Web Based BikePedia System

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

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APPROVAL

This Project titled **"Web based BikePedia System"**, submitted by **Afroja Akter**, ID: 181-15-10614 and **Md. Fazla Rabbe**, ID: 181-15-10581, 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 **06/01/2022**.

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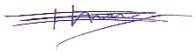

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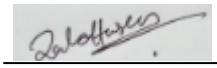

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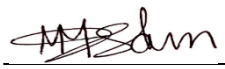

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We hereby declare that, this project has been done by us under the supervision of **Mr. Abdus Sattar, Assistant Professor and Coordinator M.Sc. Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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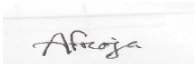

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ABSTRACT

In our project, we are implementing a system where we can help the consumers who wants to buy and very much interested in buying motor bikes. We tried to connect and share different resources and merge them into one system. Therefore, our system is aimed at increasing the limits of consumer's knowledge and reducing their conflicts. Consumers can visit in our website which is organized for different types, categories and brands of bikes as well as different kinds of news, offers and travel story. We also try to create a comparison section where consumers can compare between two motor bikes so that consumers can get an idea that which one will be good. So, the main goal of our project is to help the consumers specially, motor bike lovers who want to buy a good motor bike in their budget. We have temporarily created a web app that can actually help the consumers to make right choice. We are working on it and try to add more features and facilities in a way that really helps the consumers in a way that allows consumers to get benefits the most from this platform.

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CHAPTER 01

INTRODUCTION

1.1 Introduction

Human beings want to be independent. This is one of the human natures. Human beings want to find easy and independent mobility solutions for their daily needs. A motorcycle can be a very strong solution to fulfill to this need of the outbound middle class of Bangladesh. According to the statistics of Bangladesh, the number of motorcycle users is increasing day by day in Bangladesh. A decade ago, Bangladesh two-wheeler income have been beneath 10,000 units in step with year. The company then moved rapidly by investing in recent neighboring brands. Such as, Runner & Walton, Indian companies - Bajaj Auto, Hero Motor and TV and Japanese – Suzuki, Yamaha and Honda. In the 2012 the marketplace turned into already up 10 instances as compared with five years before, even as stored constant developing till the 2016, whilst income have been now no longer a long way from the zone of a million. However, the brand-new coverage mounted through the authorities within side the 2017 modified the enterprise angle at once booming the demand, way to the reduce of bikes rate in quite a number 20% and a brand-new lifestyle started. Now-a-days, almost 500000 units of motorbikes are sold every year in Bangladesh. In 2019, there were 401452 units of motorbikes in Bangladesh. In 2020, the total number of these motorbikes in Bangladesh was about 311018. Compared to 2019, however, a little less. However, authorities straight away decreased responsibilities and tax over the arena and the marketplace is predicted to rebound. Introduction of ride-sharing offerings in Dhaka and Chattogram in latest years has additionally contributed to a rise in demand for motorbikes So far it is clear that the demand for motorbikes in Bangladesh has been increasing with the passage of time.

1.2 Motivation

Based on the modern situation in 2020 and 2021 we have seen that the demand of motorcycle has increased with the flow of time. Actually, Ordinary people, who can't afford to buy a private car, who don't want to rely on public transport to get from one place to another, who are middle class, who can afford to buy a motorbike with a little bit of savings, are basically buying motorbikes for their independent ride. They need to have a sound knowledge or idea before going to buy a motorcycle

because they have to know which motorbike is appropriate for him or her in his or her budget. That's why we tried to build this system for their purpose from where they can get this needed knowledge or idea. People are now much more modern and much more dependent on technology. They are now sitting at home, ordering from various ecommerce online platforms and shopping for their daily necessities. Not only that, they are buying the product knowing the ratings or reviews of the product from different online platforms even before they go to buy anything physically. So, from this thinking, we tried to build a system where there are different types and brands of motorcycles with their own ratings, user reviews and all kinds of features and from where people can get a good idea before going to buy a motorcycle. our system will help them to enrich their knowledge about motorcycles. And they can be connected with motorcycle's expert. There are a lot more options that will be available soon and we are working on them so this is our motivation for building this system.

1.3 Objective

The following facilities can be provided by our System:

- Any user can visit in our website.
- We are providing a dynamic comparison section in our system, through which the user can compare between any two motor bikes.
- We are trying to collect a large collection of motorbikes different categories and brands so that users or visitors can get a huge knowledge or idea regarding motorbikes from our system.
- Users can also contact with admins or authorities of the system regarding any Information.
- We are providing a news, offers and travel story section from where users or visitors can read various news related to bikes, current offers related to bikes and travel stories of bikers.
- In our system, there will also be a showroom sections where we are trying to provide the information of all showrooms of Bangladesh which will really help the users to reach the nearest and desired showrooms.

We are trying to provide our best from different sectors to help the users. We are

providing a very user-friendly system. Our goal is to reach out to all motorbike lovers and implement a chat room in our system where users can discuss among themselves.

1.4 Expected Outcome:

As we already know, a good number of motorbikes approximately 500000 units are sold every year in Bangladesh and this number is not constant, according to researchers, this number is increasing by around 10 percent per year. We try to enrich our system with more and more dynamic section related to motorbikes of different categories and brands so that visitors or users of our system can get the good knowledge and idea. And we are also trying to reach each and every corner of our country and gather the information of different motorbike's showrooms. So, we are trying our best to create a simple, usable, understandable and user-friendly system. Our system is performing quite well as it is in very primary stages, so we have a very good future plan to complete it and spread our system all over the country. So that in every sector related to motorbikes and every level of users can explore our system. We are also trying to motivate all the users with our system.

1.5 Report Layout:

In this part we will cover the study representation and the entire report. The first chapter covers how our system is implemented, why we have chosen to select this issue as our project, the objective of the project and the results. In our second chapter, we also described the history and prerequisites, the labor involved and the comparative studies and challenges facing us as well as the intricacy of the matter. We presented a sort of marketing design in the third section and what the project has to accomplish afterwards to model the design standards. In the next part we displayed the schedule for the event, the chain, ER schedules and the state schedule. The front-end architecture, backend design, user experience and implementation specifications were discussed in the following chapter. In the following section we looked at the execution of the database, the implementation of front-end designs and a number of photographs of the project, and how these images truly grasp the purpose of the project. We then examined a number of test cases and tests. In the following section, we discussed the environmental and societal effects. In the last chapter we discussed the future developments and result.

CHAPTER 2

BACKGROUND STUDIES

2.1 Introduction:

In this section, we will discuss about the introductory part of our background studies. The means of free movement are bicycles, motorbikes, cars, etc. Motorcycles are the easiest way for middle class people to move freely. People love to dream. And when people reach the door of fulfilling their dreams and when money is involved in fulfilling that dream then they think that money is used to the maximum along with fulfilling dreams. This is because people, especially middle-class people, when they want to buy a motorbike and when they can afford it, the only thought that comes to their mind is to buy the best, most affordable and most suitable motorbike with this money or budget. However, the goal of our project is to get rid of these thoughts of this class of people. Since our system is built in the perspective of Bangladesh, this is not the first such system in Bangladesh. In our view, there are two such platforms (Bike BD, Motorcycle valley) already built-in perspective of Bangladesh which are very popular. We have tried to study all these existing systems. What their system lacks, and what features the system should have that can make the system self-sufficient, we have tried to do the study of these comparisons so that we can build something different from them so that users get the most facilities from our system. Not only that, we have tried to understand more, what are the needs of the people, what are the questions in the minds of the people. We have even asked people to show them the existing system like our system in Bangladesh, what other features do you expect from this system, what other features would you like to have. Thus, we have tried to analyze to build a complete system that people expect.

2.2 Related Work or Studies:

We decided to create our web by using React JS. But at first, we have to gain proper knowledge about HTML and CSS. [6] HTML CSS actually helps us to understand how we can design and how we can implement different elements in react JS. After having enough knowledge about HTML and CSS we started to learn about React JS. React is a free and open-source JavaScript toolkit for the construction of user interfaces or user components. React (also known as React.js and ReactJS). Facebook and a network of

engineers and companies continue this process. In developing single-page or mobile applications, react might be utilized as a basis. However, react simply deals with State management and transfers the state to the DOM, which makes it typically necessary for the creation of React apps to utilize extra libraries and certain customer functionality.

Node.js is a JavaScript back-end runtime environment running on the V8 engine, cross-platform, and running JavaScript code from a web browser. Node.js allows developers to use JavaScript to create command-line tools and scripts to server-side scripts to build dynamic Web page content before the page is transmitted to the web browser of the user. Node.js, therefore, represent a paradigm of 'JavaScript Everywhere' which combines the creation of web applications around the same language as server-side and client-side scripts rather than distinct languages [1]. Express.js is a back-end application tool for Node.js, which is available under the MIT license as free and open- source software. It is for the development of web apps and APIs. The de facto standard Node.js server framework has been named. The creator defined it as a server influenced by Sinatra, thus many functionalities accessible as plugins are rather basic. Express, combined with a MongoDB database software and JavaScript front-end framework, is the back-end of popular development ports such as the MEAN, MERN, and MEVN stack. [2]

JavaScript is, in addition to HTML and CSS, one of the basic World Wide Web technologies. It is used by the website's customers by more than 97 percent of websites, which typically incorporate libraries from third parties. The JavaScript engine for executing the code on the user's device is used in all major web browsers. JavaScript offers event-driven, functional, and imperative approaches as a multi-paradigm language.

It includes APIs to handle text, dates, frequent expressions, standard data structures, and a Model Document Object (DOM). Originally just web browsers were using JavaScript engines, but now they are fundamental components of numerous software programs. [3]

MongoDB is a document-based database software offered on a cross-platform basis. MongoDB employs optional schemed JSON-like documents classified as NoSQL database software. [4]. MongoDB is created and licensed under the public side server license by MongoDB Inc. (SSPL). [5]

2.3 Comparative Studies:

In this section, we will discuss about our comparative studies. Before you buy a motorbike, if you physically go to different motorbikes showrooms and ask the people working in the showroom, such as which motorbike will be better in your budget, what are the features of the motorbike, why this motorbike is better than other motorbike etc. By asking these questions and come up with a good idea and come to a good decision to buy a motorbike. But since, in this way, you are going to know about the product from those people who are the owner of the product or who want to sell the product to earn profit. Definitely, they will not point out the bad aspects of their product to you because they want their product to be sold as soon as possible. Considering these factors, by doing a comparative study, we come to the conclusion that we should build this system. Because we don't own the product here. Our goal was to create a neatly arranged system where, with user reviews, motorbikes and their accessories would be available, from which, those who want to buy a motorbike will get a clear idea. Since our system is built in the perspective of Bangladesh, this is not the first such system in Bangladesh. In our view, there are two such platforms (Bike BD, Motorcycle valley) already built-in perspective of Bangladesh which are very popular. So, the question is where is the comparative difference of our system with their. Yes, there is a difference. Our whole system is dynamic and modern technology-based system and single page application where page reload is not required to go from one page to another and do fast response. Whereas the existing system are old technology-based application and maximum data are static.

2.4 Challenges

While doing this project we have faced a lot of issues. We have used React Js as our front-end and use Express Js and Node Js as our back end. We have used MongoDB as a database. We have to collect a huge amount of information regarding motorbikes and accessories of motorbikes. We have to create a big collection of motorbike's showrooms and motorbikes related news, current offers as well as travel stories so that people who use our system can know about these facts and can gather idea. So, we have to face a lot of problems when collecting this information. We have to spend a lot of time and patience to do this work of data collection which was very challenging for us. And another challenging part of our project was implementing a

dynamic comparison section where users could compare between two bikes. This was challenging for us because since we have to build the system using modern technology, we have to study a lot more about everything.

2.5 Scope of the Problem:

The primary audience in our system is people who are very interested in motorbikes or want to buy motorbikes or have motorbikes who want to know about various news, offers or travel stories related to motorbikes. We have no other audience outside of this. Of course, this number is comparatively less than the total number of people of the country. Since our system is an online web-based application, the problem is that people in Bangladesh are less aware of the use of technology compared to other countries. Bangladesh is now a developing country. People are slowly learning to make good use of technology. But now the internet has almost reached every house. So hopefully, people will learn to use the online based platform.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Computer development is a term that describes a company to assess, develop and simplify its current process. BPM is generally conducted by industry scientists that have modeling knowledge; by subject experts that have system know-how or, more commonly, by a team including both. Alternatively, the procedure may be derived directly from multiple sources using tools for predictive analysis. Many sub operations that have their very own features yet continue to add to the general purpose might break apart a trading technique. The business-to-business processes comprises mapping and sub-processing to their layer. A business process model outlines how operations are done to accomplish the desired objectives of a company. This model remains an abstraction based on the model's anticipated purpose. The business process workflow or co-operation can be determined. It can be constructed on a number of levels. To use a treatment method for the technical definition of an IT device that processes sensitive information from the constructed secret office. The article discusses the usage of the BPMN modeling technique to manually identify processes and to automate them by means of modern technologies. In addition, the accuracy of the structural and dynamic analysis approaches was assessed using instances (process simulation). The extension of the procedure analysis method allows for the use of processes and process mining approaches.

