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An Undergraduate Internship/Project on House Rental Website

By

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Summer, 2022

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Supervisor's Designation

Department of Computer Science & Engineering

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September 26, 2022

Dissertation submitted in partial fulfillment for the degree of Bachelor of Science in Computer Science

Department of Computer Science & Engineering

Independent University, Bangladesh

Attestation

This is to attest that the report is done by me, Noshin Tarannum (1722029), submitted as one of the requirements to achieve the Degree of Computer Science and Engineering from Independent University, Bangladesh (IUB). The report has been completed under the guidance of Md. Asif Bin Khaled. I also certify that all my work is authentic which I have learned during my Internship. All the sources of information used in this project and report are genuine.

Noshin — 14.09.2022

Signature — Date

Noshin Tarannum

Name

Acknowledgement

At first I'd like to thank Almighty Allah for giving me the endurance and the ability to work hard and I take this opportunity to express my gratitude to the people who have been instrumental in the successful completion of this report. Any report's success depends heavily on the encouragement and guidelines of many individuals. I would like to express my gratitude to my internship supervisor Md. Asif Bin Khaled, for providing me the report with clear guidelines and instructions throughout my internship program. Without his help, suggestion and cooperation, this report would not have been completed successfully. Moreover, I feel fortunate to have the opportunity to work at Mediasoft Datasystem LTD as a part of their website developer team. The whole developer team help me various ways throughout the journey. Mostly I am grateful to my company's supervisor, Fazle Imamul Karim and laravel developer team leader, Ariful Islam for guiding me throughout the period.

Letter of Transmittal

20 August,2022 Md. Asif Bin Khaled, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh Subject: Letter of Transmittal for Internship Report, Summer 2022 It's my great pleasure to place my Internship report for your kind approval. I, Noshin Tarannum, from Summer 2022, Section 10, have completed my Internship Program and its report. I completed my internship at Mediasoft Datasystem LTD, which started on 1st June of 2022. This report contains my experience and work in the company. It is my immense pleasure to presenting you my experience in all the different technology related fields of the company, including research and development, content writing, designing, software development and also to get acquainted with software development processes and practices. I hope, this report will reflect my learning and the work i did during the internship program. I also pray and hope that you will find it in order.

Sincerely,

Noshin Tarannum

Evaluation Committee

Asif Bin Khaled

Signature

Md. Asif Bin Khaled

Name

Supervisor

Signature

Name

Internal Examiner

Signature

Name Fazle Imamul Karim

External Examiner

Signature

Name

Convener

Dr. Mahady Hasan
Head, Department of CSE
School of Engineering & Computer Science
Independent University, Bangladesh, IUB

Abstract

The experienced I gathered from the internship program conducted at Mediasoft DataSystem LTD is written in this report. Mediasoft DataSystem LTD is a tech based software company in Bangladesh offering solutions by using technology as just a platform to mobilize the world around us. Mediasoft offer's products and solutions to enhance not just businesses but also assist in improving your daily activities. Main services provided by the company are: Software solutions, building websites on various services, adding feature, working on erp solution. I was selected at Mediasoft Datasystem LTD as a member of web developer team to build them a software on home rental service which will complete my internship program as a web developer under the company. The project has been built using laravel framework.And for frontend I have used html, css and bootstrap. I have basically worked on admin dashboard and users' dashboard. The system will allow an apartment to transform their services into a digital platform where clients will be able to book directly from their website.

Keywords— web development software, laravel, html , css , bootstrap, admin dashboard, users dashboard

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Chapter 1

Introduction

The main goal of the project is to give the clients a homely environment while coming to holidays or business trips for a short term period. A client can choose a rental place which is suitable for him/her from different categories. This rental service will save both time and energy for the clients and the owners.

1.1 Overview/Background of the Work

My role involved working with the software development team. I worked on a website called BDrentals which can help customers select a rental place of various options from different cities which varies in price ranges from low to high. In the modern time, every office, business, and e-commerce, every workstation is fully dependent on software based solution. So, it is very important to develop more efficient and user-friendly software for greater client satisfaction. BDrentals is a website that will be able to provide services like online booking system . Any customer with a smartphone/computer and an internet connection will have access to the site with just a tip of their fingers

1.2 Objectives

The main objective of this project is to allow to transform the data of the apartments in a digital platform where clients can create their account and directly place their booking for their desired apartment using the platform. It will give the customers to choose their desired apartment from various category, book a reservation, confirm booking and select their preferred renting place. It will also allow the admin to manage the internal system, update and delete apartment details. I am going to apply theoretical knowledge in the practical field. I will observe how the engineers and start-up managers, monitor, maintain and develop their software system and services for their clients. I will work with a development team and solve problems and communicate with clients to meet client's satisfaction. For the first time I WILL experience working under a company and learn new things This will give me the opportunity to learn how the engineers approach to real-time problem solving.

1.3 Scopes

Features available to the user after the development of this web application:

1. Home page- The first page the user will see after visiting the website.
2.Apartment Details - User can see any product from details panel.
3. Customer Registration- Customer can register from the registration page.
4. Customer Login- Customer can login from the login page.
5. Admin Registration- Admin can register from the Admin dashboard.
6. Admin Login- Registered admin can login from the Admin dashboard.
7. Bookings- Customer can add apartments in bookings
8. Booking form- Customers have to fill up a form to make bookings
9. Booking history- Customers can view their booking history
10. Admin dashboard- Customers can make changes of the system by going to admin panel.

Chapter 2

Literature Review

I am currently doing my internship on a software company known as Mediasoft Data System Limited. This company basically creates websites for their clients. I have been given a task to complete an website on short term home rental services.

2.1 Relationship with Undergraduate Studies

The skills that I will be using to create the website were mostly taught in my undergraduate life. Some courses that will be very helpful for this projects are Data structure, Database Management, System Analysis and Design, Web Application and Internet. CSE203(Data Structure) is a basic level course which will help me to code and create the structure of the project by organizing and storing data. CSE303(Database Management) will help to plan the project by drawing diagrams like rich pictures, Process modelling diagrams, flowcharts and erd diagrams. We learnt sql in this course which will help to store data of the website. CSE307(System Analysis and Design) will help to analys the system and design the website according to the clients demand by following the sketches and diagrams that has been made for the system. CSE309(Web Application and Internet) taught me to create a website from scratch by using html, css, bootstrap, javascript for frontend which I will be using to create the project given to me. I will be using PHP framework for backend which has also been taught in this course.

2.2 Related works

Short-term renting was still rather widespread prior to the rise of home-sharing sites, although it was more frequently identified as holiday rentals. Vacation rentals are a less expensive option to hotels for those who want to go away from their regular residences for a while. As adverts and listings for short-term holiday rentals started to emerge in newspapers in the 1950s, renting a vacation house had become a common practice for many.

VRBO (Vacation Rentals by Owner), which debuted in 1995, was the first internet platform to make it possible to book vacation or short-term rentals. Users of the VRBO website could explore and reserve a variety of vacation homes that were overseen by their individual owners,

with the majority of the company's listings and reservations occurring in the United States. In 2008, a modest San Francisco firm named **Airbnb** emerged as the number of internet hotel providers grew. Airbnb was the first company to let customers reserve a single room in a host's house and pay with a credit card online, whereas the earlier businesses provided several types of holiday rentals and hotel bookings for brief stays.

