**Hit The Trail - A Tourism Management System**

A Practicum Report Submitted By

Hasan Ahmed

ID# 18203044

A practicum report submitted to fulfillment of the requirements for the award of

Bachelor of Computer Science and Engineering



**Department of Computer Science and Engineering**

College of Engineering and Technology

**Spring - 2022**

**Hit The Trail - A Tourism Management System for “CodeCell Limited”**

Hasan Ahmed

ID# 18203044

A practicum report submitted in partial fulfillment of the requirements for the degree of Bachelor of Computer Science and Engineering (BCSE)

The practicum has been examined and approved,

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Professor Dr. Utpal Kanti Das

Chairman and Professor

Dept. of Computer Science and Engineering

IUBAT – International University of Business Agriculture and Technology

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dr. Hasibur Rashid Chayon

Co-supervisor, Coordinator and Associate Professor

Dept. of Computer Science and Engineering

IUBAT – International University of Business Agriculture and Technology

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Md. Hasibul Islam

Supervisor and Lecturer

Dept. of Computer Science and Engineering

IUBAT – International University of Business Agriculture and Technology

Department of Computer Science and Engineering

College of Engineering and Technology

IUBAT – International University of Business Agriculture and Technology

Spring - 2022

# Abstract

This report is for the purpose of practicum defense. The initial objective of this report is to learn how to conduct a real life project. The secondary objective of this report is to learn about how this Hit The Trail - A Tourism Management System can manage the matches, scores, tickets, clubs of any tournament efficiently. A tournament is a series of contest between a numbers of competitors. So managing a tournament is not an easy task. That’s the main purpose of building this project. In this web app there are three actors. They are admin, club, and visitor. Admin will be able to create, update and delete new tournament, club, and venue. Admin can easily generate the matches of a tournament by just one click. The match of any tournament which has ended will automatically come to update score page and from admin can easily update the match score. Admin has the ability to update the ticket price of any match that will be started within 7 days. The visitor has the ability to buy a ticket of any match if it is available through online payment system. The club has the ability to login their profile, adding new players, posting blogs, editing those blogs, and also deleting them. The clubs must have to be registered by the admin. If the admin forget his password he or she can reset a new password by email verification. The matches, ticket price update and score update page is being generated automatically. So, it will be easier for the admin to manage any kinds of tournament. The system will provide a complete systematic system which will provide all the necessary features to manage a tournament easily. I have plans to implement other features in the future. This system is developed by Laravel 8.x framework where Hypertext Markup Language (HTML). Cascading Style Sheet (CSS), bootstrap, Structure Query Language (SQL), PHP, and JavaScript is implemented. I could not add all of them just because of the time limitation. At the end of the day, what I can say is I put my honest effort and hard work to implement the system as efficient as possible.

# Letter of Transmittal

13 April 2022

To

The Chairman, Practicum and Placement Board

College of Engineering and Technology - CEAT

IUBAT–International University of Business Agriculture and Technology

4 Embankment Drive Road, Sector 10, Uttara Model Town

Dhaka 1230, Bangladesh

**Subject:** Letter of Transmittal.

Dear Sir,

With due respect, I would like to approach you that it is a great opportunity as well as immense pleasure for me to submit this report titled “Hit The Trail - A Tourism Management System” for the fulfillment of my Practicum course.

It was undoubtedly a splendid opportunity for me to work on this project to actualize my theoretical knowledge and has an enormous exposure with the corporate culture of a renowned company. Now I am looking forward for your kind appraisal regarding this practicum report.

I shall remain deeply grateful to you if you kindly go through this report and evaluate my performance.

Yours sincerely,

Hasan Ahmed

ID: 18203044

Program: BCSE

# Student’s Declaration

I am Hasan Ahmed student of BCSE - Bachelor of Computer Science and Engineering program, under the College of Engineering and Technology (CEAT) of IUBAT-International University of Business Agriculture and Technology declaring that, this report on the topic of Online Art Gallery for any art organization has been prepared for the fulfillment of the internship CSC 490, Practicum as well as the partial requirement of BCSE-Bachelor of Computer Science and Engineering degree.

The report and the project on Development of Hit The Trail - A Tourism Management System for any authorization to manage tournaments are originally prepared by me. All module and procedure of this project is being made after proper inspection and internet information.

It has not been prepared for any other purposes, rewards or presentations.

Hasan Ahmed

ID: 18203044

Program: BCSE

# Supervisor Certification

This is to certify that Practicum report on **“Hit The Trail - A Tourism Management System”** has been carried out by Hasan Ahmed bearing ID. 18203044, of IUBAT – International University of Business Agriculture and Technology as a partial fulfillment of the requirement of practicum defense course. The report has been prepared under my guidance and is a record of the accomplished work carried out successfully. To the best of my knowledge and as per his declaration, no parts of this report has been submitted anywhere for any degree, diploma or certification.

Now, he is permitted to submit the report. I wish his success in all his future endeavors.

----------------------------------------

Md. Hasibul Islam

Supervisor and Lecturer

Department of Computer Science and Engineering

IUBAT- International University of Business Agriculture and Technology

# Acknowledgement

In the name of Almighty who is the most merciful and the most graceful.

I would like to give thanks to late Professor Dr. Md. Alimullah Miyan, Vice-Chancellor of IUBAT – International University of Business Agriculture and Technology to give permission to study in this university which is the most beautiful and renowned non-government university in this country. I would like to thank and convey the respect to our present honorable vice chancellor Professor Dr. Abdur Rab, IUBAT – International University of Business Agriculture and Technology.

I would like to give gratitude to Dr. Utpal Kanti Das, Chairmen and Professor, Department of Computer Science and Engineering, IUBAT – International University of Business Agriculture and Technology to give the permission to study in the Department of Computer Science and Engineering and allow me to see the bright future in technological field of new era.

I am very appreciative to Dr. Hasibur Rashid Chayon, Respected Coordinator and Associate Professor, Department of Computer Science and Engineering, IUBAT for his better direction and sustain throughout the semester.

I am extremely indebted to the CEO and Managing director of CodeCell Limited for cooperating with me.

I am really pleased and proud to express my feeling of gratefulness and profound respect to our respected faculties, especially Md. Hasibul Islam, Lecturer, Department of Computer Science and Engineering, IUBAT for her scholastic guidance, helpful and unwiring efforts to execute this report.

Finally, I wish to thank my parents and my teachers who have been a great source of inspiration to me. Without their support, I would not have reached where I am today.

# Certificate of Organization

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# Chapter 01: Organizational Overview

CodeCell a full-featured web solution, software development, mobile application, graphic & multimedia, domain hosting and digital marketing service providing company in Bangladesh. Its core with the highly qualified Designers and Developers having experience of more than 5 years in various and complex designs and development. CodeCell has satisfied the clients with the services like Web design and development, Mobile app design and development, Software development, SEO and social media Designing & Development. We are customer centric and divert our efforts to act as a one-stop solution provider in the area of IT. In every area of our, operations we work hard in understanding the Client’s requirement and providing the CodeCell solution. We firmly believe in the philosophy of ‘Our vision is to make every youth skilled & employed’. We take pride in a team of highly qualified, skilled and motivated Professionals who are encouraged to lead, innovate and excel. Our team consists of top professionals who share a common vision and passion, providing our clients with critical insights and advice to succeed in today’s competitive environment. We believe in delivering Expertise, Excellence Services through our experience and providing the highest and best end use of services to our client. (CodeCell)

## 1.1 Organizational Services

CodeCell is an Information Technology service provider organization which provides all kinds of professional and creative software, Enterprise software integration, Management info system, E- commerce, Game development, Web development & Mobile app solutions globally.

**Web Development**: At CodeCell we focus on creating search engine friendly, aesthetically appealing and interactive website designs. It is a known fact that to build a strong web presence and to secure the countless marketing opportunities available on the internet, a good website is imperative, thus triggering a race for website design while designing and developing your website, our professionals keep in mind key factors like easy-navigation, overall consistency and content quality, stipulated timeframes and budget and backend support.

**Mobile Application**: We have a strong mobile application developer team of expert engineers whose have the experience to build versatile mobile applications for various industries. All our expert engineer working in android and IOS platform for more than five years. We work on native android which provide faster response of app and ensure the quality. We can design, build, prototype and implement your idea through a process of planning, building, testing, and deployment.

**Digital Marketing**: CodeCell offer various kinds of packages to make your company best in the internet world. Digital Marketing means promoting a product or brand which is very much essential to make a business successful. It increases visibility on web to your potential customers. As much as you are visible, you are getting closer to your business goal. It’s your most important strategy to expand your business. CodeCell is a full-service digital agency that has clients ranging from renowned companies to innovative startups. (CodeCell)

## 1.2 Organization Location

House 18 Road-08, Turag, Dhaka 1230

Figure 1.1: Organization’s location (Source: Google map)

## 1.3 Organization Vision

The mission of CodeCell is to become a top leading IT company of Bangladesh and their vision is to empower the youth and become a successful IT company of digital Bangladesh. CodeCell achieves competitive edge and has gained operational effectiveness and efficiency through the innovative use of technology.

## 1.4 Organization Mission

CodeCell was born as a one stop skills development platform provider. Their offerings coupled with the impeccable team behind it ensure satisfaction of client needs in relation to their characteristics.

## 1.5 My position in this Organization

I am an intern developer to this organization. I am guided by a supervisor in this organization. He is very helpful and informative. I really learn a lot from him. I have successfully completed my project in time. It was only possible by the guidance of my supervisor. It was also a big experience to maintain the office time for me. I also maintain the other rules of this organization. I am happy to work with this office. It’s really made me prepare for the beginning of my career.

## 1.6 Organizational Structure

The structure of the organization is drawn below:

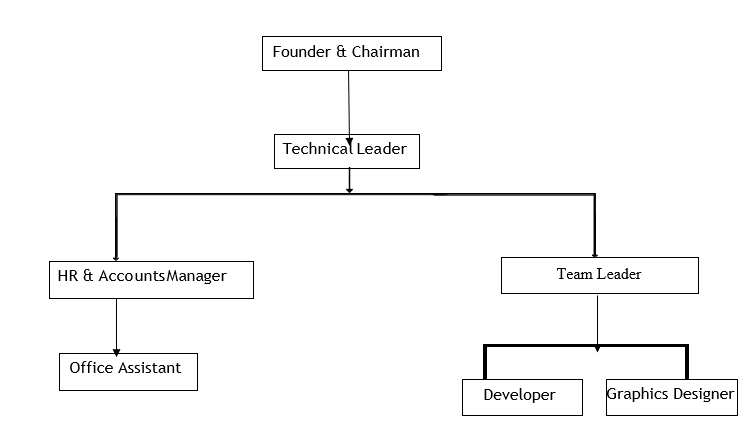


Figure 1.2: Organization structure

# Chapter 02: Introduction

An internship is a professional learning experience that offers meaningful, practical work related to a student’s field of study or career interest. An internship gives a student the opportunity for career exploration and development, and to learn new skills. It offers the employer the opportunity to bring new ideas and energy into the workplace, develop talent and potentially build a pipeline for future full-time employees.

## Introduction:

Tourism means a great pleasure to every one of the people. Tourism management companies and groups are expanding after covid-19. Managing a tourism management system is not an easy task for the organization. If an admin manage a tourism system or company manually then it needs a lot of paper work and people. Also, there are a lot of calculation which makes it more complicated for the admin or for the authority to manage the tourism. So, an application is the obvious solution to make it easier. This project “Hit The Trail - A Tourism Management System” is a web app that makes it easier for the admin to easily manage not only a single tour package but also as much tourism packages as the admin wants. Here the system allows to add tour packages whenever the admin wants to launch a package. The system also generate some extra package information automatically. Whenever a package is added, it automatically come to the home page and packages page and from this page the user can easily view or book package. Besides the system automatically detect which package is past package to by date and show unavailable for users to book and from their admin can easily delete or modify the package. The users needs to be registered by system to get access of the system. The registered users can login to their profile. They can see the packages. They can book packages and also can add reviews to packages. The normal visitor can see the home page, about page, packages and belongs and also they can register to the application. In a word, this web app provide all the features that are necessary to manage one tourism management group.

## 2.2 Background of the study:

Before developing this project, I have visited some tourism management system websites and read all the documents on the system. I created account in those websites and have used them. From there I have figured out that almost every tourism management system applicaiton is a bit complicated for the user to use. So I have tried my level best to make the web app more user friendly, so that the user can understand the system at a glance and love the system to use than the other apps available in the market.

## 2.3 Objective

The main objective of the system is to manage tour packages and make it clear to the users. Not only a single tour package but also as many tour packages as the admin wants. The system will do most of the task automatically and by doing this it will reduce the pressure of work of the admin.

## 2.4 Board Objective

My aim is to build a user-friendly system for the area, that can make the processes smooth and hassle free. Using this system users can also feel comfortable and enjoy.

## 2.5 Specific objectives

The web-based online art gallery system can support issues like:

* To make the system user friendly.
* Make the processes less time consuming by making them automated.
* Help to provide a good service.
* View the information for different sections by clicking on button.
* To implement and test the workability of the newly developed system.

## 2.6 Proposed system benefits

A project scope clearly identifies the work required to complete the project, also keeping record of the ongoing project and satisfy our clients. The system is designed very simply. Some benefits of the system are written bellow

* Web based application
* Platform independent
* Easy to manage tour packages and users.
* Auto generated booking tables and package tables.
* Data are secured

## 2.7 Methodology

Data Source

The source of data required for the purpose of this project are

1. Primary data
2. Secondary data

### 2.7.1 Primary data

Primary data are generated within the organization. The organizations experience, face to face interview with the client, customer and web administrators help us to generate primary data. Primary data collected through the interviews and practical experience.

### 2.7.2 Secondary data

Secondary data is collected through the real-life experience, studying some article and information are collected through the internet. Sources provide better understanding about the project. For that I search for some online system.

## 2.8 Limitation of the project:

Some limitations of my project are:

1. Only one type of payment system integrated.
2. Users cannot send message directly to the admin through the system.
3. No like or comment option in blog section which the visitor can see.

## 2.9 Process Model

In some situation the software requirements are well defined, but it happens that user need the software quickly. In this case incremental process model is a good option. In this method we can release software in part by part. The functionality of the software can expand in future updates. User can use the software and give feedback on the working part. It involves the both development and maintenance. The product defines as finished when it fulfills all requirements.

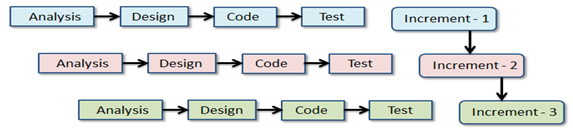


Figure 2. 1: Process Model

Reason for choosing incremental process model

* Provide better support for process iteration.
* Reduce rework on a part.
* Time efficient.
* Allow easy handling to all functionalities
* Lower risk of project failure.

## 2.10 Feasibility study

Feasibility study determines whether that solution is feasible or achievable for the organization. This means that the tasks that we will perform are worth enough or not. There are three main areas of investigation and generating ideas about a new system. On studying the feasibility of the system, three major considerations are dealt with, to find whether the automation of the system is feasible.

* Technical feasibility
* Economic feasibility
* Operational feasibility

### 2.10.1 Technical Feasibility

Technical feasibility addresses concern about hardware capability, reliability and availability and the skills of the development team. So, I found that this model is technically feasible, because this can be developed by the following lines. To develop this project, need a high-level programming language like HTML, CSS, Bootstrap, React Framework of JavaScript. For database such as MongoDB Atlas. To store data and an IDE (Sublime Text, VS code) need a cloud server and a computing device like a computer or Smartphone with a simple configuration and data connection. All the technology which is mention above is ready to use. So, our project is technically feasible.

### 2.10.2 Economic Feasibility

Economic feasibility determines to what extent a new system, is cost effective. My software is economically feasible. As I mention I need only one operating system, IDE and a browser. So, the cost will be less. On the other way, this will reduce our paper cost. Because I am using a database to store all the data. So, I can say that this software is economically feasible.

### 2.10.3 Operational Feasibility

Operational feasibility addresses concern about user acceptance, management support, and the requirements of entities and factors in the organization’s external environment. It is operationally feasible. Anyone can easily understand the process of our software. They don’t need any extra training to understand it. Member can get their service by log in our site. So, it is operationally feasible.

# Chapter 03: Requirement Engineering

## 3.1 Requirement Engineering

Requirement engineering is the process of defining, documenting, and maintaining requirements in the engineering design process. There are many definitions of Requirements Engineering; but they all have the same idea that requirements involve finding out what people want from a computer system and understanding what their needs mean in terms of design. Requirement engineering is closely related to software engineering, which focuses more on the process of designing the system that users want.

* User requirements
* System requirements
* Functional requirements
* Non-functional requirements
* Hardware Requirements
* Software Requirements

## 3.1.1 User Requirement

**Admin**

* Admin can login to the system
* Admin can add packages
* Admin can manage packages
* Admin can edit and delete packages
* Admin can manage bookings
* Admin can change booking status
* Admin can manage blogs
* Admin can add blogs
* Admin can make another user as Admin

**User**

* User can login to the system
* User can view packages
* User can book packages
* User can pay for his booked packages
* User can review package
* User can view travel blogs
* User can manage his bookings

## 3.1.2 System Requirement

**Admin**

1. Login Management
   * Give the valid URL for admin login.
   * Give required credential for login and click sign in.
   * If the given credential is correct then admin can directly go to the dashboard.
   * If the given credential is not correct then will get an error message.

2. Admin can add packages

* + By clicking on Dashboard button admin will go to dashboard page.
  + Click Add Package Button.
  + Insert all the required information and click on create button.
  + If inserted information is valid then package will be created with an pop-up confirmation message.
  + If inserted information is not valid then package won’t be created an error pop-up will be appeared.

3. Admin can manage packages

* + By clicking on the Manage Packages button admin can go to the manage packages page.
  + Admin sees a table of packages with package information and edit, delete options.
  + By clicking on the edit button admin sees another page for editing package information.
  + Admin edit information and click on Edit button.
  + If edited information are valid, admin sees a pop-up confirmation message.
  + If edited information are invalid or any error occurs, admin sees a pop-up error message.
  + Admin can change status of packages.
  + Admin can delete the package by clicking delete button.
  + A pop-up confirmation message will be shown to admin if delete is completed.

4. Admin can manage bookings

* + By clicking on Bookings admin can go to bookings page
  + Admin sees booking table with payment information.
  + Admin search booking by package title/ package description.
  + Admin search bookings by particular date.
  + Admin search bookings by particular date range.
  + Admin change the status of bookings by clicking “Change Status” option.
  + Admin delete bookings by clicking delete button.
  + Admin generate report by clicking Print icon button.

5. Admin can add blogs

* + On Dashboard, by clicking “Add Blogs” admin can add blogs.
  + Admin add necessary information in form to add a blog.
  + After fill up the form, the admin clicks on add blogs button.
  + Admin sees a confirm message if the blog is stored in the database automatically.

6. Admin make another admin

* + By clicking on “Make Admin” option on dashboard, admin go to “Make admin” page.
  + Admin can set an email of a valid user and click make admin button.
  + Admin sees a confirmation pop-up message if the user is added as admin.
  + Admin sees a error pop-up message if the email holder isn’t a valid user or the user is already added as admin.

**User**

1. Login Management

* + Give the valid URL for club login.
  + Give required credential for login and click sign in.
  + User click google sign in button for google signin.
  + If the given credential is correct then club can directly go to the dashboard.
  + If the given credential is not correct then will get an error message.

2. User View Packages

* + User can see the packages in home page.
  + By Clicking Details page, user sees the package details.
  + If user wants to book a package, click on “Book Package” button.

3. User Book Packages

* + On Package card or package details page, click on “Book Now” button.
  + After giving required credentials click on “Book Package”.
  + If the package is past event, it will “Booking Unavailable” automatically.
  + User sees a pop-up confirmation message if booking is set.
  + User sees a pop-up error message if any error occurred.

4. User Manage Bookings

* + By clicking “Booking List” on dashboard page, user sees a table of own bookings.
  + User sees booking status set by admin.
  + Search booking by package title/ package descriptions.
  + Generate report of bookings by clicking print icon button.

5. User Pay for Booking

* + By clicking “Booking List” on dashboard page, user sees a table of own bookings.
  + If bookings are available, click on “Pay” button.
  + See package information and user information to proceed to booking.
  + Give valid payment information and click on “Payment” button to pay.
  + See confirm pop-up message if payment is succeeded.
  + See error pop-up message if payment is failed.

6. User Review Packages

* + On Package Details page, see review package section.
  + Add required credentials to review the package.
  + Add ratings for the package and click on “Add Review” button.
  + View added reviews on “Home page” and “package details” page.

7. User View Travel Blogs

* + By clicking “Blogs” on home page, user sees cards of travel blogs.
  + See blogs posted by admin.
  + Hover mouse to see different animation on story blogs.

## 3.1.3 Functional Requirements:

* Login to the system by verification
* Create, update, delete operations
* Auto generated booking table.
* User cannot make themselves admin.
* Visitor will be able to view the packages and home page.
* Past events cannot be booked.
* Discount will be counted automatically and shown to the package cards.

## 3.1.4 Nonfunctional requirement:

* System will have secure login
* Different privilege for admin, users, and visitors.
* Password will be encrypted
* System data will be secured

## 3.5 Hardware Requirements:

The hardware listed by no means a minimum requirement to run the system, but rather a base limit for running the system smoothly and comfortably. This is also considering the potential amount of traffic that may go through the server.

* 1 x Intel core i3 Processor.
* 4 GB (DDR3) RAM
* 128 GB SSD.
* Internet connection

## 3.6 Software Requirements:

* Web Server: MongoDB Atlas
* Server-Side Scripting: NodeJS.
* Database Engine: MongoDB
* Database Tools: MongoDB Atlas, Express JS
* Designing Tools: Draw.io
* Text Editor: VS code, Notepad, Sublime Text

## 3.7 Case Diagram of the System

Use case symbols

Important parts in a use case:

* Actor: An Actor is outside or external the system.
* Use case: A use case represents a function or an action within the system. It’s drawn as an oval and named with the function.
* System Boundary: System is a sequence of events which happen when a user interacts with the system and drawn as a rectangle. This an optional element but useful when your visualizing large systems.
* Relationship: Relationship is an association between use case and actor.

## 3.8 Symbols of Use case:

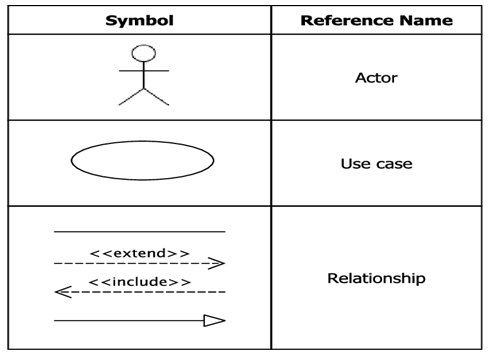


Figure 3.1: Use Case Symbols (Research gate)

## 3.9 Use Case Diagram:

Figure 3.2: Use case diagram

# Chapter 04: System Planning

System planning chapter shows the functions of the project ‘Hit The Trail - A Tourism Management System'. The function point estimation, effort distribution and project schedule chart are also shown in this chapter.

## 4.1 Scope of Project

The scope of the project is to satisfy our clients. Any non-technical person can easily use the system.

Some more scopes are:

* Web based application, can be accessible from anywhere by internet browser.
* Platform independent; run on Windows, Mac or Linux.
* No license fees or renewal fees.

## 4.2 System Project Planning:

Before starting any project, it is compulsory to estimate the work to be done, the resources that will be required, the time that will elapse from start to finish and to analyze the project to determine whether it is feasible or not. Software project management commences with a set of activities that collectively called software project planning. Through the software project planning I estimate the work to be done, the resources that will be required, the time that will elapse from start to finish and finally I analyze the project to determine whether it is feasible or not.

The following activities of software project planning that have followed in this project are:

* System Project Estimation
* Function Point Estimation
* Based Estimation
* Effort Distribution
* Task Scheduling Project
* Schedule Chart Cost
* Estimation

## 4.3 System Project Estimation

The accuracy of a software project estimate predicated based on a number of things:

* Properly estimated the size of the product to build.
* The degree to which the project plan reflects the abilities of the software team or engineer
* The stability of the product requirements and the environment that supports the software engineering effort.

Software size estimation is the most important matter that I have to consider during the software project. If the software size is not calculated properly, then this will cause various problems such as scheduling problems, budget problem etc. As the project is going on, before estimating the software size, I have to confirm that software scope is bounded. Software size estimation is the most important matter that I have to consider during the software project. If the software size not calculate properly, then this will cause various problems such as scheduling problems, budget problem etc. As the project goes on before estimating the software size, I have to confirm that software scope is bounded.

## 4.4 Complexity Matrix:

Table 4. 1: Complexity Matrix 1

|  |  |  |  |
| --- | --- | --- | --- |
| **EI** | **1-4 DETs** | **5-15 DETs** | **16 or more DETS** |
| **1 FTR** | **Low** | **Low** | **Average** |
| **2 FTRs** | **Low** | **Average** | **High** |
| **3orMoreFTRs** | **Average** | **High** | **High** |

Table 4. 2: Complexity Matrix 2

|  |  |  |  |
| --- | --- | --- | --- |
| **EO/EQ** | **1-5 DETs** | **6-19 DETs** | **20 or more DETS** |
| **1 FTR** | **Low** | **Low** | **Average** |
| **2 to 3 FTRs** | **Low** | **Average** | **High** |
| **4 to More FTRs** | **Average** | **High** | **High** |

Table 4. 3: Complexity Matrix for UFP

|  |  |  |
| --- | --- | --- |
| **Complexity** | **Transaction Function Type** | **Transaction Function Type** |
|  | EI/EQ | EO |
| **Low** | 3 | 4 |
| **Average** | 4 | 5 |
| **High** | 6 | 7 |

Table 4. 4: Complexity Matrix 3

|  |  |  |  |
| --- | --- | --- | --- |
| **ILF/EIF** | **1-19 DETs** | **20-50 DETs** | **51 or more DETS** |
| **1 RET** | **Low** | **Low** | **Average** |
| **2 to 5 RETs** | **Low** | **Average** | **High** |
| **6 or More RETs** | **Average** | **High** | **High** |

Table 4. 5: Complexity Matrix for UFP 2

|  |  |  |
| --- | --- | --- |
| **Complexity** | **Transaction Function Type** | **Transaction Function Type** |
|  | **ILF** | **EIF** |
| **Low** | **7** | **5** |
| **Average** | **10** | **7** |
| **High** | **15** | **10** |

## 4.5 Identifying Complexity

The task of counting function points should be included as part of the overall project design plan. This is counting function points should be listed and planned. The first function point count should be developed to give sizing used for estimating.