3.2 Requirement Collection and Analysis

- **User:** Any user can visit our system. There is no need to register or login process. They can access every section of our system.
- **User Contact process**: User can contact with the admin panel of the system by submitting a contact form where user have to put their full name and email and their message.
- **User submit rating and review:** In this feature user can submit their
- own opinion, comment, rating and review of an individual items. To do this, they have to also submit a form where they need to provide their full

name, their email and review and rating.

- **Comparison process between two items:** User can compare two motorbikes by selecting the two motorbikes from select options and have to press compare button to see the comparison table.
- **Admin:** Admin have the authority to access everything in this project. Admin can see how many users are using this system. Admin can create, delete and update motorbikes, their brands and categories and showrooms and also news, offers and travel story for the users.
- **User's message reply process:** Admin can check all the messages that he or she received from the users and also reply these messages by clicking on reply button, where a mail dialog box is appeared and fill-up all the required fields to mail the users.

3.3 Use Case Modeling and Description:

The case schedule shows how users communicate with the Software, actually it gives us not only a graphical view of all interactions between the users and the systems but also user's objectives. In use-case, model, there are actors, use cases and associations between them. Actors can be human being or any other system or sub-system that are involved in a single system. Actually, use cases define how actors interact with the system. Associations is nothing but a communication way in between actors and use cases. In our system, there are two actors. One is user and another is admin. Their roles and interactions with the system are totally different. The case showing the following main characteristics:

- User behavior and interactions with system
- User search motorbikes
- User compare between motorbikes, submit reviews of motorbikes contact with admins.
- Admin give access to the user.
- Admin add new motorbikes and categories, brands of motorbikes.
- Admin observes all the activities.
- Admin add news, offers and travel story.

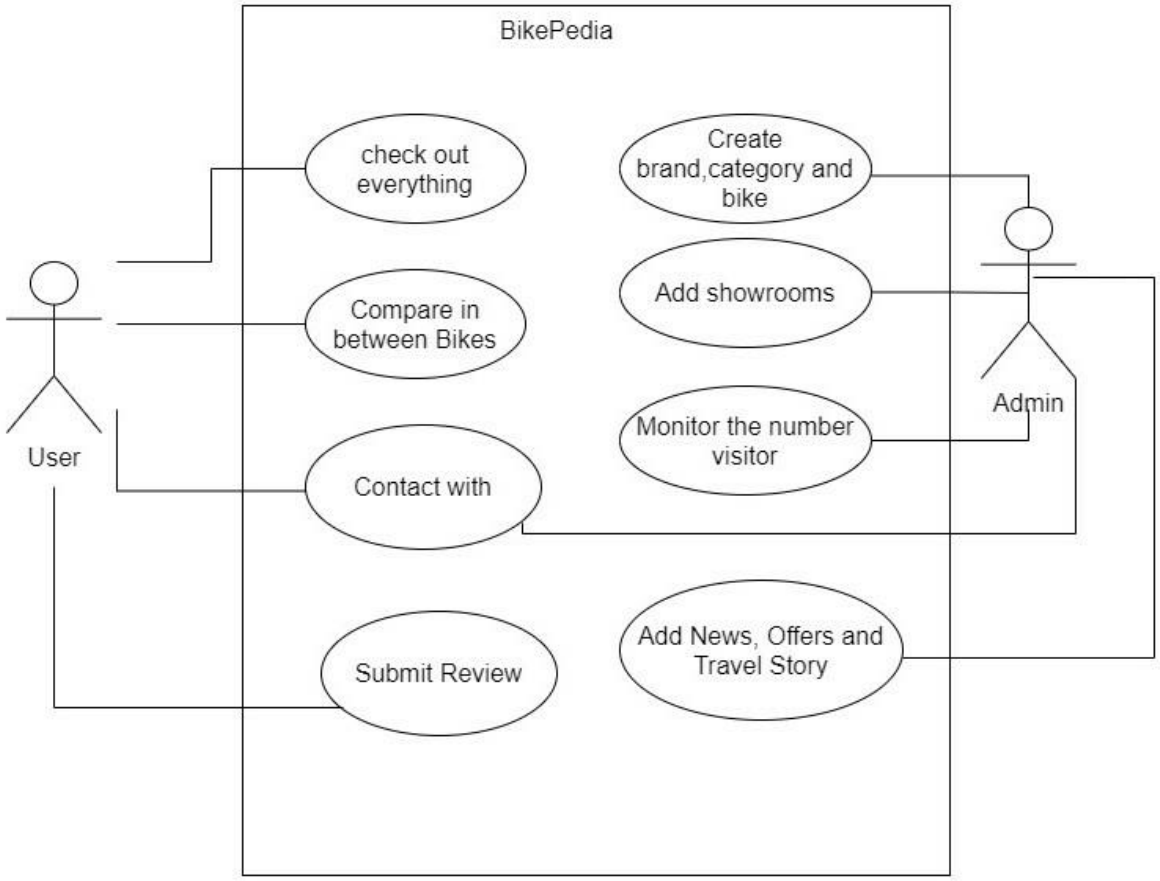

Figure 3.1: Use Case Diagram

3.4 Logical Data Model:

It is also known as LDM shortly. A logical data model presents the details or overall view of the whole set of data, you can also say, data entities created and maintained by an organization or system. It is a graphical representation of data entities and also presents their relationship. The representation process is independent which is from the underlying database technology. The LDM also aids in the creation of the physical data model and serves as a road map for the physical database design. The layout of the LDM varies in most cases, as it seeks to define the data as precisely as possible, independent of how it will be implemented via technology.

3.5 Design Requirements:

Architecture seems to be the stage according to demand and construction needs. The architecture of software consists of three technical activities - design, coding, performance and testing that are necessary for the software design and verification once analysis and sound parameters are defined. Design activities are of crucial importance at this stage, because decisions influence the success and ease of program implementation. Those considerations eventually relate to performance and efficiency and management. Designing is indeed the greatest approach to correctly convert customer requirements into a final program or gadget. The location to promote impressive performance is architectural. Computational analysis is a technique by which the requirements may be converted into a software representation. Two stages of the program are established. That the very first step is to transform requirements into percentages.

1) Use case Diagram
2) Sequence Diagram
3) The ER Diagram
4) The State Diagram

3.5.1 The ER Diagram:

ER seems to be a diagram that displays a referencing in a database of entities that are also known as the ERD diagram. In other words, ER graphs tend to show the logic of the database. Diagrams depending on ER consist underpinned by three key concepts: entities, characteristics and relationships

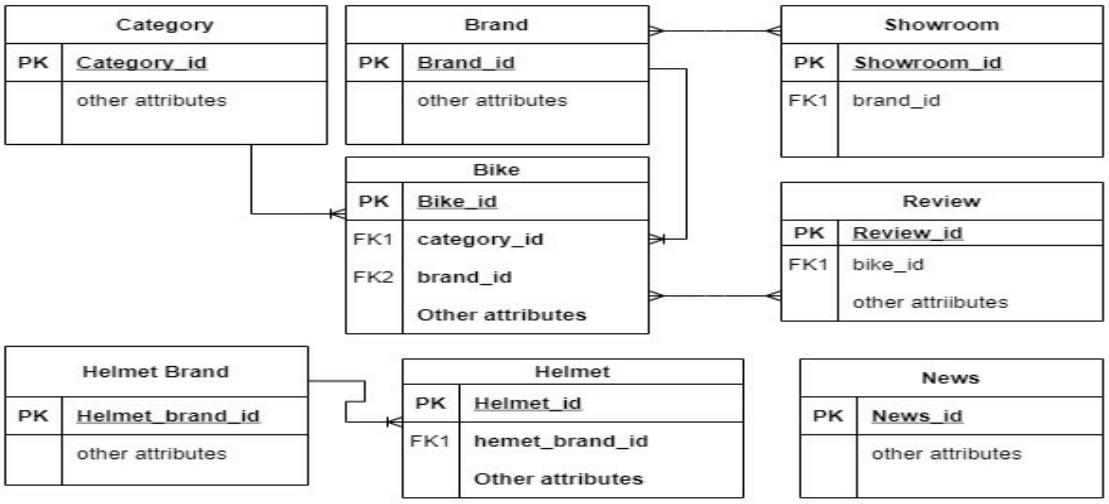

Figure 3.2: ER Diagram

ER charts provide several representations of the individuals, ovals and the shapes of diamonds representing interconnections utilizing rectangles. HE charts in order to construct a distributed database; ER Modeling enables you to continually analyze data criteria. So, it is a preferable practice to finish ER modeling before adding the database. Allow you to discover commercial connections simulation conditions of employment. Enter a view of the connection of each table to the fields. Helps to recognize people, features and relationships. You can transform ER diagrams into relationship tables, allowing you to construct databases rapidly. ER diagrams can be utilized by computer programmers as a template for data implementation in certain software systems. The Databases Designer may comprehend information in the database better with the use of ER diagram. ERD Diagram is allowed to communicate with the conceptual architecture of the database.

3.5.2 Sequence Diagram:

A time-specific interaction between items is shown in a sequence diagram. It displays the objects and the chain of communications between objects needed to execute the scenario operation. Sequence diagrams are frequently linked in a logical view of the approach being developed with case studies. Sequence diagrams are often called incident diagrams or event scenarios. Different mechanisms or entities exist in a sequence diagram as comparable vertical stripes simultaneously and in the manner in which these are communicated as horizontal arrows between them. This permits the graphical definition of fundamental runtime circumstances.

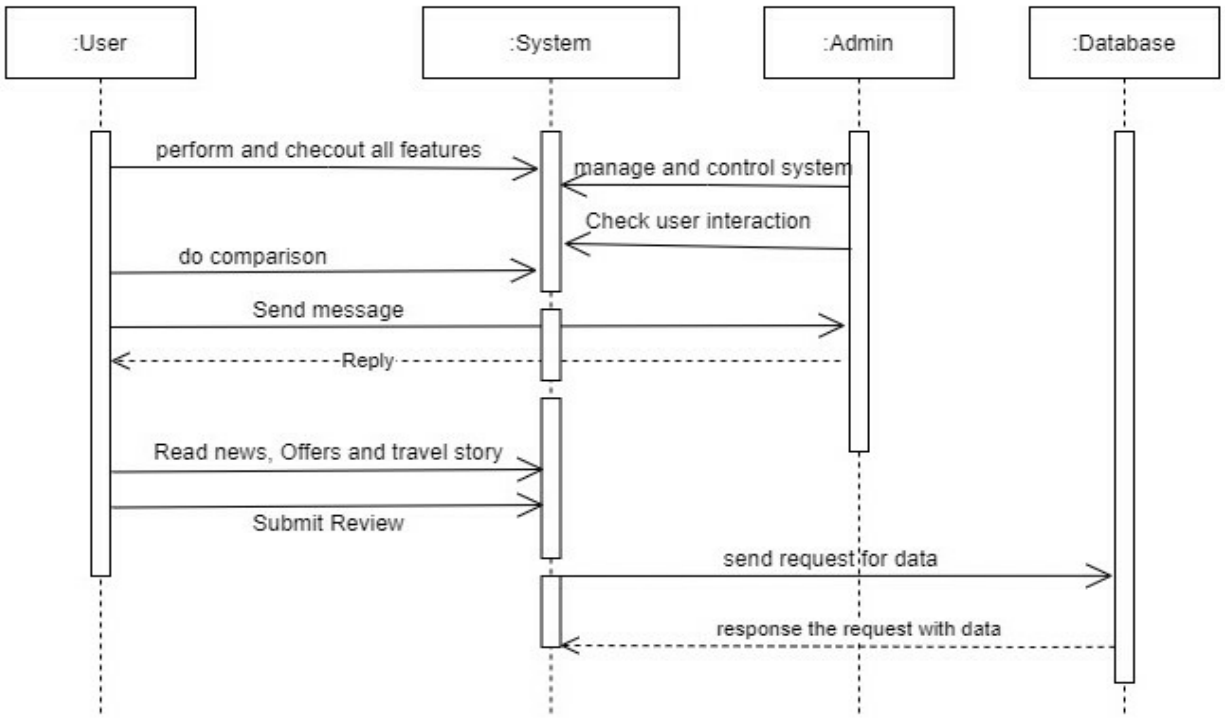

Figure 3.3: Sequence Diagram

3.5.3 State Diagram:

A state diagram is a type of diagram used in computer engineering and related disciplines for descripting system activities. State schemes need a restricted majority of cases to form the stated structure. Which is often true, while this is a logical abstraction at other times. Many forms of mathematical functions with slight variations and separate semantheses are available.