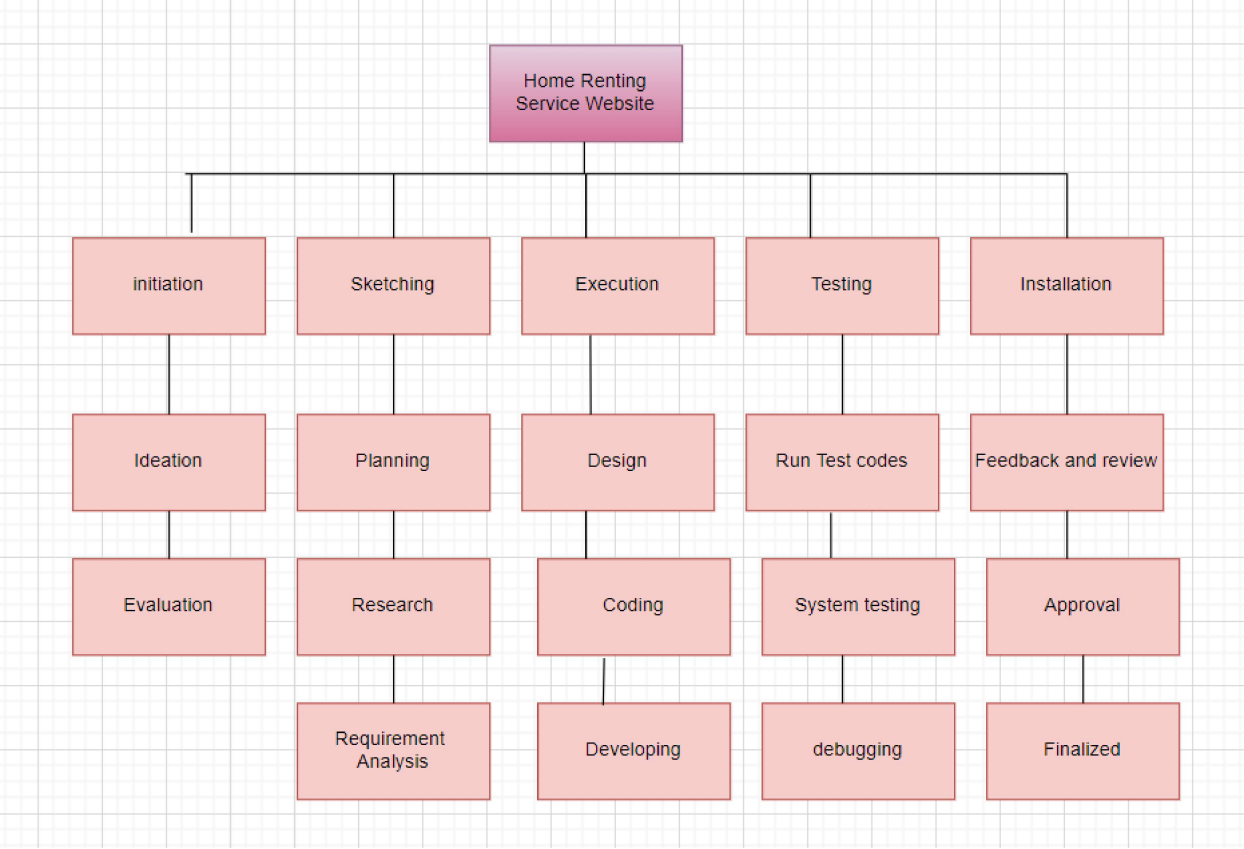
BDrentals, the home rental website that we are currently working on will provide a support system for multiple language which is not usually seen in other home rental service websites.

Chapter 3

Project Management & Financing

3.1 Work Breakdown Structure

Work Breakdown Structure(WBS) which breaks the project works into smaller components.It provides a visual representation of all scopes, risks, duties, costs, and guarantees, ensuring that integral deliverables are no longer overlooked. It is is a useful diagram as signifies the relationship between all the components of the project.



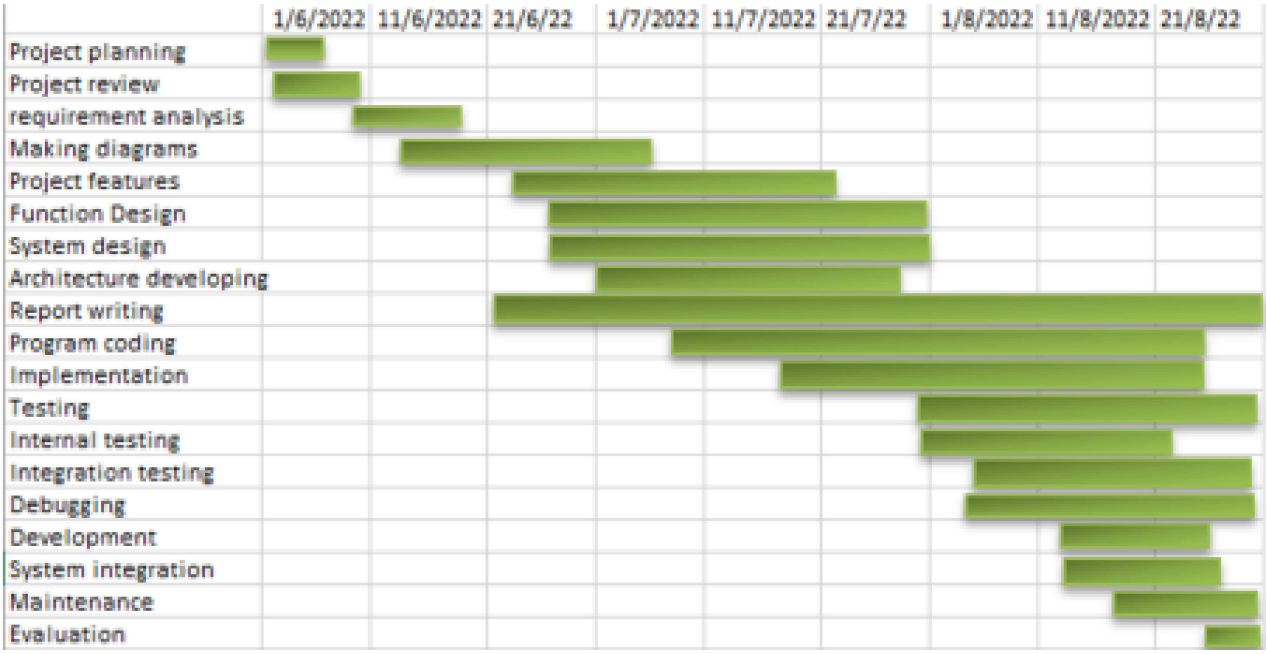
3.2 Process/Activity wise Time Distribution

For each of sub-tasks mentioned in the Work Breakdown Structure time was allocated so that the project completed in the given timeline. This table below shows the time allocations and work percentage of the sub-tasks for the project.

Task	Duration	Time Percentage
Planning	7	8%
Requirement Analysis	15	16.5%
Design	16	18%
Development	25	28%
Testing	10	15%
Implementation	10	15%

3.3 Gantt Chart

Gantt charts is used to assist teams in scheduling tasks to meet deadlines and distribute resources effectively.