### 4.5.1 Transactional Functions:

* External Inputs [EI]
* External Outputs [EO]
* External Queries [EQ]

### 4.5.2 Data Functions:

* Internal Logical Files [ILF]
* External interface files [EIF]

Also, FETs, DET, RET and FTR have been applied for the analysis of data function and transactional functions.

## 4.6 Identifying complexity of transition function:

Table 4. 6: Identifying complexity of transition function

|  |  |  |  |
| --- | --- | --- | --- |
| **Transition Function** | **Fields/File Involve** | **FTRs** | **DETs** |
| 1. Admin Login (EI) | Fields: email, password, submit  File Name: users | 1 | 3 |
| 1. Admin Add Packages (EI) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, return\_time, image, description, submit, message  File Name: packages | 1 | 14 |
| 1. Admin Manage Packages (EQ) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, return\_time, image, description, message  File Name: packages | 1 | 13 |
| 1. Admin Edit Packages (EI) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, return\_time, image, description, submit, message  File Name: Packages | 1 | 14 |
| 1. Admin Delete Packages (EI) | Fields: delete button, message  File Name: packages | 1 | 2 |
| 1. Admin View Packages (EO) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, image, description  File Name: packages | 1 | 11 |
| 1. Admin View Bookings (EO) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status  File Name: orders | 1 | 9 |
| 1. Admin Manage Bookings (EQ) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status  File Name: orders | 1 | 9 |
| 1. Admin Delete Bookings (EI) | Fields: delete button, message  File Name: orders | 1 | 2 |
| 1. Admin Search Bookings by title (EI) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status, submit  File Name: orders | 1 | 10 |
| 1. Admin Search Bookings by description (EI) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status, submit  File Name: orders | 1 | 10 |
| 1. Admin Search Bookings by date (EI) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status, submit  File Name: orders | 1 | 10 |
| 1. Admin Search Bookings by date range (EI) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status, submit  File Name: orders | 1 | 10 |
| 1. Admin Print Booking Report (EI) | Fields: title, cost, discount, name, email, phone, address, booking\_date, payment, status, submit  File Name: orders | 1 | 10 |
| 1. Admin make another admin (EI) | Fields: email, submit  File Name: users | 1 | 2 |
| 1. Admin View Blogs (EO) | Fields: title, story\_author, date, image, description, like, isLiked  File Name: blogs | 1 | 7 |
| 1. Admin Add Blogs (EI) | Fields: title, story\_author, tag date, image, description, like, isLiked, submit  File Name: blogs | 1 | 9 |
| 1. User Login (EI) | Fields: email, password, submit  File Name: users | 1 | 3 |
| 1. User Google Sign In (EI) | Fields: email, submit  File Name: users | 1 | 2 |
| 1. Register New User (EI) | Fields: name, email, password, submit  File Name: users | 1 | 4 |
| 1. User View Packages (EO) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, image, description  File Name: packages | 1 | 11 |
| 1. User See Details of Packages (EO) | Fields: title, tag, cost, discount, tour\_date, from, start\_time, destination, return\_date, image, description, book button  File Name: packages | 1 | 12 |
| 1. User View Videos (EO) | Fields: title, description, video  File Name: packages | 1 | 3 |
| 1. User Book Packages (EI) | Fields: name, email, address, phone, submit  File Name: orders | 1 | 5 |
| 1. User Manage Bookings (EQ) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment  File Name: orders | 1 | 11 |
| 1. User Delete Booking (EI) | Fields: delete button, message  File Name: orders | 1 | 2 |
| 1. User Search Bookings by Package Title (EI) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment  File Name: orders | 1 | 11 |
| 1. User Search Bookings by Package Description (EI) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment  File Name: orders | 1 | 11 |
| 1. User Print Bookings Report (EI) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment, booking\_status  File Name: orders | 1 | 12 |
| 1. User See Booking Report (EO) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment, booking\_status  File Name: orders | 1 | 12 |
| 1. User View Bookings (EO) | Fields: name, email, address, phone, title, iamge, description, order\_date, cost, status, payment, booking\_status  File Name: orders | 1 | 12 |
| 1. User View Payment for Bookings (EO) | Fields: title, cost, discount, name, email, date, start\_time, return\_date, card number, cvc, mm/yy, pay button  File Name: orders | 1 | 12 |
| 1. User Pay for Booking (EI) | Fields: card\_number, cvc, mm/yy, pay button, message  File Name: orders | 1 | 5 |
| 1. User View Blogs (EO) | Fields: name, story\_author, date, image, description  File Name: blogs | 1 | 5 |
| 1. User Give Review (EI) | Fields: name, rate, address, description  File Name: reviews | 1 | 4 |
| 1. User View Reviews (EI) | Fields: name, rate, address, description, image  File Name: reviews | 1 | 5 |

## 4.7 Identifying complexity of data function:

Table 4. 7: Identifying complexity of data function

|  |  |  |  |
| --- | --- | --- | --- |
| **Data function** | **Fields/File involve** | **R E T**  **s** | **D E T**  **s** |
| 1. packages (ILF) | **Fields**- id, title, price, image, description, from, destination, tour\_date, start\_time, return\_date, tag, discount, return\_time, rating, totalReviews | 1 | 15 |
| 2. users (ILF) | **Fields**- id, name, email, password, role | 1 | 5 |
| 3. orders (ILF) | **Fields-** name, id, email, address, phone, title, price, image, description, from, destination, tour\_date, start\_time, return\_date, tag, discount, return\_time, rating, totalReviews | 1 | 19 |
| 4. blogs (ILF) | **Fields**- id, title, tag, storyAuthor, date, like, image, like, description, tourPlace, isLiked | 1 | 11 |
| 5. reviews (ILF) | **Fields-** id, name, address, description, image, email, rating | 1 | 7 |

## 4.8 Unadjusted function point contribution

Table 4. 8: Unadjusted function point contribution of transition function

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Transition Function** | **FTRs** | **DETs** | **Complexity** | **UFP** |
| 1. Admin Login (EI) | 1 | 3 | Low | 3 |
| 1. Admin Add Packages (EI) | 1 | 14 | Low | 3 |
| 1. Admin Manage Packages (EQ) | 1 | 13 | Low | 3 |
| 1. Admin Edit Packages (EI) | 1 | 14 | Low | 3 |
| 1. Admin Delete Packages (EI) | 1 | 2 | Low | 3 |
| 1. Admin View Packages (EO) | 1 | 11 | Low | 4 |
| 1. Admin View Bookings (EO) | 1 | 9 | Low | 4 |
| 1. Admin Manage Bookings (EQ) | 1 | 9 | Low | 3 |
| 1. Delete Club (EI) | 1 | 5 | Low | 3 |
| 1. Admin Search Bookings by title (EI) | 1 | 10 | Low | 3 |
| 1. Admin Search Bookings by description (EI) | 1 | 10 | Low | 3 |
| 1. Admin Search Bookings by date (EI) | 1 | 10 | Low | 4 |
| 1. Admin Search Bookings by date range (EI) | 1 | 10 | Low | 3 |
| 1. Admin Print Booking Report (EI) | 1 | 10 | Low | 4 |
| 1. Admin make another admin (EI) | 1 | 2 | Low | 3 |
| 1. Admin View Blogs (EO) | 1 | 7 | Low | 4 |
| 1. Admin Add Blogs (EI) | 1 | 9 | Low | 3 |
| 1. User Login (EI) | 1 | 3 | Low | 3 |
| 1. User Google Sign In (EI) | 1 | 2 | Low | 3 |
| 1. Register New User (EI) | 1 | 4 | Low | 3 |
| 1. User View Packages (EO) | 1 | 11 | Low | 4 |
| 1. User See Details of Packages (EO) | 1 | 12 | Low | 4 |
| 1. User View Videos (EO) | 1 | 3 | Low | 4 |
| 1. User Book Packages (EI) | 1 | 5 | Low | 3 |
| 1. User Manage Bookings (EQ) | 1 | 11 | Low | 3 |
| 1. User Delete Booking (EI) | 1 | 2 | Low | 3 |
| 1. User Search Bookings by Package Title (EI) | 1 | 11 | Low | 3 |
| 1. User Search Bookings by Package Description (EI) | 1 | 11 | Low | 3 |
| 1. User Print Bookings Report (EI) | 1 | 12 | Low | 3 |
| 1. User See Booking Report (EO) | 1 | 12 | Low | 4 |
| 1. User View Bookings (EO) | 1 | 12 | Low | 4 |
| 1. User View Payment for Bookings (EO) | 1 | 12 | Low | 4 |
| 1. User Pay for Booking (EI) | 1 | 5 | Low | 3 |
| 1. User View Blogs (EO) | 1 | 5 | Low | 4 |
| 1. User Give Review (EI) | 1 | 4 | Low | 3 |
| 1. User View Reviews (EI) | 1 | 5 | Low | 3 |
| Total= 120 | | | | |

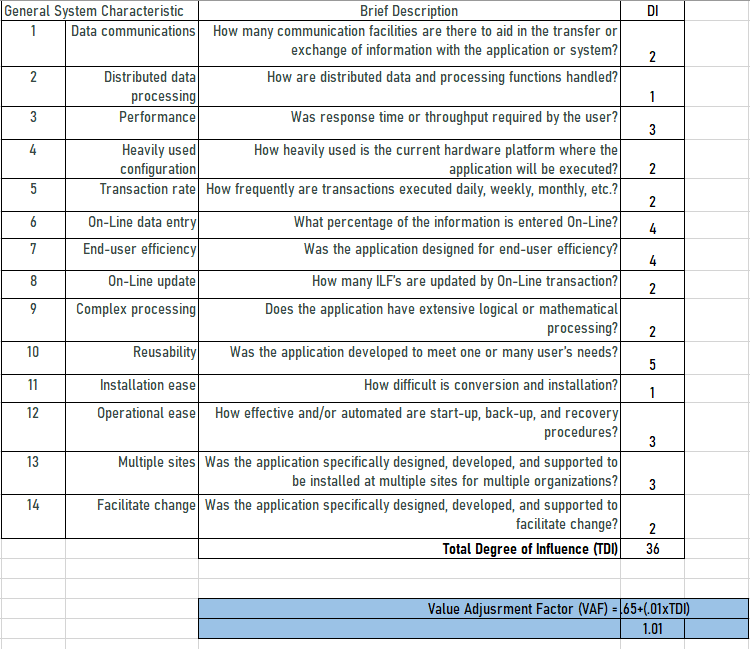
## 4.9 Unadjusted function point contribution for data functions:

Table 4. 9: Unadjusted function point contribution for data functions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Data function** | **RETs** | **DETs** | **Complexity** | **UFP** |
| 1. packages (ILF) | 1 | 15 | Low | 7 |
| 2. users (ILF) | 1 | 5 | Low | 7 |
| 3. orders (ILF) | 1 | 19 | Low | 7 |
| 4. blogs (ILF) | 1 | 11 | Low | 7 |
| 5. reviews | 1 | 7 | Low | 7 |
| Total = 35 | | | | |

Performance and Environmental impact:

Table 4. 10: Complexity Adjustment Value Count



## 4.10 Counting Adjusted Function point:

Unadjusted Function Point (UFP) = UFP (Data Function) + UFP (Transition Function)

= 120 + 35

= 155

Adjusted Function Point Count (AFP) = UFP \* VAF = 155 \* 1.01 = 156.55

Efforts for PHP = AFP \* Productivity

= 156.55\* 47 [Productivity of PHP]

= 7357.85 person hours

= 7357.85 / 8 person days [Working hour is 8 hours per day]

= 919.73125 / 24 person months (24 days per month)

= 20.28/ 6 months (6 persons)

= 3.38 months

## 4.11 Process Based Estimation:

In method-based estimation, process is rotten into a comparatively little set of tasks and also the effort needed to accomplish each task is estimated. method based mostly estimation begins with a delineation of computer code functions obtained from the project scope. A series of software process activities should be performed for every function.

Table 4. 11: Process based estimation

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Activity | CC | Planning | Engineering | | Construction &  Release | | CE | Total |
| Function |  |  | Analysis | Design | Code | Test |  |  |
| F1 | 1 | 1 | 1 | 1 | 1 | 1 | N/A | 6 |
| F2 | 1 | 1 | 1 | 1 | 1 | 1 | N/A | 6 |
| F3 | 1 | 2 | 1 | 1 | 3 | 1 | N/A | 9 |
| F4 | 1 | 1 | 2 | 1 | 6 | 1 | N/A | 12 |
| F5 | 1 | 2 | 3 | 4 | 6 | 1 | N/A | 17 |
| F6 | 1 | 2 | 2 | 2 | 3 | 1 | N/A | 11 |
| F7 | 1 | 1 | 1 | 1 | 6 | 1 | N/A | 11 |
| F8 | 1 | 2 | 2 | 2 | 3 | 1 | N/A | 11 |
| F9 | 1 | 1 | 2 | 3 | 2 | 1 | N/A | 10 |
| F10 | 1 | 1 | 2 | 1 | 2 | 1 | N/A | 8 |
| Total | 10 | 13 | 15 | 14 | 31 | 9 | N/A | 101 |
| Effort | 10.98% | 14.28% | 16.48% | 15.38% | 34.06% | 9.89% | N/A | 100% |

## 4.12 Effort Distribution:

The software project estimation technique leads to estimate of work units required to complete the software development in this project, 40% of full software development has been allocated to Coding/Developing, 35% has been allocated to analysis, design and the remaining 25% has been allocated to software testing and support.

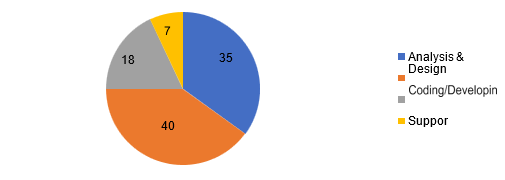


Figure 4. 1: Effort Based Estimation

A detailed view of the effort distribution chart is illustrated bellow:

In the Pie chart we can see that, among 35% of Analysis and Design we spend 5% for client visit and collect all requirement gathering, 15% for analysis the data and information, 2% for risk analysis, 3% for planning and 10% for designing.

Among 40% of Developing, 30% is used for coding, 10% is used for documentation, 18% is used for testing and last 7% is used for implementing, giving the support to the client.

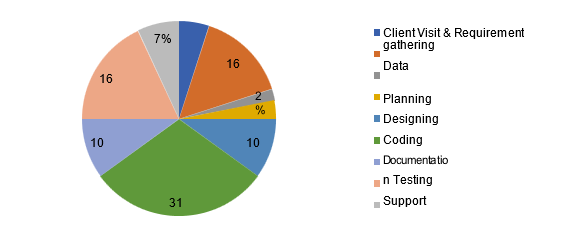


Figure 4. 2: Effort Distribution PIE Chart

## 4.13 Project Schedule:

Total system development is a combination of sets of tasks. These set of tasks should do sequentially and timely. Project schedule works as the guideline of the system developer. The following is the schedule chart of this project:

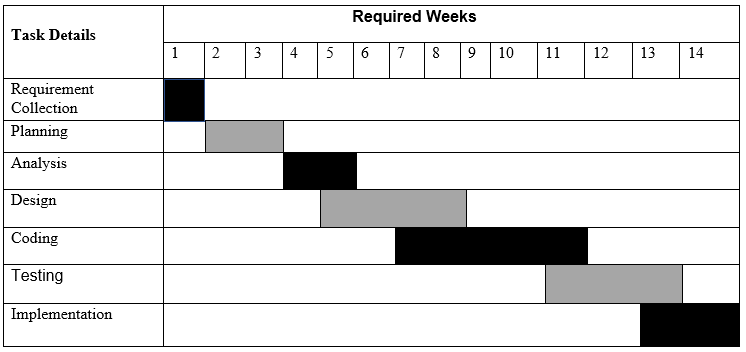


Figure 4. 3: Project Schedule Chart

## 4.14 Cost Estimation

The approximation of the cost of a program is cost estimation. In this project, there are few factors to analyze and calculate the cost. Given below,

* Personal costs
* Software costs
* Hardware costs
* Other costs

## 4.15 Personnel cost

Number of days in a year = 365

Number of government holidays in a year =24 Number of weekly holidays in a year =52

Total number of working days to develop the project = 365-(52+24) = 289 days. Total number of working days per months to develop the project = 289/12 = 24.083 days

Organization working hours per day = 8 hours

Organization working hours per month=24.083\*8 = 192.664 hours

Total working hour in 3.33 months = 24.083\*8\*3.33 = Approximately 642 hours

Table 4. 12: Personnel Cost

|  |  |  |
| --- | --- | --- |
| **Position** | **Salary/month** | **Salary/hour** |
| System Analyst | 35000 | 182.29 |
| Designer | 25000 | 130.2 |
| Coder | 20000 | 104.17 |
| Tester | 20000 | 104.17 |

Total salary of Analyst in 3.33 months =TK 83\*182.29

=TK 15130

Total salary of Designer in 3.33 months = TK 180\*130.2

= TK 23436

Total salary of Coder in 3.33 months = TK 290\*104.17

= TK 30209

Total salary of Tester in 3.33 months = TK 90\*104.17

= TK 9375

Table 4. 13: Personnel Cost 2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Designation** | **Person** | **Working Hour** | **Salary** | **Total Salary** |
| System Analyst | One | 83 | 15130 | **78150 BDT** |
| Designer | One | 180 | 23436 |
| Coder | One | 290 | 30209 |
| Tester | One | 90 | 9375 |

## 4.16 Hardware cost

Cost of a computer = 35000

Computer life = 3 years

Computer Usage = 13 weeks = 3.33 months

Computer cost = (35000/36) \*3.33\*8 = 25900 BDT

Table 4. 14: Hardware Cost

|  |  |
| --- | --- |
| **Hardware** | **Cost** |
| Computer | 25900 |
| Modem | 1600 |
| Printer | 5000 |
| **Total** | **32500 BDT** |

## 4.17 Software cost:

Table 4. 15: Software Cost

|  |  |
| --- | --- |
| **Name** | **Amount** |
| Windows 10 | 8500 |
| MS Office 2016 | Free |
| XAMPP | Free |
| MySQL | Free |
| Visual Studio | Free |
| Total | 8500 |

## 4.18 Others Cost:

Table 4. 16: Estimation of Other Cost

|  |  |
| --- | --- |
| **Name** | **Price (BDT)** |
| Transport | 2000 |
| House Rent | 10000 |
| Other | 1500 |
| Total | **13500 BDT** |

Account Table:

Table 4. 17: Account table



# Chapter 05: Risk Engineering

## 5.1 Risk Management

Risk analysis and management is a series of jobs that help a system development team understand and manage uncertainty. Many problems can arise when developing a system. A risk is a potential problem; it may not happen. There are several steps to analyzing and managing risk. The first step is to identify the risks. Then each risk is analyzed to determine the likelihood of it occurring and the harm it will cause if it occurs. Once this information has been established, the risks are identified. Finally, a plan developed to manage these high probability and high impact risks is drawn up.

## 5.2 Stages of Risk

Risk analysis and management are a series of steps that help a software team understand and manage uncertainty. Many problems can plague of software project. A risk is a probably problem; it might happen, it might not. But regardless of the outcome, it’s a really good idea to identify it, assess its probability of occurrence, and estimate its impact, and establish a contingency plan should the problem actually occur. Risk analysis and management are a series of steps that help a software them to understand and manage uncertainty. For establish risks management’s model the following steps are followed:

5.2.1 Identification:

Risk picking out is the process of detecting probable risks or hazards through data collection. An area of data collection and manipulation tools and techniques exists. The team is using both automated and manual techniques to gather data and begin to distinguish potential risks to Web resources. Web scraping is one of the effective ways to gather information about the state of web pages and sites.

### 5.2.2 Classification:

Risk classifying is the process of developing a structured model to categorize risk and fitting observable risk attributes and events into the model. The team combines quantitative and qualitative methods to characterize and classify the risks to Web pages, Web sites, and the hosting servers.

### 5.2.3 Assessment:

Risk assessment is the process of defining applicable risk scripts or sequences of events that could affect damage or loss and the probability of these events. Rosenthal describes the characteristics of a general standard for risk assessment as" transparent, coherent, harmonious, complete, comprehensive, unprejudiced, invariant, balanced, defensible, sustainable, flexible, and accompanied by suitable and sufficient guidance.

### 5.2.4 Analysis:

Risk analysis determines the implicit impact of risk patterns or scripts, the possible extent of loss, and the direct and circular costs of recovery. This step identifies vulnerabilities consider the amenability of the association to accept risk given implicit consequences and develops mitigation responses.

### 5.2.5 Implementation:

Risk management defines policies, procedures, and mechanisms implementation to manage and respond to recognizable risks. The implemented program should balance the value of assets and the direct and indirect costs of preventing or recovering from loss. To take comprehensive care of a web-based system we must consider the following points:

* Hardware and software environment including any upgrades to the operating system and Web server, the installation of security patches, the removal of insecure services, use of firewalls, etc.
* Administrative procedures such as contracting with reputable service providers, renewing domain name registration, etc.
* Network configuration and maintenance including load balancing, traffic management, and usage monitoring.
* Backup and archiving policies and procedures including the choice of back up media, media replacement interval, number of backups made and storage location.
* Physical location of the server and its vulnerability to fire, flood, earthquake, electric power anomalies, power interruption, temperature fluctuations, theft, and vandalism.

## 5.3 Categories of Risk

There are different categories of risks that should keep in consideration for any software project. The following categories of risks have been considered in this software project.

* Project risks: The risks which threaten the project plan. If these risks come into the project, it is likely that the project schedule will delay and that costs will rise up. Project risks identify probable budgetary, schedule, personnel, resource, client, and requirement problems and their impact on the software project.
* Technical risks: if these type threats of arise its threats the quality and timeliness of the software to be produced. If a technical risk come software development life time, implementation may become difficult or impossible. Technical risks identify potential design, implementation, interface, verification, and maintenance problems. Moreover, specification ambiguity, technical uncertainty, technical obsolescence is also risk factors.
* Business risks: These risks threaten the viability of the software to be built. The business risks can be market risks, building a system that no one really wants. Strategic risks, building a system that no longer fits into the overall business strategy for the company. Management risks, losing the support of senior management due to change in focus or a change in people. Budget risks, losing budgetary or personnel commitment.

## 5.4 The RMMM Plan

* Risk Mitigation: Proactive planning for risk avoidance.
* Risk Monitoring: Assessing whether predicted risks occur or not, ensuring preventive steps are being properly applied, collect information for future risk analysis, attempt to determine which risks caused which problem.
* Risk Management: Actions to be taken in the event that mitigation steps have failed and the risk has become a live problem.

**Type of Impact**: Catastrophic (1), Marginal (2), Tolerable (3), Critical (4).

**Type of Probability:** very low (<10%), low (10–25%), moderate (25–50%), high (50–75%), very high (>75%)

## 5.5 Project Risks:

In my system, the bellow mentioned projects risks I needed manage

Table 5. 1: Project risk (P01)

|  |  |
| --- | --- |
| Project Risk(P01) | Date: 10-10-21 |
| Name | Changes the requirements |
| Probability | Low (25%) |
| Impact | Marginal (2) |
| Description | Customer may change their requirement |
| Mitigation and Monitoring | Requirements are redefined by the company due to time or business needs. Meeting will be held with the company regularly. This ensures that the product we are producing solves a problem. |
| Management | Emergency meeting between both parties to identify new project requirements and goals |
| Status | Not occur. |

Table 5. 2: Project Risk (P02)

|  |  |
| --- | --- |
| Project Risk (PR02) | Date: 08-11-2021 |
| Name | Poor Quality Documentation |
| Impact | Catastrophic |
| Description | Quality of documentation may poor |
| Mitigation and Monitoring | Meeting will be held routinely to offer documentation suggestions and topics. The progress on documentation will also have a  monitor in each meeting. |
| Management | We will call a meeting and discuss about quality improvement of documentation. The addition of new topics into the documentation will assigned to responsible  person. |
| Status | Monitoring it. |

## 5.6 Technical Risks:

Table 5. 3: Technical Risk (TR01)

|  |  |
| --- | --- |
| Technical Risks (TR01) | Date: |
| Name | Computer Crash |
| Impact | Catastrophic |
| Description | Computer may crash due to several reasons. |
| Mitigation & Monitoring | We should take proper follow up of  computers. We also take regular data backup every day and we can use IPS to stop unexpected shutdown. |
| Management | If our computer has been crashed then we will restore backup. |
| Status | We are not facing such kind of problem yet. |

Table 5. 4: Technical Risk (TR02)

|  |  |
| --- | --- |
| Technical Risk (TR02) | **Date:** |
| Name | Technology doesn’t meet specifications. |
| Impact | Catastrophic |
| Description | Customer doesn’t have the technology to their desired specification. |
| Mitigation & Monitoring | Ensures that the product we are producing and the specifications of the customer are equivalent. |
| Management | The customer should be immediately notified and whatever steps necessary to rectify this problem should be done. Preferably a meeting should be held between the development team and the customer to discuss at length this issue. |
| Status | We are not facing such kind of problem yet. |

Table 5. 5: Technical Risk (TR03)

|  |  |
| --- | --- |
| **Technical Risks (TR03)** | **Date:** |
| Name | Poor training skill in team members. |
| Impact | Catastrophic |
| Description | Poor training skill in team members to train the client. |
| Mitigation & Monitoring | The training team should have a clear knowledge about the entire functionality of the software. System analyst need to ensure and monitor it while training session start. |
| Management | We should arrange a meeting with the train team and come to a point to solve this problem. |
| Status | We are not facing such kind of problem yet. |

## 5.7 Business Risks:

Table 5. 6: Business Risk (BR01)

|  |  |
| --- | --- |
| Business Risk (BR01) | Date: |
| Name | Insufficient Budget |
| Impact | Marginal |
| Description | If the budget is low project may not complete |
| Mitigation & Monitoring | The project needs streaming server that is costly to set-up. We find several alternative streaming services to reduce the budget risk. |
| Management | Refinement in project goal. A new plan for regulate the budget. |
| Status | We are not facing such kind of problem yet. |

Table 5. 7: Business Risk (BR02)

|  |  |
| --- | --- |
| Business Risk (BR02) | Date: |
| Name | Not pay the installment of Software Cost. |
| Impact | Catastrophic |
| Description | Customer doesn’t pay for the installment of software cost. |
| Mitigation & Monitorin0067 | We should make a good communication between customers and ensure that the entire installment will be completed. |
| Management | The only course of action available would be find out the reason and come in a solution. |
| Status | The risk has not been arisen yet. |

Table 5. 8: Business Risk (BR03)

|  |  |
| --- | --- |
| Business Risk (BR03) | Date: |
| Name | Late delivery of the project |
| Impact | Catastrophic |
| Description | The project may take more time to complete what was estimated. |
| Mitigation & Monitoring | Steps have been taken to ensure a timely delivery by determining the scope of project. |
| Management | The only course of action available would be to request an extension to the deadline from customer. |
| Status | Our project is completed in time. |

# Chapter 06: Analysis Modeling

Analysis modeling uses a combination of text and diagrammatic forms to depict requirements for data, function, and behavior in a way that is relatively easy to understand, and more important, straightforward to review for correctness, completeness and consistency. This section presents resources for conventional and object-oriented analysis (OOA) methods as well as resources for UML.

