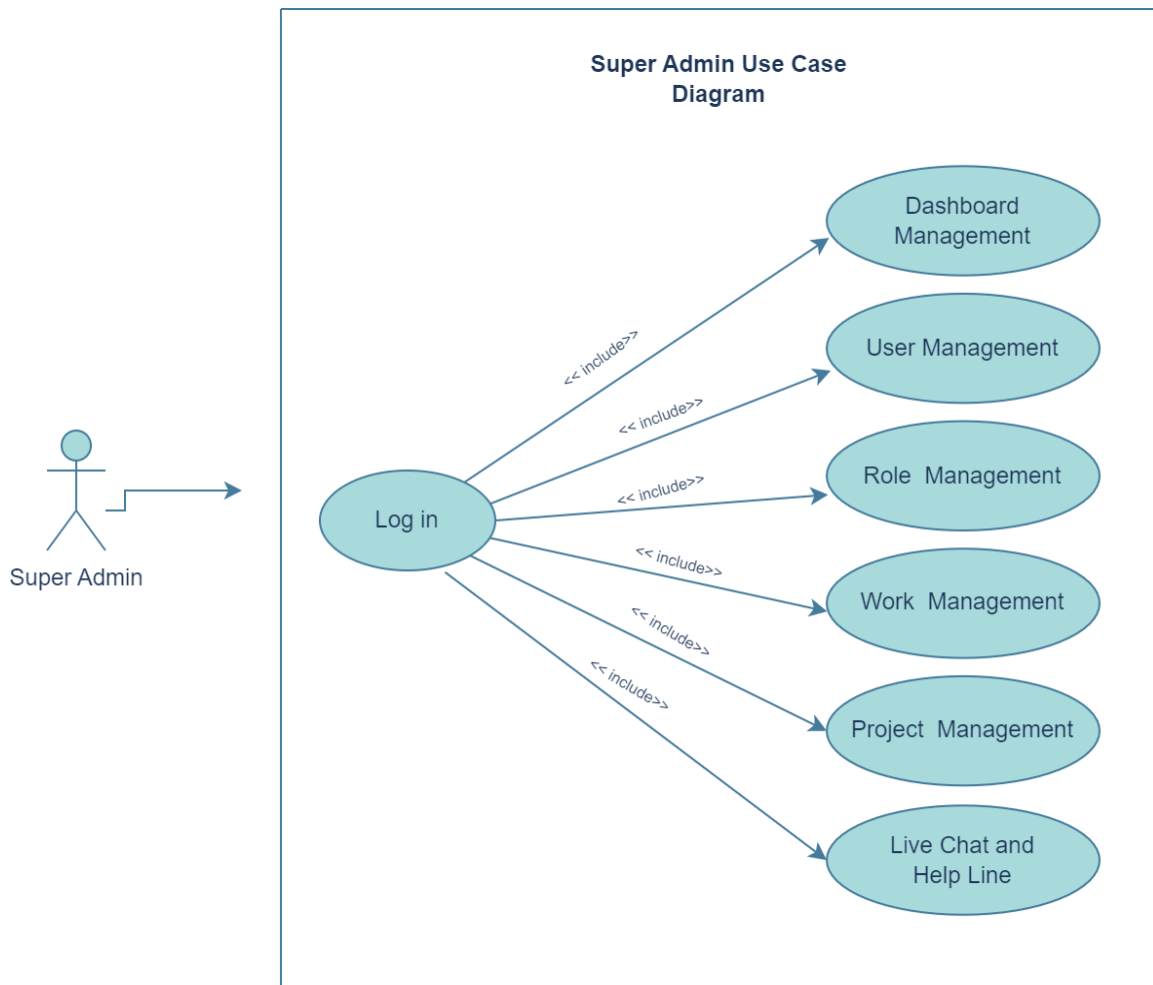
Figure 3.4 Admin Use Case Diagram.

Figure: 3.4 This is the admin use case diagram for our website with an administrator who can manage the admin database, user accounts, work, projects, live chat, and helpline. An Admin get access all the entities except role management. The role management entity controlled by only super admin. An admin can't delete or appoint or change an admin. Except this admin can play the role like super admin.

3.3.4 Super Admin Use Case Diagram

Figure 3.5.1 shows the Use Case Diagram of Super Admin.

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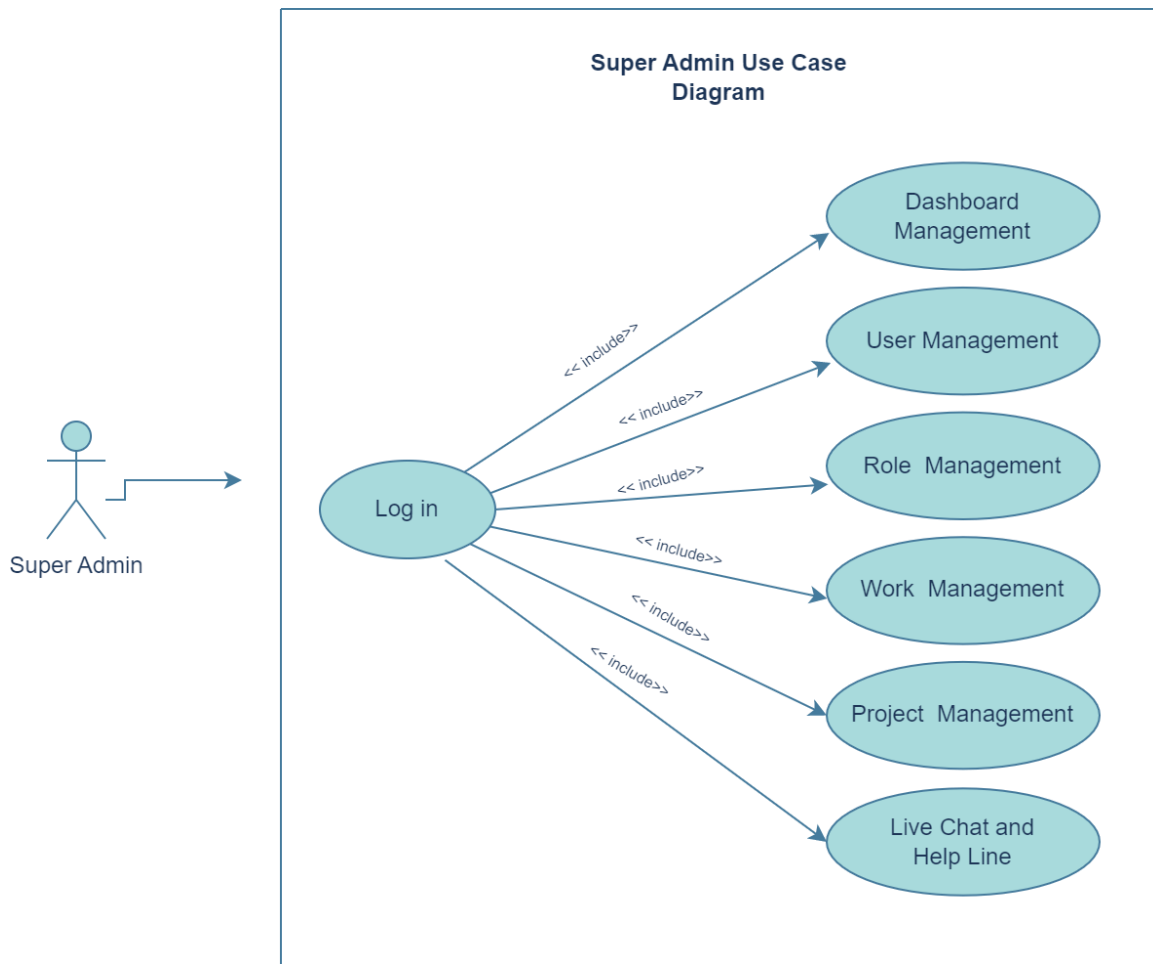
Figure 3.5: Super Admin Use Case Diagram.