3.4 Estimated Costing

Work Distribution	Costing
Planning	20,000
Analysis	30,000
Development	80,000
Debugging	40,000
Testing	40,000
Deployment	50,000

3.5 Process/Activity wise Resource Allocation

Activity	**Involved Personnel No.**	**Working hours**
Planning	2	160
Project Analysis	3	360
Algorithm Development	2	140
Project structure	2	182
Project Development	2	500
Error fixing	2	100
Testing	2	100
Project Finalisation	2	50
Deployment	1	50

Chapter 4

Methodology

For developing the project, the agile method has been used. A project can be managed by segmenting it into different phases using the agile methodology. Continuous improvement is required at every stage, as well as ongoing collaboration with stakeholders. Teams cycle through a process of planning, carrying out, and assessing their work once it has started. First I had to analysis the requirements for the project. Then I have drawn some sketches and diagrams. I have designed the system accordingly and worked on the functions. The development of the website was made as needed. Then after finishing the coding, the software testing was done. Then the system was reviewed by the other members of the developing team. Thus the steps I have taken to complete the project follows the agile method.



Chapter 5

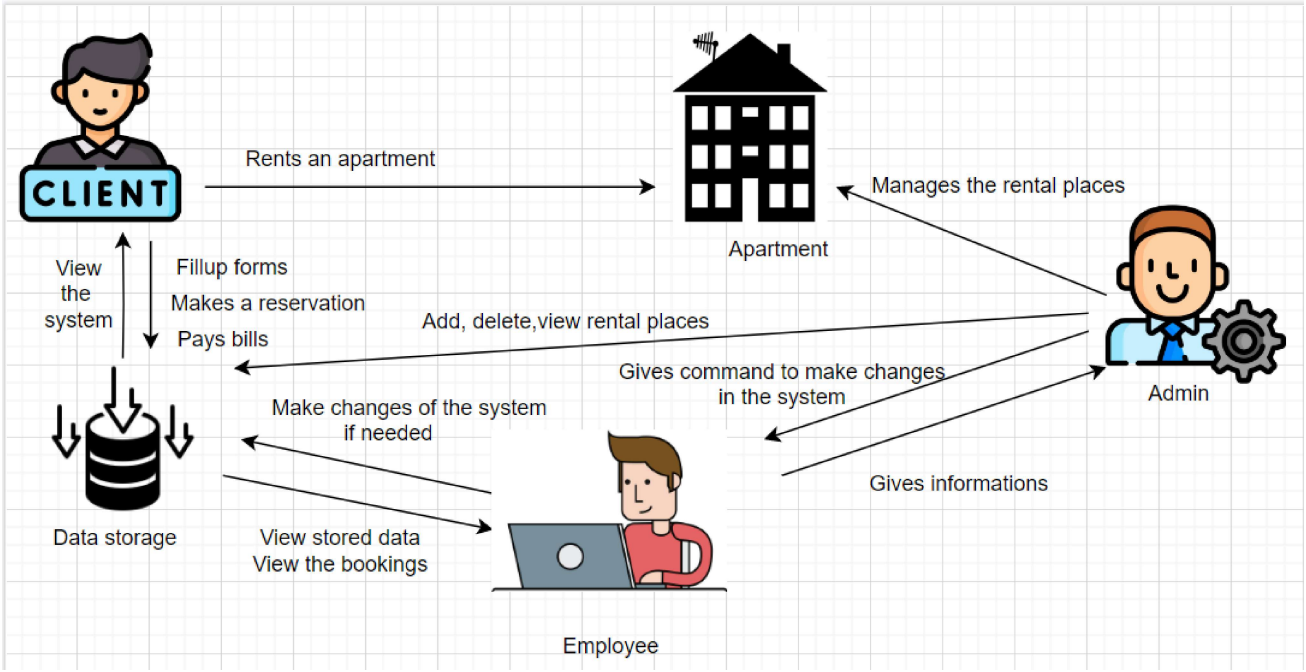
Body of the Project

5.1 Work Description

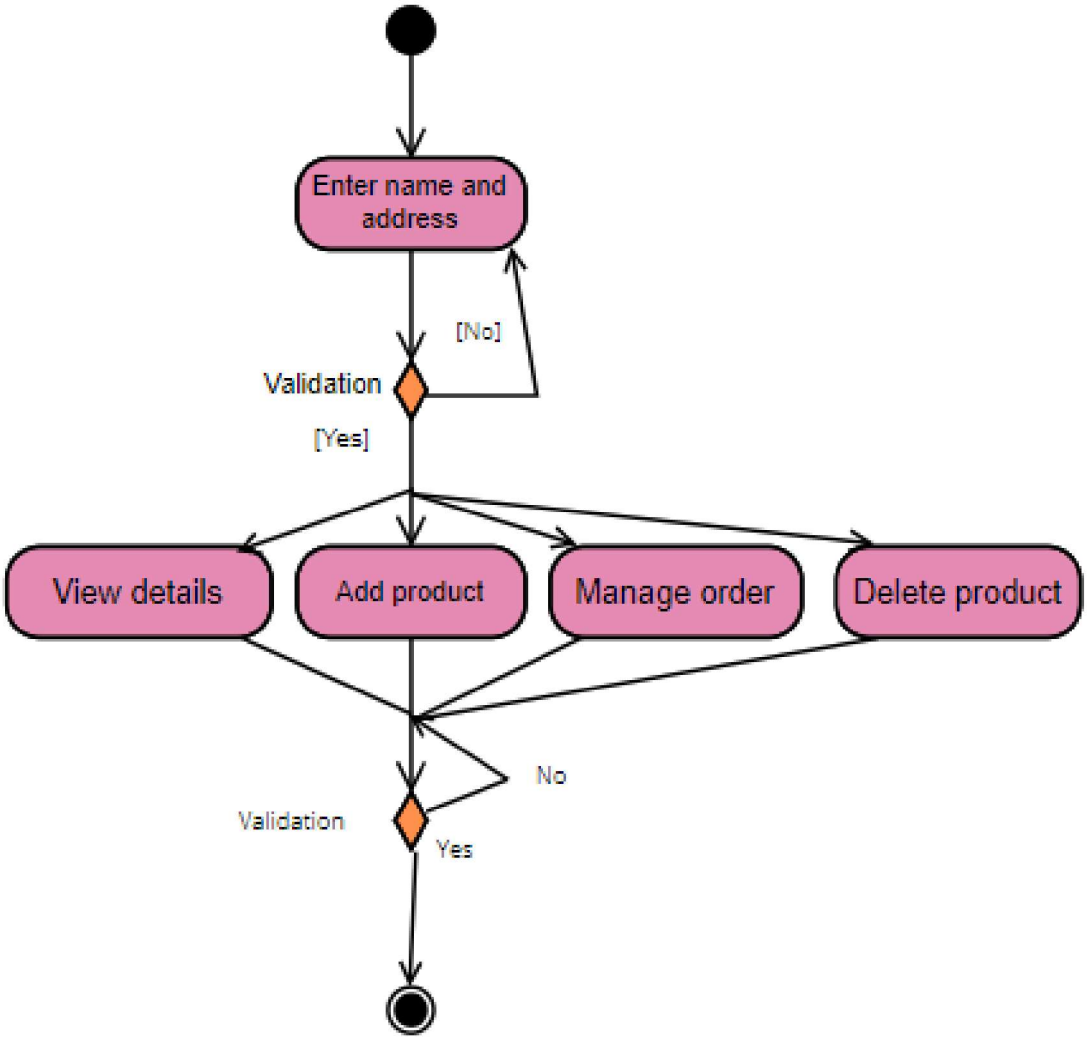
BdRentals is a project under Mediasoft Datasystem LTD which is an online home rental service system. The website will give the clients to choose their apartments based on categories, book a place, make payment and select their preferred time and service for renting. The admin of the system can make changes of the system. the changes will then get saved in the database. The users can view the system and select their preferred service. For this, the users need to fill up a form with their personal information. The records of the users like personal information and their bookings history will get saved in the database. The users need to sign up first for validation. My job was to work on both frontend and backend part of the website.