## 6.1 Software Analysis Pattern:

Objectives of analysis Pattern

* Domain Analysis
* Describe what the client requires
* Establish a basis for the creation of a software design
* Define a set of requirements that can be validated once the software is built.

## 6.2 Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes. Activity diagrams show the overall flow of control.

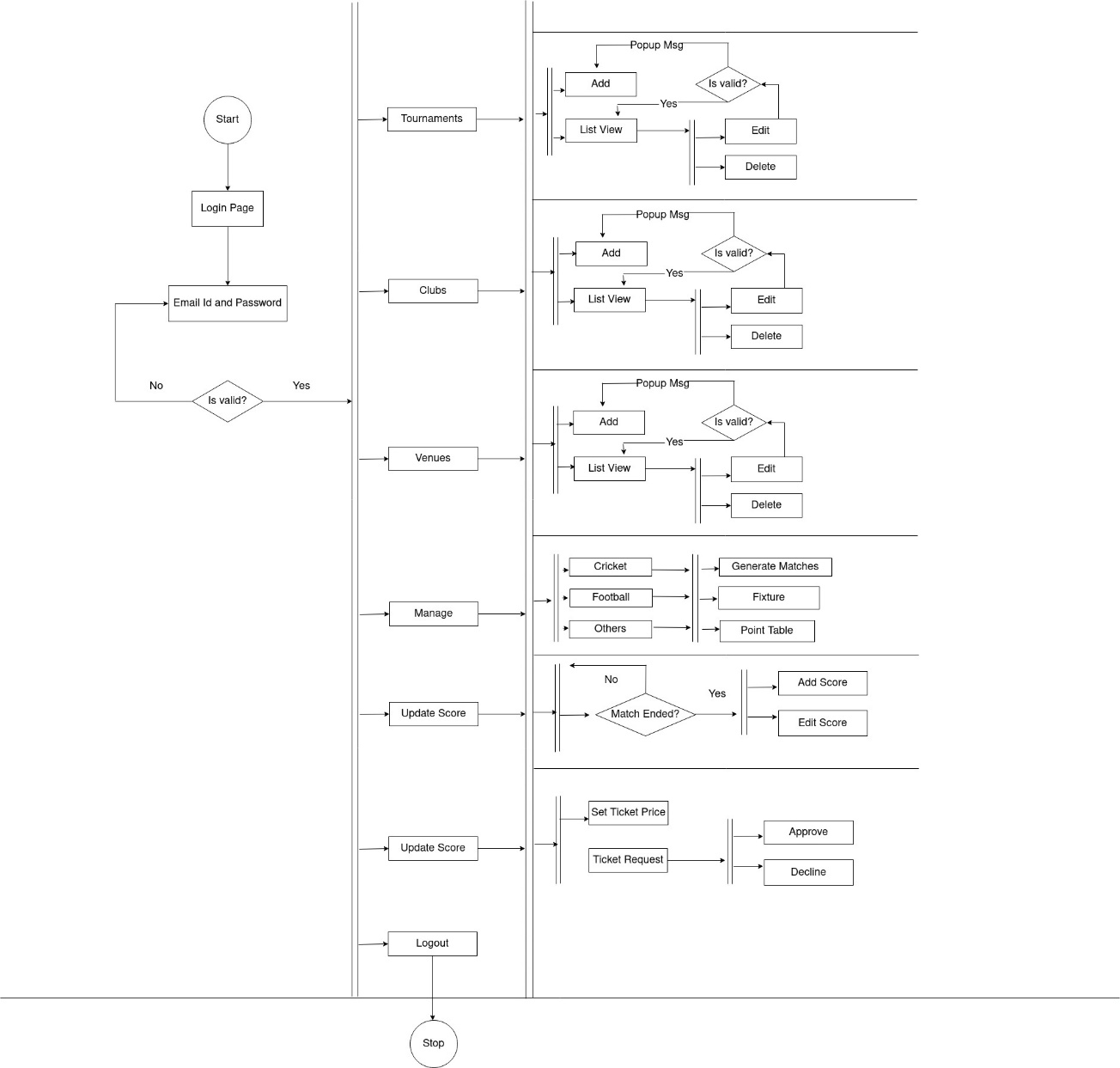


Figure 6. 1: Activity diagram for admin

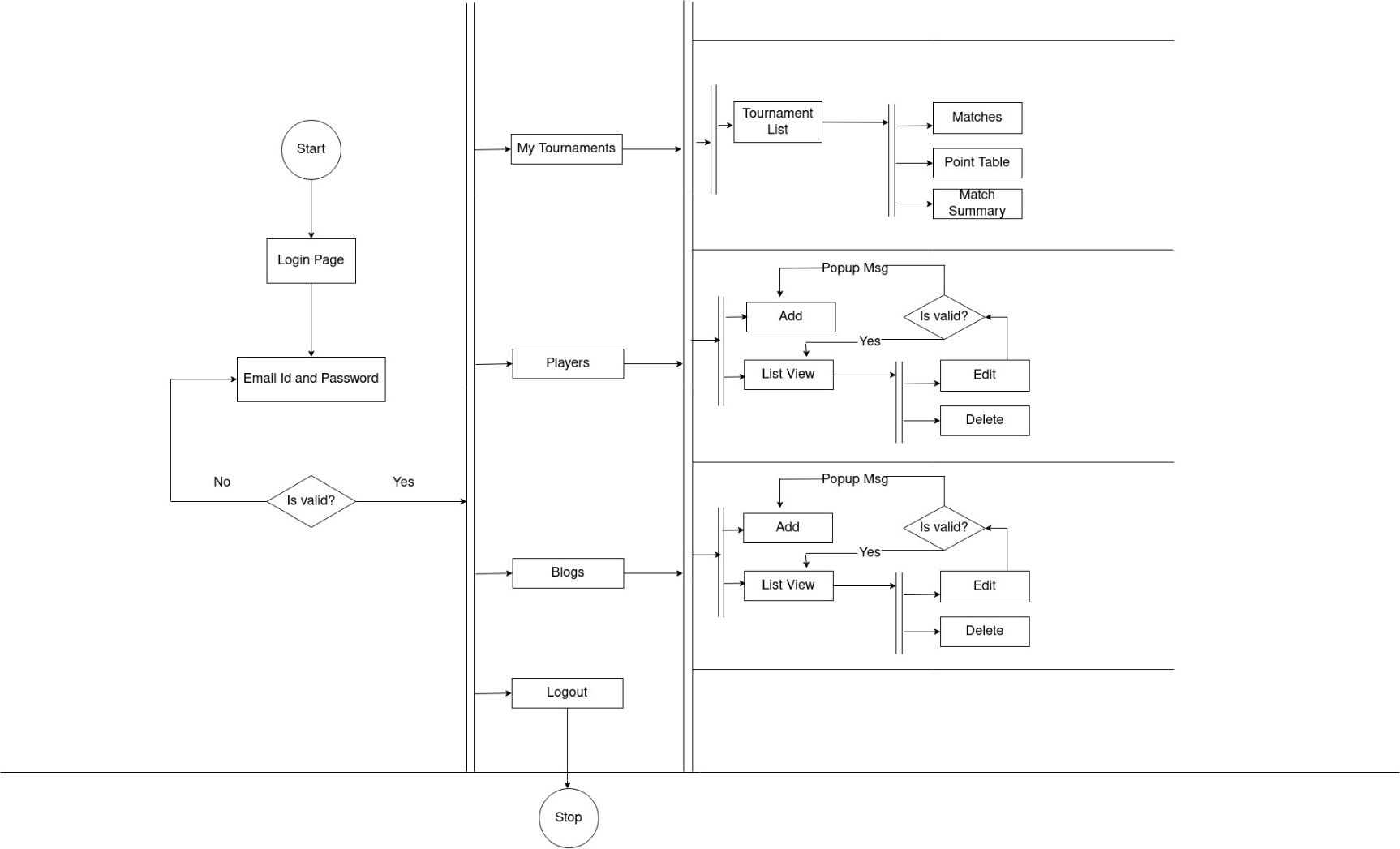


Figure 6. 2: Activity diagram for club

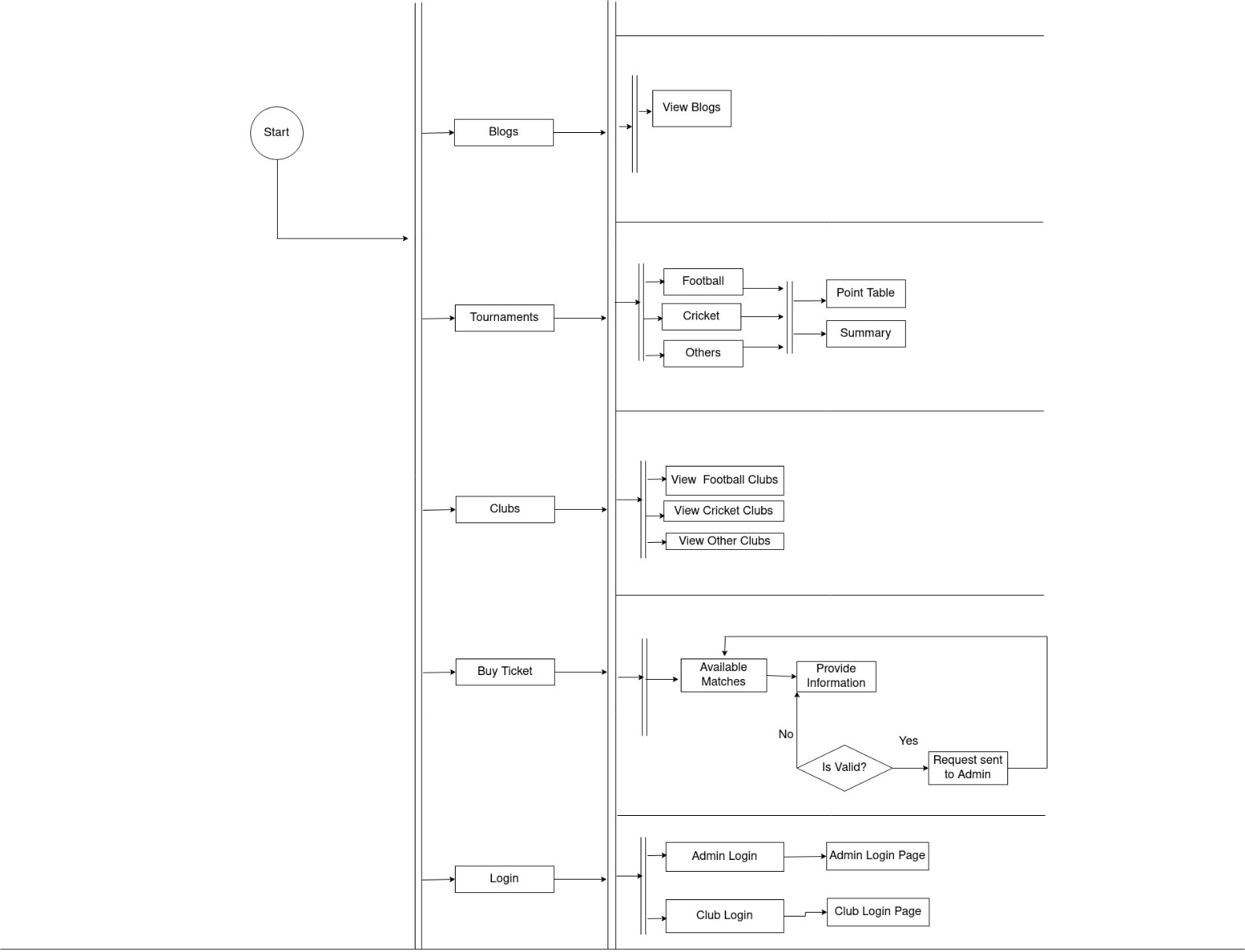


Figure 6. 3: Activity diagram for Visitor

## 6.3 Swim Lane Diagram

A Swim Lane diagram is a type of flowchart that delineates who does what in a process. Using the metaphor of lanes in a pool, a Swim Lane diagram provides clarity and accountability by placing process steps within the horizontal or vertical “Swim lanes” of a particular employee, work group or department. It shows connections, communication and handoffs between these lanes, and it can serve to highlight waste, redundancy and inefficiency in a process.

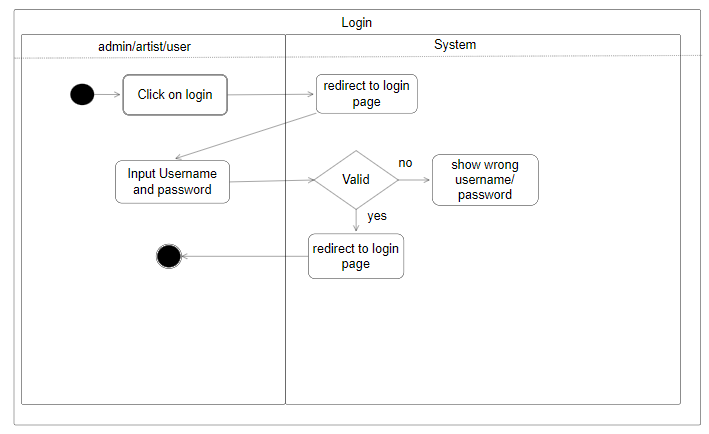


Figure 6. 3: Swim Lane diagram for Login

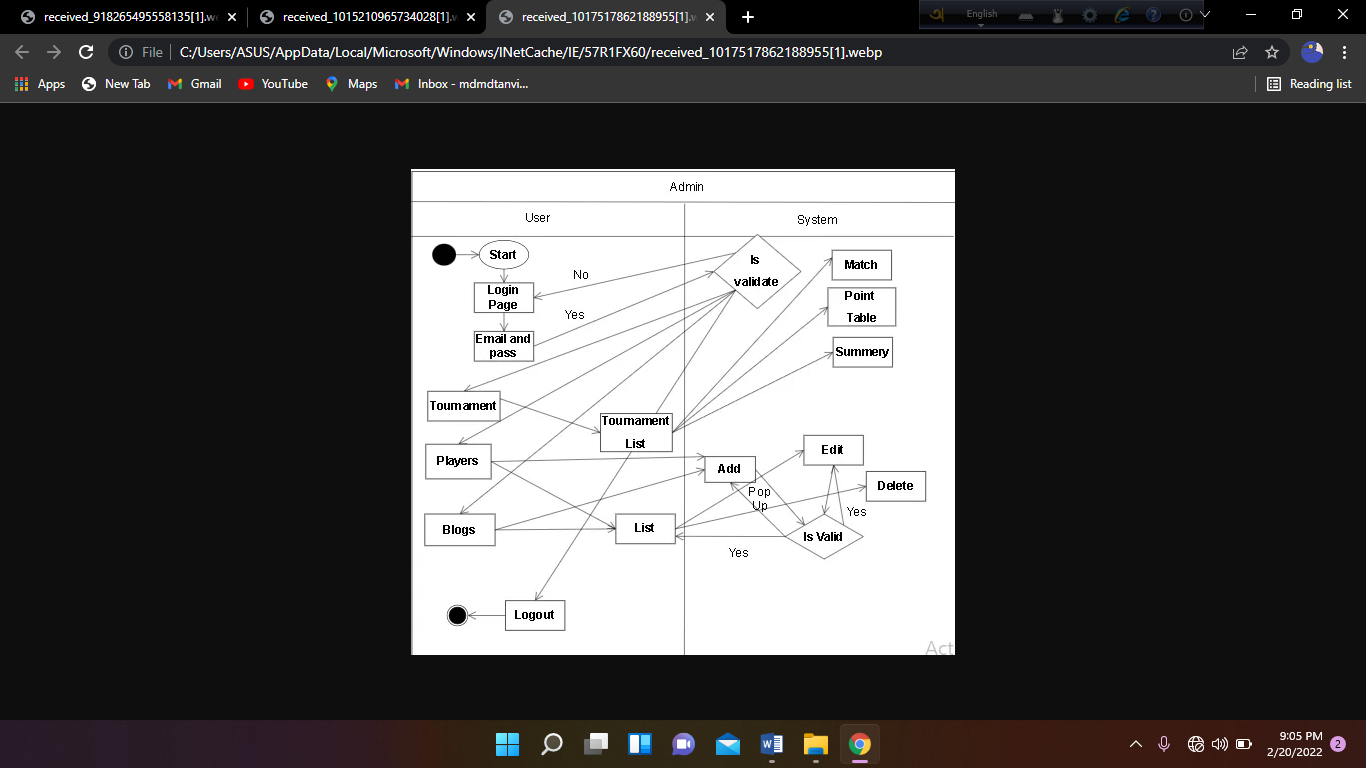


Figure 6. 4: Swim Lane diagram for Admin

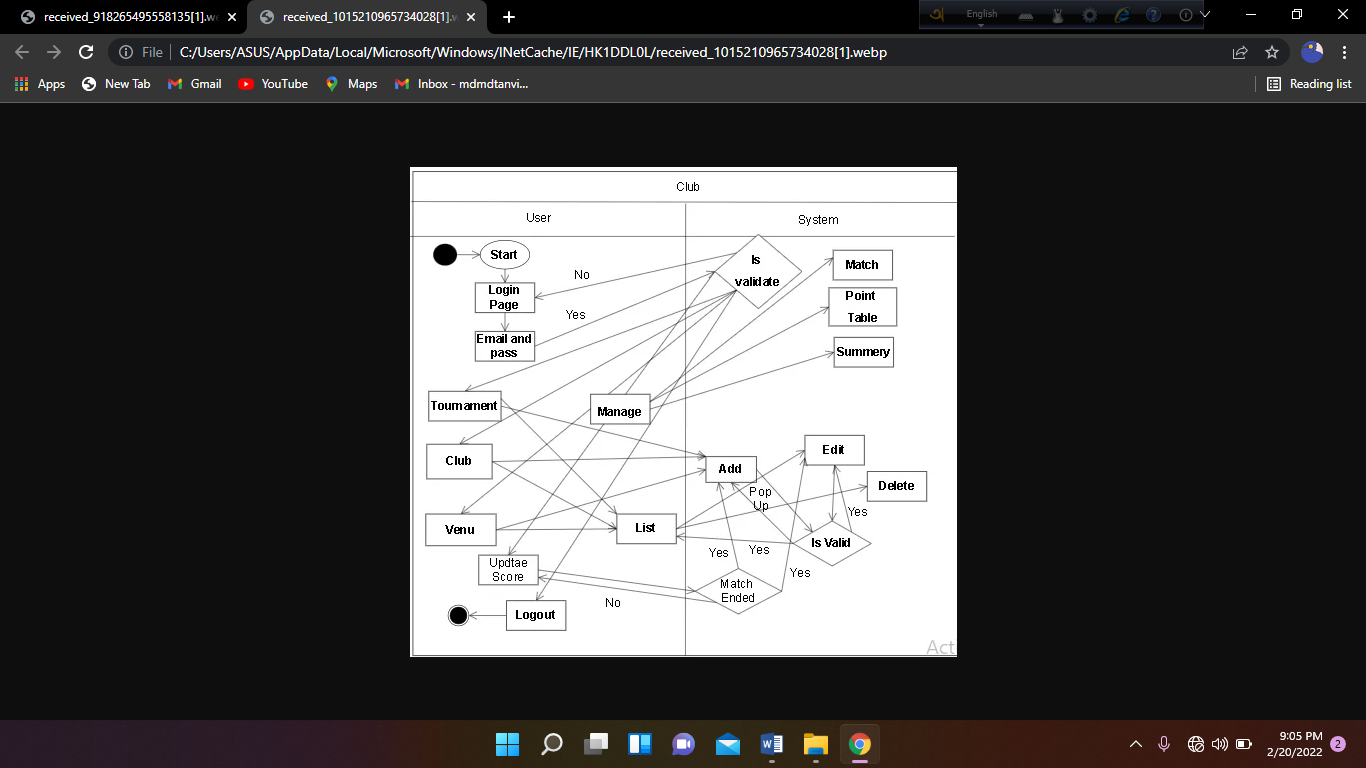


Figure 6. 5: Swim Lane diagram for Club

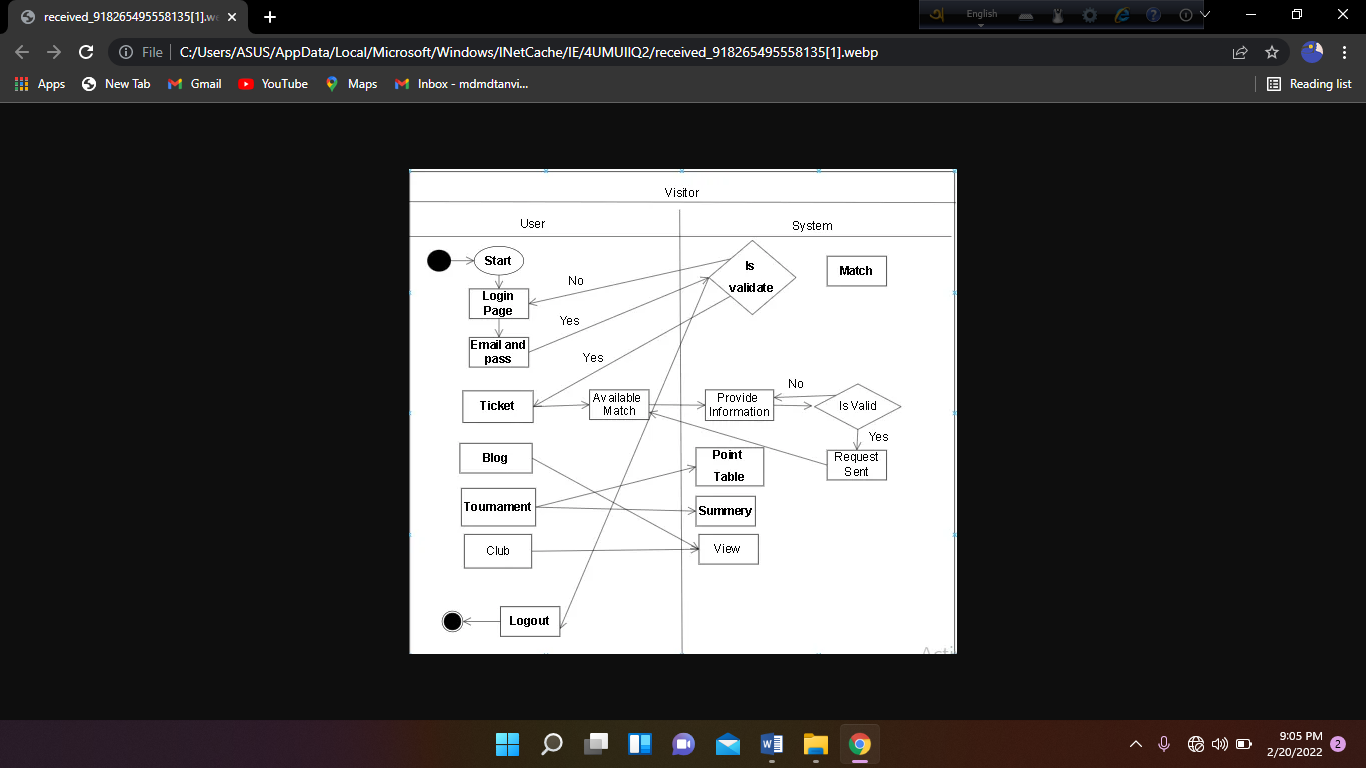
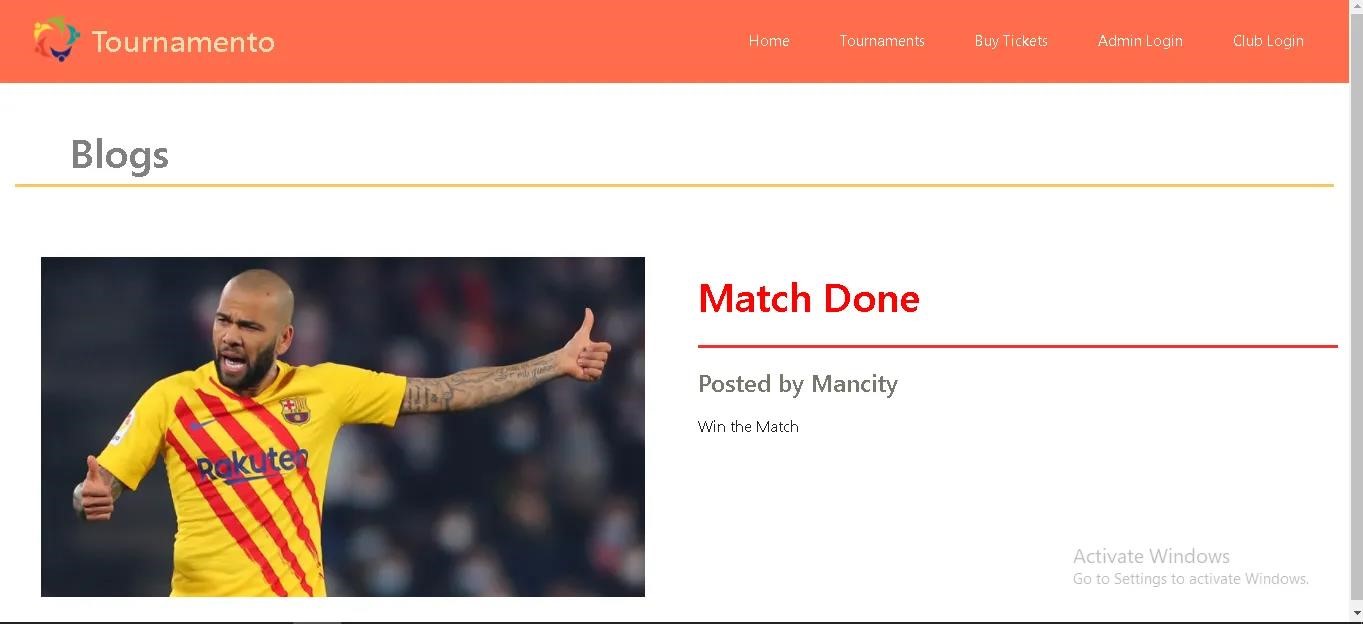
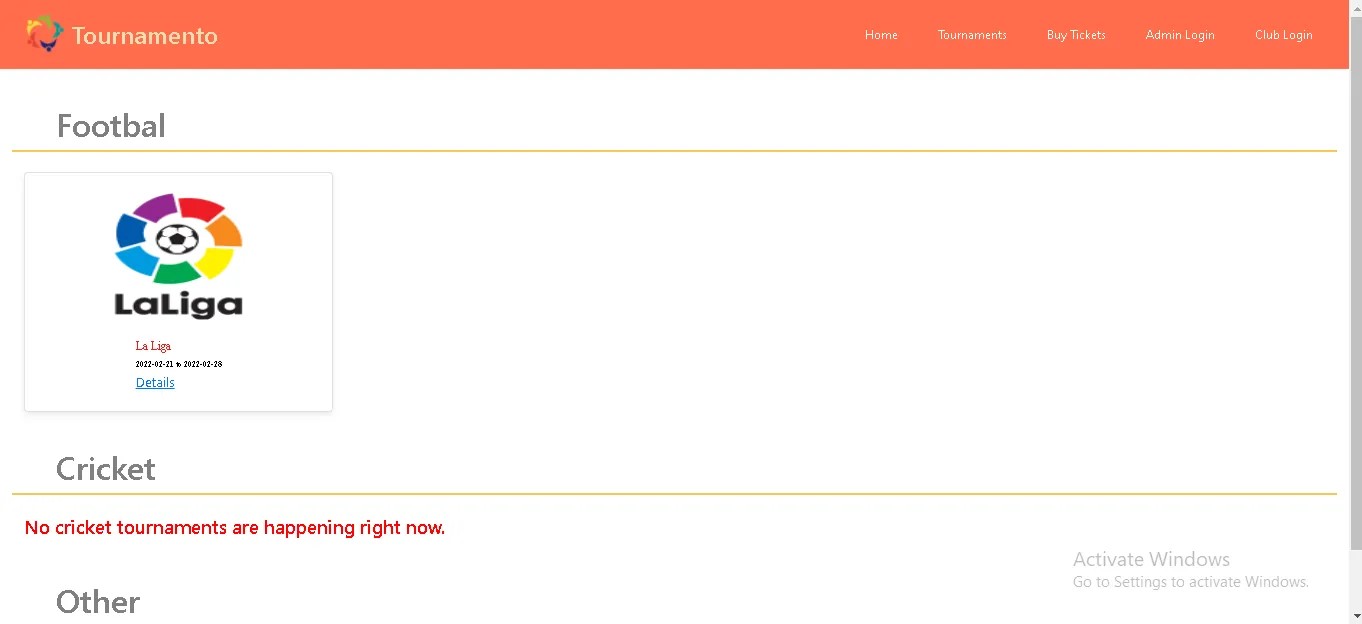