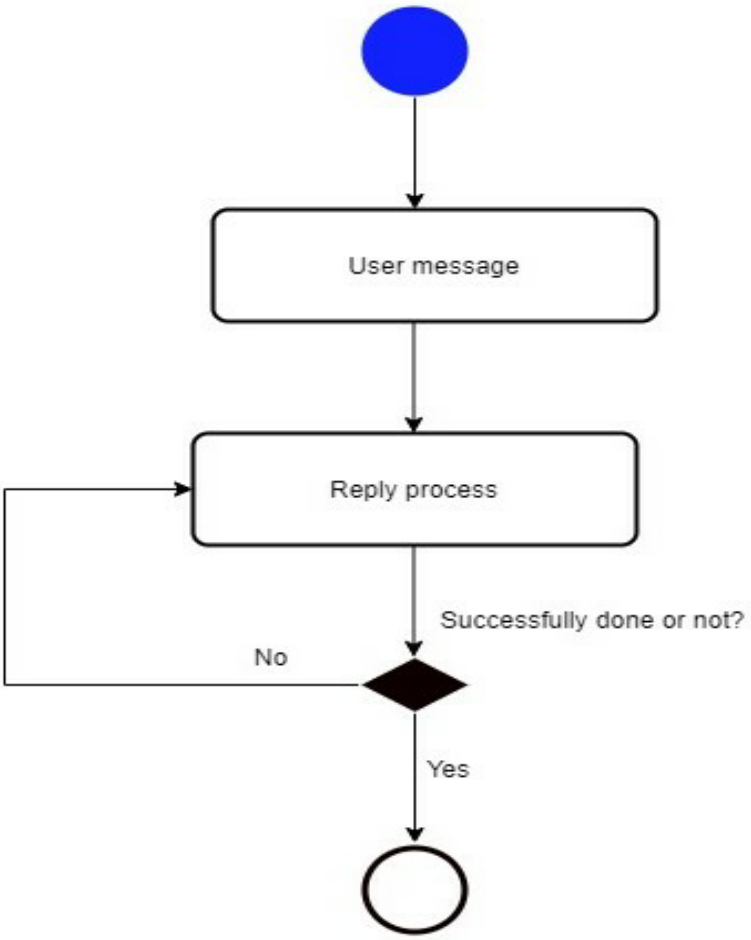

Figure 3.4: State Diagram

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design:

The front end comes with what you see – HTML, CSS, React Js etc. React seems to be a JavaScript library that is declarative, fast, and flexible to create UI. In MVC, its 'V.' React JS is a component-based fully accessible front-end technology that is mainly accountable for the application's layered architecture. Facebook keeps it up. React employs a descriptive approach to facilitate the reasoning and efficiency of your application. It builds basic views for every State in your application and when your data changes, react will effectively update and make the correct component. The statement view makes it easier to troubleshoot and much more predictable. A multi-component reaction application is constructed of each component to generate a tiny, reusable HTML element. In order to construct complex applications out of fundamental construction blocks, components can be nestled in other components. A constituent may also have a hidden representation, for instance, a variable relating to the currently active tab might be stored by a Tab-List component. A bunch of Facebook engineers learned during the construction of client-side apps that DOMs are sluggish (the Document Object Model is an HTML- and XML-document API). It describes the logical structure and manner of accessing and handling a document).). To speed it up, react provides a virtual DOM that's essentially a JavaScript DOM tree representation. So, it uses the virtual version of the DOM whenever it has to be read or written. Then the virtual DOM will seek the best approach to update the DOM of the browsers. Control elements are simple structures and are inexpensive to construct, unlike browser DOM components. React DOM updates the DOM to match the components of the reaction. It is because JavaScript is incredibly quick and it's worth having a DOM tree in things to speed it up. Although Reaction was designed to be used in the browser, it may also be used from the Node.js webserver due to its high architecture.

4.2 Back-end Design:

Simply said, it's a platform-dependent for free JavaScript and free and open-source development that enables users to easily develop network apps. This is a JS runtime on the V8 JavaScript motor of Chrome. Both Node as well as the JS executing on the same platform in your browsers It's an open-source engine that takes JS code and compiles it in a significantly quicker machine code. Uses a – anti I/O paradigm driven by events that makes it light and efficient. What is programming based on events? Essentially, your program flow is a different way of thinking. Your program flows are characterized by the occurring events. Object-Oriented Programming is a model of programming language wherein the program controls the flow of events. These events are watched by a code called an event listener which usually uses a callback function or method if it detects the event given to it. This manager handles the event by using the program code. As part of the language, Node offers the event loop. The moment you call Node it is not necessary to call a beginning function to establish a circuit that is waiting for events. The sequence begins the couple of seconds you commence node and ends only until the last callback is called so if you create a server, you will never end this callback because it was always queuing for an HTTP request to come in and so your program will not be stopped until you tell the callback to stop. You will only start the loop when it comes to the very last callback.

4.3 Interaction Design and UX:

In terms of information interface, interaction structure is highly essential. This model is useful. Interaction Architecture relates in particular to the development of a user interface for a website. UX is fundamentally user pleasant due to the user-friendly construction of this website interface. The word "UX" relates to the process of the front end. Using the experimentation of a developer, it identified how they utilize and enhance an app/site. It ensures client loyalty via improved functions and effectiveness.

4.4 Implementation Requirements:

React is a JavaScript framework used in the construction of user interfaces using reusable UI components to make single-page apps. React is used to construct interface applications that connect with the backend server. It will be beneficial for you to follow this article:

1) Node.js, Express, NPM, and React.js previous experience.
2) Installed Node.js.
3) Text editor, VS Code preferring.
4) A Google Chrome Web browser.

MongoDB is a document-oriented fully accessible database. It is utilized to store more data and enables you to utilize them as well. MongoDB does not rely on the table-like relationship database management system but delivers completely alternative encryption and decryption method for the data, which is why the database is called NoSQL. The word "NoSQL" here refers to "non-relational." BSON is the storage format (similar to JSON format).

Drivers: Drivers that interact with MongoDB are available on your domain controller. C, C++, C#, & Net, Go, Java, Node.js, Perl, PHP, Python, Motor, Ruby, Scala, Swift, Mongoid are supported, drivers.

MongoDB Shell: MongoDB Shell is an interactively MongoDB JavaScript environment. It is utilized for inquiries, data changes, and administrative functions as well. Storage Engine: That's an essential element of MongoDB used to handle the data saved on the disk as well as on the memory. Numerous internet companies can still have MongoDB. The conventional google analytics known as the Wired-Tiger Storage Engine is a good Storage Engine that produces products with your data such as reading, writing, etc., if you wouldn't want to use your customized web browser.

The Application Server has two main components; the first one is the Interface Design and the second is the Backscreen (server). The front end is where all the web or mobile device uses MongoDB. Websites, mobile applications, and default Android, iOS, and so forth include web-based and mobile phones. The backend comprises a server for control

in the specification, which providing a service or a mongo interface to utilize queries to interface with a MongoDB server.

These requests are forwarded at the database system to the MongoDB server. The MongoDB Connection is now sent to the operating system to receive queries. The server does not read data files or disks or memory associated metadata to the MongoDB server. The storage engine is responsible for transferring or writing the data in the files or memory after sending the received queries onto the storage engine.

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database:

Make sure first that you have Node.js installed. Node 4.x or above is required for the current MongoDB Node.js Drivers version. I used Node.js 14.15.4 for these examples. For additional information on which version of Node.js is necessary for every edition of Node.js driver, see the MongoDB Compatibility Docs. You can simply communicate with both the MongoDB Node.js Driver using Node.js apps with MongoDB database. To attach to your database and perform the queries outlined in this Quick Start series you will require the driver. Node.js enables the construction of web servers and networking utilities with JavaScript as well as a set of 'modules.' Filesystem I/O, networking (DNS, HTTP, TCP, TLS/SSL, or UDP), binary data (buffers), encryption, data streams, and other fundamental functions are supplied with the module. The modules of Node.js employ an API meant to decrease server writing complexity. JavaScript is the sole language native to Node.js, however, several JS-to-compile languages may be used. Node.js apps may thus be written to Coffee Script, Dart, TypeScript, Clojure Script, and other applications. The primary usage of node.js is to develop web server network programs. The biggest difference between PHP and Node.js is that most of the functions in PHP blocks are not blocked until finished (instructions only run after prior commands are executed)

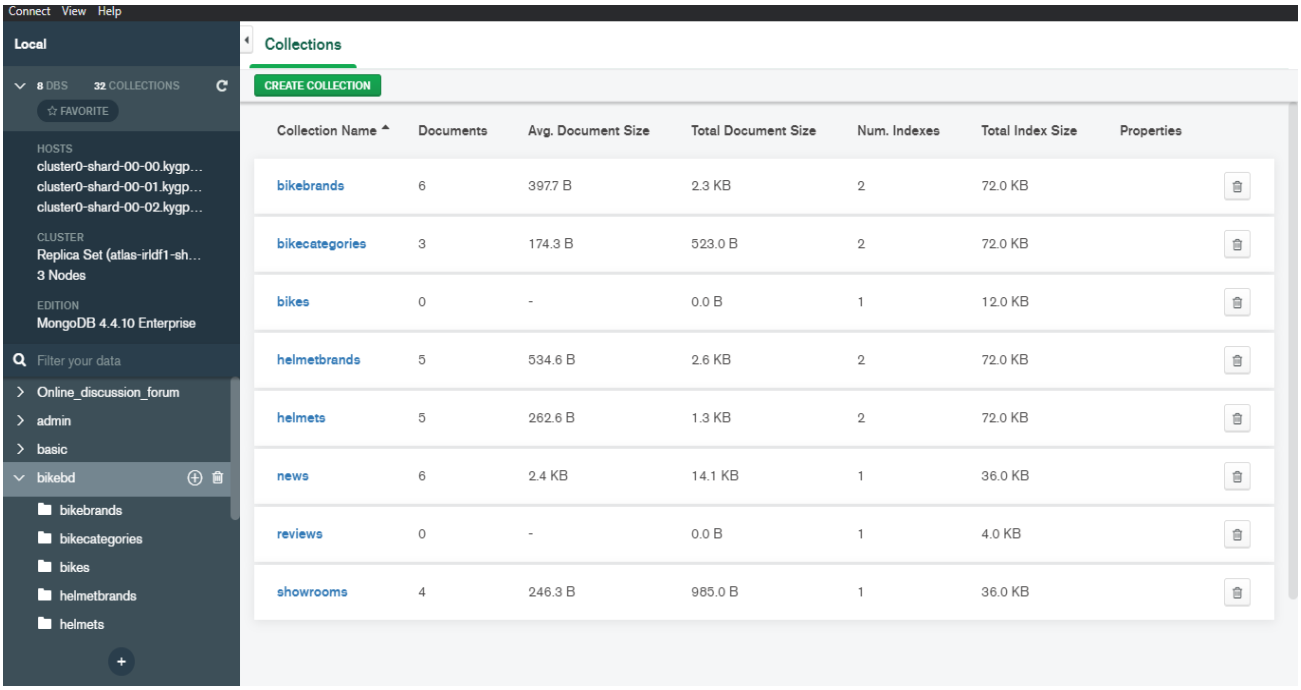

Figure 5.1: A representation of our Database

5.2 Implementation of Front-end Design

The consumer-side computing seems to be another term for the building on the front. React JS and Express Js styles are part of the customer's side for a website or web browser. That a person understands and relates to them naturally. The difficulty of front development is to continually changing the software or procedures for the creation of a front page, in order to realize that the artist is continuously learning the world. The aim of the software idea is to ensure that the consumers see the apps in an easy and accurate manner for the websites. In the following section, we have showed you the most important snapshots or screenshots of our system.

Here are some photos of our project.