According to the figurer 3.5 it represents the use case diagram for our website that has a super admin. Here a super admin who can get access everything of the system like managing the database, users, roles, work, project, live chat, and helpline. A super admin can add user, appoint anyone as admin, create work on behalf of buyer, upload product on behalf of seller if they face any problem to create work or upload products. He can also join with the user through live chat.

3.4 Logical Data Model

The data entities, attributes, keys, and relationships between the entities were the primary components of the logical data model. The relationship between the organization's data and business rules is defined and governed. In the front end of our project, we use HTML, CSS,

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JavaScript, Bootstrap (the HTML framework), and Laravel blade syntax to create page functionality that cannot be reloaded. Because of its powerful capabilities and ease of use, we use the PHP framework Laravel for the backend. In addition, we chose Laravel's vast package library for the backend because it makes it simple to complete all of the work. We also use MySQL for the database because it is compatible with Laravel.

3.5 Design Requirements

Several design requirements could be considered when designing Flex Lab, a web platform for freelancers and buyers. Here are a few examples:

- User-friendly interface: The platform should be easy to navigate for freelancers and buyers. This includes straightforward and intuitive navigation, clean and visually appealing design, and responsive device layout.
- Secure payment system: The platform should have a secure payment system in place to protect the financial transactions of both freelancers and buyers. This could include options for different payment methods and encryption to protect sensitive information.
- Search functionality: The platform should have robust search functionality to enable buyers to quickly find the freelancers and digital products they are looking for. This could include the ability to search by skills, location, and other relevant criteria.
- Customization options: The platform should allow freelancers to customize their profiles and portfolio to showcase their skills and experience. This could include personal information, work samples, and other relevant details.
- Communication tools: The platform should have tools to facilitate communication between freelancers and buyers, such as messaging and project management features.

These are just a few examples of the design requirements that could be considered when designing Flex Lab. Other conditions may also be necessary depending on the specific needs and goals of the platform

CHAPTER 4

IMPLEMENTATION AND TESTING

4.1 Front-end Design

The front-end design is everything a user sees when they open the website. That means that to keep the user interacting with the website, the foremost important thing is the User interface or the front-end design. Usually, most users expect a simple user interface with the necessary information they want. The application only attracts users if the user interface is simple enough to understand.

The front-end Design of the user Project is the down below -

Figure: 4.1 shows the landing page of our platform. Every User will first see this page when they come to our website. We designed our application user interface as simply as possible for the proper understanding of every individual User who uses our platform. We also make the user interface by following the latest trend of 2022. I hope the User will find it easily accessible and benefit from it.

4.2 Back-end Design

The behavior of the website when an action is taken is referred to as the server-side rendering or backend. A database, an application, and a server make up a website's back end. A website or application's main backend is where the front end is controlled.

We use Laravel (a PHP framework) in our backend because There are several reasons why Laravel and MySQL might be good choices for the backend and database of a web application like Flex Lab in 2023: [11]

Laravel is a famous and robust PHP structure that makes it simple for designers to construct custom web applications rapidly and proficiently. Its expressive linguistic structure, underlying instruments, and libraries make it appropriate for building many uses, including stages like Flex Lab.

MySQL is a well-known open-source database management system with a reputation for dependability, speed, and adaptability. It handles large amounts of data and traffic easily and is ideal for web applications.

When creating a robust and scalable backend for a web application like Flexlab, MySQL and Laravel can work well together. The framework and tools of Laravel make it simple to build custom integrations and functionality, and MySQL's database management features guarantee that the application can handle a lot of data and traffic.

MySQL and Laravel have active communities of developers who contribute to their development and upkeep and are well-supported. Working with these technologies may make it simpler to locate assistance and resources.

In general, in 2023, Laravel and MySQL are solid options for a web application like Flex Lab's backend and database. They are ideal for creating scalable, high-quality web applications due to their support, power, and combination.

Laravel is a robust and straightforward open-source PHP framework. It follows a model-view-controller configuration design. Laravel aids in the development of a web application by reusing components from various frameworks. In this way, the web application is more organized and down to earth.

The fundamental features of PHP frameworks like CodeIgniter, Yei, and other programming languages like Ruby on Rails are incorporated into Laravel's extensive functionalities. Many features in Laravel will speed up web development.

Laravel will simplify your work if you already know Core PHP and Advanced PHP. If you plan to build a website from scratch, it saves much time. A Laravel-based website is safe and secure, preventing numerous web attacks.

4.3 Interaction Design and User Experience (UX)

Collaboration Configuration and Interaction Design are a significant part of the goliath umbrella of the Client Experience (UX) plan. Communication configuration is explicitly a discipline that looks at the connection between a framework and its client through a point of interaction, and a client experience (UX) plan is the most common way of making items that give meaningful and important encounters. It might also include design that focuses on how information should be presented in such a system to make it easier for the user to understand, but this is often thought of as a separate field of "information design." Some features in our application can communicate with the user and the application. We added a contact choice by which any client can mail us. Contact us if users encounter any issues,

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deficiencies, or drawbacks. In terms of user experience (UX) design, we've tried to make using our website a great and enjoyable experience. For a better Daffodil International University experience, we keep our application too simple and easy.

4.4 Implementation Requirement

We build our application with various implementation tools, attributes, and components. Making this application effectively open and valuable to individuals has become conceivable with the assistance of these instruments. In this execution prerequisite region, we examine the various apparatuses, characteristics, and parts we used to foster this entire undertaking.