Figure 6. 6: Swim Lane diagram for Visitor

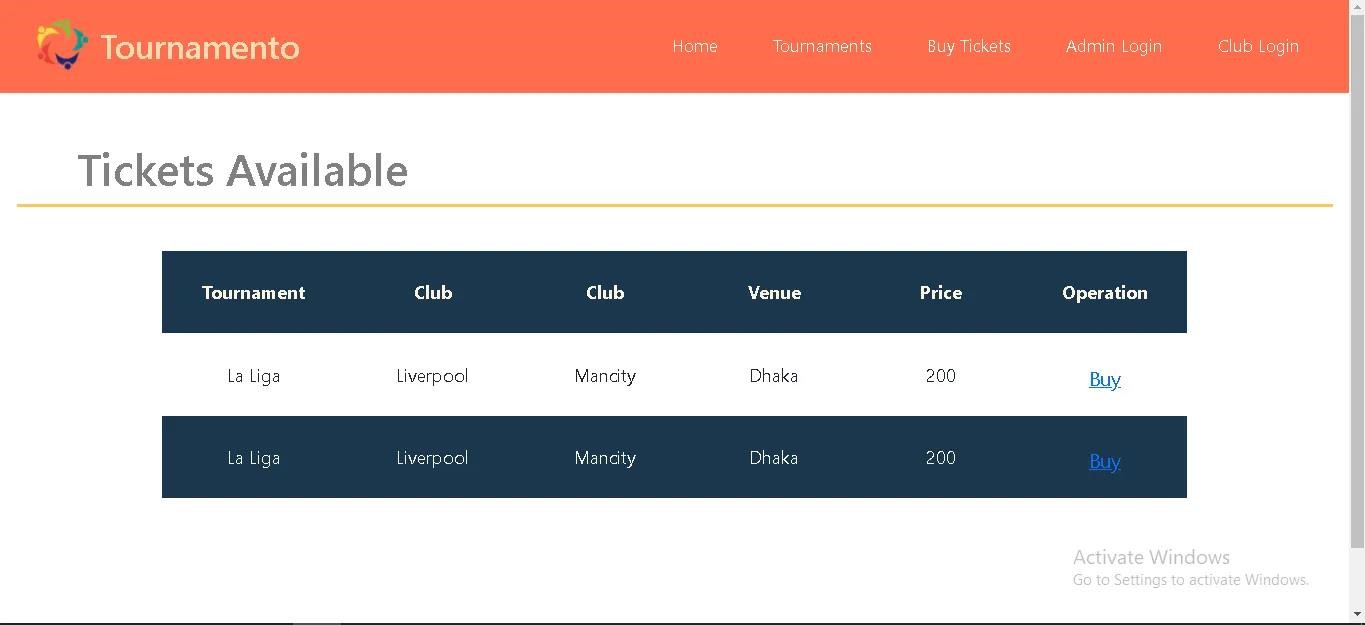
# Chapter 07: System Design



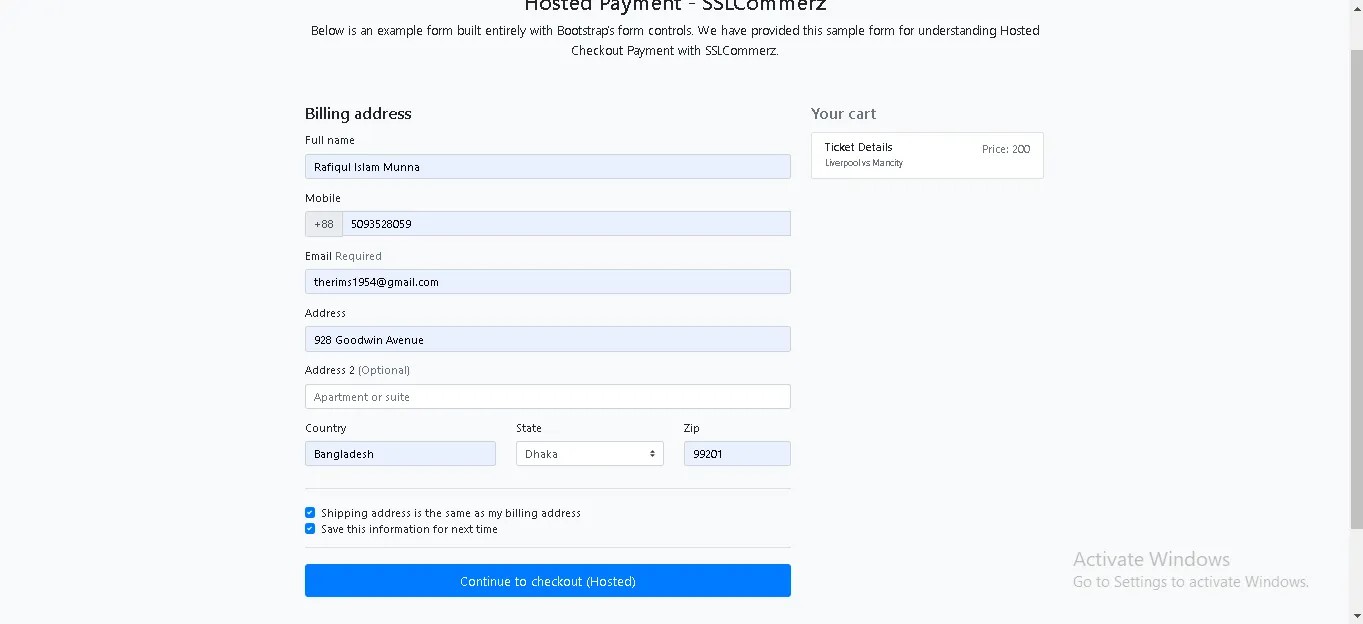
##### Figure 7. 1: Home page



##### Figure 7. 2: Running tournament



##### Figure 7. 3: Ticket buy

 Figure 7. 4: Payment Information for buying ticket

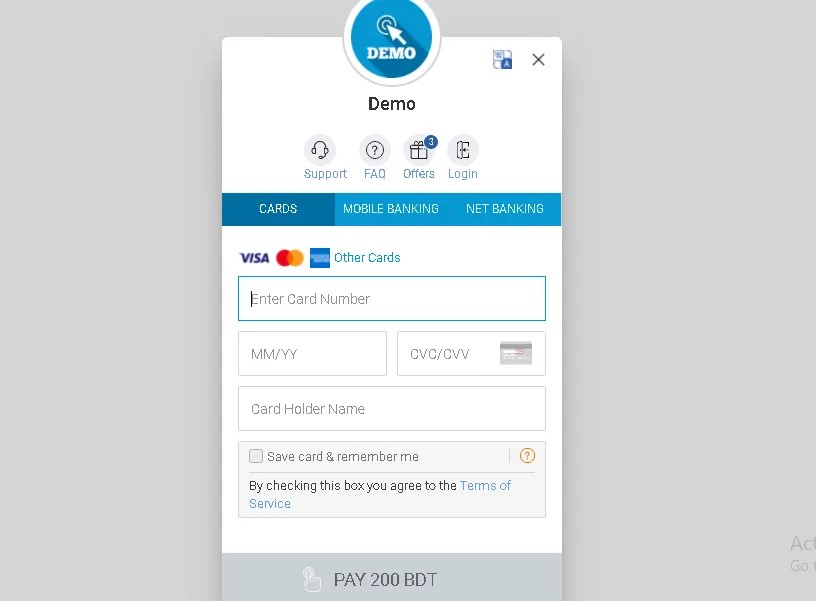


Figure 7. 5: Online payment

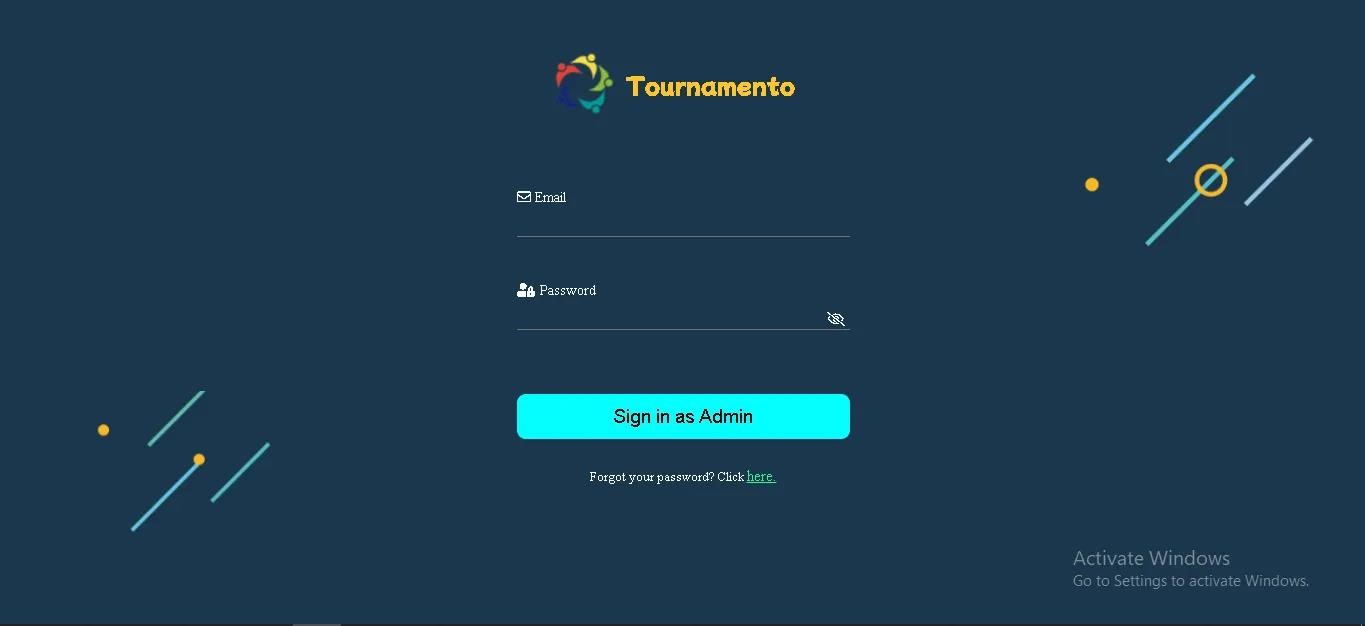
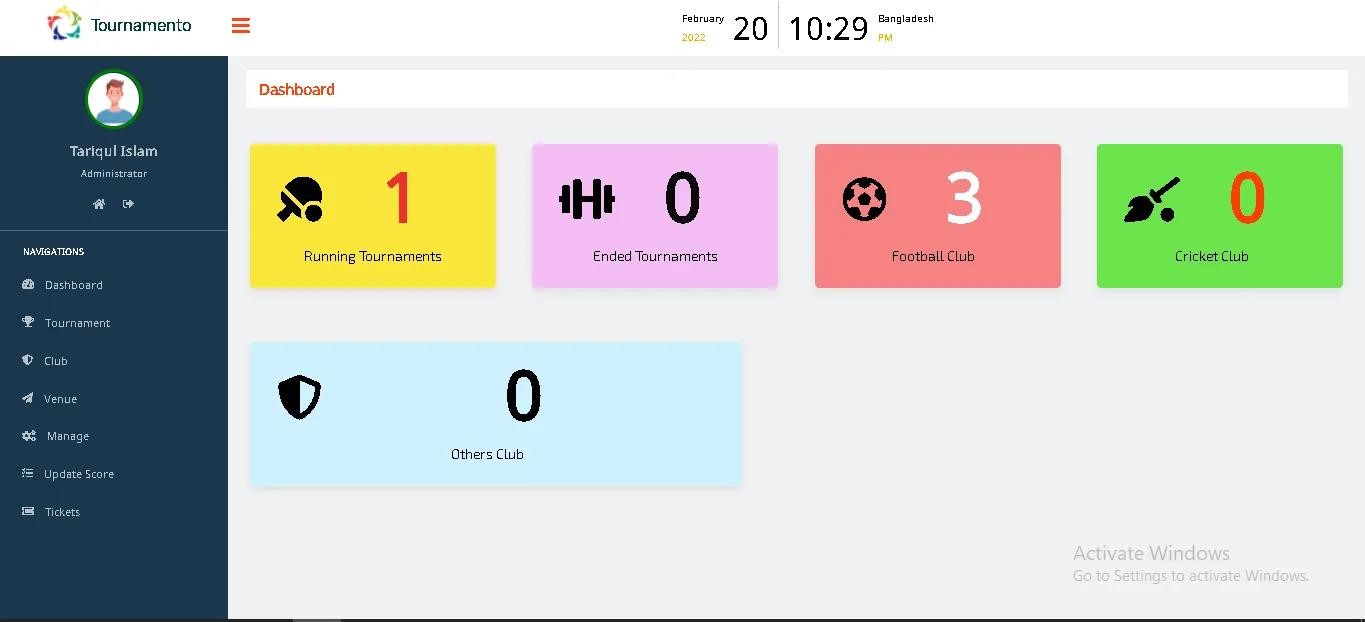
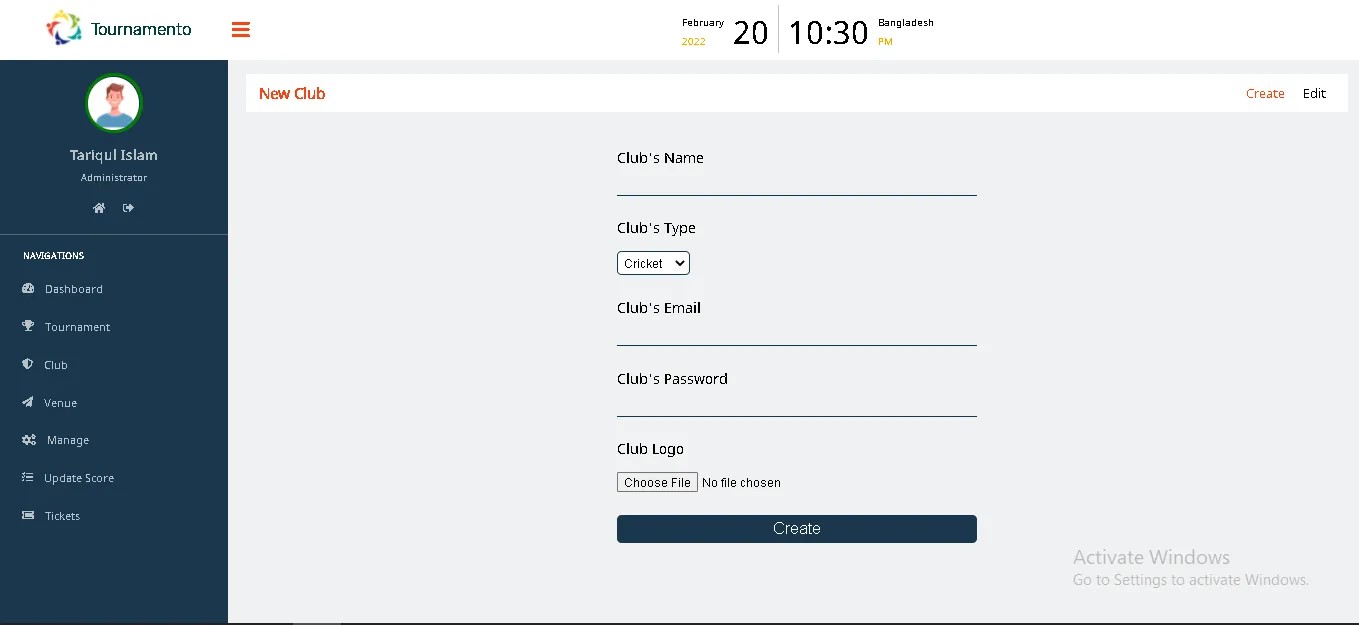