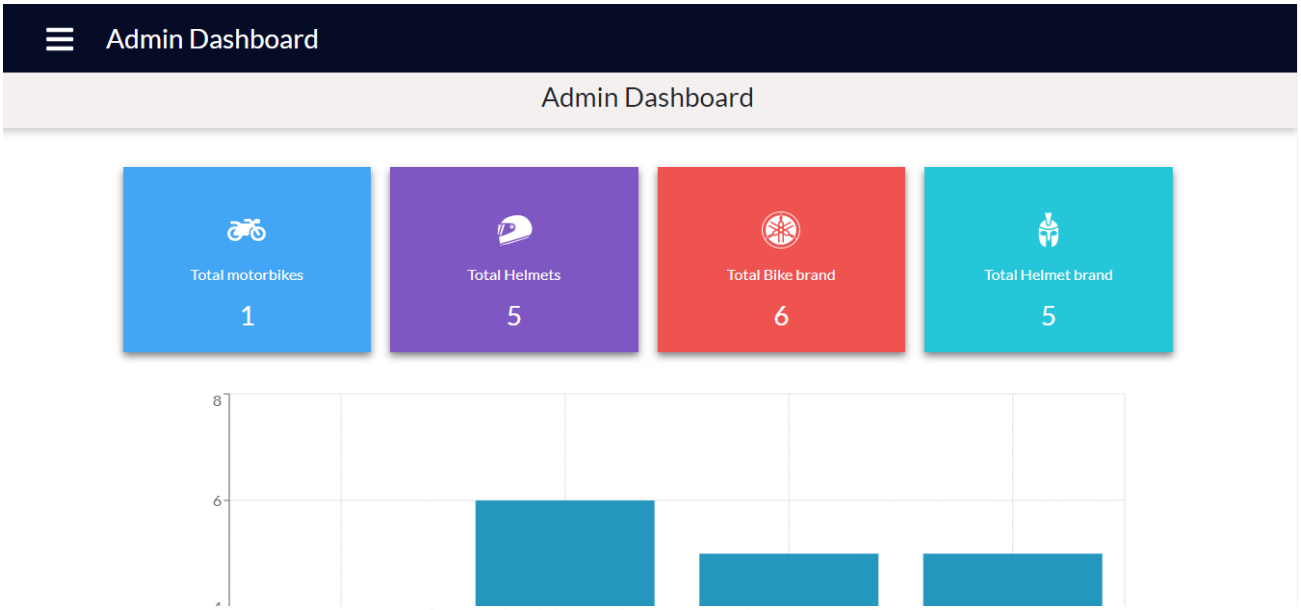

Figure 5.2: Admin dashboard page (Admin panel)

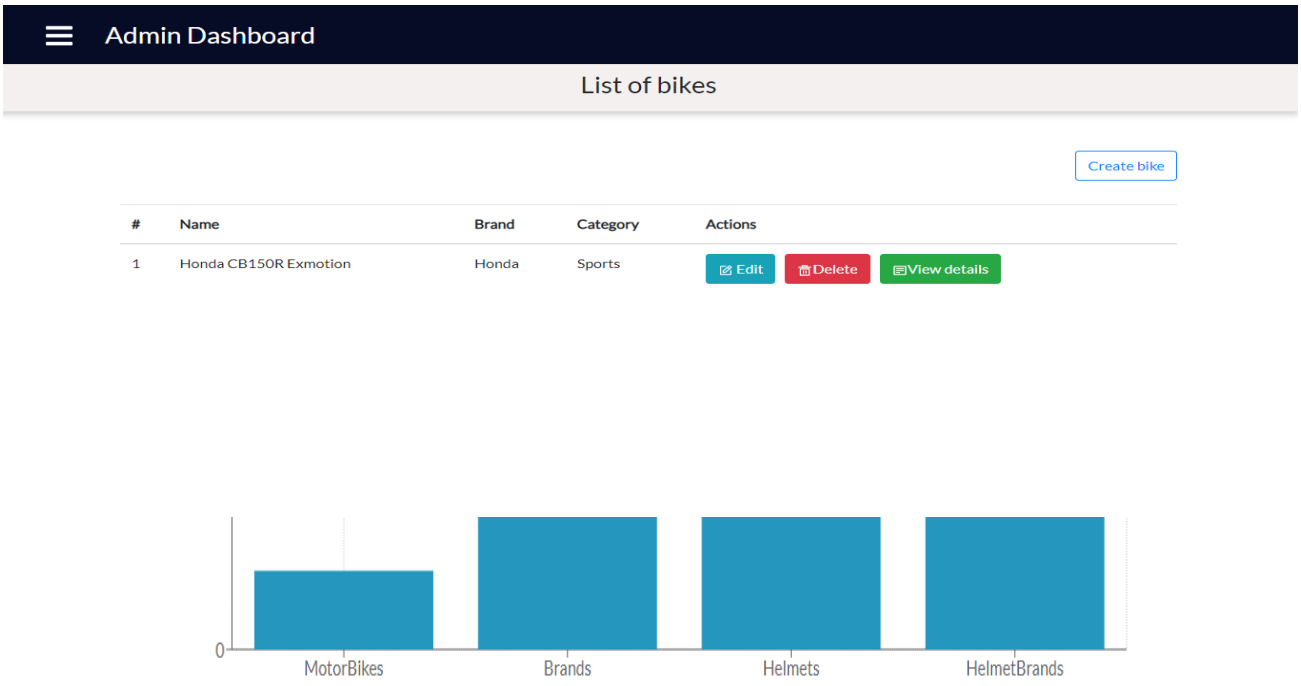

Figure 5.3: List of motorbikes (Admin panel)

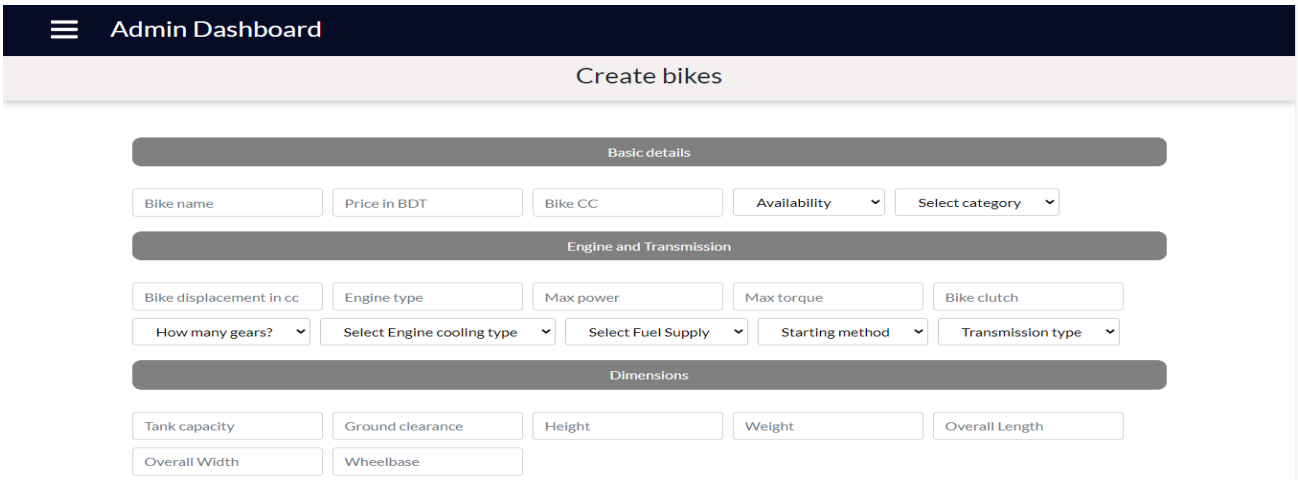

Figure 5.4: Create Motorbike 1st part (Admin Panel)

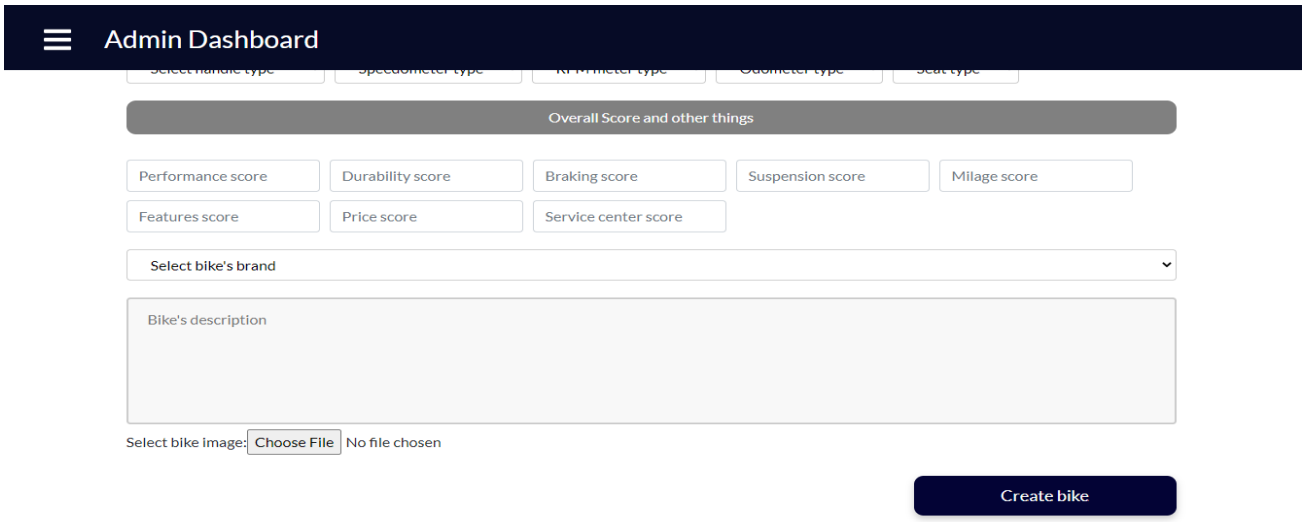

Figure 5.5: Create Motorbike 2nd part (Admin Panel)

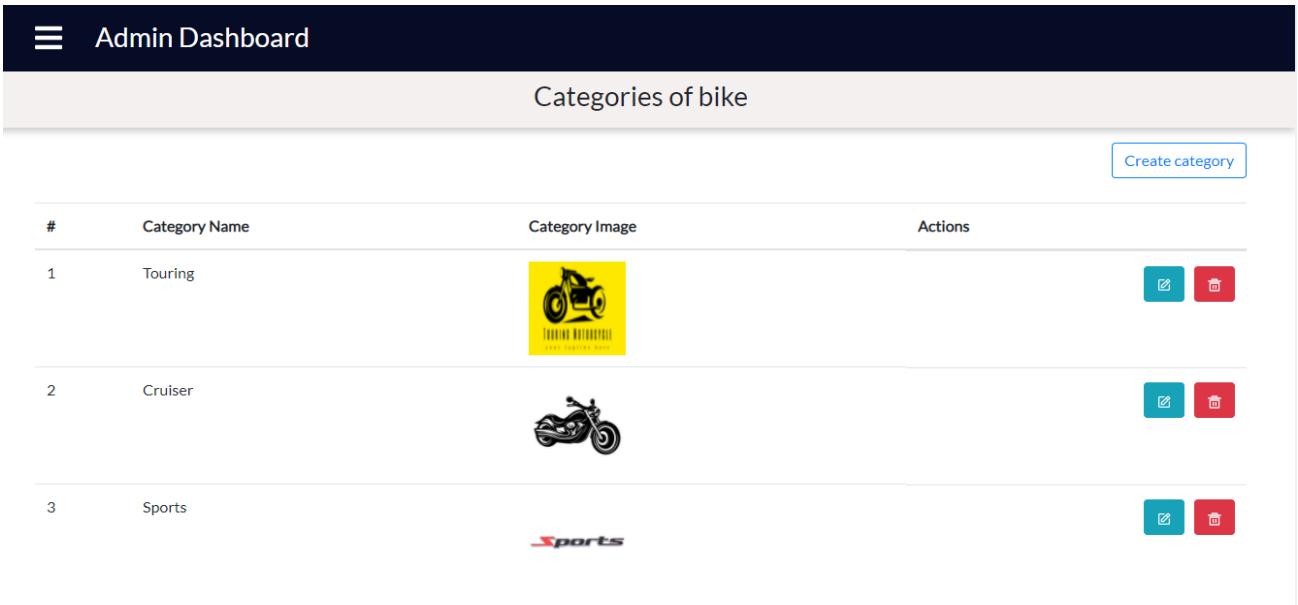

Figure 5.6: List of categories of motorbikes (Admin panel)