Implementation is one of the critical phases of the development process for any web application, including Flex Lab, which is built using HTML, CSS, JavaScript, PHP, Laravel, and MySQL. During the implementation phase, the code for the application is written and integrated with the various technologies and frameworks being used. This includes creating the frontend interface using HTML, CSS, and JavaScript, and building the backend functionality using PHP and Laravel. Once the implementation is complete, it's important to thoroughly test the application to ensure that it is functioning correctly and meets the specified requirements. This may include unit testing, integration testing, and user acceptance testing. Effective implementation and testing are crucial for ensuring that Flex Lab is reliable, user-friendly, and capable of meeting the needs of its users. By thoroughly testing the application during development, you can catch and fix any issues before it is released to the public. This can help to ensure that Flex Lab is a high-quality and successful platform for freelancers and buyers.

We use HTML, CSS, JavaScript, and Bootstrap (the HTML framework) in the front end of our project, and we use Laravel blade syntax to create page functionality that cannot be reloaded. We use the PHP framework Laravel for the backend due to its powerful capabilities and ease of use. Not only that, but the vast library of packages in Laravel makes it easy to complete all of the work, which is why we chose it for the backend. Additionally, because it is compatible with Laravel, we use MySQL for the database.

Software accessed through a web browser is referred to as a web application. Users receive

web applications via the World Wide Web. Since our application is based on a website, we adhere to all requirements when building it to work with all browsers. Figure 4.1 shows the most uses browser all over the world [1].

StatCounter Global Stats
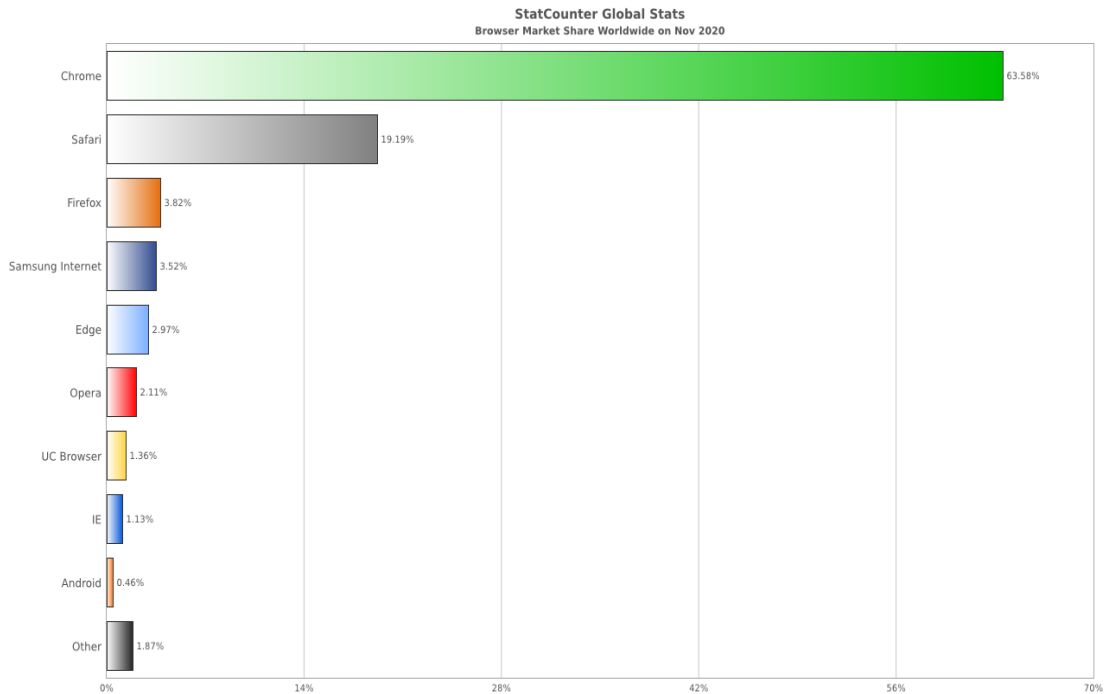Browser Market Share Worldwide on Nov 2020

Figure 4.1: Most Uses Browser all over the world.[1]

Among all the users around 63.58% are the google chrome browser and in the second position belongs to Safari. The percentage of the Safari user is around 19.19 %. Mozilla Firefox user is around 3.82% and Microsoft Edge user is around 2.97%.

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CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Figure 5.1 shows the Database Design of this project.
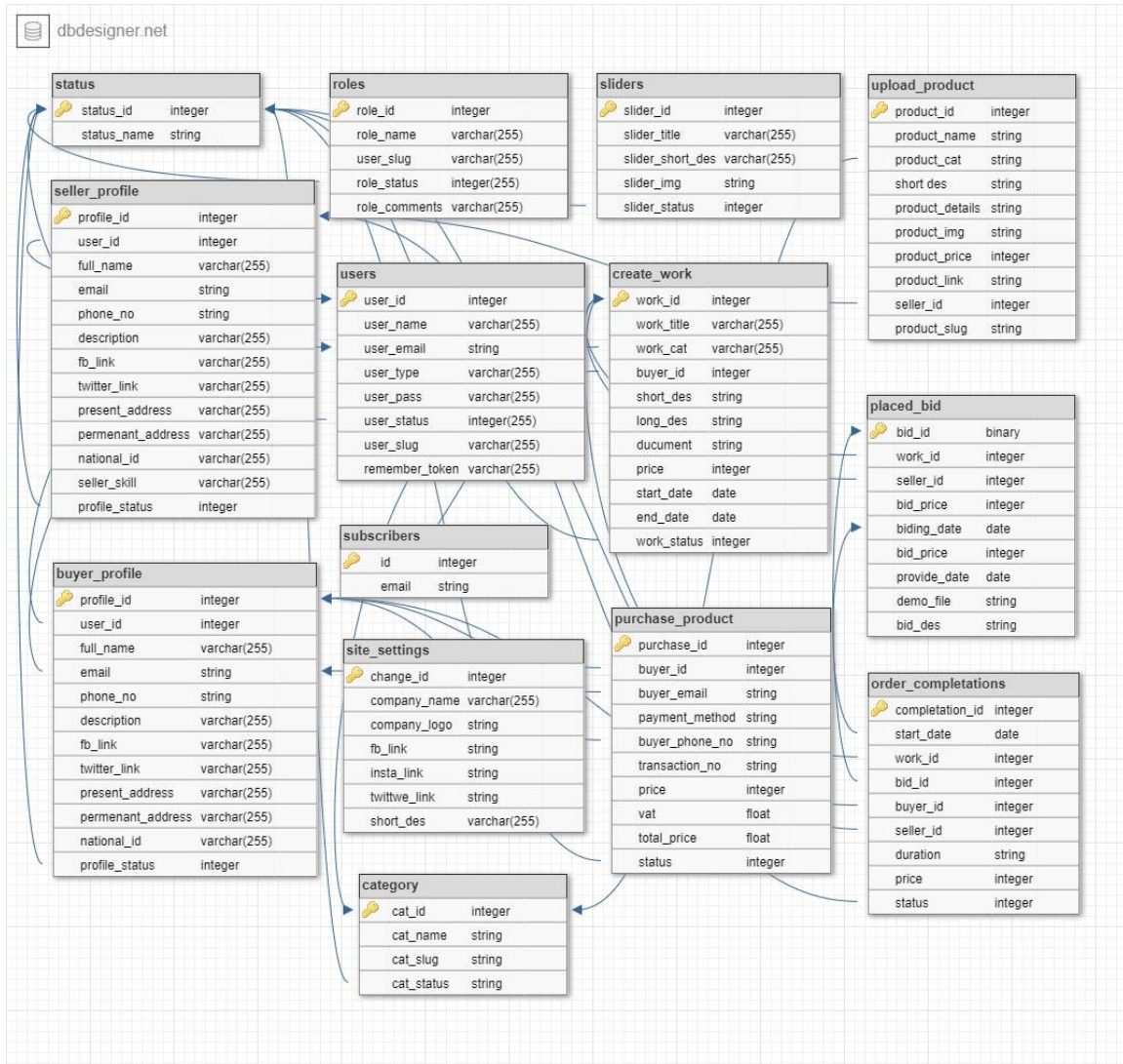
Figure 5.1: Database Design of Flex Lab