Figure 7. 6: Admin login



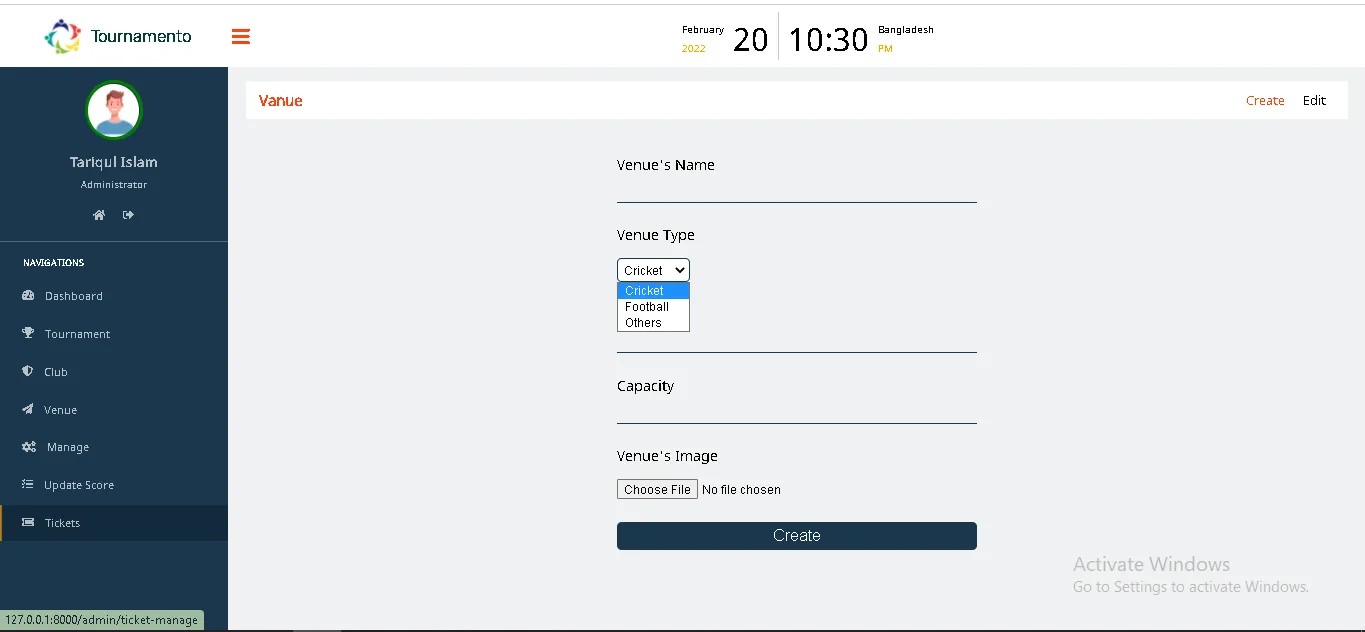
##### Figure 7. 7: Admin dashboard

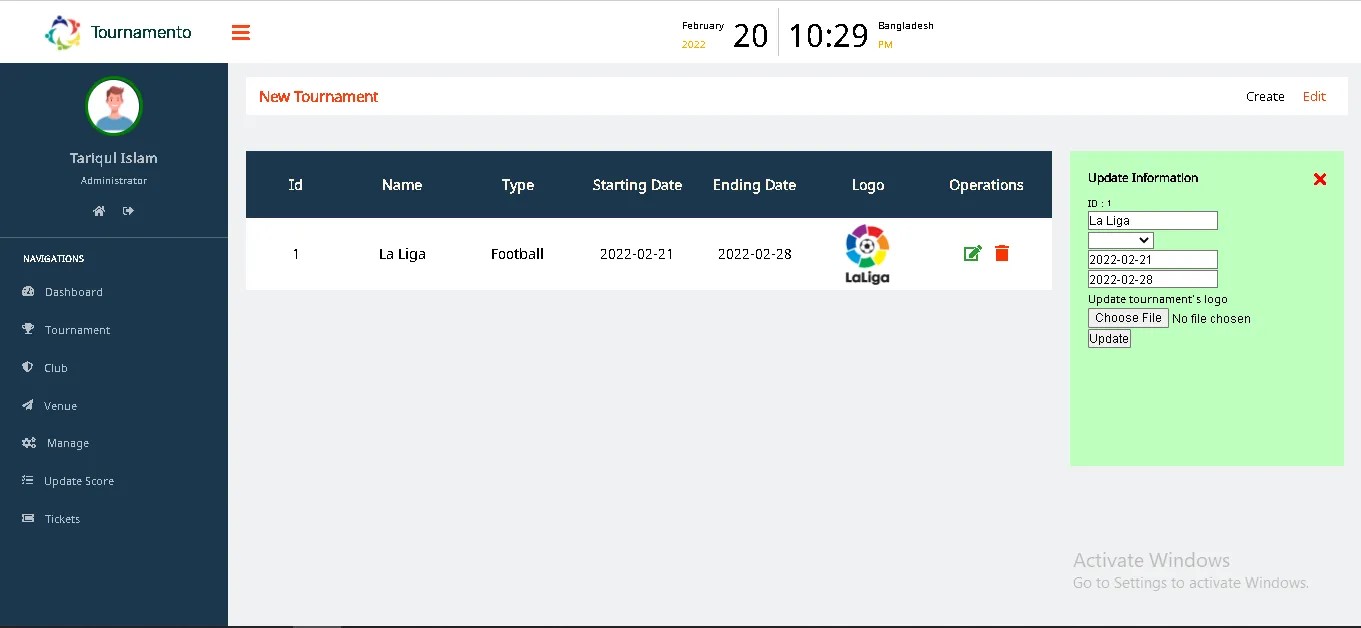


##### Figure 7. 8: Create a new club

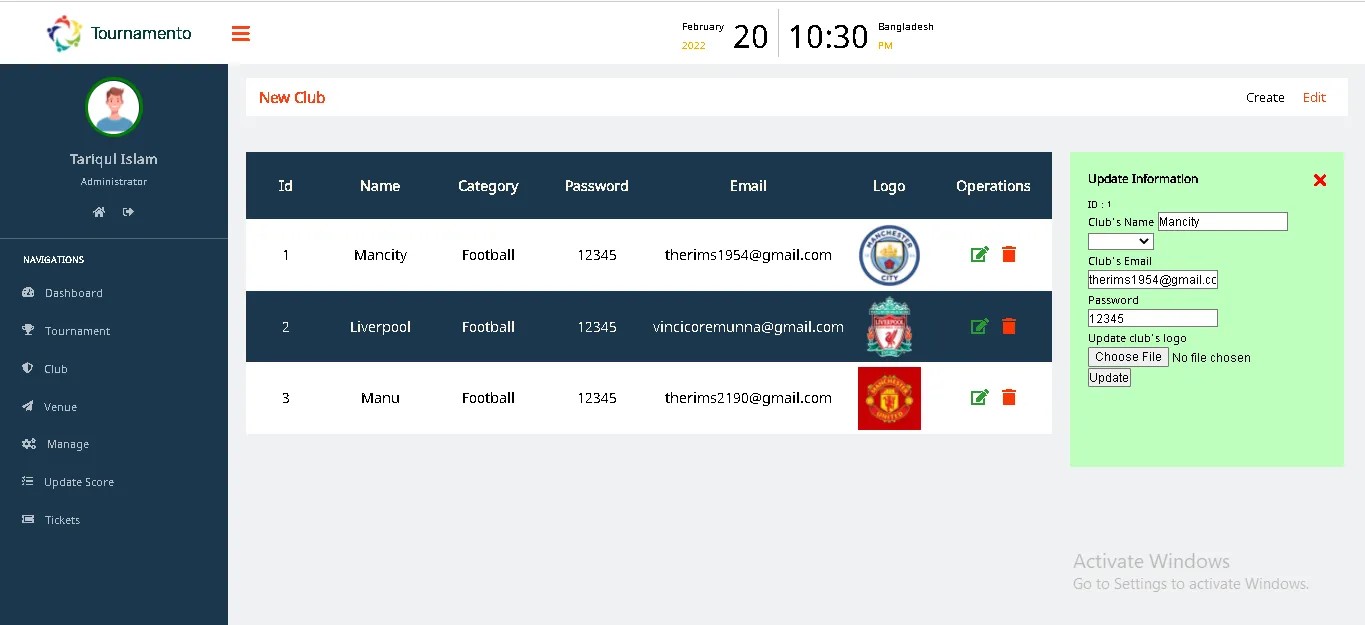


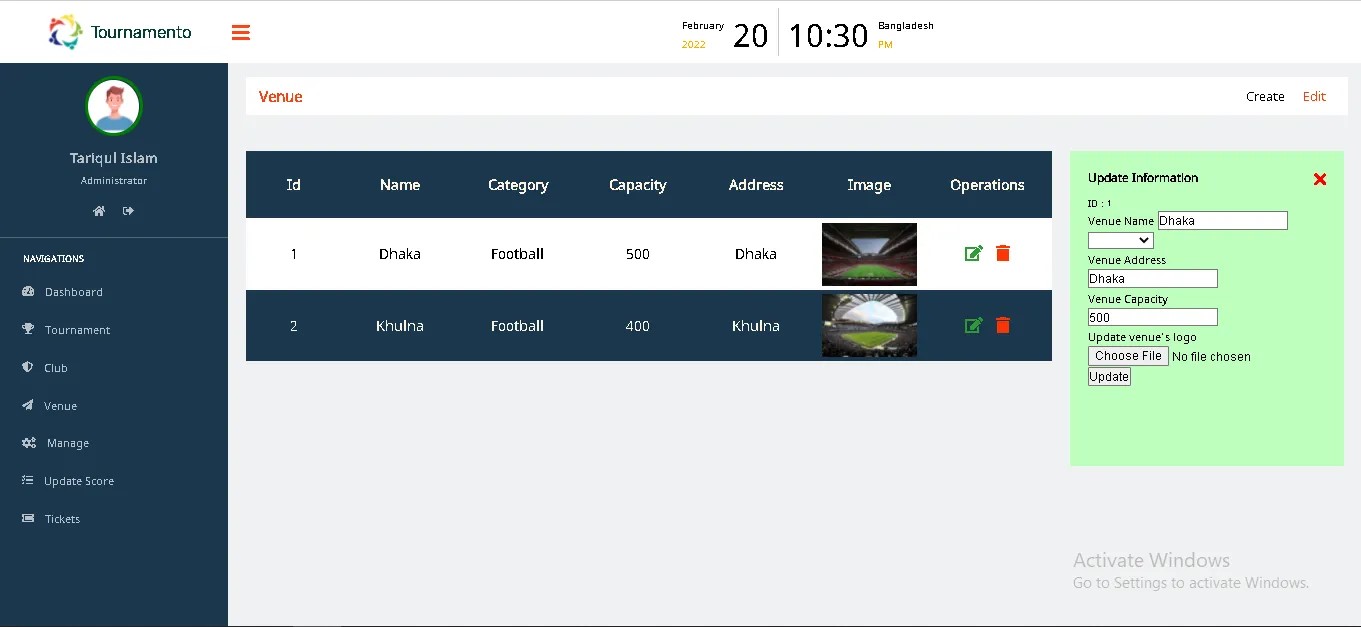
##### Figure 7. 9: Create tournament

Figure 7. 10: Create venue

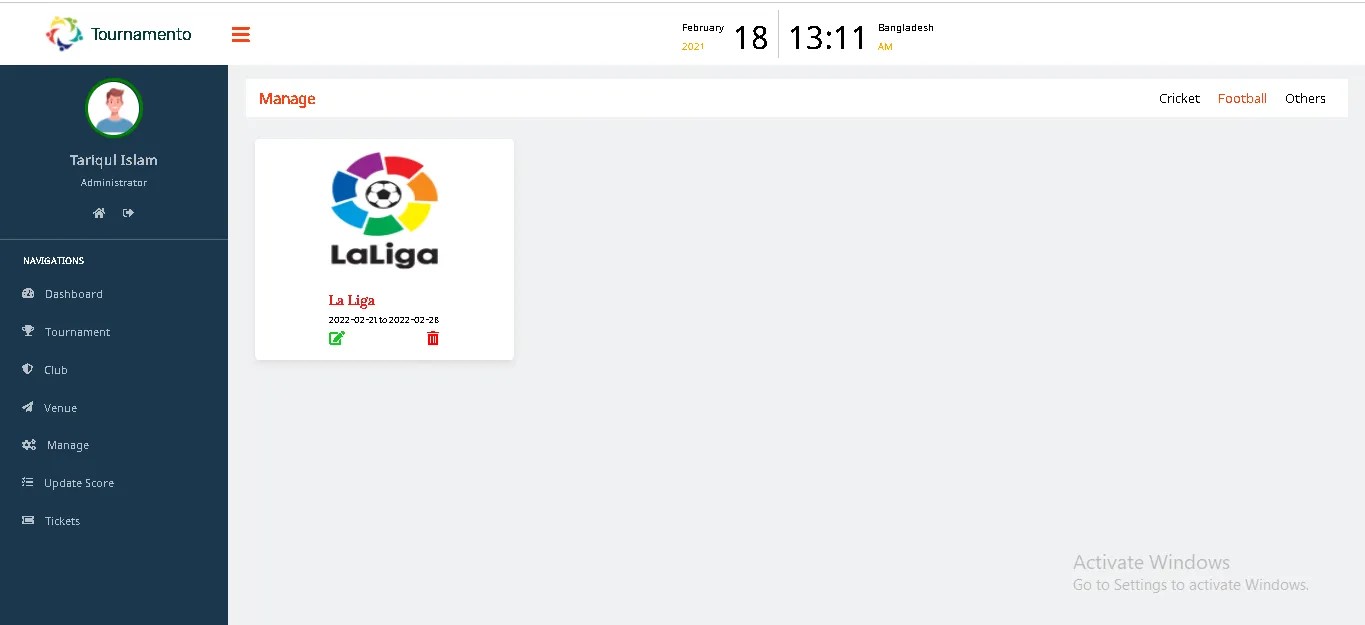


##### Figure 7. 11: Edit and delete tournament

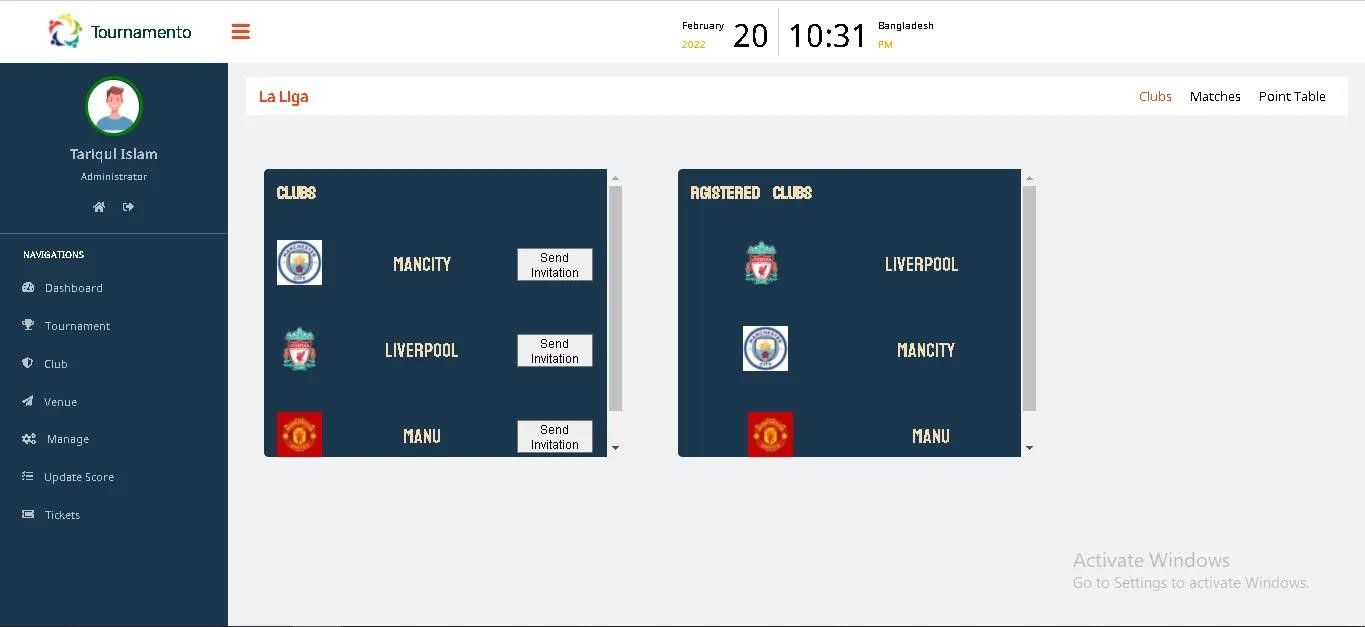
Figure 7. 12: Edit and delete club



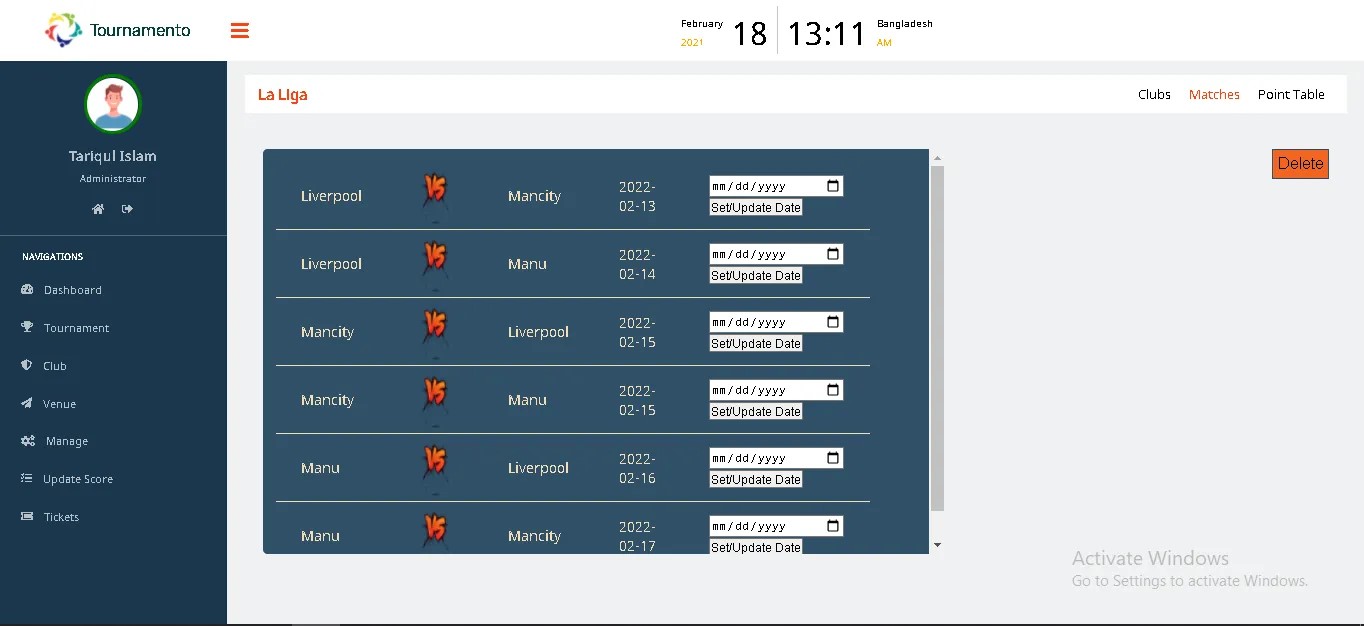
##### Figure 7. 13: Create and delete venue