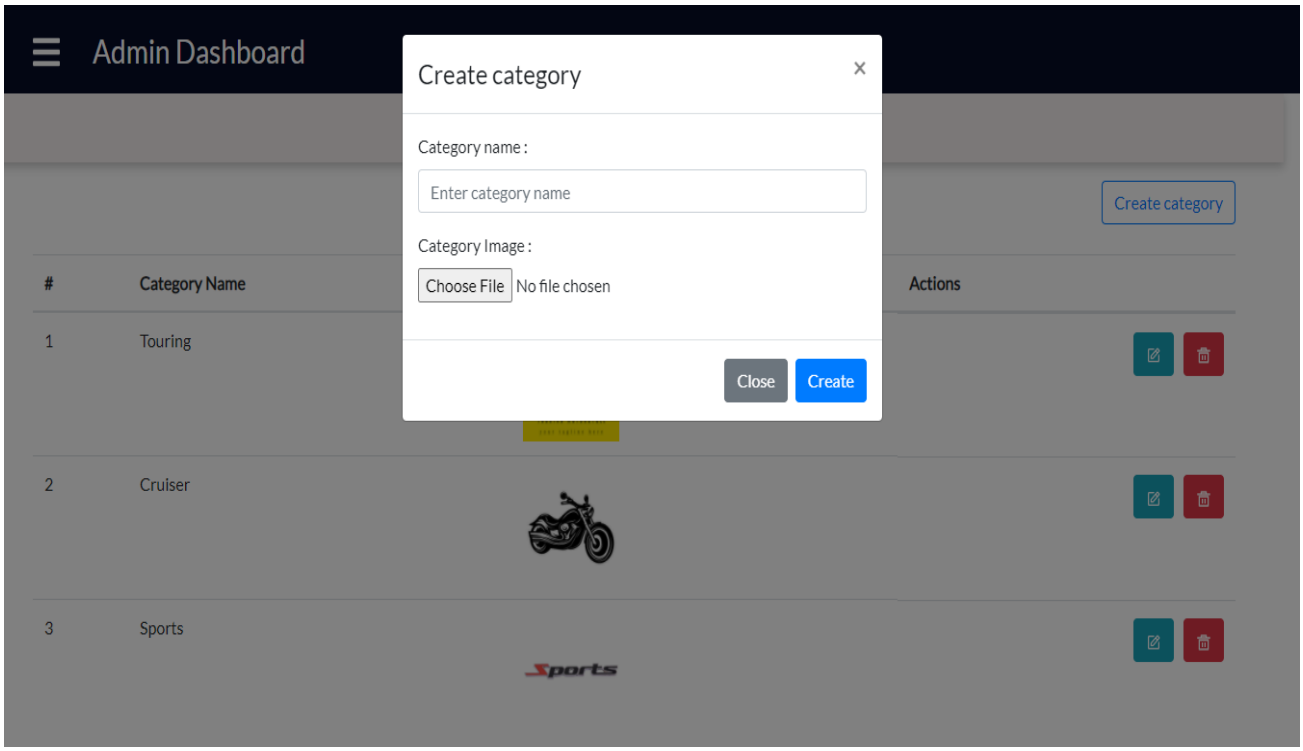

Figure 5.7: Create categories of motorbikes (Admin panel)

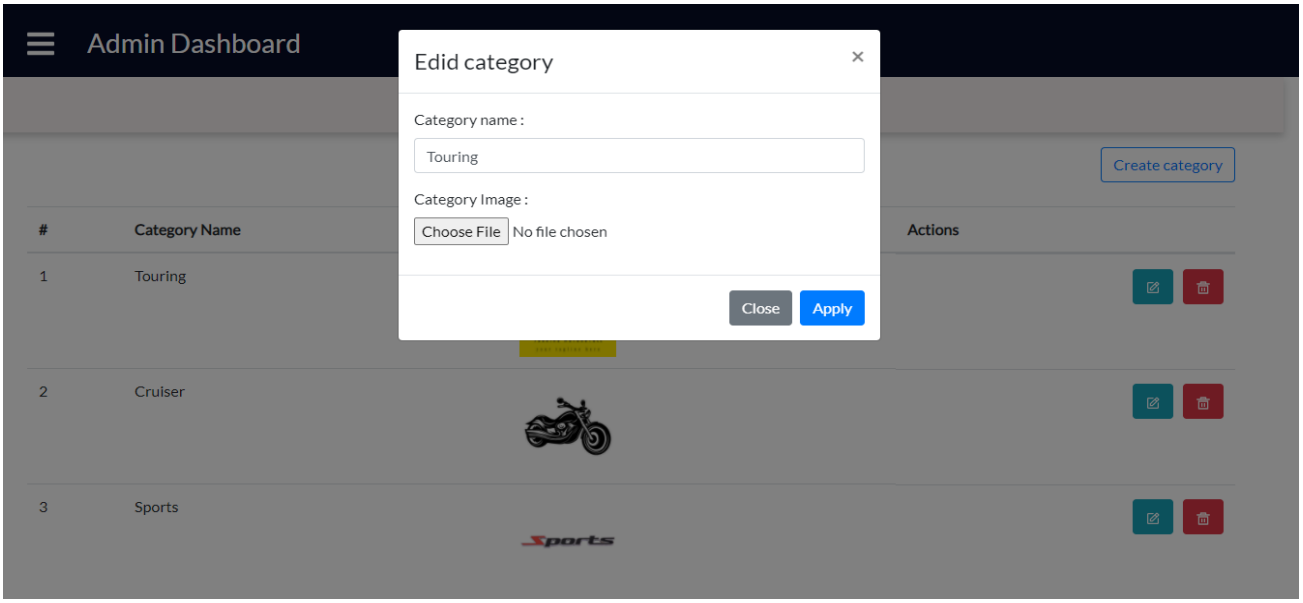

Figure 5.8: Edit category of motorbike (Admin panel)

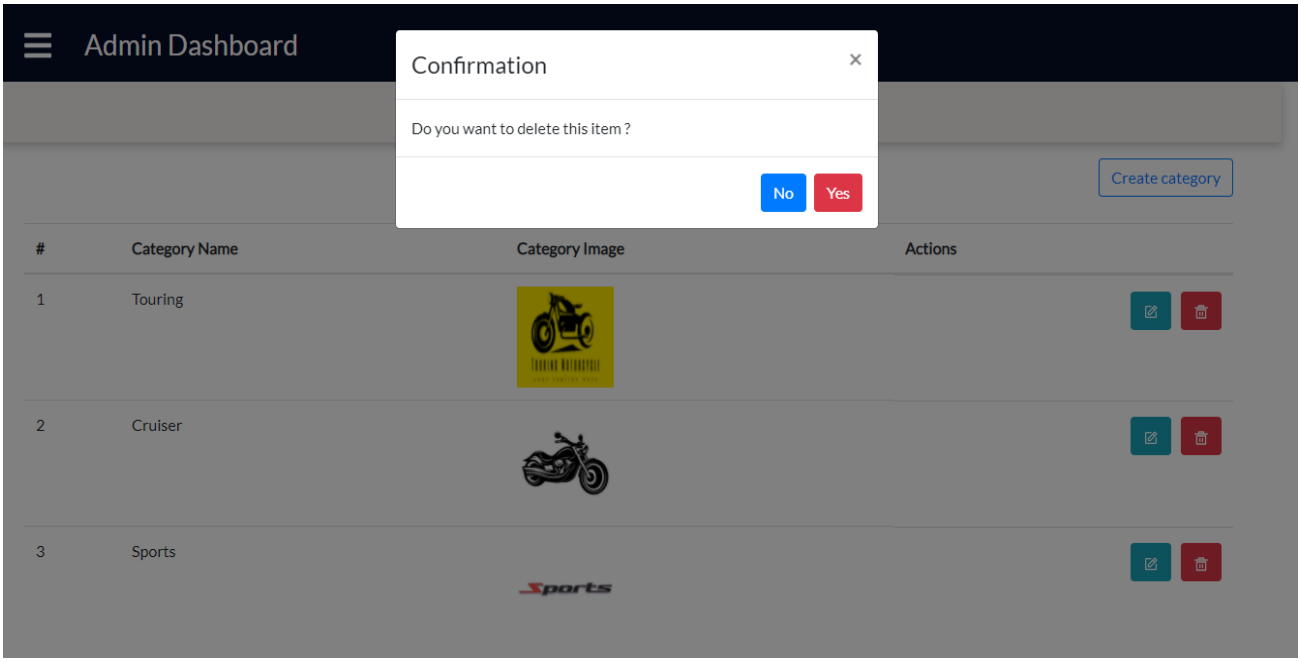

Figure 5.9: Delete category of motorbikes (Admin panel)

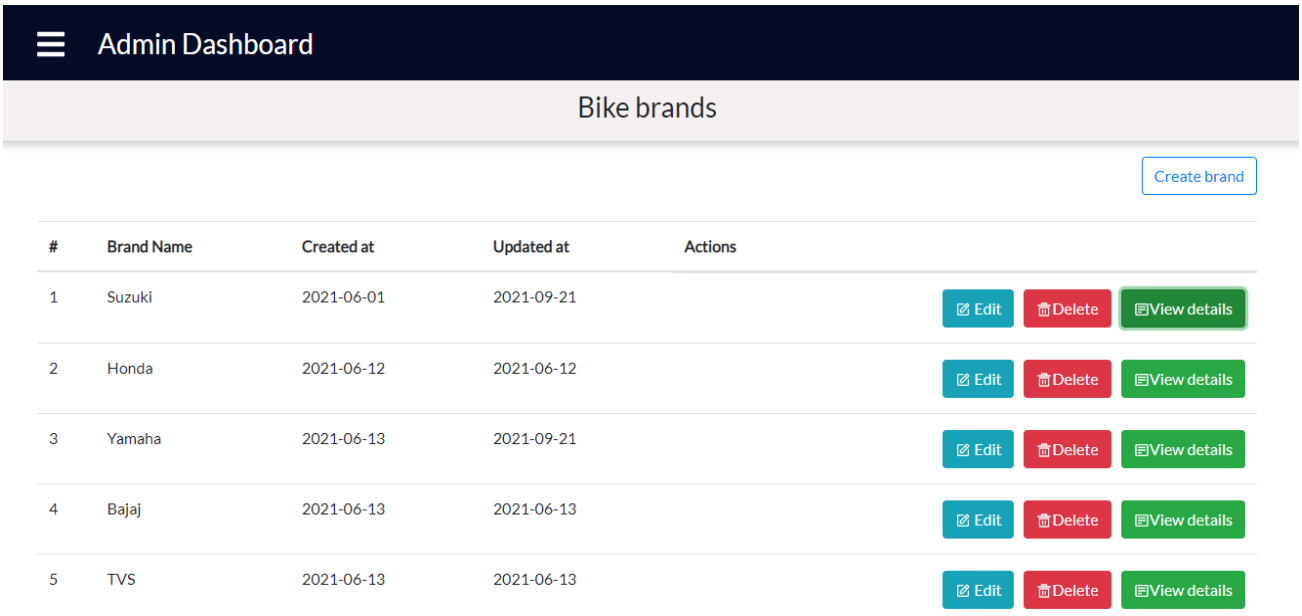

Figure 5.10: List of brands of motorbikes (Admin panel)