5.2 Requirement Analysis

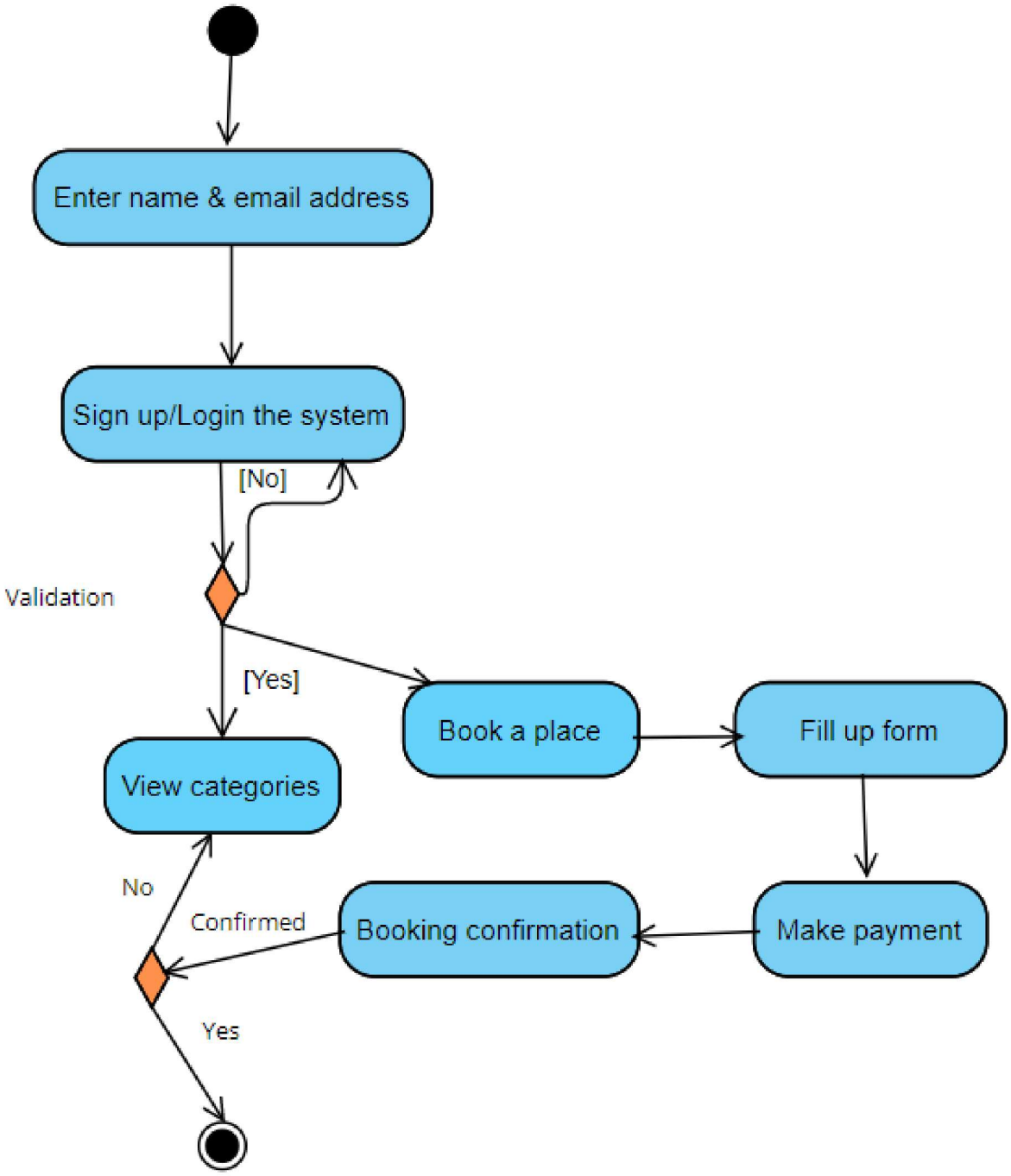
Rich Picture



Activity Diagram



Activity Diagram For Admin



Activity diagram for client

Functional and Non-Functional Requirements

Functional Requirements:

Function: Sign up as an employee		
Input: Name, address email	**Process**: Fill up the form	**Output:** Signed up as an employee
Precondition: The information given in the form has to be authentic		
Post condition: Successfully submitted the form		

Function: Sign up as a client		
Input: Name, address, email	**Process:** Fill up the form	**Output:** Signed up as a client
Precondition: The information given in the form has to be authentic		
Post condition: Successfully submitted the form		

Function: Make reservations		
Input: Name, address, email, number of guests Arrival date and time Departure date and time	**Process:** Fill up the form	**Output**: Reservation has been made
Precondition: The information given in the form has to be authentic		
Post condition: Reservation has been made successfully		

Function: Confirm booking		
Input: Pay bills online	**Process:** Fill up the form	**Output**: Booking has been confirmed
Precondition: The information given in the form has to be authentic		
Post condition: Booking has been made successfully		

Non-Functional Requirements:

• Performance and Scalability: Response time for of this system is quite instance. We do not need to wait for too long. The login process is very smooth and logs into one's account instantly. Other functions also run very smoothly.

• Responsiveness: The site is responsive for every device. It can be accessed to phone, laptop or desktop or any other such device without making any kind of compromise in the functionalities. Also the site can be run in google chrome, internet explorer, mozilla firefox or

any kind of web browser.

• Security: This website is very secured to use. Passwords and personal informations are saved into the database of each user's account is encrypted and then saved to database the process is done automatically. Only users can view his/her record of purchase and no one has access to the user's history.

5.3 System Analysis

5.3.1 Six Element Analysis

Process	Human	Non computer Hardware	Computer Hardware	Software	Database	Network & Communication
1.Select a place to give rent	Manager	Pen, papers & stationary	Computer/Laptop, mobile	Excel sheet, MS Word	Storage hardware	Internet, Email
2.Managing the places						
3.Gives commands to employee						
4.Passes information to manager	Employee	Pen, papers & stationary	Computer/Laptop, mobile	MS Word, Excel sheet	Storage hardware	Internet, Email
5.View and make changes of the system						
6.View the system	Clients	Pen, papers & stationary	Computer/Laptop, mobile	Excel sheet	Storage hardware	Internet, Email
7.Fill up form, makes reservation						
8.Rent a place						

5.3.2 Feasibility Analysis

A feasibility analysis classifies the project's possibility of success.SO, perceived objectivity is an essential factor in the credibility of the study for potential investors and lending institutions. It determines whether the project is ethically, theoretically, economically practical or if it is

worth investing in the project. There are three kinds of feasibility in this project. Economic Feasibility: The website does not contain any hidden costs for user instead it makes it users to choose an apartment and book a place directly from the website. Technical Feasibility: All the hardware, software, and other technical requirements that are needed to complete this project are available in the company 11 to make this project technically feasible. Functional Feasibility: There are two kinds of panel in the website. User panel and admin panel. Users can book apartments, view options whereas admin can make changes to the website, add or delete rental places with only few clicks.