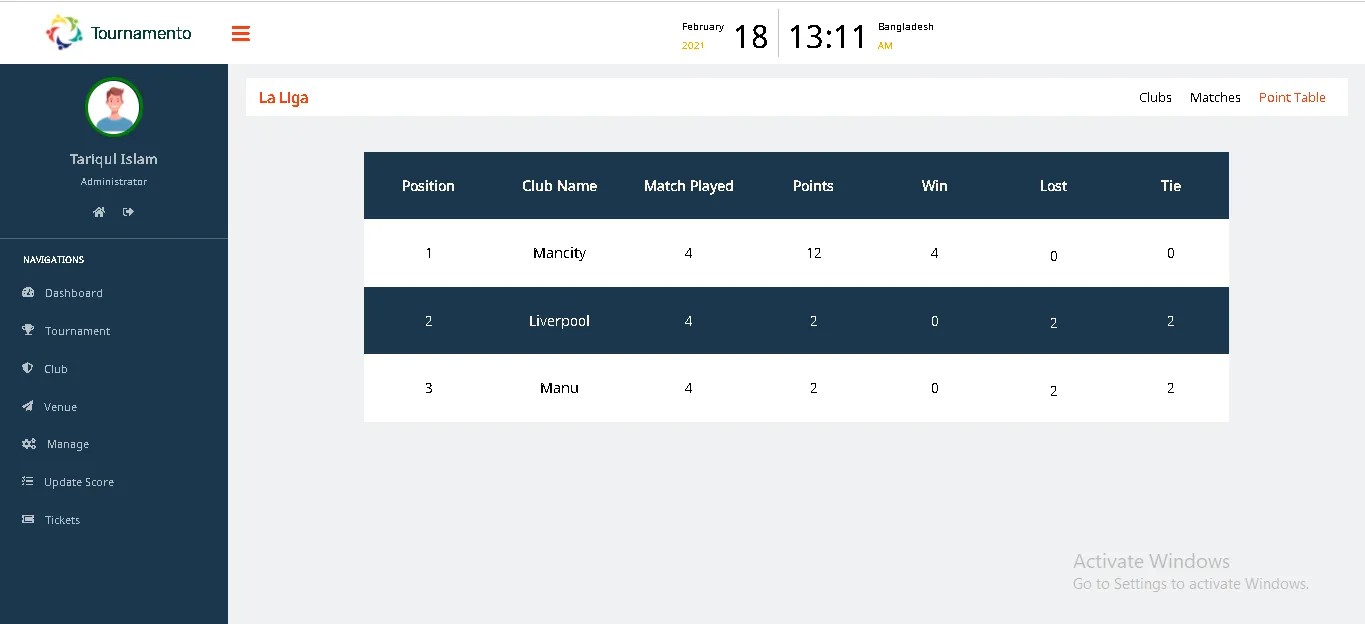
##### Figure 7. 14: Manage tournament



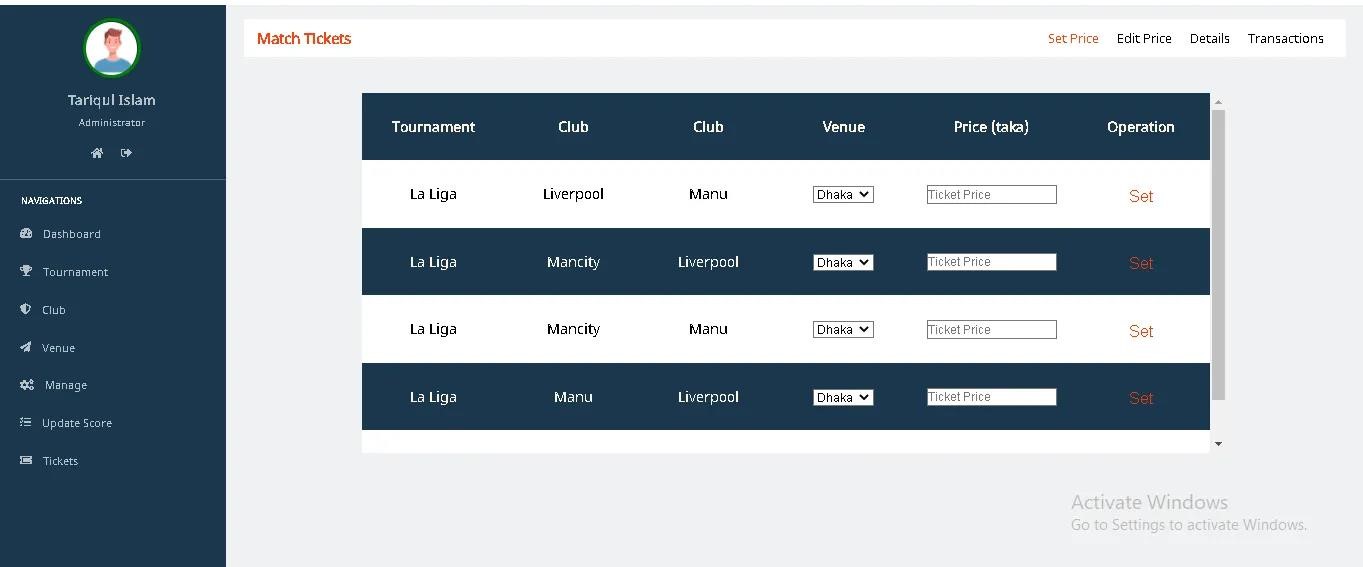
##### Figure 7.15: Registered clubs



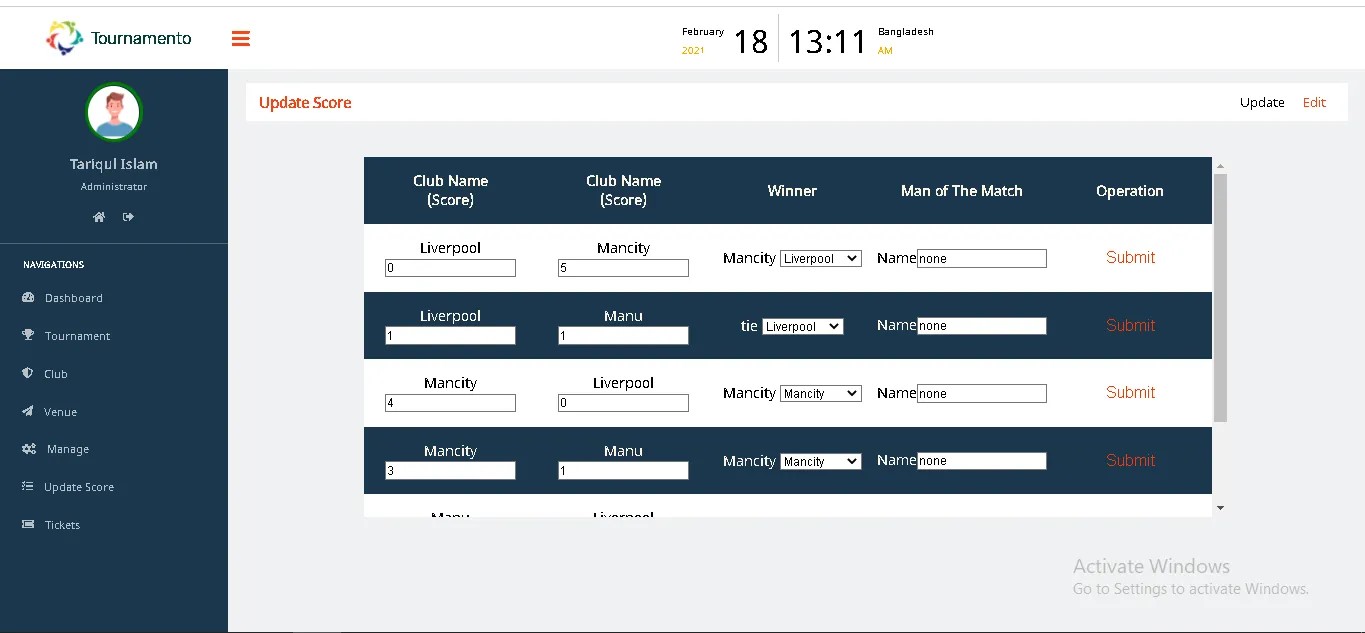
##### Figure 7.16: Match fixture



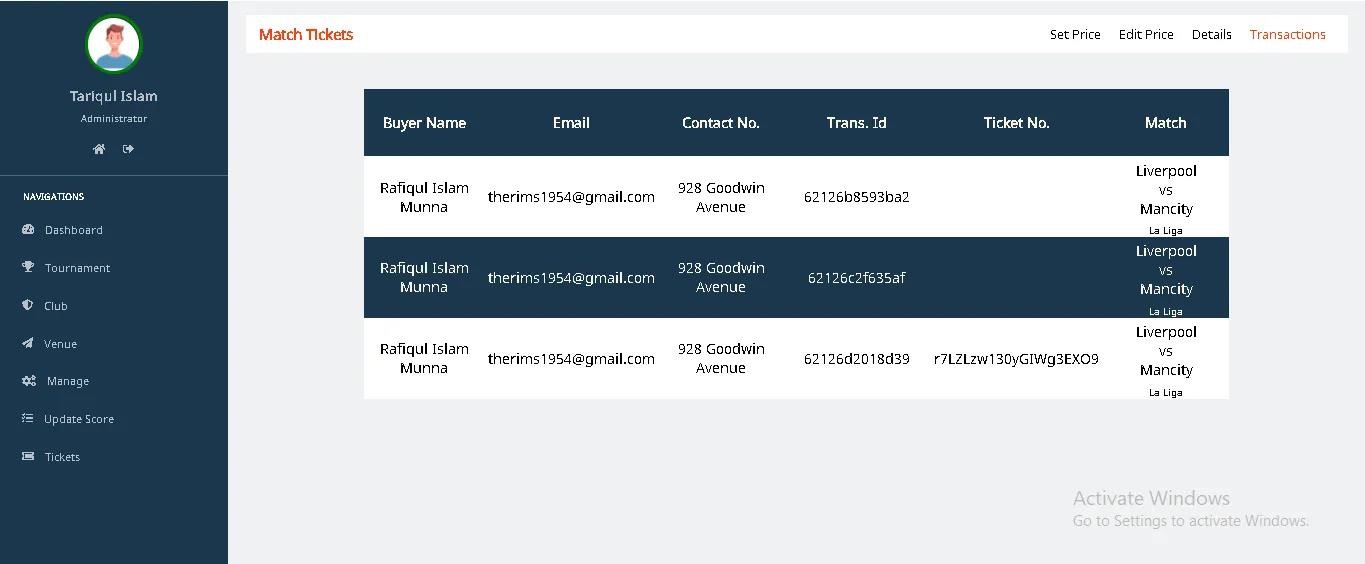
##### Figure 7.17: Point table



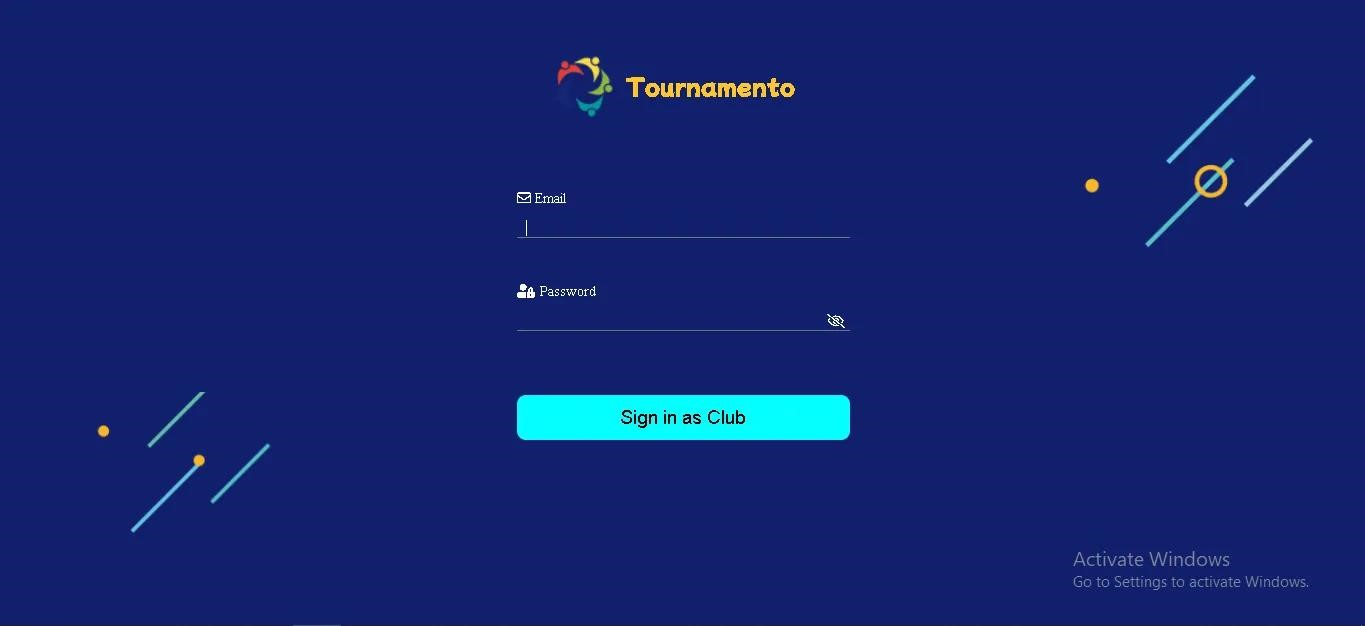
##### Figure 7.18: Set ticket price



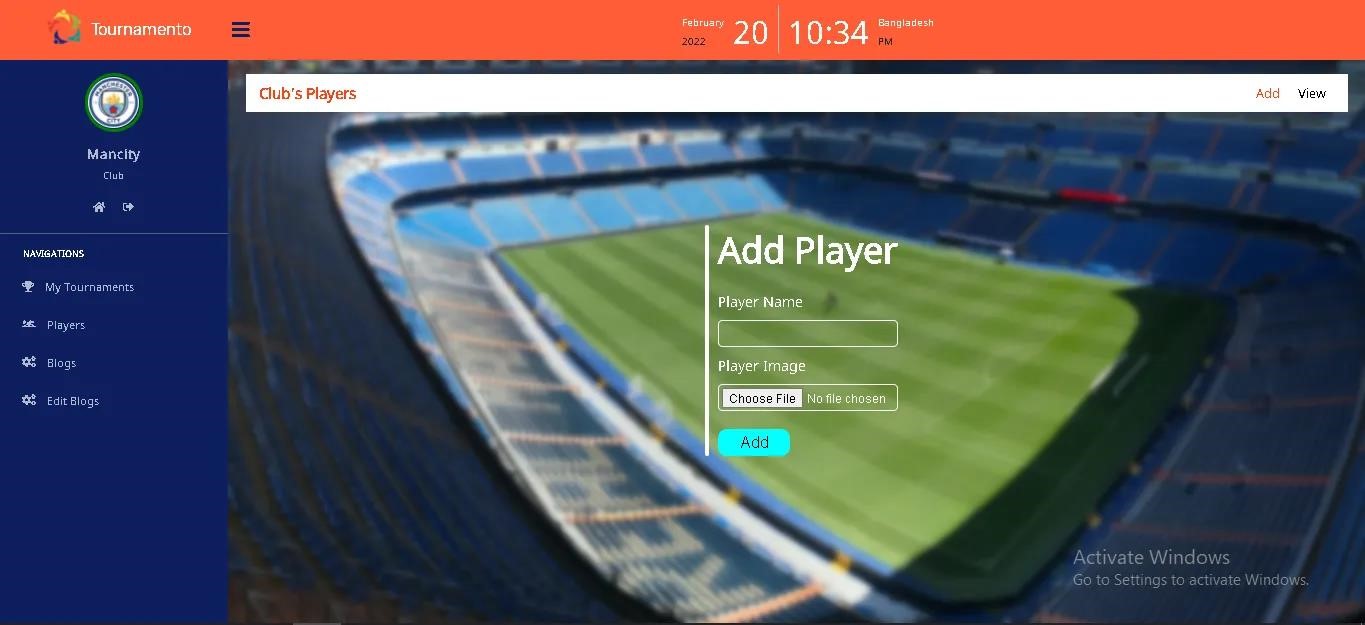
##### Figure 7.19: Score update



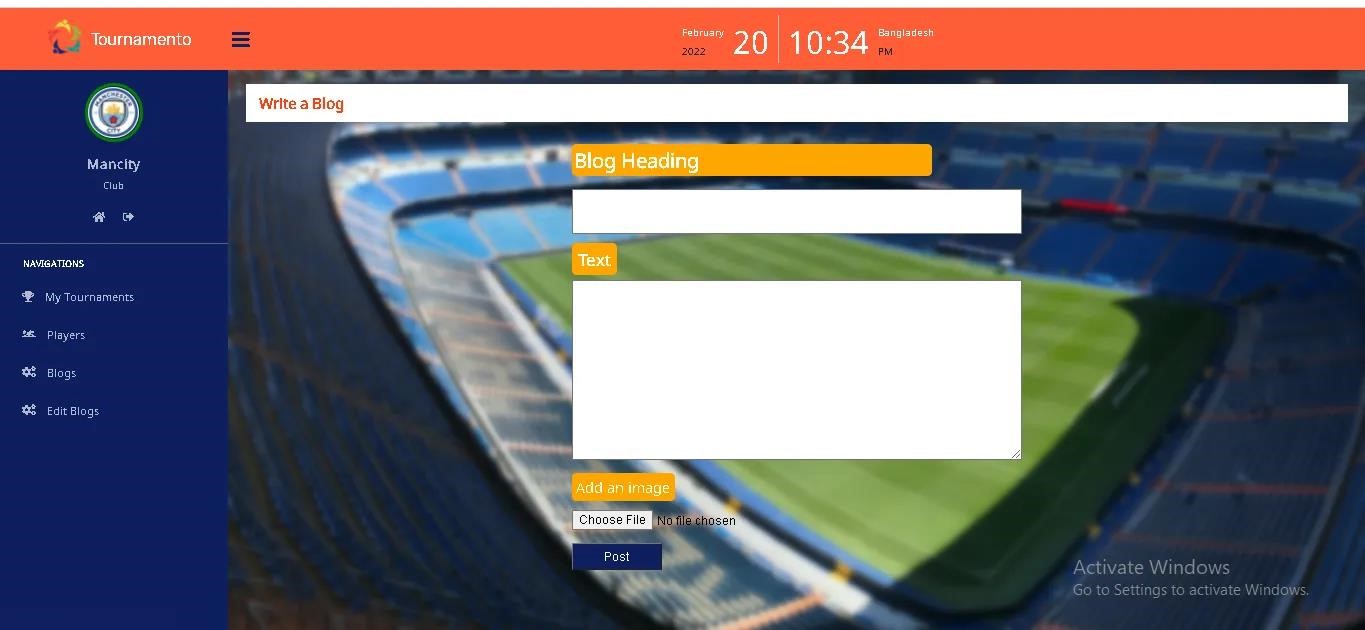
##### Figure 7.20: Ticket details



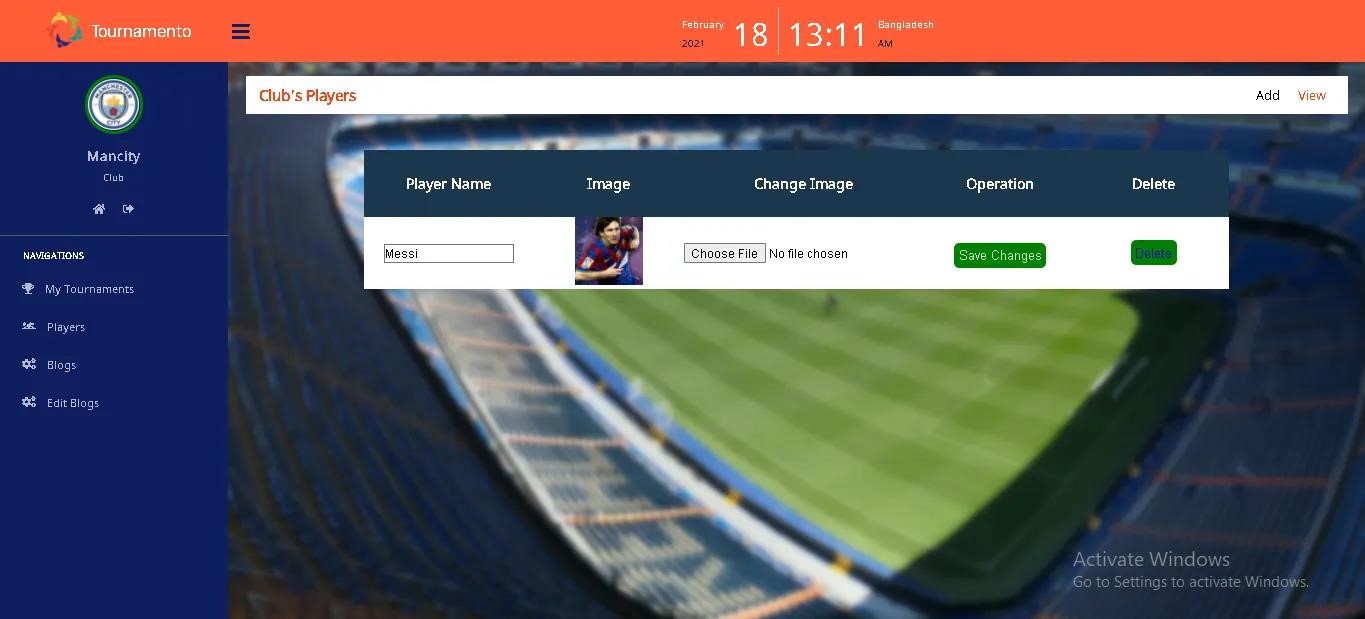
##### Figure 7.21: Club login



##### Figure 7.22: Add player



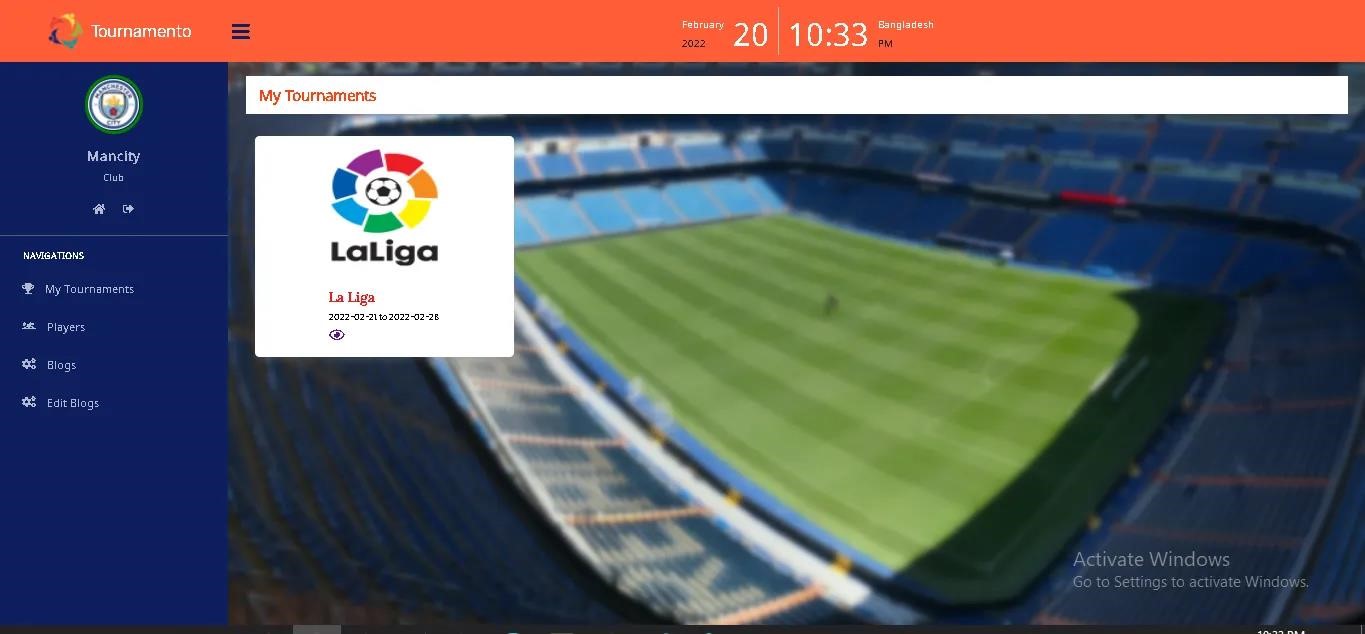
##### Figure 7.23: Add blog



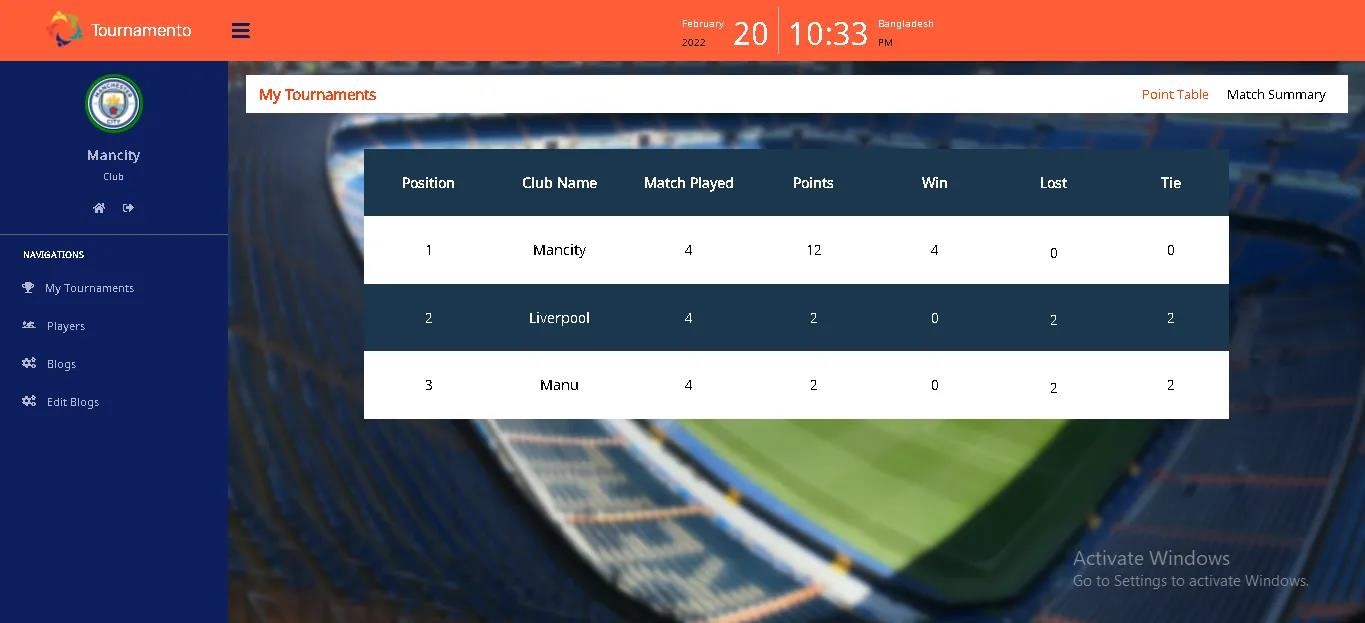
##### Figure 7.24: Edit player



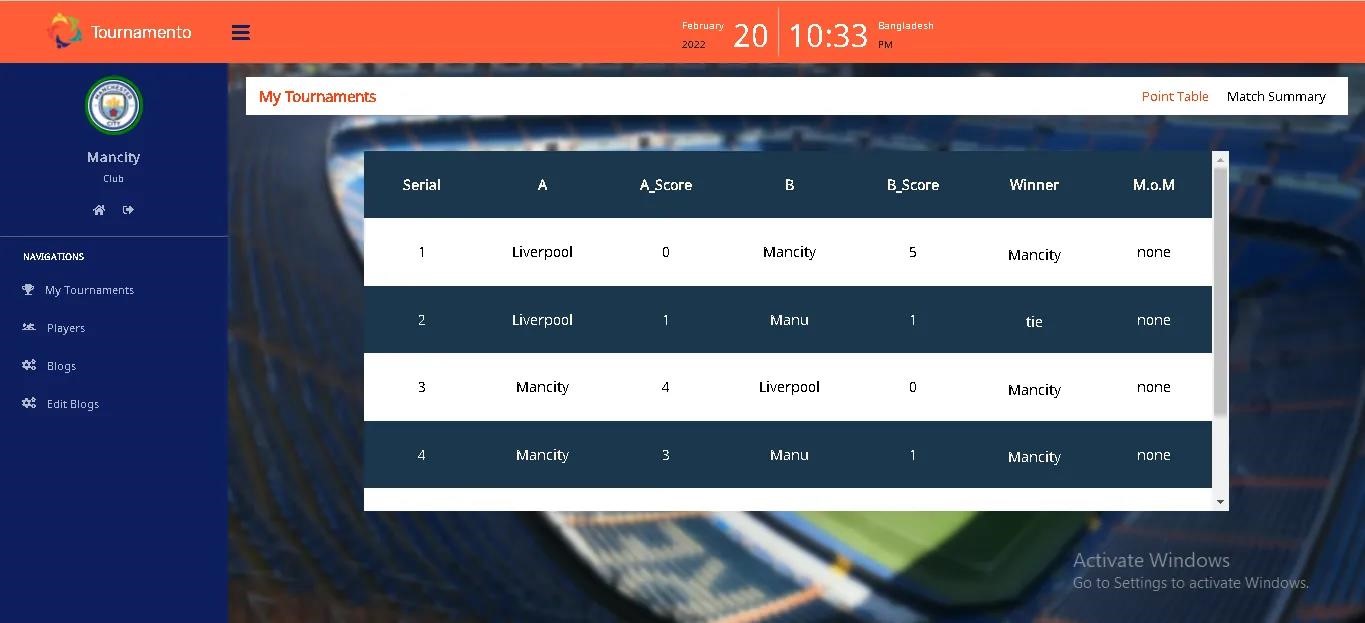
##### Figure 7.25: Edit blog



##### Figure 7.26: Club’s tournament



##### Figure 7.27: Point table



##### Figure 7.28: Match Summary

## 7.1 Data Flow Diagram:

A Data Flow Diagram (DFD) is traditional visual representation of the information flows within a system. DFD maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. It shows how information enters and leaves the system, what changes the information and where information is stored.

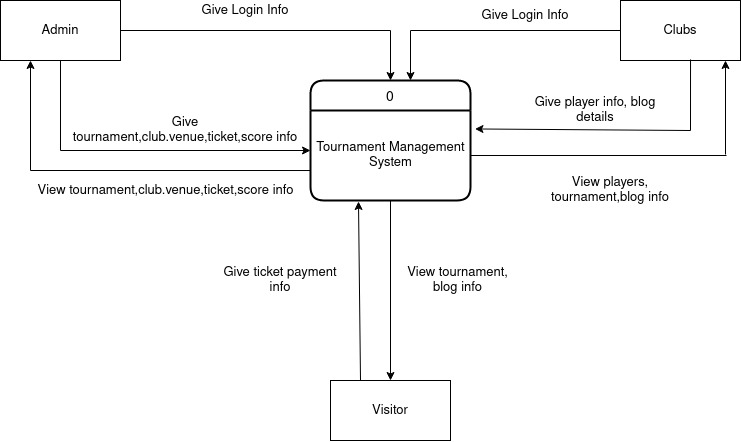


Figure 7.29: Context Level Diagram (0 Level)

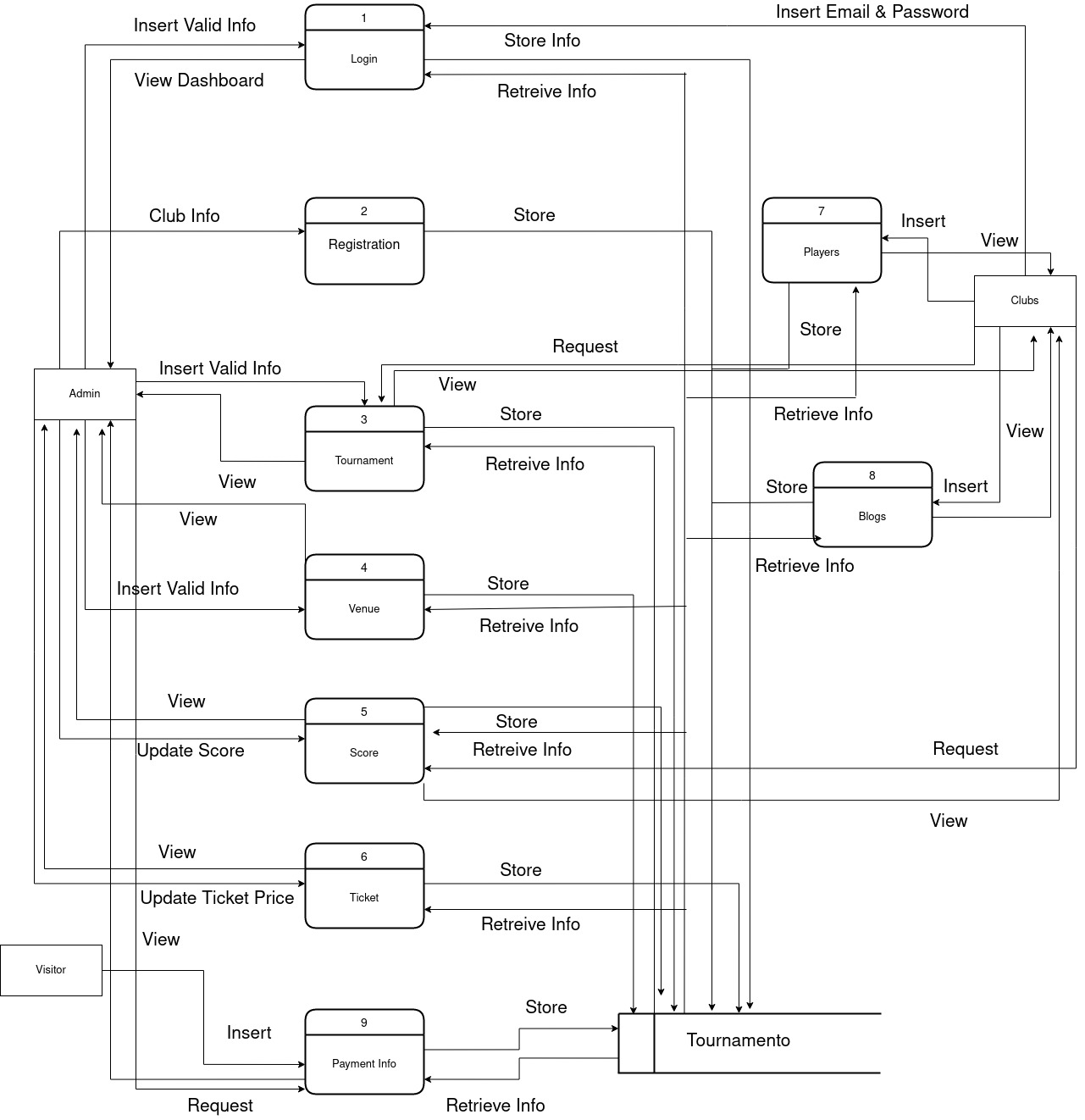


Figure 7. 30: Data Flow Diagram (Level 1)

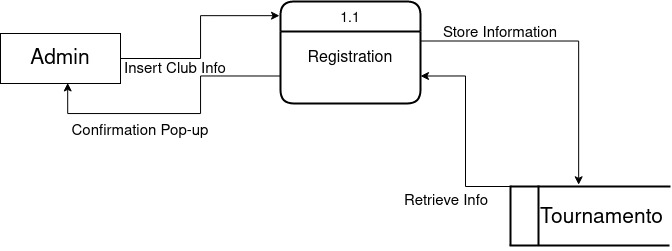


Figure 7.31: Data Flow Diagram (Level 2 Process 1 Registration)

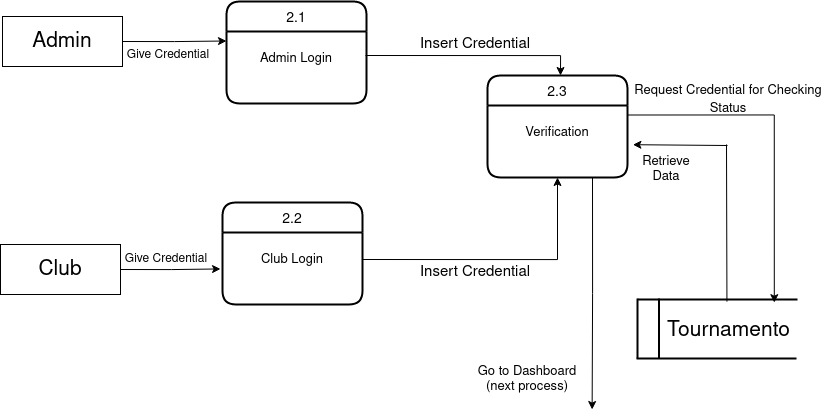


Figure 7.32: Data Flow Diagram (Level 2 Process 2 Login)



Figure 7. 33: Data Flow Diagram (Level 2 Process 3)

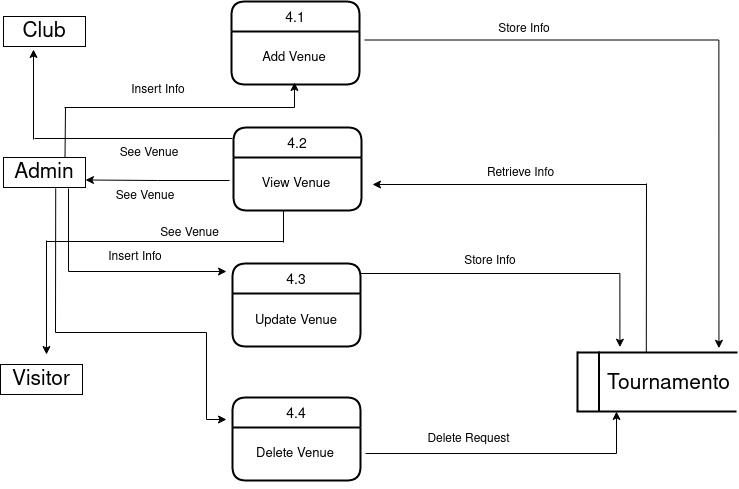


Figure 7. 34: Data Flow Diagram (Level 2 Process 4)

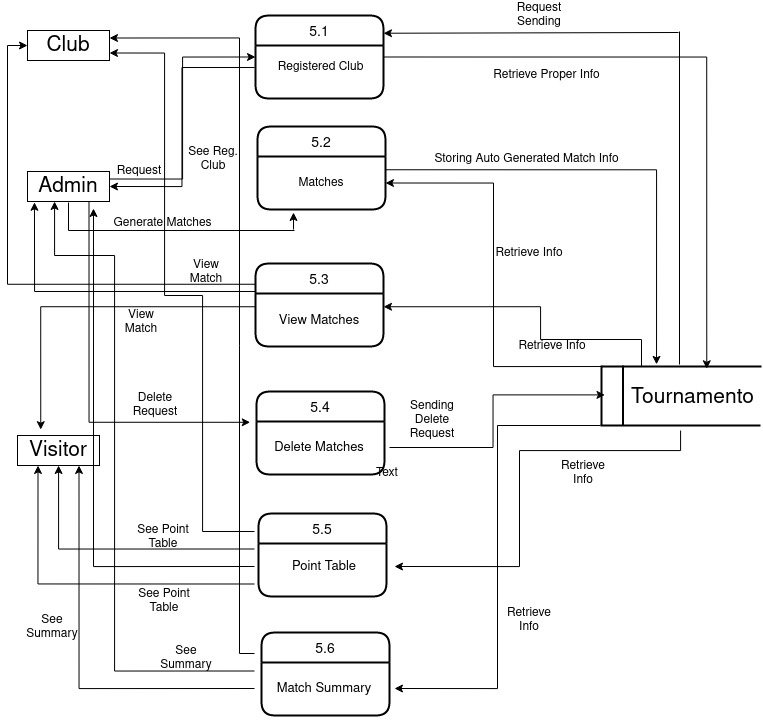


Figure 7. 35: Data Flow Diagram (Level 2 Process 5 Blogs)

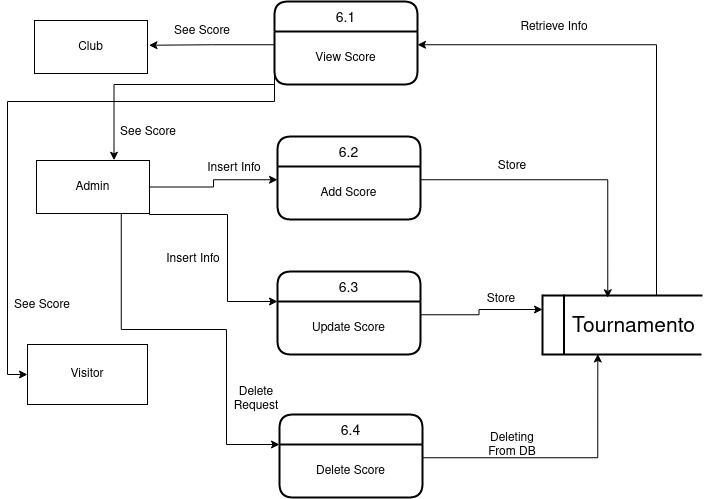


Figure 7. 36: Data Flow Diagram (Level 2 Process 6)

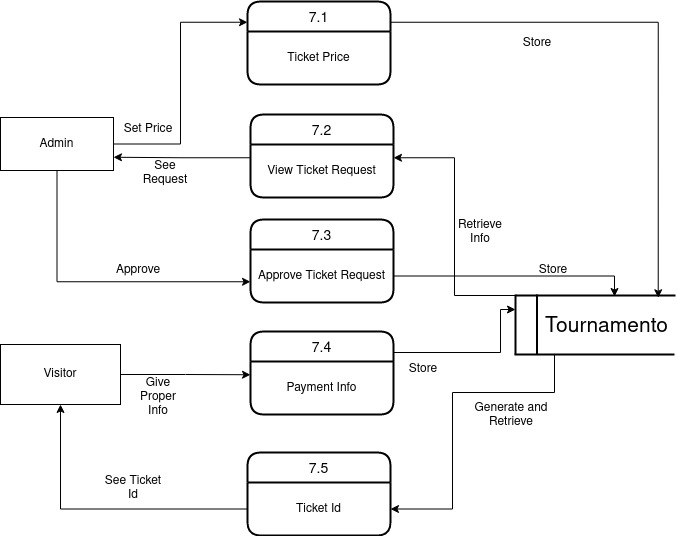


Figure 7. 37: Data Flow Diagram (Level 2 Process 7)



Figure 7. 38: Data Flow Diagram (Level 2 Process 8)