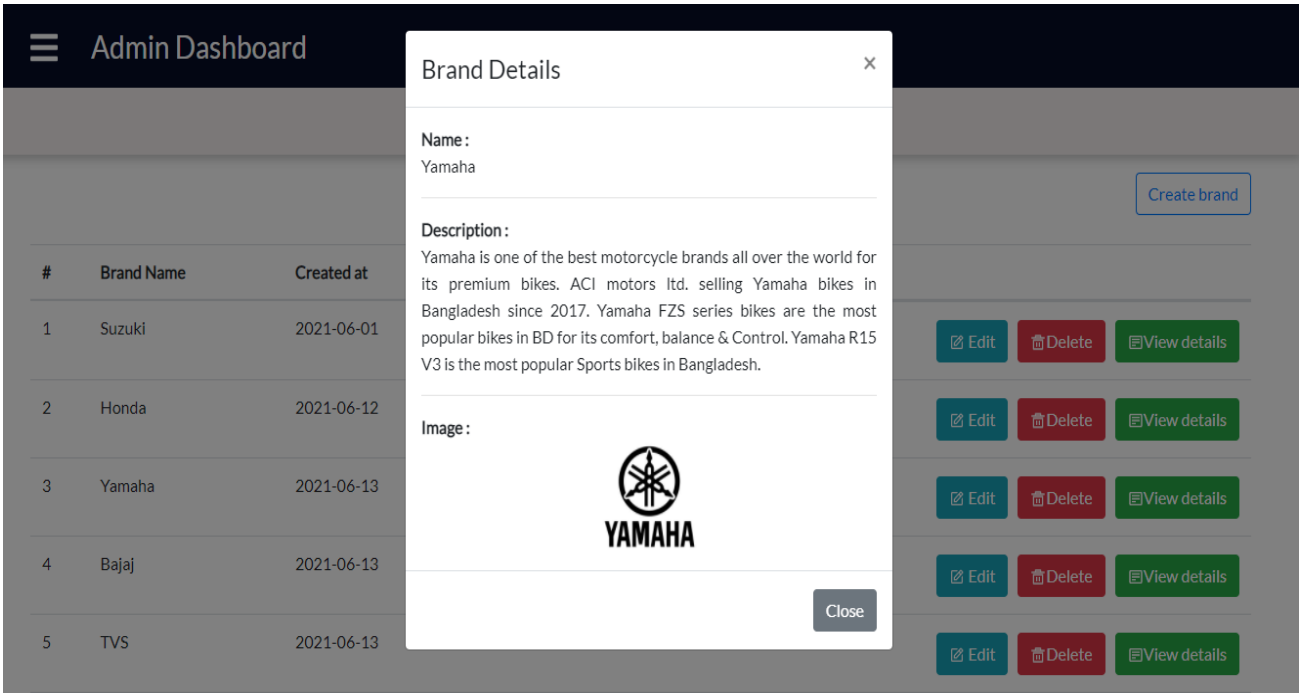

Figure 5.11: Details of motorbike's brand (Admin panel)

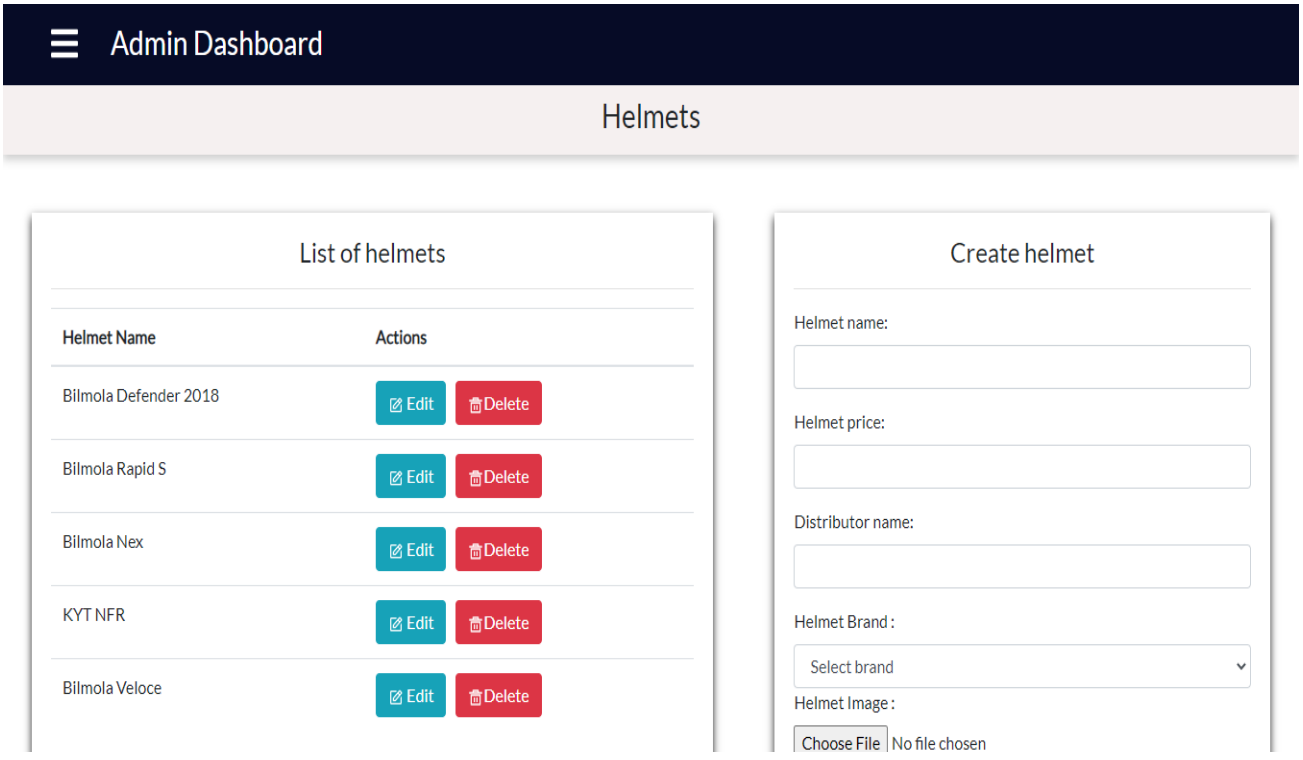

Figure 5.12: Motorbike helmet list and create process (Admin panel)

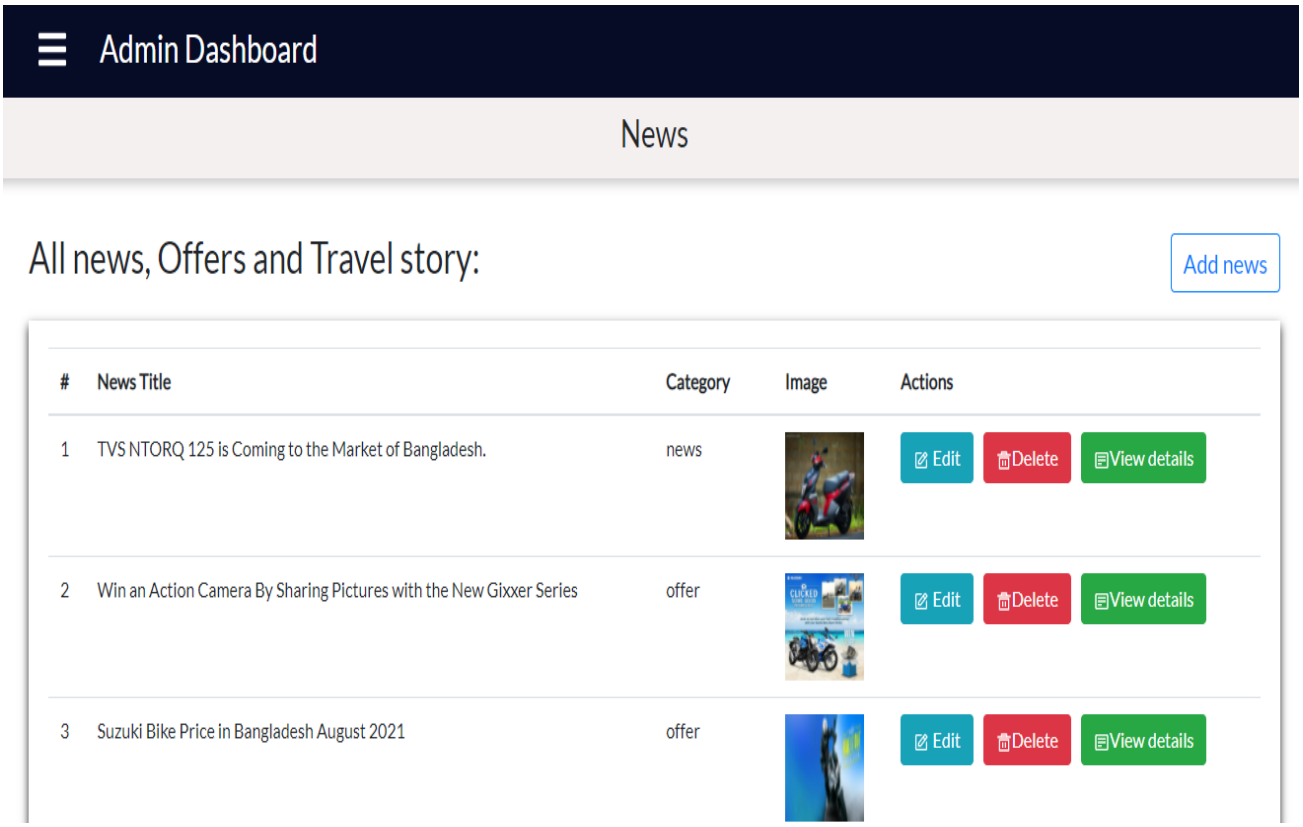

Figure 5.13: List of news, offers and travel stories (Admin panel)

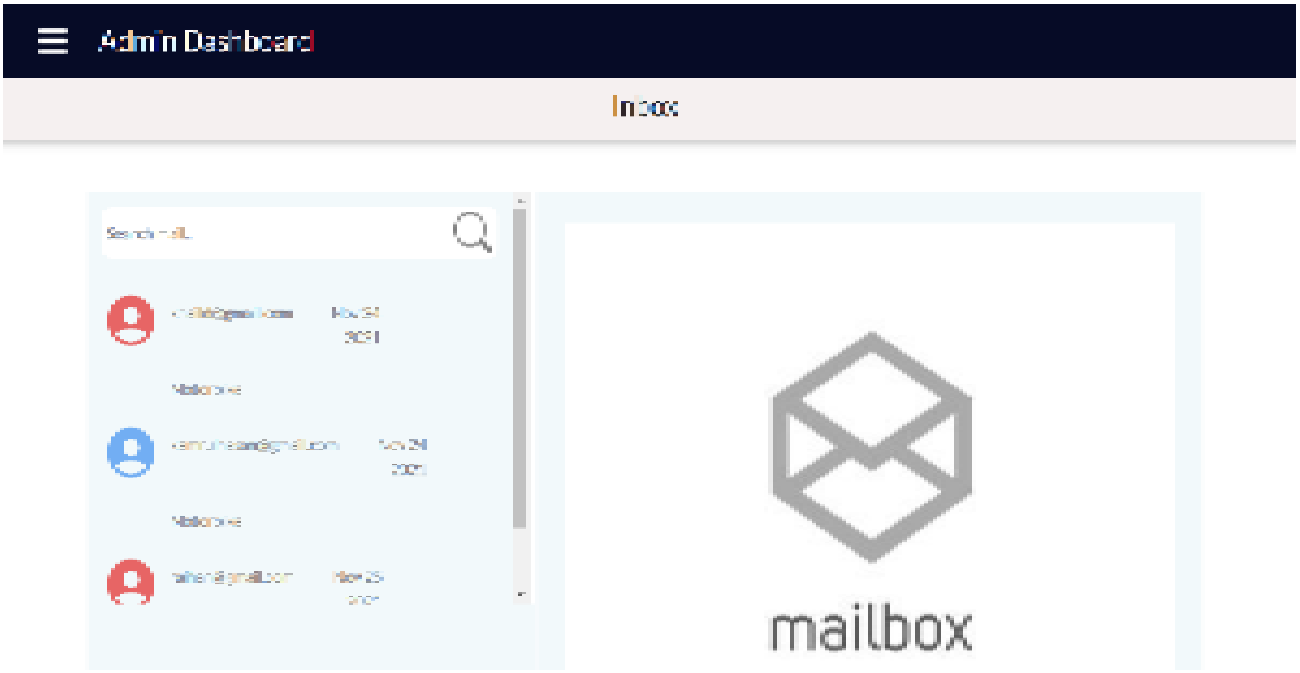

Figure 5.14: Inbox (Admin panel)