To develop this project, we use MySQL database. MySQL database is a relational database system which support to store the sorted data. It contains table where the data is stored in

tabular format. In our database we have fourteen data table. Every table has a unique id and that is its primary key. Some table have one or more foreign key. Foreign key builds up the relation with other tables. Every user has different profile, that's why we make a table name user. In Users table all data of the users will be store. Every user has a user id and it is the primary key of the table. Another two data table name is buyer profile and seller profile. In these two table all data is same except two field. One is primary key a and other one is foreign key name user_id which is primary key of user table.

5.2 Implementation of Front-end Design

The visual interface that users use to interact with a web application like Flex Lab is referred to as the frontend design. This includes the user experience's layout, color scheme, typography, and other visual elements.

The frontend design of a Flex Lab application may need to be implemented in a number of ways:

Mockups of designs: Mockups of the application's layout, visual elements, and overall design are created as the first step in implementing the frontend design. A tool like Adobe Photoshop or Sketch can be used to create these mockups, which can be used as a reference during development.

Write HTML and CSS: You can begin writing the HTML and CSS code that will define the structure and styling of the application's frontend interface once the design mockups are finished. This might entail writing CSS styles to control the layout and appearance of the elements on the page and creating HTML templates for various pages and sections of the application.

Utilize JavaScript to add functionality: Add JavaScript code to handle events like button clicks and form submissions to make the frontend interface more interactive and responsive. To make it simpler to incorporate interactive elements into your application, you can make use of JavaScript libraries like jQuery.

Debug and test: It's critical to test and debug your code as you work on the frontend design to make sure it works as intended and meets the requirements. Testing the application in a variety of browsers and on a variety of devices to make sure it is responsive and looks good on all platforms might be part of this.

The process of putting into action the frontend design of a Flex Lab application can be complicated and take a long time, but it is an important part of making a platform that is easy to use and looks good for buyers and freelancers.

5.1.1 Landing Page

Figure 5.2 depicts the first page a user sees on our platform's landing page. People can search for products and services here, but they must log in to download or use our platform's services.
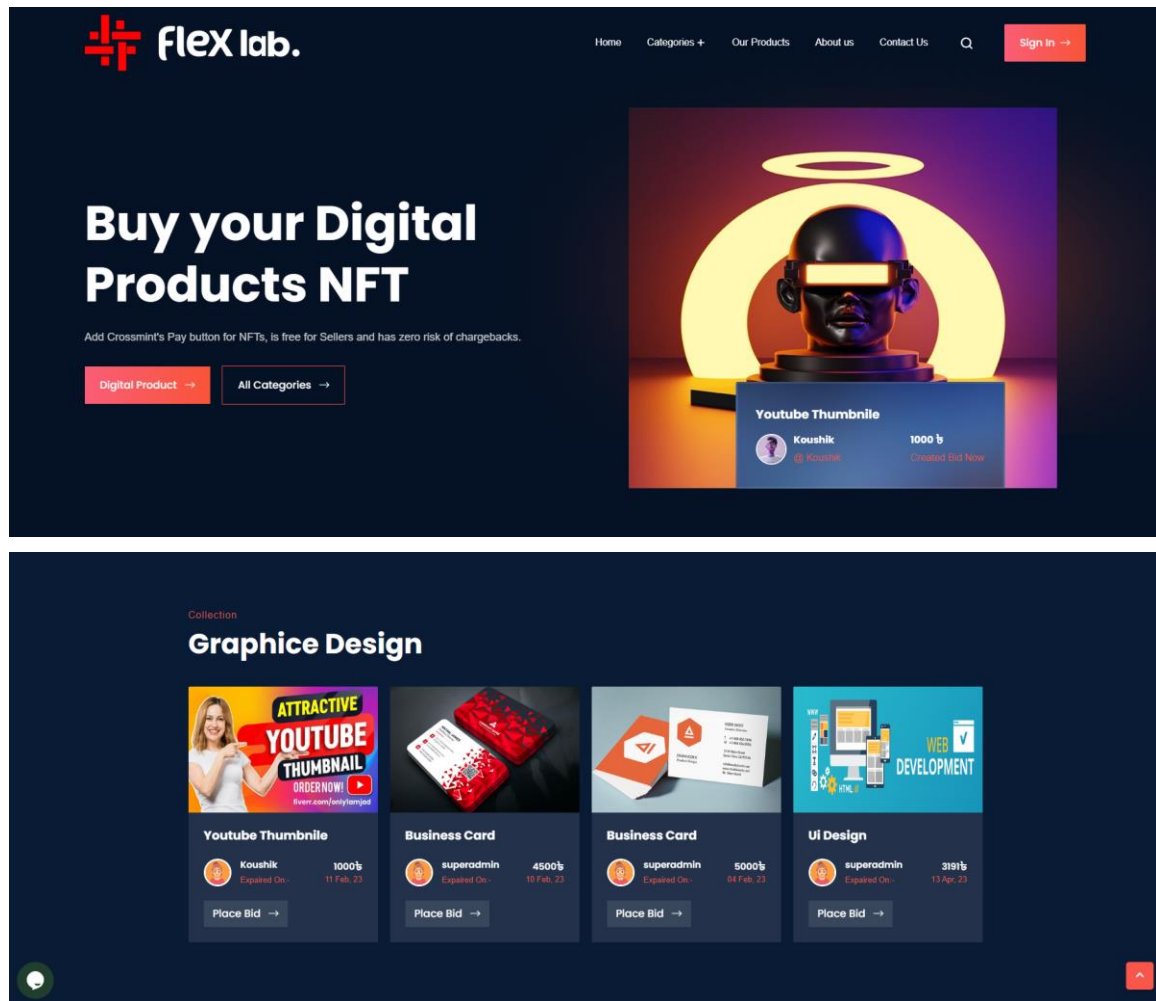

Figure 5.2: Landing Page.