## 7.2 Database Design:

A database named tournamento is used in this development of this project. The tables of the database are shown below:

Entity Relationship Model:

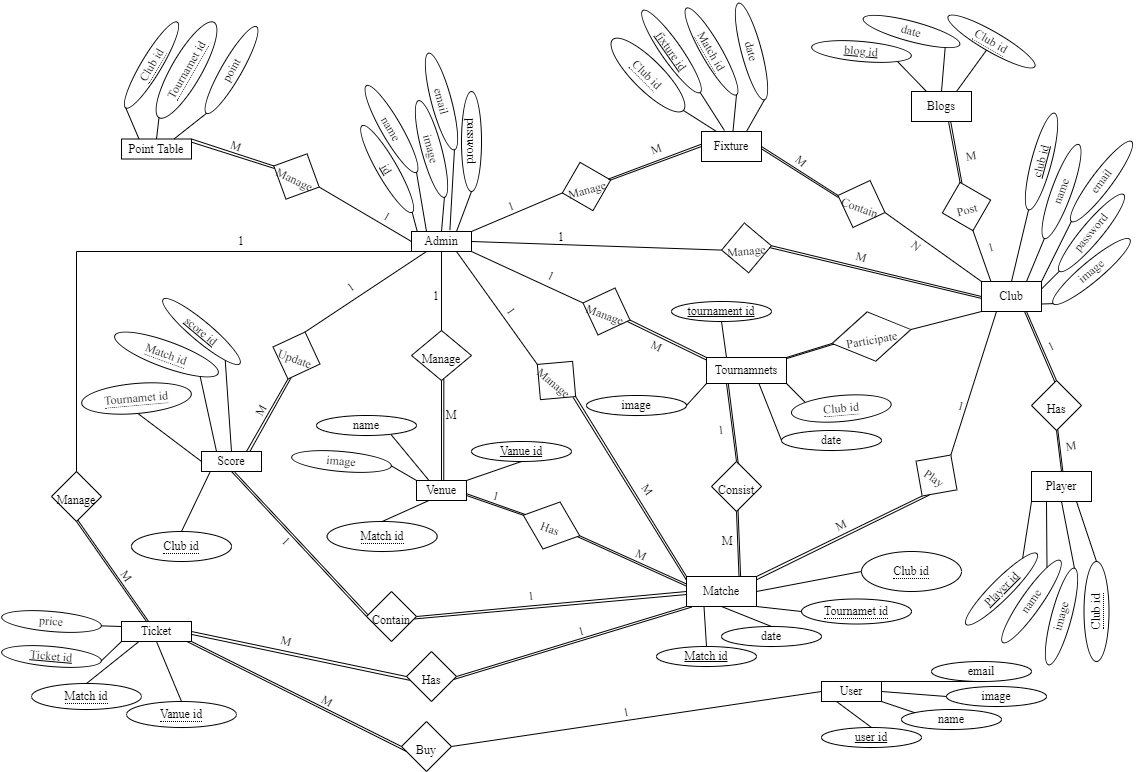


Figure 7. 39: ERD

## 7.3 Database Table Structure All:

### 7.3.1 Database Table Structure:

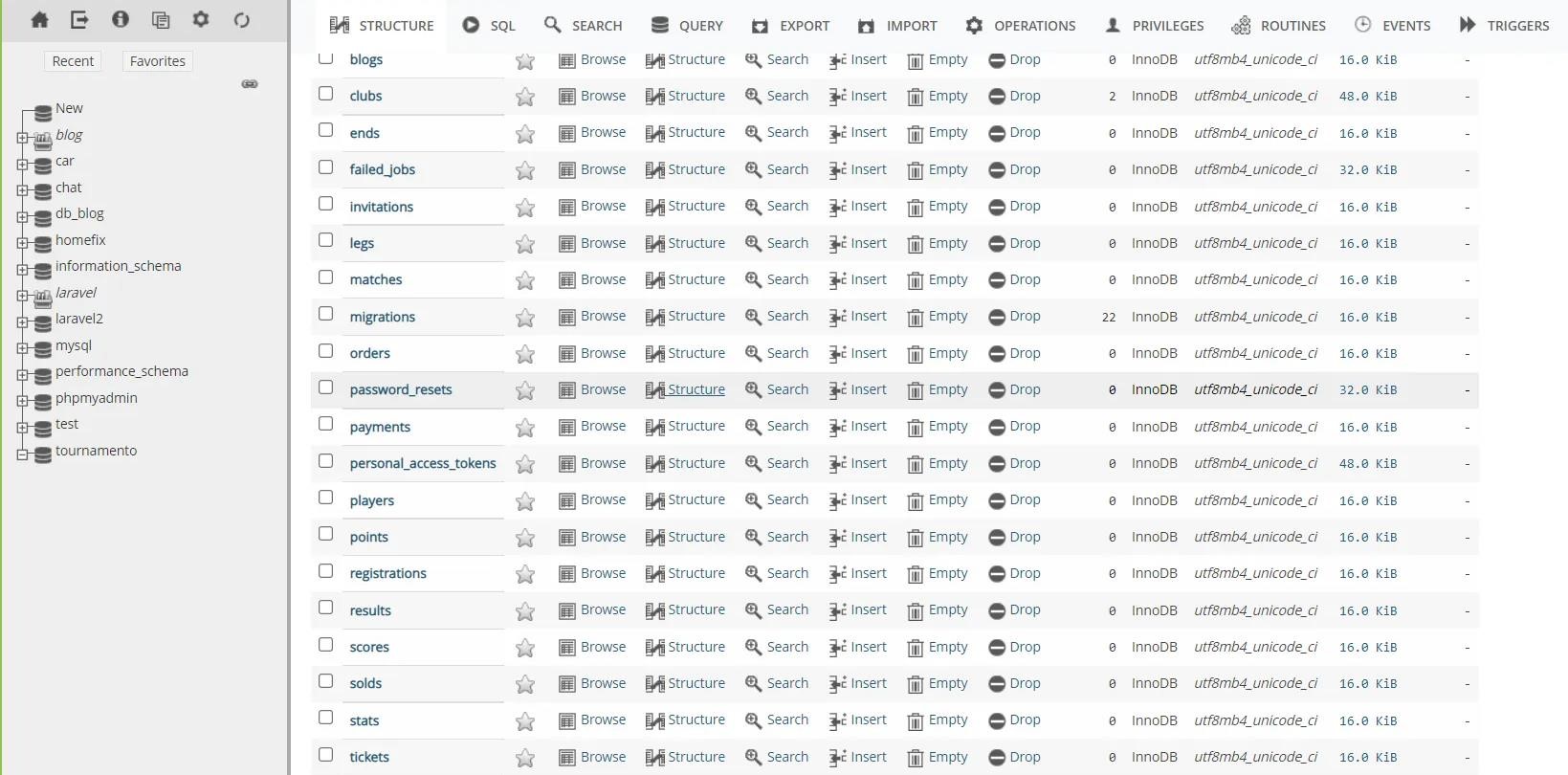


Figure 7. 40: Database Table

#### 7.3.2 Matches Table Structure:

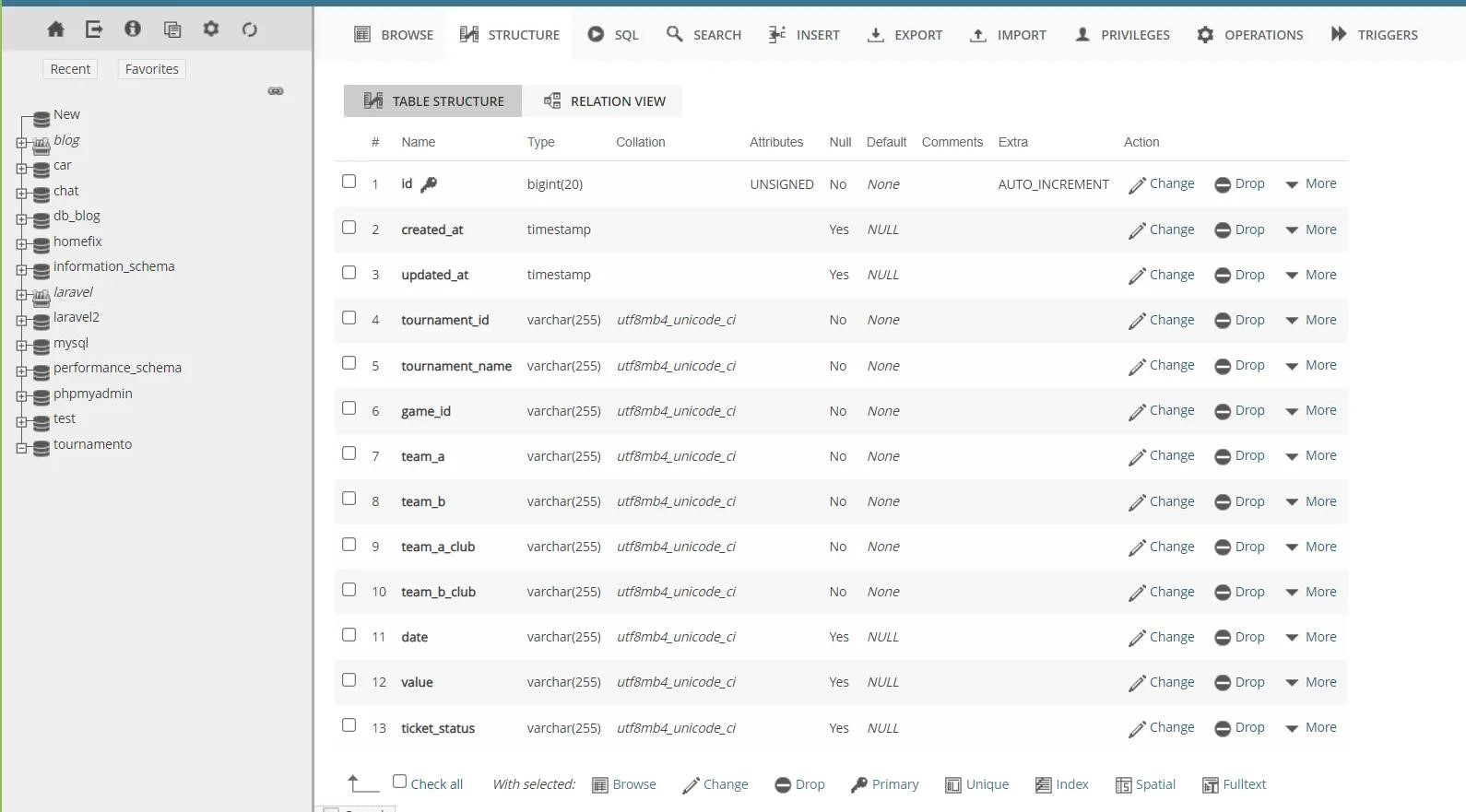


Figure 7. 41: Matches Table

#### 7.3.3 Orders Table Structure:

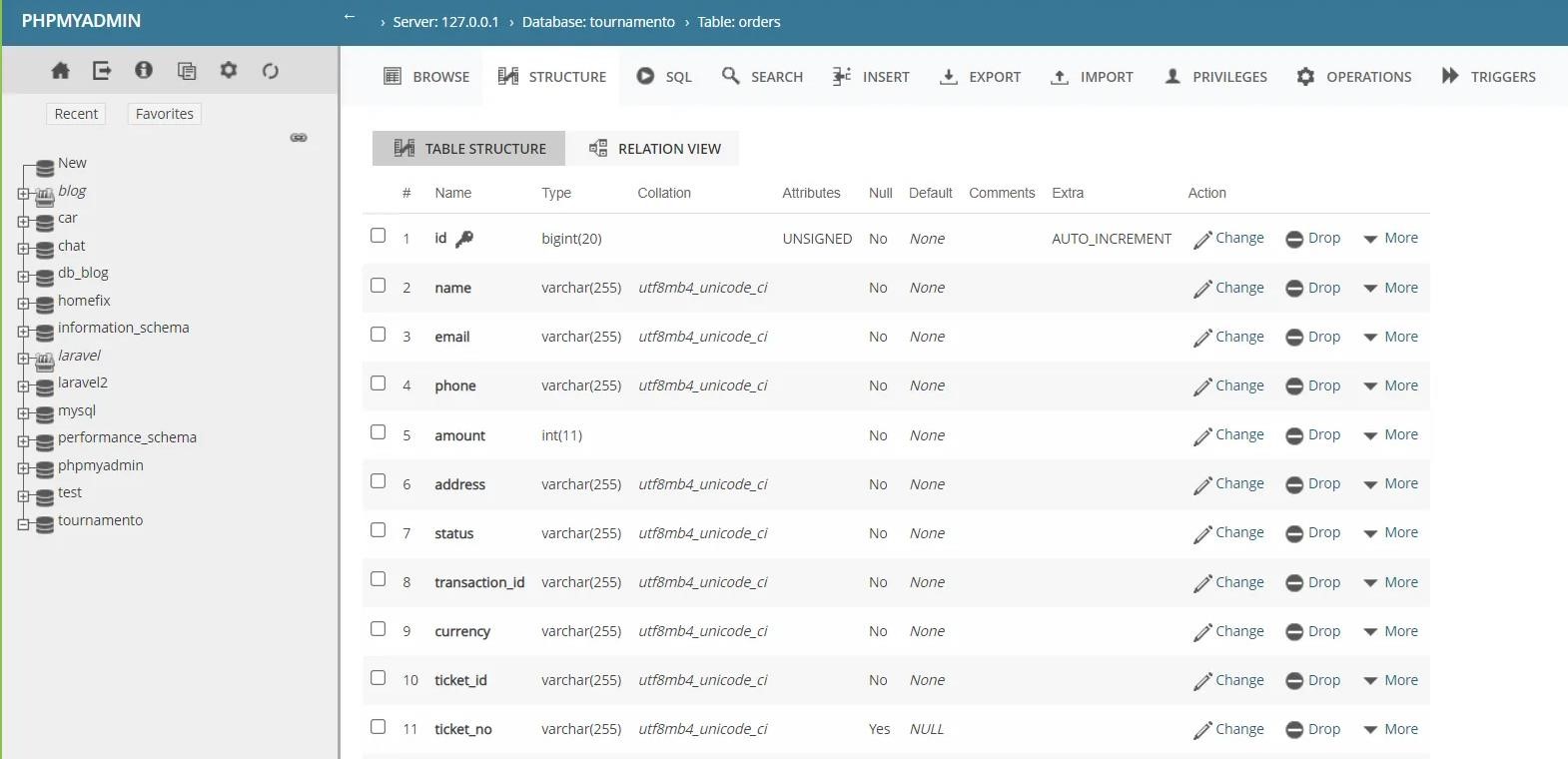


Figure 7. 42: Order Table

#### 7.3.4 Venue Table Structure:

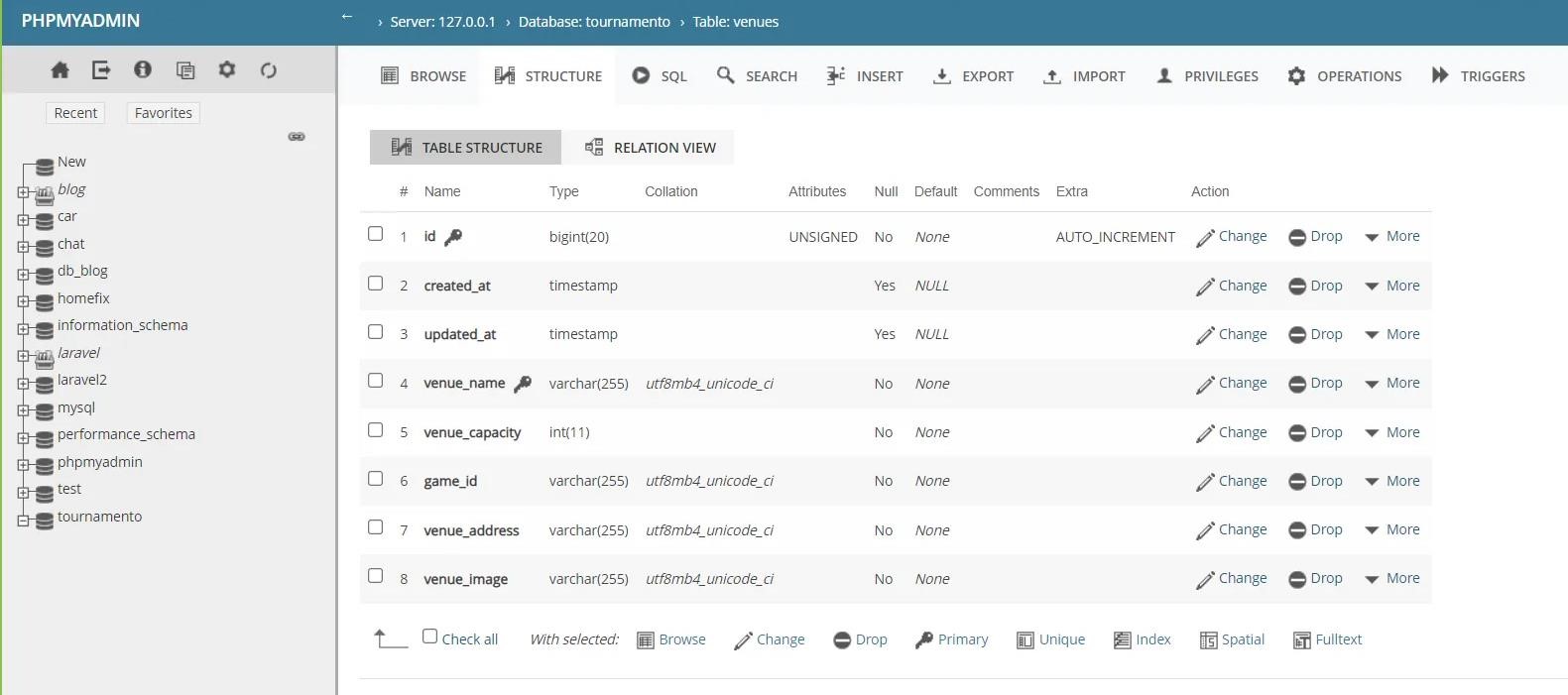


Figure 7. 43: Venue Table

#### 7.3.5 Players Table Structure:

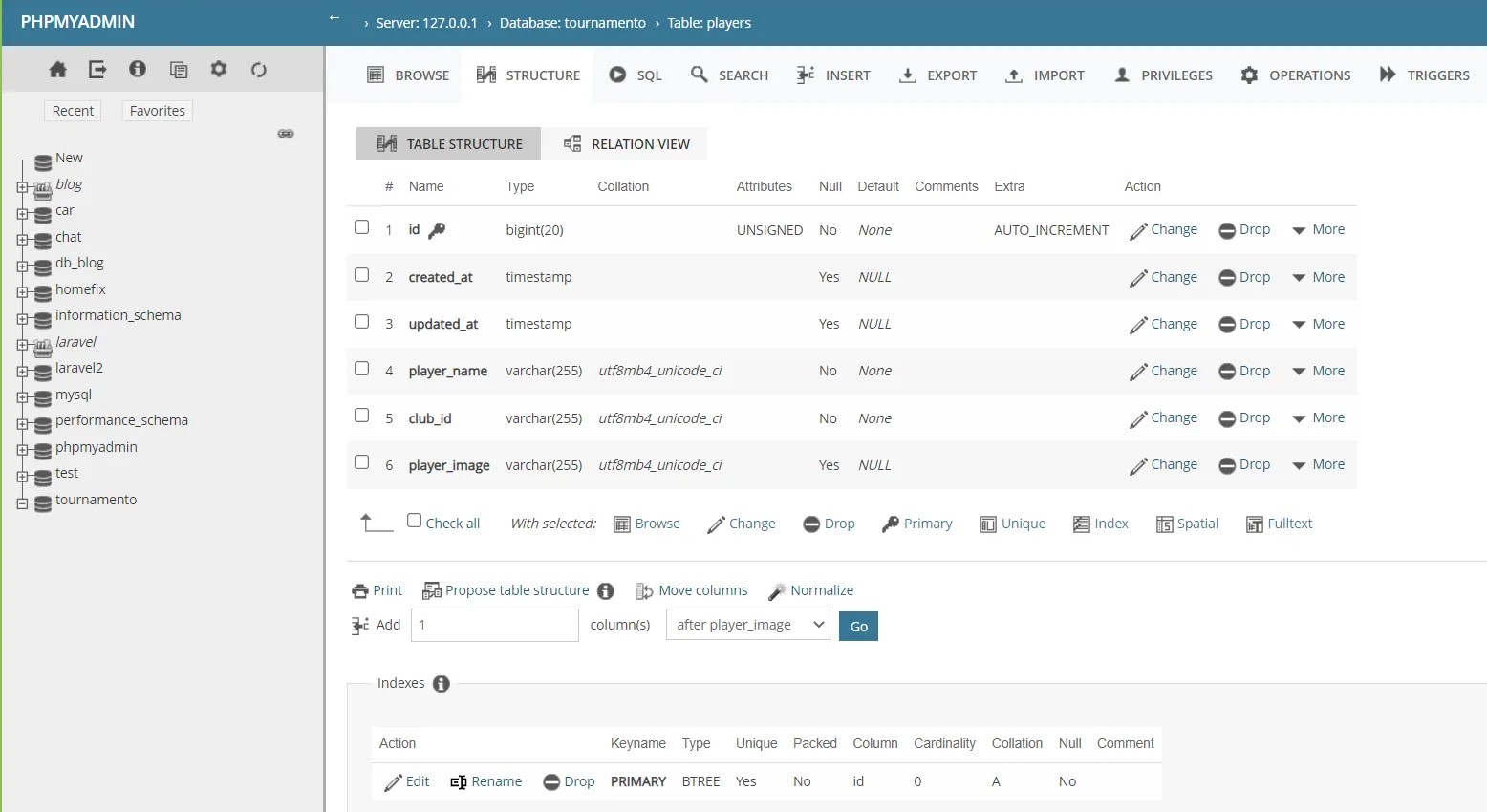


Figure 7. 44: Players Table

#### 7.3.6 Result Table Structure:



Figure 7. 45: Result Table

#### 7.3.7 Tickets Table Structure:

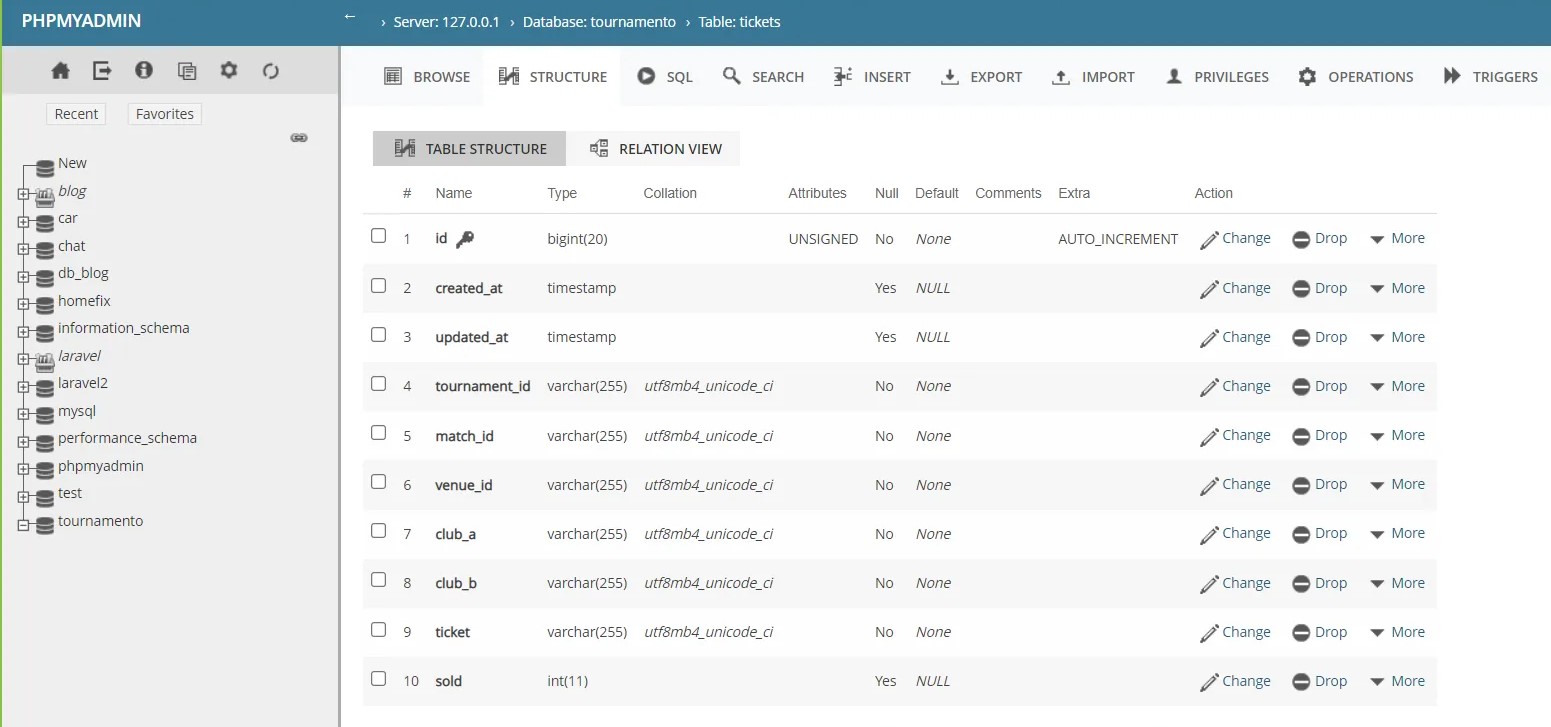


Figure 7. 46: Tickets Table

#### 7.3.8 Leg matches Table Structure:

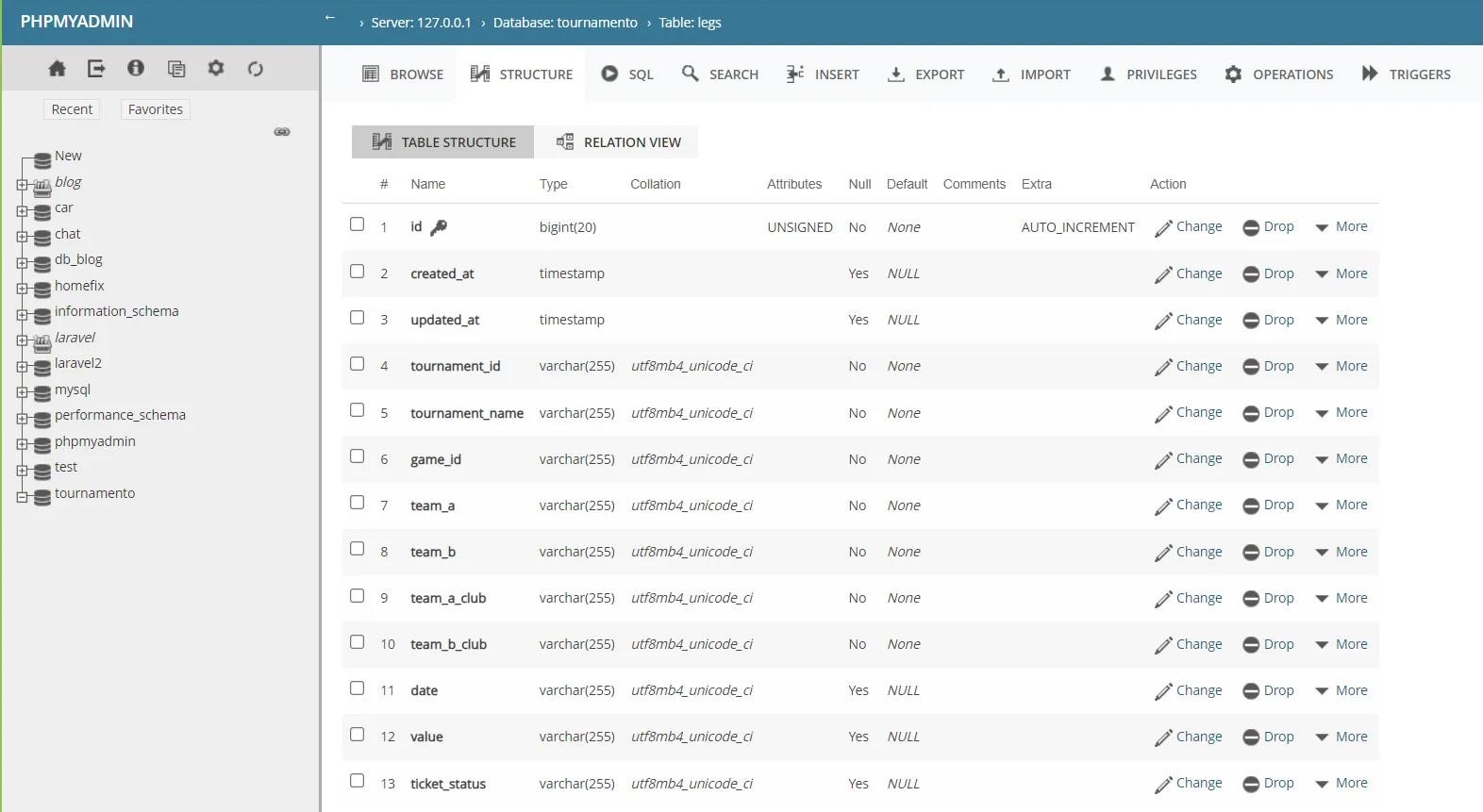


Figure 7. 47: Leg Matches Table

#### 7.3.9 Payments Table Structure:

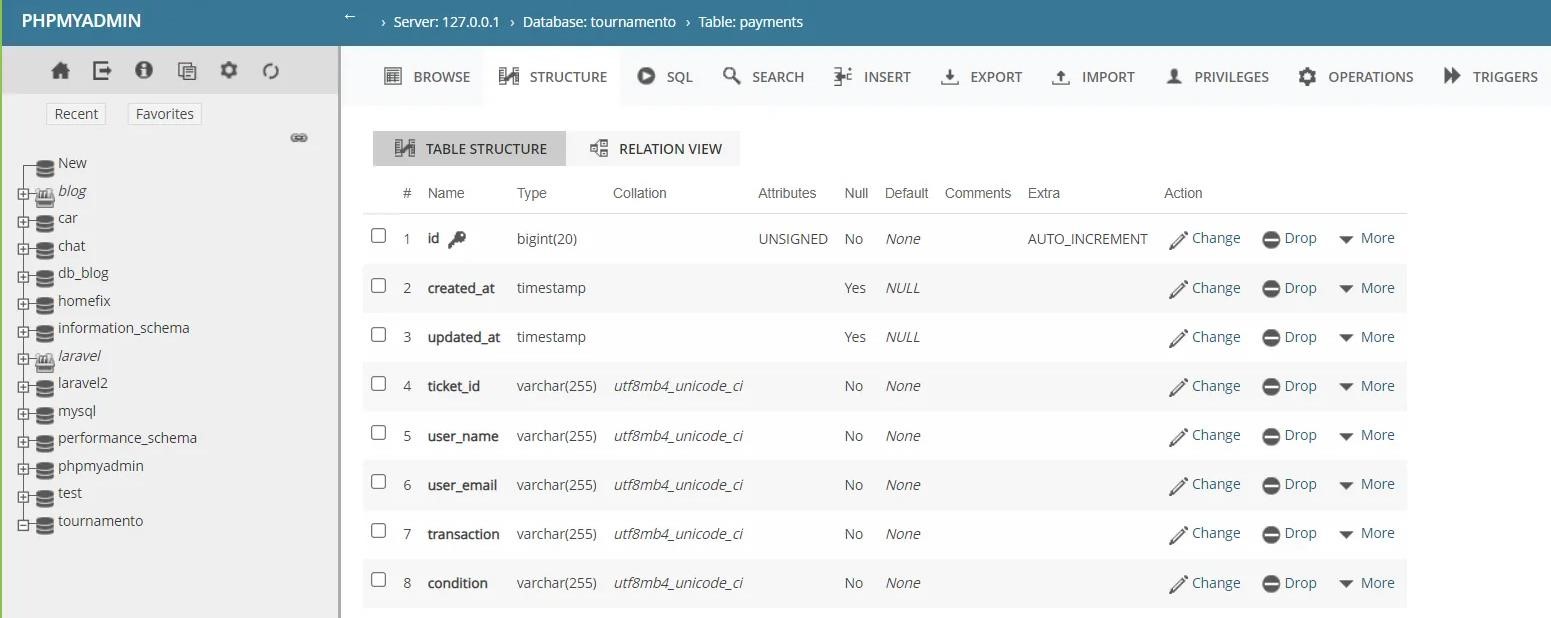


Figure 7. 48: Payment Table

#### 7.3.10 Clubs Table Structure:

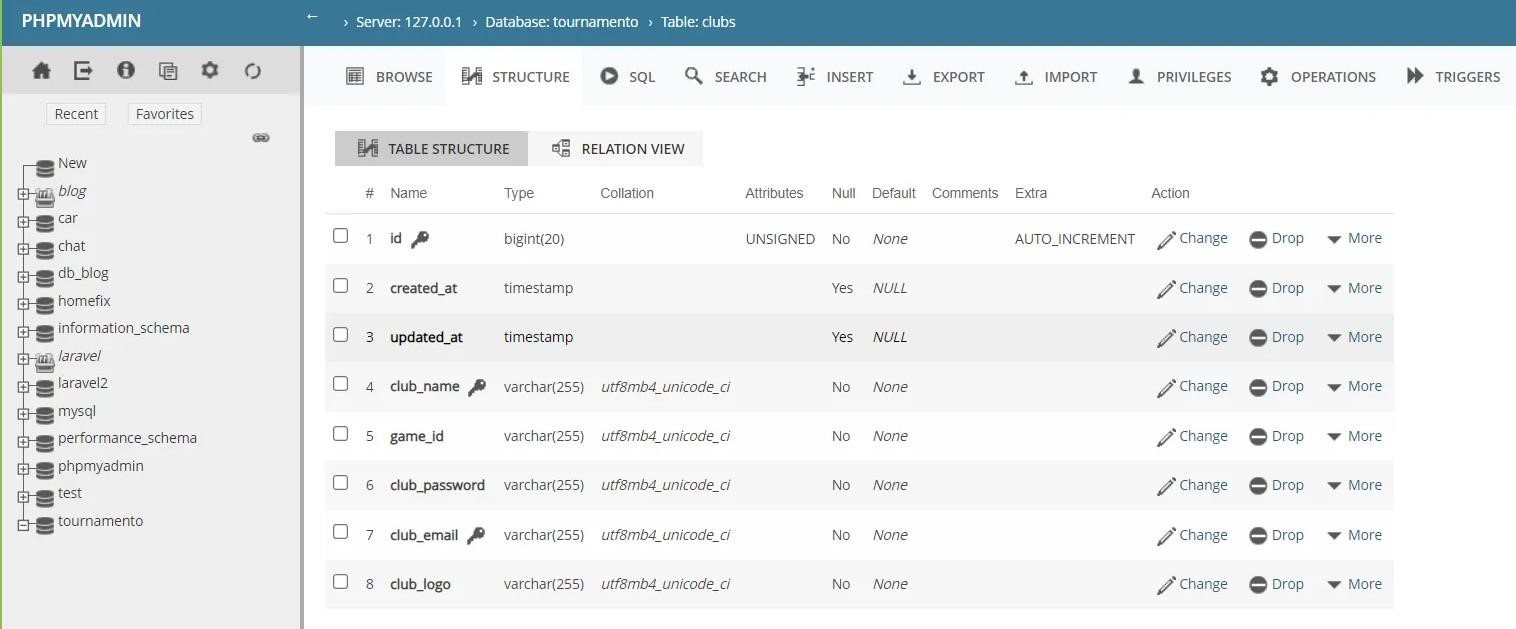


Figure 7. 49: Clubs Table

#### 7.3.11 Tournament Table Structure:

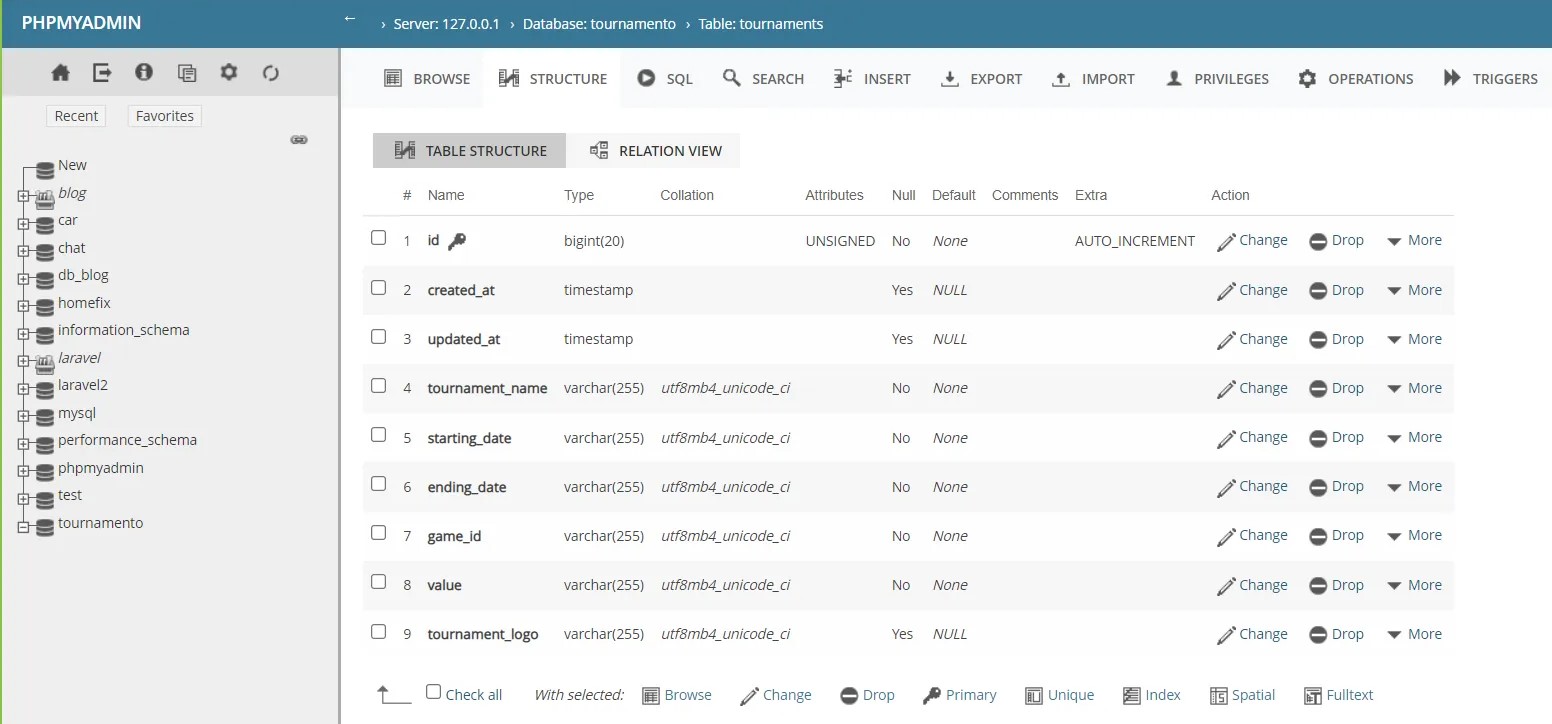


Figure 7. 50: Tournament Table

#### 7.3.12 Stats Table Structure:

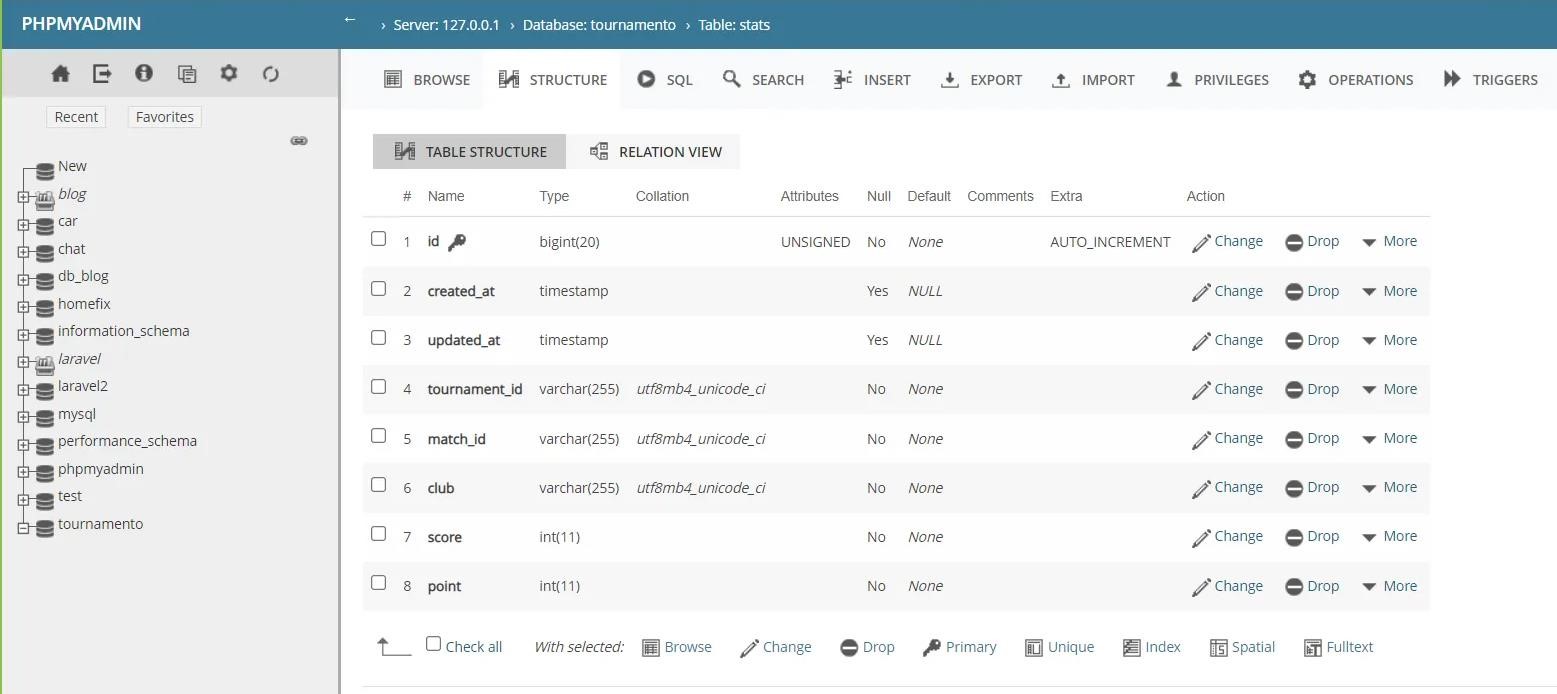


Figure 7. 51: Stats Table

#### 7.3.13 Ended Match Table Structure:

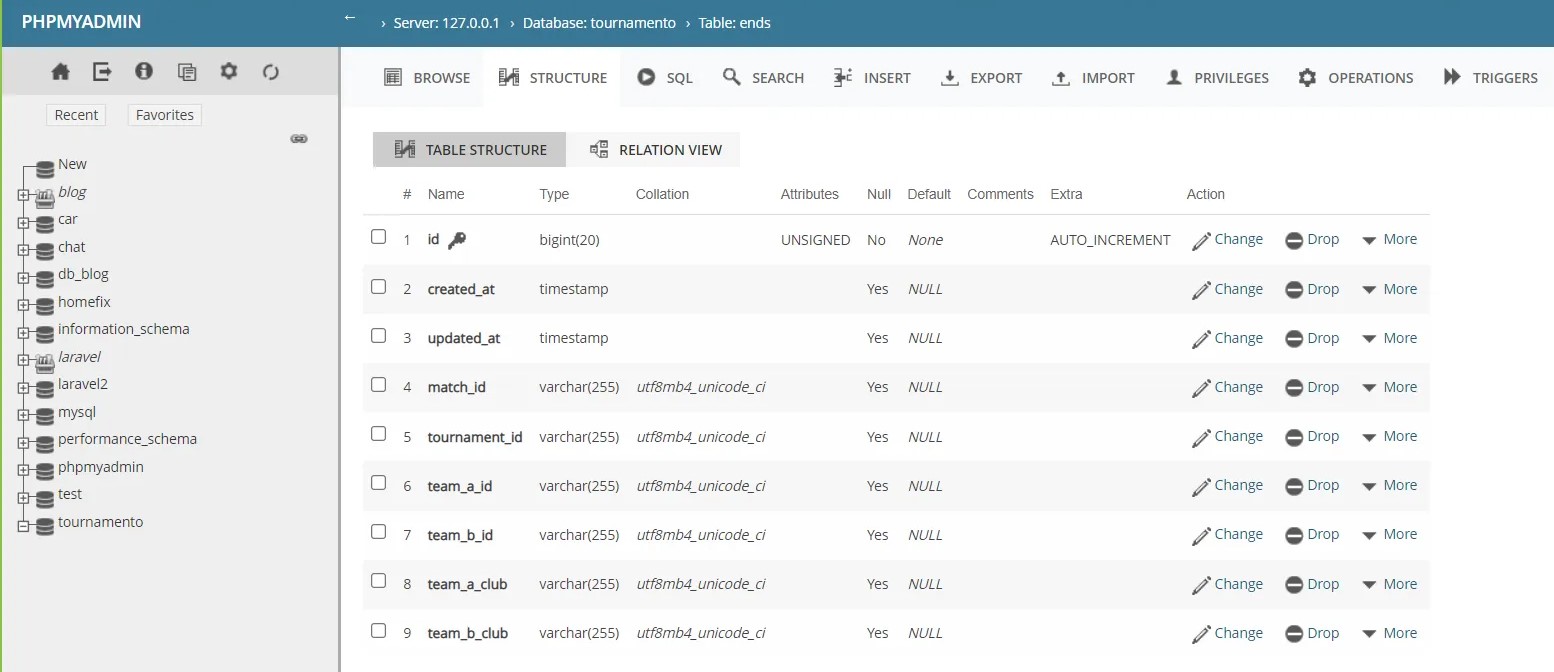


Figure 7. 52: Ended Match Table

#### 7.3.15 Users Table Structure:

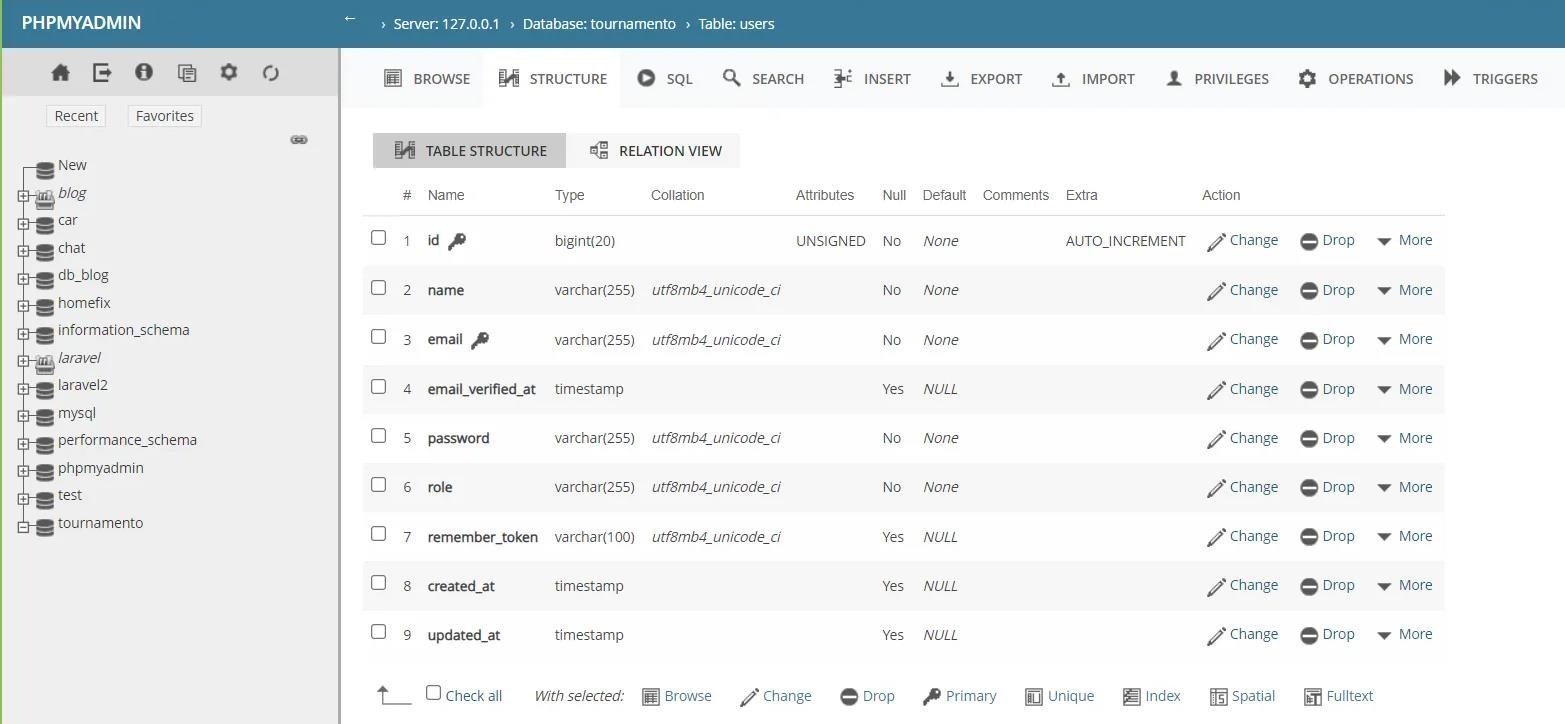


Figure 7. 53: Users Table

## Chapter 08: Quality Assurance and Testing

## 8.1 System Quality Management:

A quality management software system that is automated and links all departments is essential for a regulated or ISQ compliant company. A QMS or TQM (Total Quality Management) system can link each stage of the product development cycle to each department of a company. Mainly two types of qualities (Tech Target, n.) There are mainly two types of qualities, they are given below:

There are mainly two types of quality:

* Internal Quality
* External Quality

### 8.1.1 Internal quality:

* Test coverage
* Testability
* Portability
* Conciseness
* Maintainability
* Documentation
* Legibility
* Scalability

### 8.1.2 External quality:

* Features
* Speed
* Space
* Network usage
* Stability
* Robustness
* Ease-of-use
* Determinism
* Back-compatibility
* Security
* Power consumption

## 8.2 Software Quality Management Process:

The aim of Software Quality Management (SQM) is to manage the quality of software and development and of its development process

• The aim of Quality Management (SQM) is to manage the standard of software and development and of its development process.

• A top-quality product is one that meets its necessities and satisfies the user.

• A top-quality culture is a corporation atmosphere wherever quality is viewed as everyone’s responsibility.