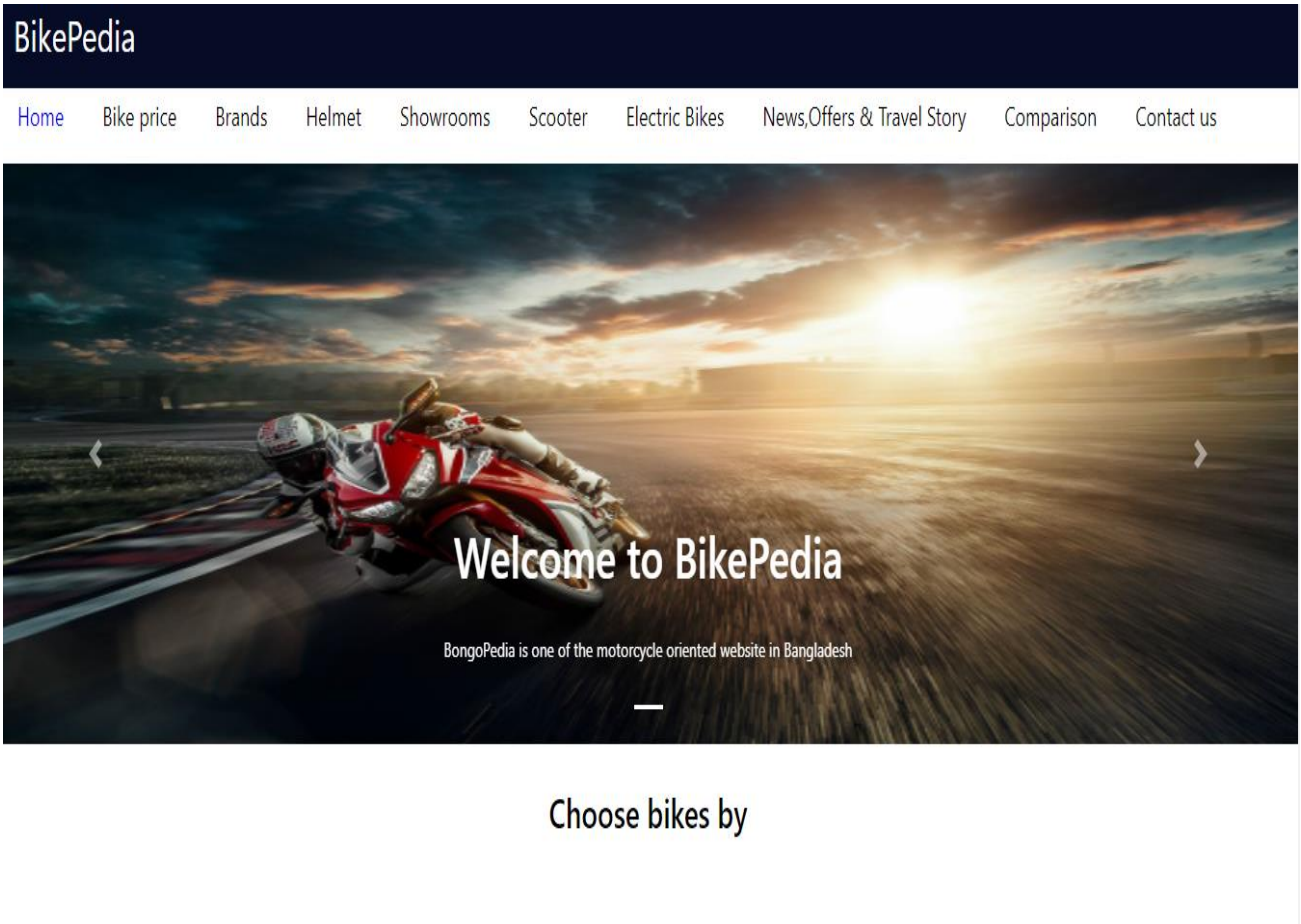

Figure 5.15: Home page

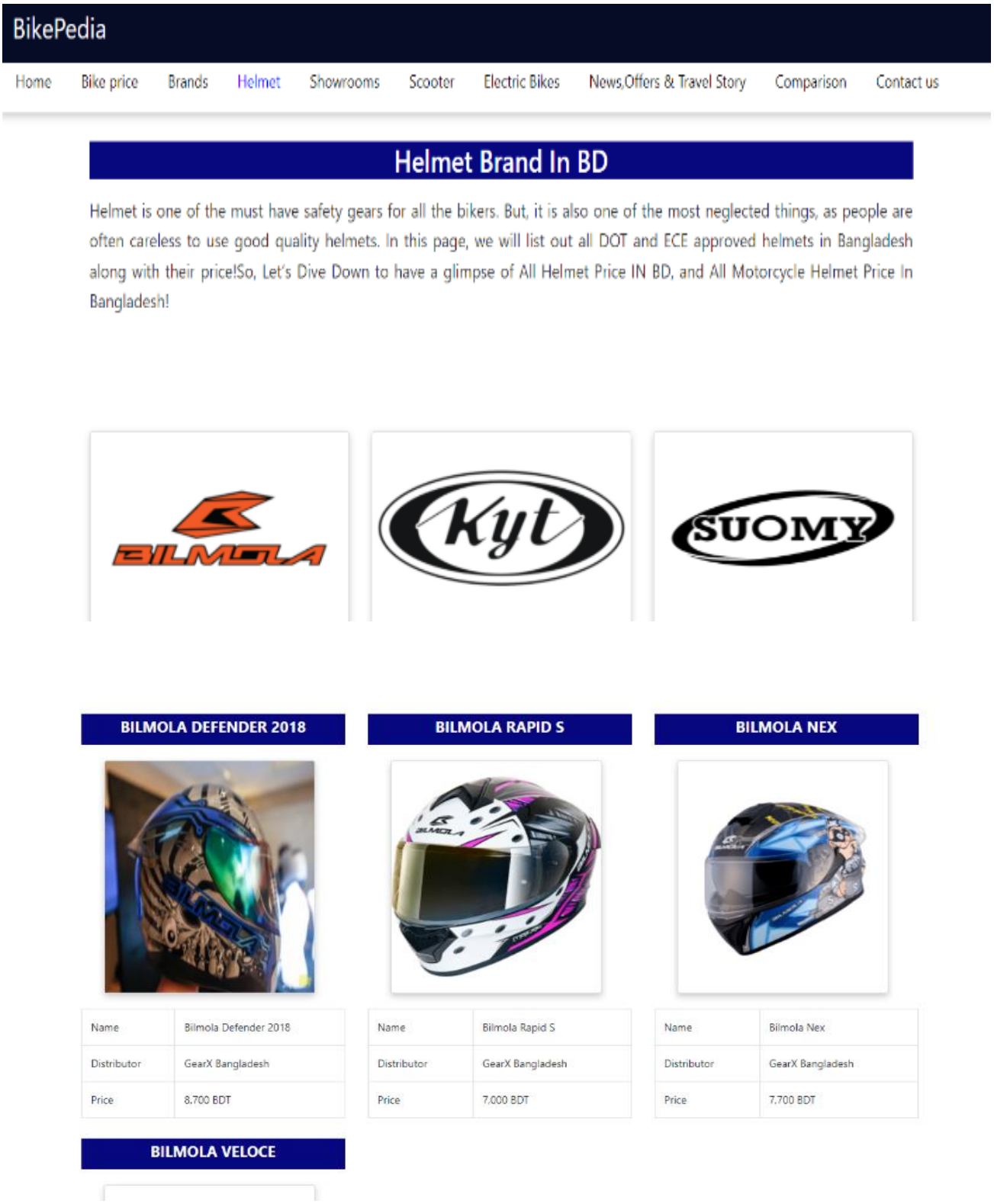

Figure 5.16: Helmet page (For user)

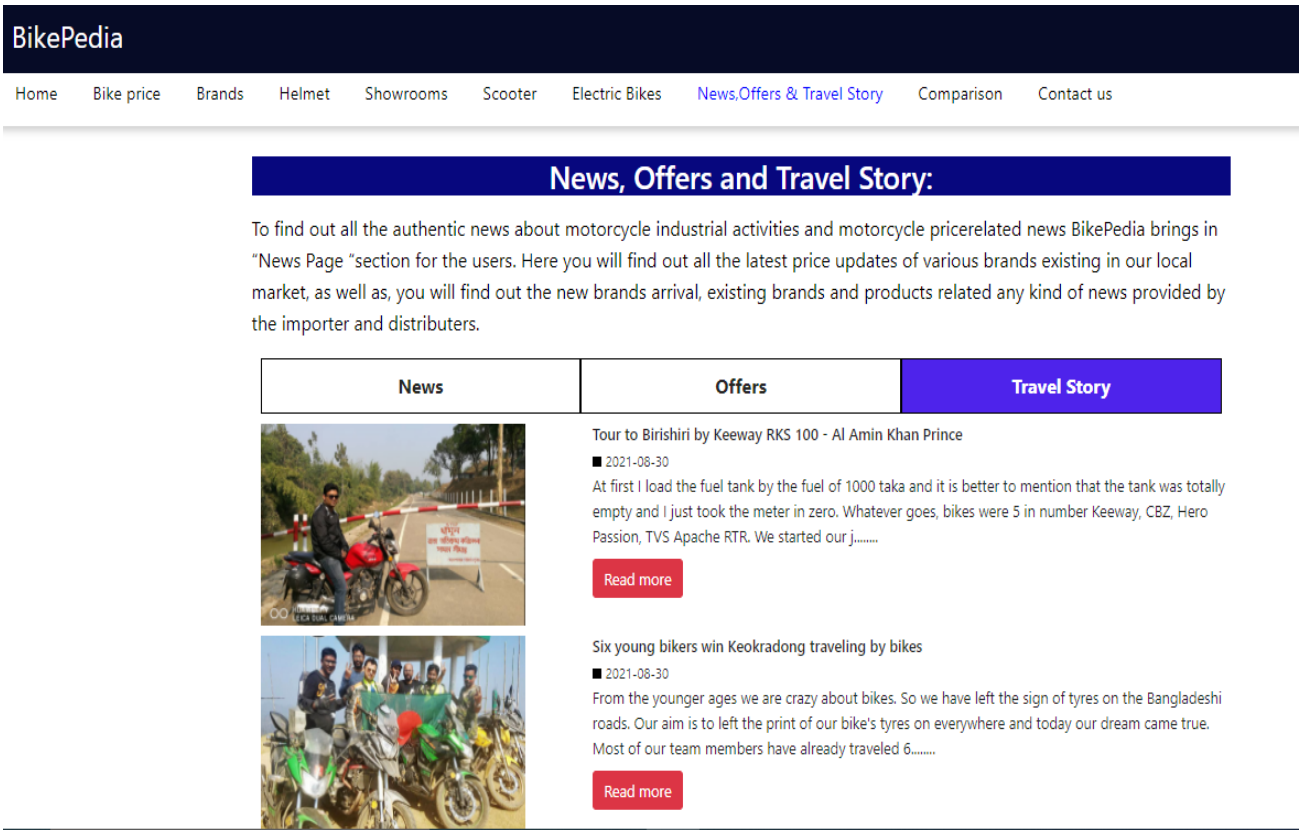

Figure 5.17: News, offers and travel story page (user)

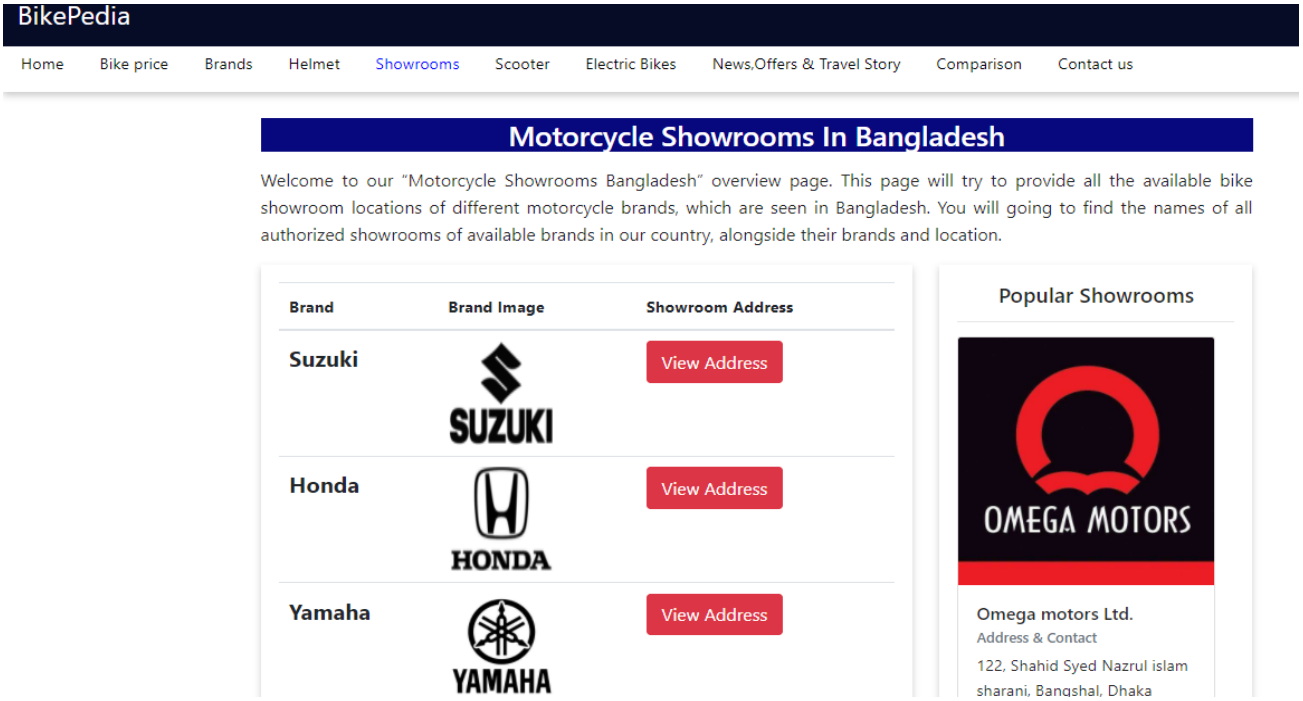

Figure 5.18: Showrooms page (user)