In the navbar section of landing page we show type of create work category, digital product, about us, contact us and sign in button. In hero section we use a slider to attract the user of

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out recent item or features. Then after the hero section we show the running work to our users and visitors in category wise using slider.

5.1.2 Product Page
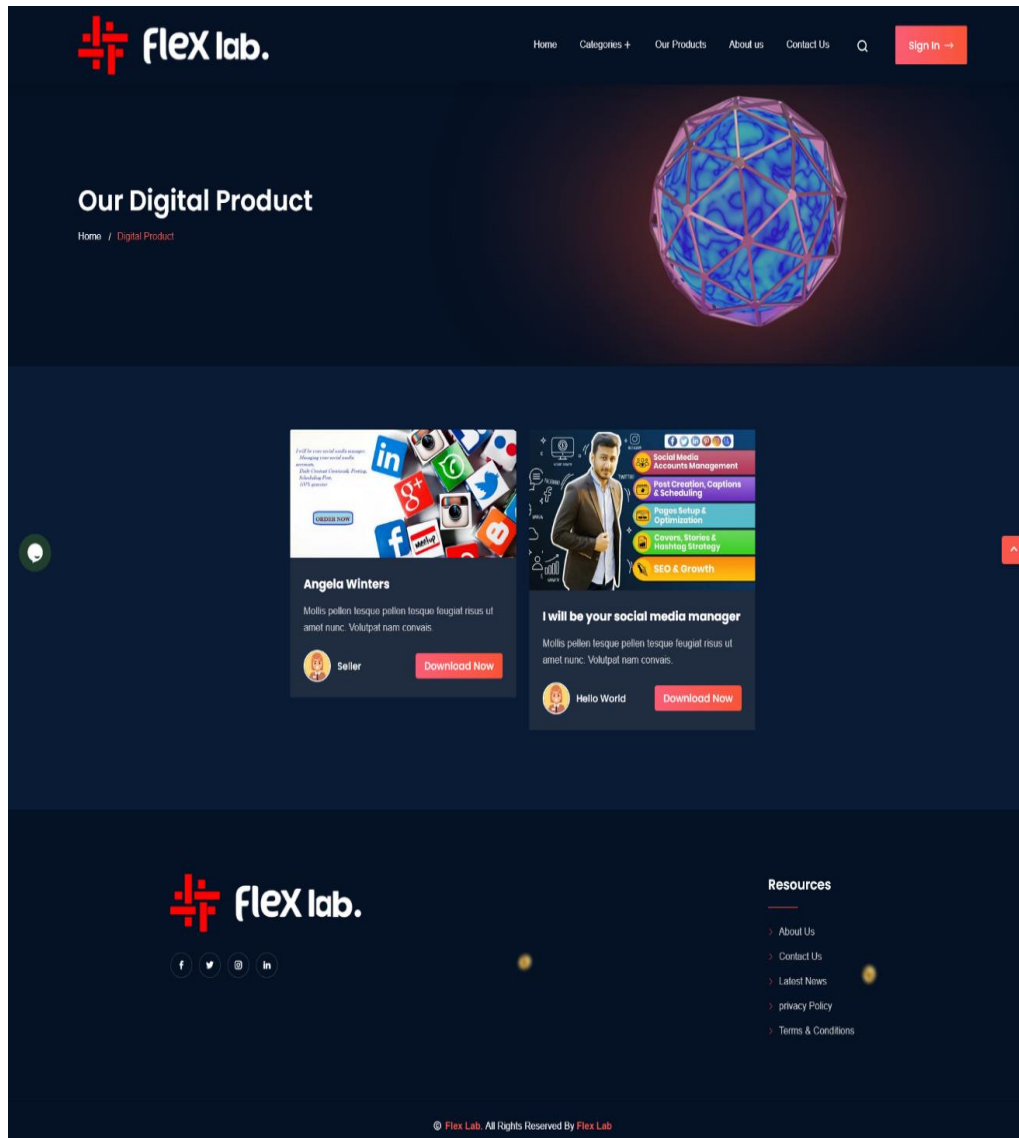
Figure 5.3: Product Page.

Figure 5.3 depicts the product page of our platform, where users can quickly and easily download any digital product after logging in. This product page for our buyers. When anyone needs to buy any digital products then they need to come product page and choose

the product. After that they need to click the download now button. After clicking the download now button the system took the user into the product detail page.