5.3.3 Problem Solution Analysis

There were a number of problems that were encountered while completing the project and they were solved accordingly. Some of the problems were –

1. Login/Register Authorization: Setting up unique key for signed up users and admins was a problem which was solved by using role system.

2. Hashing Password: Hashing password in the database was a challenge which was solved by using bcrypt hash password.

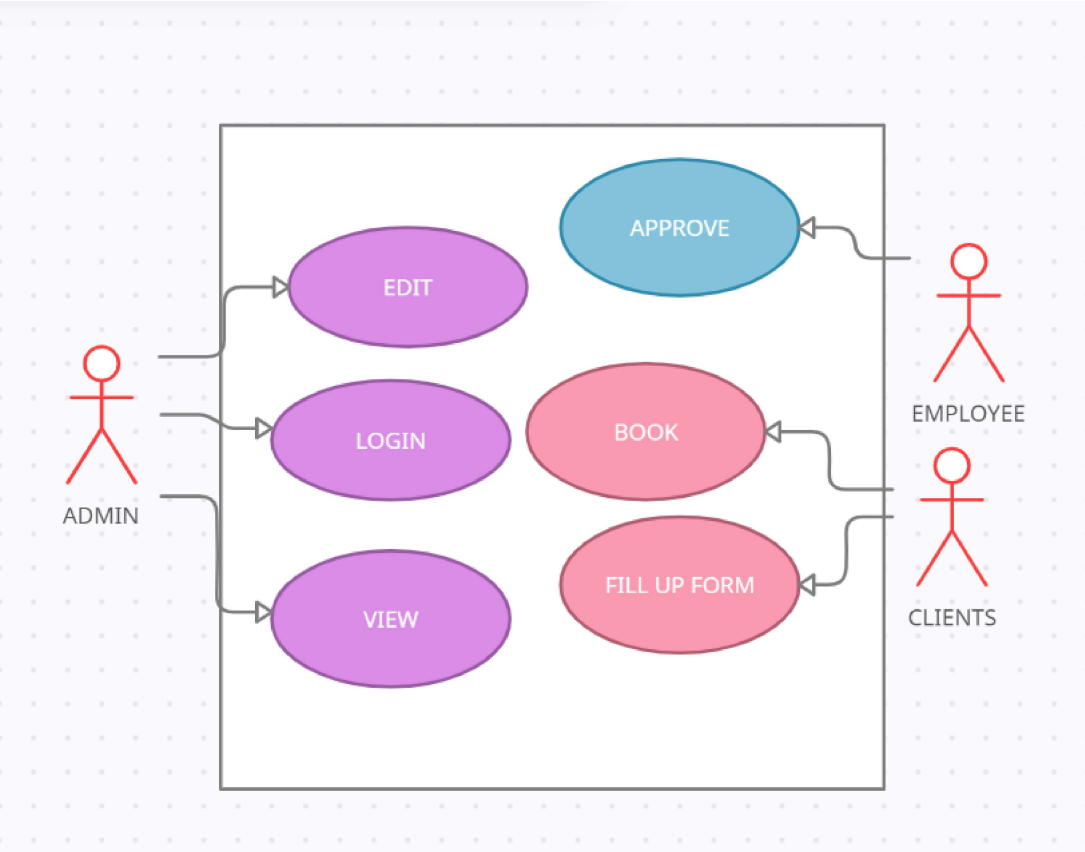
3. Responsive Website: Making the website responsive for all devices was a great challenge. This problem was solved by using Bootstrap5 and custom CSS.

5.3.4 Effect and Constraints Analysis

This website helps the clients to know about the true essence of the website and what its main goal is. The clients can look into the website and choose their desirable apartment within less time and energy. They can book apartment, add payment method and confirm reservation by the website .But the website still have some limitations. We are still working on the website. We are trying to add more features to make the clients life more effortless.

5.4 System Design

UML Diagrams



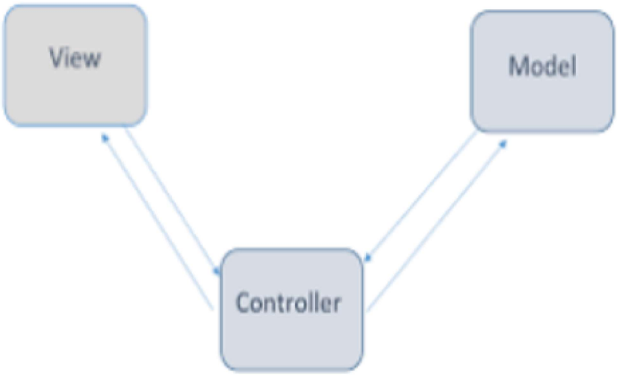
Architecture

Software architecture is a series of decisions which are based on a wide range of factors which are used in the process of software development. It is a structure that provides the systemic qualities such as security, performance, traceability and availability. It also serves like a communication vehicle for the stakeholders. Software architecture is foundation upon which a system is built. Once a software architecture is put in place in a software development, altering them can be 22 hugely expensive and time consuming. Therefore, every decision taken, have a huge impact on satisfying the requirements of the project given the constraints. For this project the Model View Controller(MVC) software architectural pattern was used. , this model is separated into three parts. They are:

1.Model

2.view and

3.Controller



5.5 Implementation

I have implemented few tasks on both frontend and backend part of the project.

Apartment Input:

Appartment Datatable

Add Appartment

Price	Address	Phone	Bedroom	Bathroom	Area	Phone	Gallery	Status	Update/Delete
BDT 60 Thousand	Banani, Road-13, House-18, Dhaka	01722626182	5	Banani	2400 sqft	01722626182		Booked	Update Delete
BDT 55 Thousand	Sector 10, Uttara, Dhaka	01735526182	3	Uttara	2000 sqft	01735526182		Up for rent	Update Delete
BDT 55 Thousand	Sector 4, Uttara, Dhaka	01736609182	4	Uttara	2153 sqft	01736609182		Up for rent	Update Delete
BDT 22	Block I,	01736676182	3	Bashundhara	1100	01736676182		Booked	Update

Booking Input:

mm/dd/yyyy mm/dd/yyyy Search Date

Create Report

Booking Datatable

Rent ID	User ID	Name	Occupation	address	Email	Phone	Members	Booking Date	Delete
6	2	sadia	student	Bailey Road	sadia@gmail.com	9989765	3	2022-09-10 04:21:45	Delete
1	2	noshin	student	Bailey Road	noshin@gmail.com	9989765	4	2022-09-10 04:37:09	Delete
8	2	noshin	student	Bashundhara	noshin@gmail.com	9989765	2	2022-09-10 04:47:50	Delete

Apartment Output:



Apartment
BDT 60 Thousand
Banani, Road-13, House-18, Dhaka

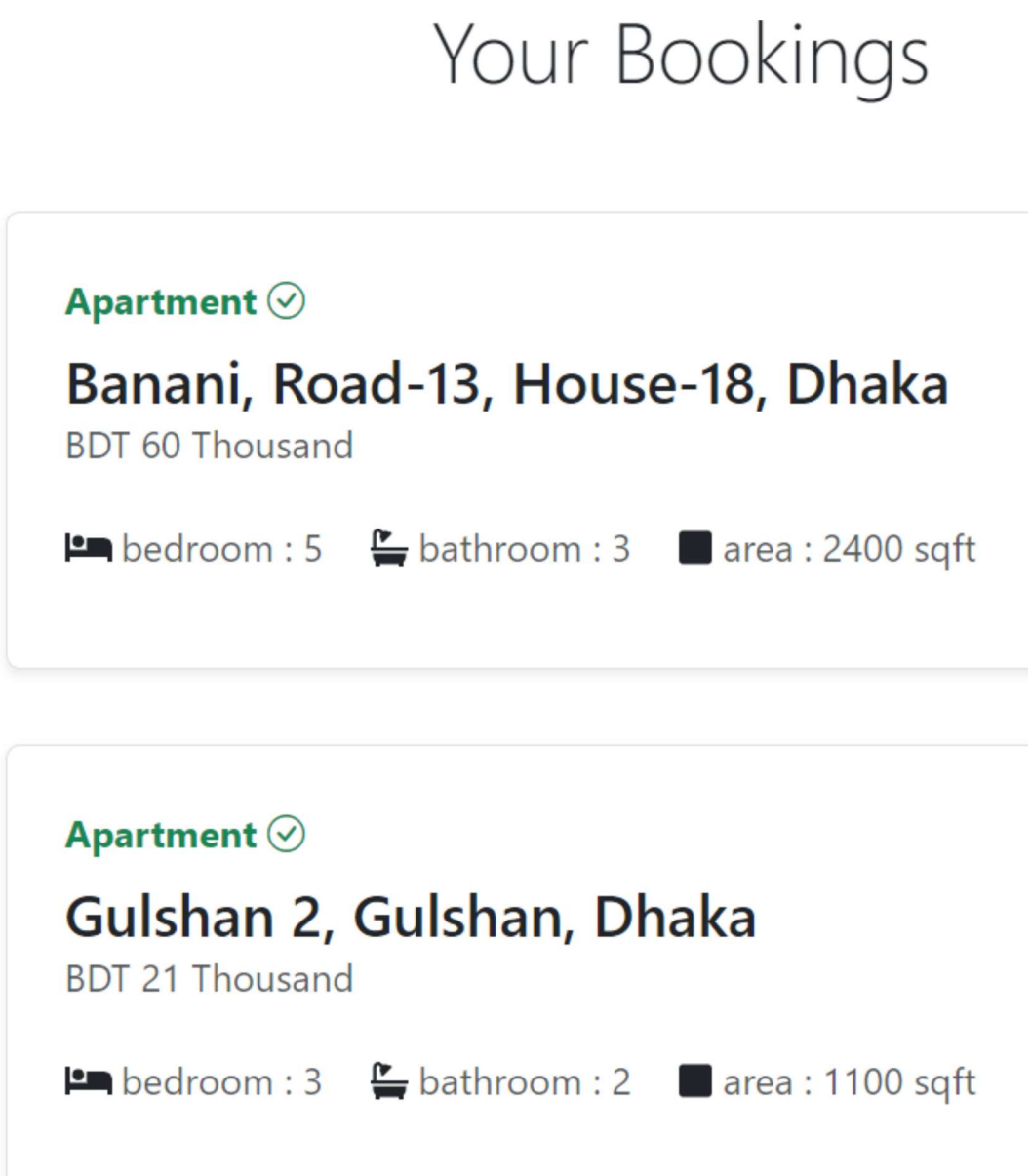


Apartment
BDT 55 Thousand
Sector 10, Uttara, Dhaka



Apartment
BDT 55 Thousand
Sector 4, Uttara, Dhaka

Booking Output:

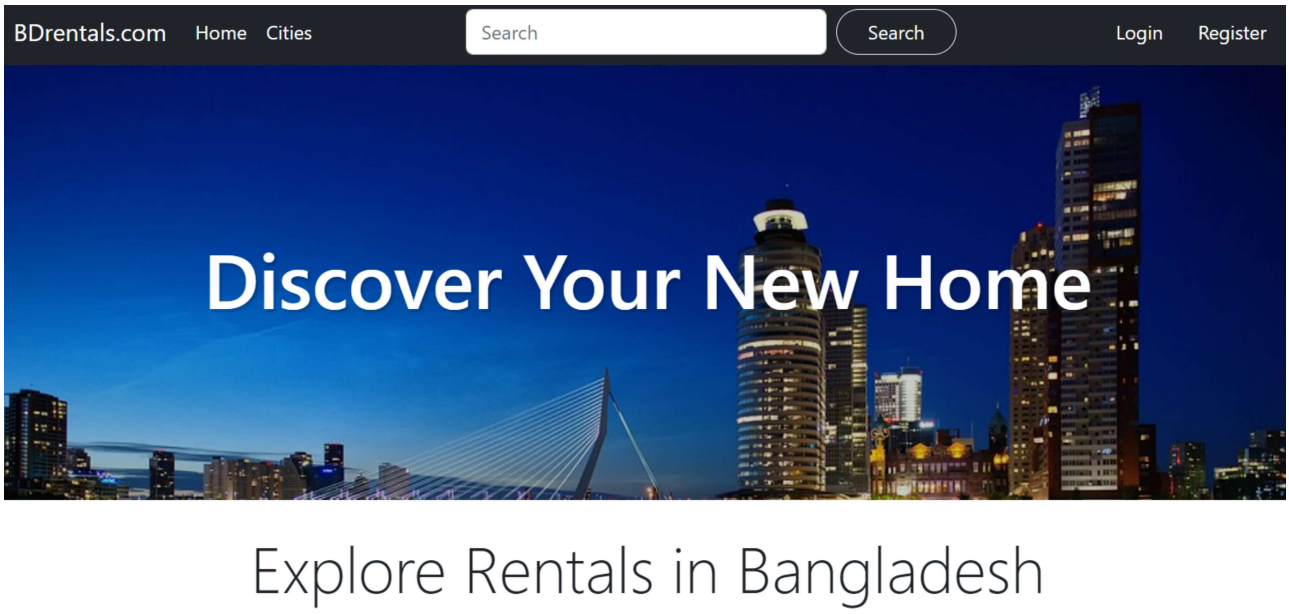

Your Bookings
Apartment
Banani, Road-13, House-18, Dhaka
BDT 60 Thousand
bedroom : 5
bathroom : 3
area : 2400 sqft
Apartment
Gulshan 2, Gulshan, Dhaka
BDT 21 Thousand
bedroom : 3
bathroom : 2
area : 1100 sqft

Chapter 6

Results & Analysis

The The BDrental website has been developed to attract clients to get information about the rental places through online. The website has been developed in a way which is very easy to use. Clients can get all kinds of details and reviews about the places by using the website. The pages of the website have been divided according to the users and their activity in the software.