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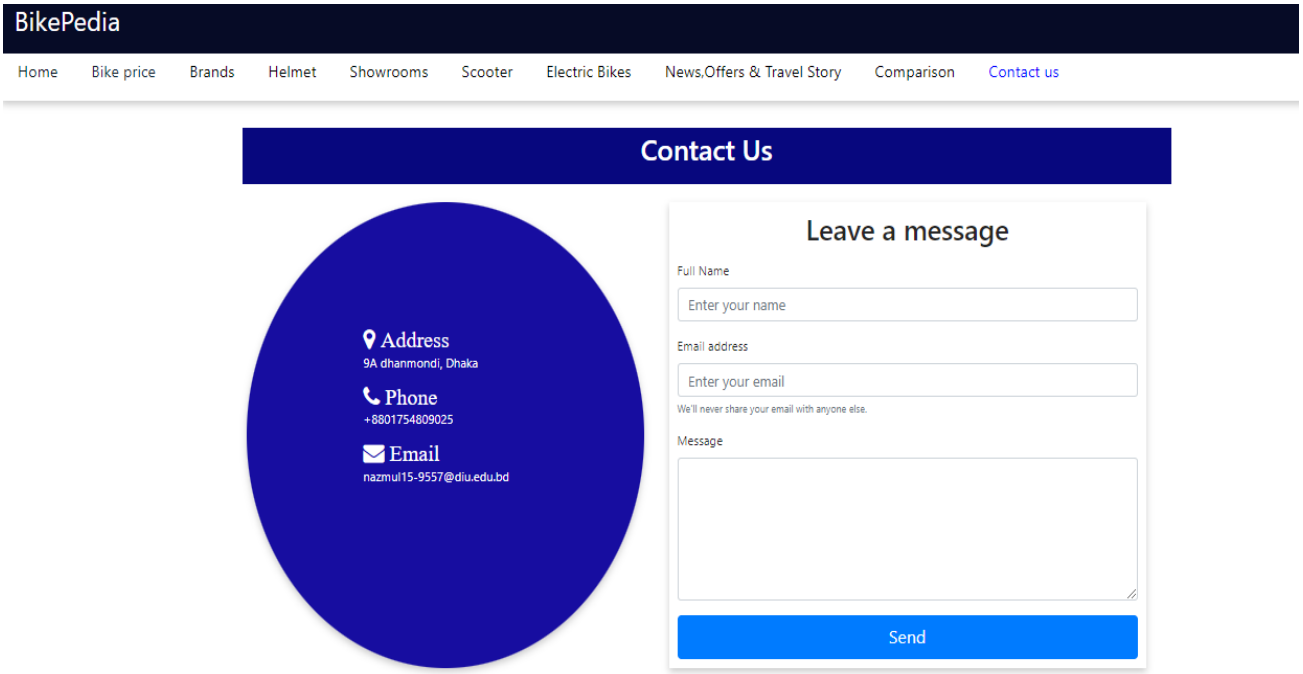

Figure 5.19: Contact page (user)

5.3 Implementation of Interactions:

The greatest innovative work on a stage takes place here. Participants collect more information on draft results together and optimize the stage information. Interviews, workshops, prototypes and internet communications might be included in this procedure. Not every communication such as minutes, reports, software monitors, or formal memos is documented and deemed informal. The goal is not to impede the contact process, but to promote. When most individuals decide that formal analysis and comments on draft results have to be carried out, the mechanism ends.

5.4 Testing Implementation:

These activities are performed once other management methodology procedures are completed or evaluated. Tests and assessments can be conducted simultaneously but are substantially distinct. They are both done in different ways. Prototyping is one of the most often utilized approaches and some of the others were created and implemented in this particular project. In addition to instrumentation, the final edition of the initial version identified and fixed shortcomings in particular ways. The prototype was performed in other studies including the usability assessment. The prototype can run all studies, including usability testing, and may be randomly tested by random individuals. Four primary challenges in this test are: how accurate

the quiz answers are and how relevant the information, the presentation style, and the results are, and how fast users accomplish their main activities using the correct password, with the main task of an efficient and free login. The primary aspects of this test are four.

5.5 Test Case:

A Testing Phase is a series of operations performed to test your software application's specific feature or functioning. A test case comprises test steps, testing data, precondition, and post-condition, which are designed to validate any requirement for a given test environment. The test case consists of particular variables or circumstances which functionality testing may use to compare the predicted results with the actual outcomes to establish whether another software system performs in accordance with the customer's expectations. Any component that may be tested is described as a test scenario. It is a group of test scenarios that allows the test team to assess the project's positive and negative qualities. Test Scenario offers a high-level insight about what to verify.

1) Test cases assist ensure that the standards, guidelines, and client criteria are respected.
2) Helps verify customer objectives and expectations.
3) Enhanced information flow transparency, management, and reasoning.
4) The 'actual' user scenarios can be simulated.
5) Exposes mistakes or flaws.
6) The job of the test engineer is more structured and simpler when test cases are written.

5.6 Unit Test:

Unit testing is an important approach used in software development to testing individual components of programming language, sets of one or more components in the software program together along with accompanying control data, procedures for use, and policies and procedures, to evaluate whether the devices are suitable for use. Unit tests are usually automated, software engineers write and run tests to check that a potential application ("the unit") fulfills its design and operates accordingly. A unit may be a whole module in procedural programming, although it is most often a single

function or process. A whole interface, like a class, or an individual function, is usually a device for object-oriented programming. When you first write tests for the simplest test units, then the compound behavior, you may create complete tests for complicated applications.

5.7 Integration Test:

Integration testing is very important in application development during which the standalone executable elements are integrated and tested in group form (also termed integration and testing), abbreviated I&T. Integration testing is carried out to assess compliance with certain requirements of the system or component. It occurs before evaluation criteria and after unit testing. Functional requirements take their unit-tested input modules, group them in bigger aggregates, perform testing on these aggregates as described in an integrating testing process and produce an integrated approach ready to be tested. In the initial bottom-up test, the bottom of the hierarchy elements has been evaluated. They are then utilized for the testing of components of greater level. The procedure is continued until the component is tested at the top of the hierarchy. All modules, procedures, and functions at the bottom or low level are integrated and tested. The next level of modules will be produced and may be utilized for integration testing after the integrating testing of the lower-level integrated modules. And when all or more modules at the same phase of development are ready is this method beneficial. This technique can also aid in determining the software levels created and facilitate reporting in the form of a percentage quality of management. In top-down testing, the top- integrated modules are initially tested and the module branch is evaluated step - by - step till the finish. Testing sandwich mixes top-down and bottom-up testing. One restriction of this type of test is that circumstances not mentioned in specific integration tests are typically not checked other than confirming that the architecture items are executed.

5.8 Test Results and Reports:

The framework that addresses the test findings is necessary to allow easy estimation of test results. The results of this study are documents to record, classify the environment or the operational condition and compare the outcomes obtained from the organization's assessment tests with the targets. Finally, we would just get the results from usability tests. The challenge is then how to design the user configuration developer case collection to traverse it, since we have established the architectural framework of interaction. Interaction is nearly everywhere throughout the physical cosmos. Interaction is the key to a progressive and user-friendly interface. We are very much in need of the creation and development of an immersive system. As already said, we engage with our equipment with unique qualities.

CHAPTER 6

Impact on Society, Environment and Sustainability

6.1 Impact on Society:

We are trying to develop and website are we can say a web app that actually helps the consumers to take a good idea or information or knowledge related to motorbikes which is really needed if consumers want to buy motorbikes or want to for reducing their confusion. If we think about the social aspect which we've created by our system, we can assume that the society will take our system or our project positively because it will help the society's people, especially the people who are motorbike lovers to be more confidence on their choice to buy motorbikes and they can also utilize their budget most effectively by using our system. By using our system, the consumers can also know about the news, offers and travel story and also the accessories of motorbikes which is really important for motorbike lover society. As we already know that our present situation actually creates an online shopping and buying system. So, they are pretty much familiar with this system of buying. So, we are hoping that it will create a positive impact in society and we hope that the user will be satisfied with our system.

6.2 Impact on Environment:

As we are developing a software or we can say that and our web app so there is no significant influence on the environment for our system. We are not using any kind of Hardware so our system is fully software-based and we only have it's the web form. We can clearly say that our system does not have any kind of positive or negative impact on the environment. It is fully safe to use and has nothing to worry about.

6.3Sustainability:

Project relevance, acceptability, political expediency, viability will be determined in the sustainability. The sustainability of projects is assessed by other aspects such as financial analysis, risk analysis, communication and network determination, the operational plan, training, human resources development and capacity building, environment and community analysis. Funding has to be studied and reviewed to identify if the project is an independent enterprise, franchise, co-operative, joint venture, non-governmental or public organization etc. The justification, demand and

supply, expenses, expectations or performance indicators which all are necessary for the project to qualify for funding are always explained in a project. The project specifies to identify affordability, revenues, interest. The legal and regulatory framework covers licenses and permits and numerous rules, regulations, regulations, regulations, regulatory provisions and procedures that are necessary by law to undertake initiatives in this environment. In particular, access to contemporary technology and systems should be adequately examined necessary for the project.

6.4 Ethical Aspect:

The key pillar of effective governance is transparency. The administration of software projects must be open with regard to all their operations, because it will develop employees' confidence in the management team. However, projects are exclusively carried out by management teams and nobody knows this. Sometimes staff speak to project managers' questionable actions, while in other situations, staff are not clear on project scope, since the top management doesn't explain them in full. Confidential information contains rules, pledges and limitations limiting access by a particular person or location to information. A development project manager is responsible to be a trustworthy man, since he understands a lot about ongoing projects, their time, their budget and business weakness and strengths. In certain situations, rival competitors cause the management team to disclose the company's sensitive information. The project coordinator for software needs to be loyal to his job and his staff. He is the principal person or software development team that is accountable for the full implementation of their job. In order to do all this and to obtain outstanding outcomes, they must be committed to each other through their subordinates and clients.

CHAPTER 7

Conclusion and Future Scope

In this part, we mention our choice and conclusion. Here we debate the breadth of the future and how it might have been ideal.

7.1 Discussion and Conclusion:

In this part of the conclusion, we are trying our best to give a bug-free system, and we are also trying to ensure that it is very easy to use and it is understandable to all kinds of users. We already created a preliminary stage of our system, and we are trying to build and add some more features in the future. In this preliminary stage, we have buying options, different sector of bikes, and many more. So, we don't have to take payment from the users. And we will also consider the user suggestions. Everyone will be able to use our system without any payment. There will be no cost to anyone who will use our system.

7.2 Scope for the Further Developments:

In the future scope, we point out some upcoming features which will come very soon. First, we will add a section where admins can add more and more collections. Soon we will try to add different types of payment method which is available in Bangladesh and try to automate the system. Because in this present preliminary stage, we are manually comparing the transition ids and give the access manually. We will try to make an automated system by wheat after completing the payment the system will automatically compare the transaction ID and it will automatically give the user access to our system.

References:

[1]. [1] React details, “https://reactjs.org/docs/getting-started.html”, Accessed on 20th, June, 2021.

[2]. [2] Node Js, “https://nodejs.org/en/docs/”, Accessed on 21st, June, 2021.

[3]. [3] ExpressJs, “https://expressjs.com/en/starter/installing.html”, Accessed on 5th, June,2021.

[4]. [4]JavaScript, “https://youtu.be/PkZNo7MFNFg”, Accessed on 15th, June, 2021.

[5]. [5] No-SQL or MongoDB, “https://docs.mongodb.com/guides/”, Accessed on 15th, July,2021.

[6]. [6] HTML, CSS, ‘https://youtu.be/1Rs2ND1ryYc’, “https://youtu.be/pQN-pnXPaVg”, Accessed on 10th, May,2021.

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Plagiarism Checked by Abdus Sattar, Assistant Professor, Department of CSE	28-12-2021

Web Based BikePedia System

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