5.1.3 Buyer Payment Method
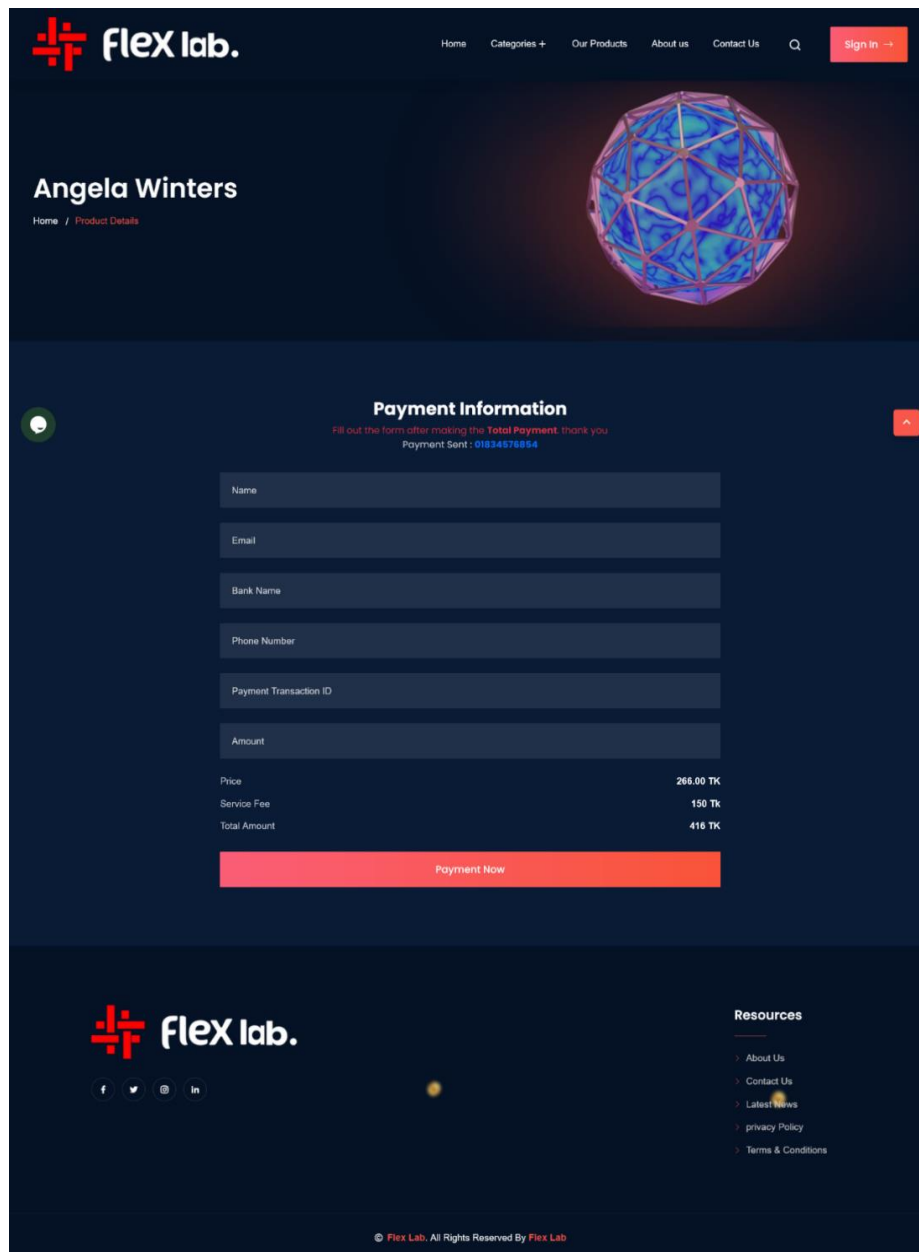
Figure 5.4: Buyer Payment Method.

Figure 5.4 depicts the method of payment used by buyers on our platform. On our website,

we only accept Bkash, Nagad, and Roket as payment methods.

5.1.4 Buyer Dashboard
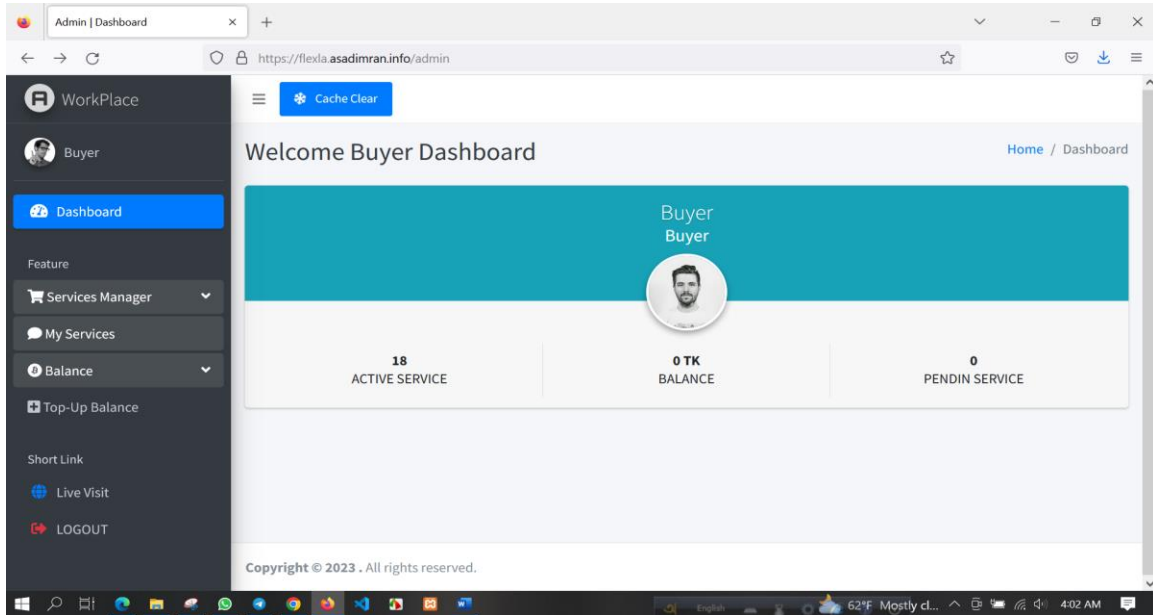
Figure 5.5: Buyer Dashboard

Figure 5.5 shows the buyer dashboard, where a buyer can get all the features he or she needs to buy products, hire freelancers, review the system, and use the payment gateway.

5.1.5 Admin Dashboard
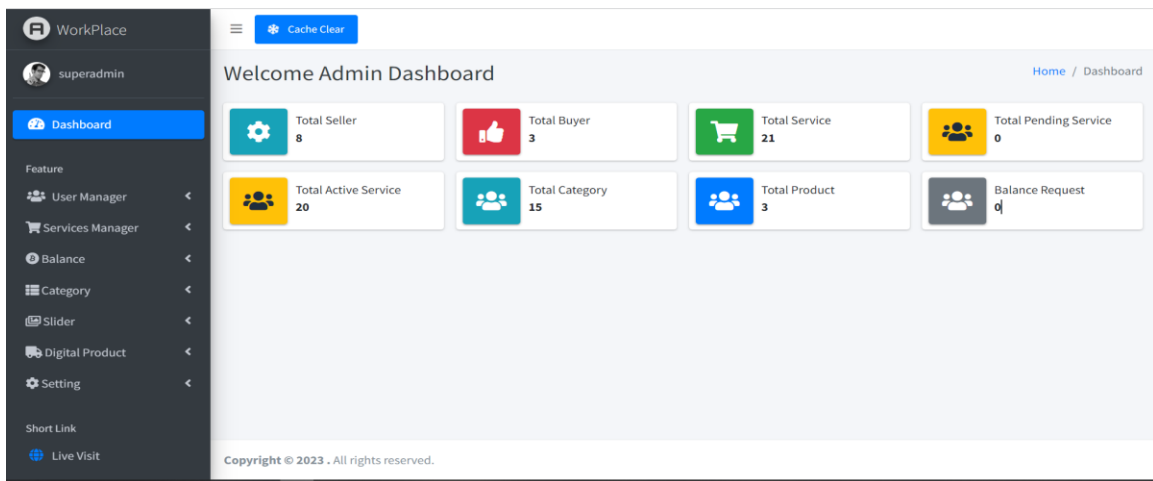
Figure 5.6: Admin Dashboard.

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Figure 5.6 shows the dashboards of the admin and super admin. The admin or super admin can easily control the entire website. Here, the super admin has complete control over all functions, and the super admin can also set up an admin in the platform to oversee work. Overall, the ultimate goal of front-end development is to create a seamless user experience, which is realized by making the website attractive (in terms of design) and interactive (in terms of features) to the target audience.