Home page:



Apartment Details:



Apartment

BDT 60 Thousand

Banani, Road-13, House-18, Dhaka



Apartment

BDT 55 Thousand

Sector 10, Uttara, Dhaka



Apartment

BDT 55 Thousand

Sector 4, Uttara, Dhaka

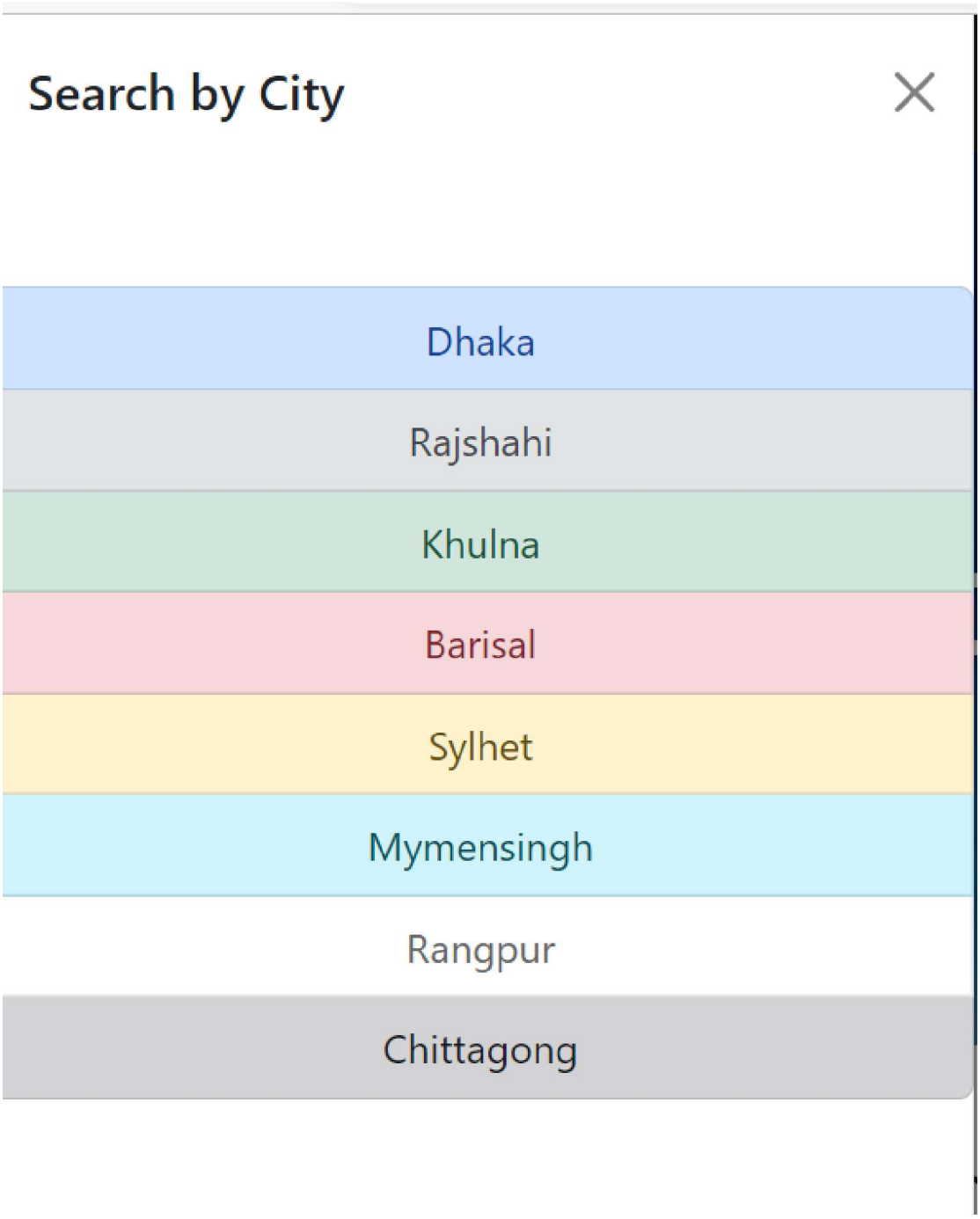
Explore page:

Explore Areas



Banani

Locations:



Apartment Informations:

Apartment

BDT 55 Thousand

Sector 10, Uttara, Dhaka

This beautiful apartment is standing on an area of 2000 Square Feet facing in the east is located in Uttara. The price for this apartment is BDT 35,000. The flat comes complete with 3 beds, 3 baths, drawing, dining room and a kitchen. Each washroom has got the fixtures installed with the high durability guarantee. All-time security, ample parking space are some other benefits worth mentioning for this flat.