5.3 Testing Implementation

Web testing, or web application testing, is a product practice that guarantees quality by testing that the usefulness of a given web application is filling in as planned or according to the necessities. Bugs can be discovered at any time—before a release or every day— through web application testing. [12]

Depending on your web testing requirements, the following types and techniques of testing can be carried out in web Engineering:

A website's functionality is tested using a variety of parameters, including the user interface, APIs, database, security, client and server, and fundamental website functions. Users can perform manual and automated testing with functional testing, which is very convenient. It is carried out to test each website feature's functionality.

Nowadays, usability testing is an essential component of any web-based project. It can be conducted by testers like you or by a small focus group similar to the web application's intended audience.

A type of software testing known as interface testing checks whether two different software systems are communicating correctly. The connection that binds two parts together is called the interface. APIs, web services, and similar technologies could serve as the interface.

The software testing that checks the schema, tables, triggers, and so on is known as database testing Of the database being evaluated. To carry out a load or stress test on the database and assess its responsiveness entails creating complex queries. Data consistency and integrity are checked.

A software application's compatibility with different browsers, databases, operating systems (OS), mobile devices, networks, and hardware is checked with a compatibility test.

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Evaluating a product's quality and capabilities is known as performance testing. It is a testing technique used to assess the system's speed, dependability, and stability under varying workloads. Perf testing is another name for performance testing.

Security testing is software testing that looks for system flaws and determines whether the system's data and resources are safe from unauthorized access. It ensures that there are no threats or risks to the software system or application that could result in a loss.

Table 5.1: Test Case on Project Flex Lab.

Test Case	Test Input	Expected output	Actual output	Result	Tested on
1.Browser Support	Tested on various - 1. Chrome 2. Firefox 3. Microsoft Edge. 4. Safari 5. Opera	successfully run all those browser	Run successful	passed	8
2. Event create and handling	Create new event with proper information	Create new event and show in the list	Chow the created invented successfully	passed	8
3. compile and run	compiled successfully all	show the actual	actual output	passed	8

	code	results			

5.4 Test Result and Reports

Test reports are required to reflect application test results in a formal way, which allows quick estimation of test results. It is a document that records the data obtained from a determination test in an organization's procedures, environment and description. Shows comparison of test results with operating system and objectives, which is very important for any kind of application. In Table 5.4, we have shown the test case, test input, expected output, actual output and finally we have found our expected result for our website. We expect that users can easily use and understand our website and that our website has a good user interface. So, any user can easily manage our website.

CHAPTER 6

IMPACT ON SOCIETY ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on Society

Flex Lab, as a web-based platform for freelancers and buyers, has the potential to make a significant impact on different aspects of society. Here is a breakdown of how Flex Lab could impact different groups:

- Impact on freelancers: Flex Lab can provide freelancers with a convenient and user-friendly platform to sell their skills and digital products. It can also help to increase their visibility and access to a global market, which can lead to more opportunities for work and income.

- Impact on buyers: Flex Lab can provide buyers with access to a global talent pool of freelancers, which can increase the efficiency of their operations. It can also help to reduce their costs by allowing them to hire professionals on a project basis, rather than hiring full-time employees.

- Impact on the software industry: Flex Lab can contribute to the growth of the software industry by providing a platform for software development and digital products. It can also help to promote innovation and creativity by providing a platform for freelancers to showcase their skills and products.

- Impact on the Bangladeshi software industry: Flex Lab can have a positive impact on the Bangladeshi software industry by providing a platform for Bangladeshi freelancers to showcase their skills and digital products to a global market. It can also help to increase the visibility of the Bangladeshi software industry and promote it as a source of high-quality software development and digital products.

- Overall, Flex Lab can provide many benefits to the different groups it serves. By providing a platform for freelancers and buyers to connect, it can help to create new opportunities and increase efficiency, which can contribute to economic growth and social mobility.

6.2 Impact on Environment

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Not only does working from home have many benefits for employees, freelancers, and businesses, but remote work also has an impact on the environment. Especially at a time when climate change is more present than ever, we need to start thinking about the improvements each of us can make. This also includes finding more sustainable ways of working. Positive environmental impact: Reduction of greenhouse gas emissions, reducing the use of fossil fuels, better air quality, reduce paper consumption, reduce the use of plastic, reduced infrastructure impact, reduction of energy consumption, stimulating the development of small towns. Negative environmental impact: We always like to see both sides of a problem: the good and the bad. So we tried to figure out the negative environmental impact of remote work. But to be honest, we failed. We just couldn't think of a disadvantage.

6.3 Ethical Aspects

Freelancers are indeed running a small business and require a code of ethics like any other business, the lack of which can be detrimental to your company's reputation and ultimately its very existence. Adhering to a code of ethics can become a competitive advantage and also increase your productivity and business prospects. Ethics are ethical principles adopted by an individual or organization that govern their actions and behavior towards other individuals, organizations and/or activities. Now let's talk about the things you need to learn and practice to advance your freelance career. Think about legal and ethical actions, set your terms and stick to them, dealing with problem customers, understand conflicts of interest, data Protection, Piracy, Privacy and Intellectual Property Management, maintain transparency and integrity, uncontracting work nontrusted to you, estimates and deadlines, stay in constant communication, underestimate your competition.

6.4 Sustainability Plan

Flex Lab is a platform where freelancers can offer a variety of services, including writing, graphic design, web development, and more, in addition to selling digital products. Freelancers may benefit greatly from using the platform to acquire new clients and broaden their clientele. The various kinds of services that will be offered on the platform as well as the ways in which they will be priced should be taken into consideration in a sustainability plan for Flex Lab. Writing and graphic design, for instance, may have different prices than

web development services. The sustainability plan's pricing strategy and revenue generation component may reflect this. How the platform will deal with the various kinds of services that are being offered is another important aspect of the sustainability plan to take into account. Writing and graphic design, for instance, may necessitate more communication between the freelancer and the client, whereas web development may be more self-sufficient. In order to handle the various kinds of services and guarantee that they are provided to the client in a timely and satisfactory manner, the platform should have the necessary tools and procedures in place. In addition, the sustainability strategy ought to take into consideration the various kinds of customers who will be utilizing the platform as well as the various requirements that they may have. For instance, some clients may have particular project requirements and may require additional assistance and direction. In order to guarantee that customers are pleased with the services they receive, Flex Lab ought to be able to provide this kind of assistance and direction. In general, the various kinds of services and clients that will be using Flex Lab's platform, as well as the pricing and management of those services, ought to be taken into consideration in a sustainability plan for the company. This will assist in assuring the platform's long-term financial viability and sustainability.