Property Information

Bedrooms: 3 | Bathrooms: 3 | 2000 sqft

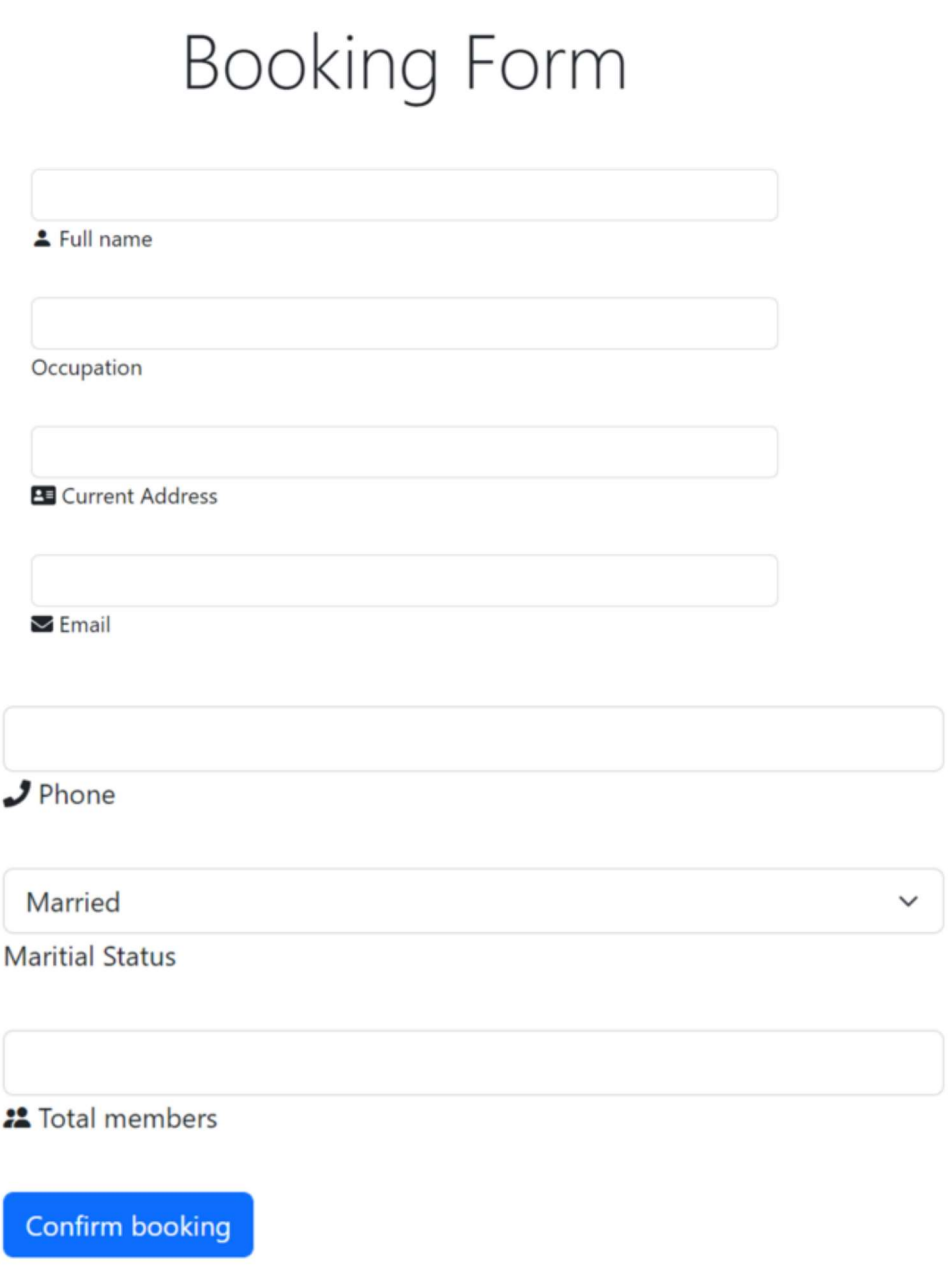
Type : Appartment

Purpose : Rent

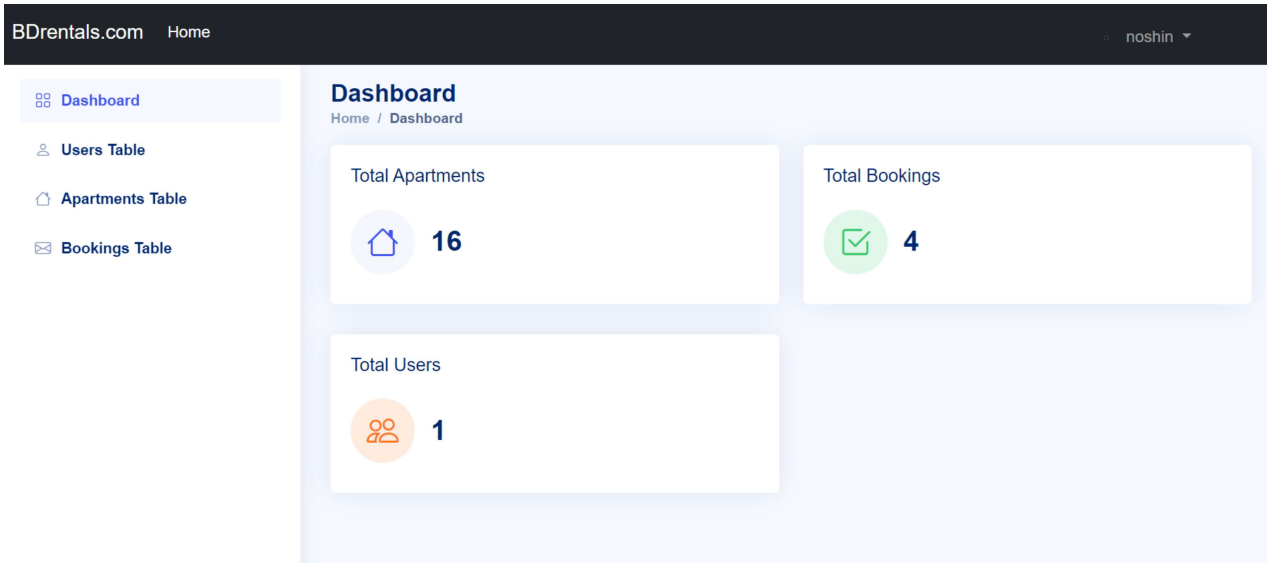
For more info: 01735526182

Book

Booking Form:



Admin Dashboard:



PDF of Booking Database:

Booking Datatable

Rent ID	User ID	Name	Occupation	address	Email	Phone	Members	Booking Date
6	2	sadia	student	Bailey Road	sadia@gmail.com	9989765	3	2022-09-10 04:21:45
1	2	noshin	student	Bailey Road	noshin@gmail.com	9989765	4	2022-09-10 04:37:09
8	2	noshin	student	Bashundhara	noshin@gmail.com	9989765	2	2022-09-10 04:47:50
4	2	tarannum	student	Bashundhara	noshin@gmail.com	9989765	4	2022-09-10 04:54:50

Chapter 7

Project as Engineering Problem Analysis

7.1 Sustainability of the Project/Work

The website is very user friendly and easy to operate. The website can be updated every time to time by users need. The admin has complete control over the system so he can create, update, and delete the useless data from the system that is no longer necessary.

7.2 Social and Environmental Effects and Analysis

BDrental as an online marketplace can be called an echo friendly initiative, as it does not need physical infrastructures in order to expand.. BDrental has zero Carbon Footprint in its infrastructure plan. On the other hand, BDrental has immense socio-economic impact. As the digital market is a growing industry, many young entrepreneurs can be inspired through its operation

7.3 Addressing Ethics and Ethical Issues

Nowadays, software directly impacts our daily life and the big data and data analytic has made its way into the picture. Hence, addressing ethical side of it has become an issue. This system faced weak cyber security issues and also stimulated personally identifiable information protection problem. To deal with such problems security remained a concern during the initial planning phase of the project. So the system meets secure development standards. Along with all the other features security still remains a prominence in the maintenance of the system. In addition to that, ethical standards were maintained as all the features were given equal priority

7.4 Environmental effect

The website helps to make online reservations which is the main goal of the project. Physical appearance is no longer needed. The system provides all the functionalities from controlling the system, making bookings, managing the reservations made by the clients etc. The website allows clients to view and book apartments from various options within the comfort of their homes rather than visit the place physically. Customer can easily book their preferable apartment or make a payment online within a few taps by using this home rental website.

7.5 Collecting relevant User Data

The website only collects the data that is needed for the system such as, the name, email address, phone number and addresses for making the bookings. These data are saved in the database. No other additional data is taken by the system.

7.6 Data Storage Security

In this website Only the admin has access to the backend server and database. Since they can only be accessed by the admins login credentials(ID and password); the data can be stored safe and secured.

Chapter 8

Lesson Learned

8.1 Problems Faced During this Period

I had to overcome a lot of obstacles during my internship period. The most challenging part of the project development was the debugging and structuring the database model. I had lack in practical knowledge of building a production level website. All I had was my theoretical knowledge that I had obtained from different courses while completing my degree. I had to gather software requirements directly from the client, make sketches with the core functionalities of the software which would have to meet the clients' requirements and how I was going to approach building the software. Also the experience of working under a company was totally new for me for which it was quite challenging for me to finish the milestones on deadlines. During my internship period, I had to build the backend system on the laravel framework, which was completely new for me. But for this system, I had to learn and build the system using the laravel Framework because the system had to be built on a RESTful API so that it could communicate with the frontend. Because I was building the backend by myself, I had to complete a lot of work within only three months which was very challenging for me.

8.2 Solution of those Problems

Being new to the laravel framework, I had to watch a lot of youTube tutorials, read a lot of documentation to learn about the facts and features of the framework.By reading the documents and watching a lot of tutorials I have gained the knowledge I needed for creating a laravel framework based website. I now understand how to operate in a software firm as part of a team and how to work with other members of the team.I have also learn to complete project work under tight deadlines.

Chapter 9

Future Work & Conclusion

9.1 Future Works

BDrental.com wishes to make their service well known by the people.They are working on making their organization wider by adding more locations and options on the system.They are also thinking of giving more offers and discounts time to time so that clients shows more interest in taking their services. They are currently working on creating online gateway service system so the clients can pay online by using card or other online payment methods.

9.2 Conclusion

Being in the part of software development team in Mediasoft Datasystem LTD, I have experienced a lot of new things. I have learned to work under pressure and finish a task in the given time. I have learned how to work in a group and also learn to work solo. Working in an office environment was totally new for 32 me which I enjoyed a lot thanks to the amazing employees. All the employees and the company staffs were really friendly and helpful throughout these three months. I am grateful to be a part of this organization.

Chapter 10

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An Undergraduate Internship on Home Rental Service

By

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Student ID: **1722029**

Summer, 2022

Consent Form

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during final viva, and the department can use this version for archiving.

Asif Bin Khaled
(Signature of the Supervisor)

Md. Asif Bin Khaled

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