CHAPTER 7

CONCLUSION AND FUTURE SCOPE

7.1 Discussion and Conclusion

Our "Flex Lab" a web application based freelancing marketplace has been implemented successfully. As it is a web-based application so we tasted it with three different browsers like Google Chrome, Mozilla Firefox and Microsoft Edge. The test report says that the application was run properly in all three browsers and didn't give any types of error. It fulfills our expected requirements. The authentication process of the application is very simple and user friendly. There are very few freelancing marketplace sites available right now but it is different from those for its all-in-one features.

In the world nothing is perfect. Everything's has some limitations. Similarly, at present our developed application also has some limitations. We use the Laravel framework to develop the application and it is slightly slow [1]. For payment we use a manual payment system. We are trying to resolve all the limitations as soon as possible.

After all the design of the application is very simple and the user interface does not look like a complex view. Users will feel comfortable while using it. We tried our level best to fulfill all the requirements of the user and try to decrease the hassle of the freelancers. We are very hopeful that people will accept it and benefit more.

7.2 Future Scope for Further Developments

We are more focused on solving one problem at a time rather than focusing on solving many problems simultaneously. That's why we will have to add some features also. We will try to find out all the problems and also try our best to solve the problems. The probable future scope of the project is: [10]
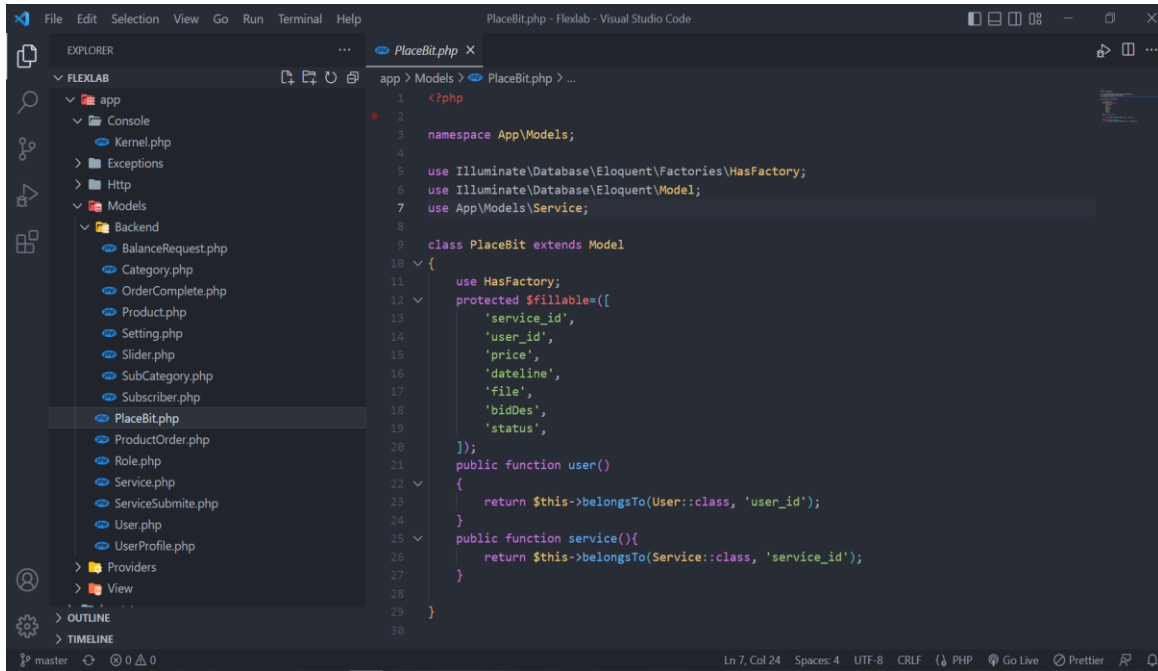
- We can add contest features in future. By using this feature buyers can create a contest based on a specific product. Sellers will submit their work according to the contest. Then the buyer will choose the best one.
- People can create a job post(only remote) on this platform. Suppose you have/want to create an IT company and you need some employees for your company then you

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can create a job post here.

- We will develop a mobile application for cross platform (android and iOS) so that our users can get connected all time without any hassle.

APPENDIX
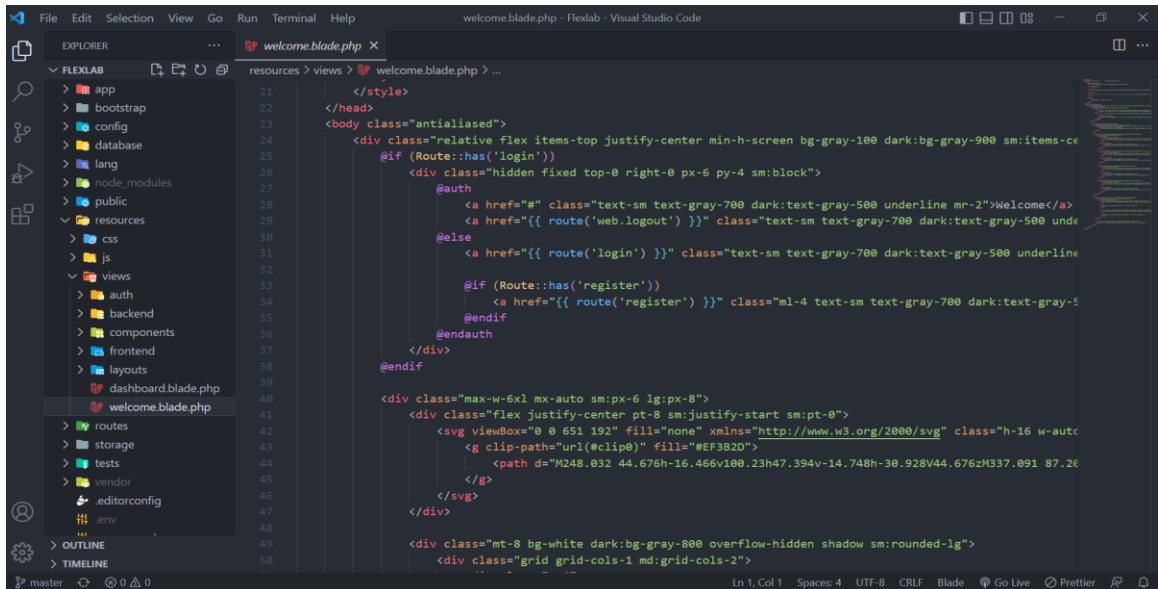
Model Code

Figure 8.1: A Screenshot of Model of Flex Lab.

View Code

Figure 8.2: A Screenshot of View code of Flex Lab.

Controller Code

Figure 8.3: A Screenshot of Controller code of Flex Lab.

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