## 8.3 Some of the specific SQM processes defined in standard:

Quality assurance process:

Quality assurance matrix of the project “Football Team Management System” involves the application of specific quality processes and checking that these qualities have been followed. The quality involved in this system of this software.

## 8.4 System Testing:

System Testing is that the testing of a whole and totally integrated software package product. Usually, software is barely one part of a bigger computer-based system. Ultimately, software is interfaced with different software/hardware systems. System Testing is truly a series of various tests whose sole purpose is to exercise the total computer-based system.

Two Category of Software Testing:

Black Box Testing

White Box Testing

### 8.4.1 Black Box Testing:

Black box testing, also called behavioral testing, focuses on the functional requirements of the software. It allows the software engineer to drive sets of input conditions that will fully exercise all functional requirements of a program. The Black box test method will be applied to the Art Gallery System test modules.

### 8.4.2 White Box Testing:

White box testing, also known as glass box testing, is a test case design method that uses the procedural design control framework to derive test cases. Using white box testing methods, the software engineer can derive test cases that,

• Ensure that all independent paths in a module have been exercised at least once.

• Exercise all logical decisions on their true and false side.

• Execute all loops to their limits and within their operational limits

• Exercise internal data structures to ensure their validity Modules containing complex calculation modules or decision codes such as checking the availability of elements of library will be tested using the white box method.

**Testing:**

Table 8. 1: Testing Scenario No- 1

|  |  |
| --- | --- |
| Scenario | Login testing scenario of my system |
| Input’s | Email and password for login |
| Desired Output’s | When enter Email and password then get access level that defined. |
| Actual Output’s | For login my system works properly. |
| Verdict | Getting result from desired outputs and actual outputs decided this system is successful for login. |

Table 8. 2: Testing Scenario No- 2

|  |  |
| --- | --- |
|  |  |
| Scenario | Admin can create/add |
| Input’s | Admin can add tournament, club, venue, ticket, score |
| Desired Output’s | View of tournament, club, venue, match, ticket details |
| Actual Output’s | Checked this process and get actual outputs |
| Verdict | This system has worked correctly and successfully. |

Table 8. 3: Testing Scenario No- 3

|  |  |
| --- | --- |
|  |  |
| Scenario | Admin can edit, delete, and see details. |
| Input’s | Tournament details, club details, venue details, ticket details, score details can be updated and deleted by admin |
| Desired Output’s | When changed basic information for the user by the admin, display events, courses, artists, blog list in the system. |
| Actual Output’s | Checked this process and get actual outputs |
| Verdict | It works successfully. |

Table 8. 4: Testing Scenario No- 4

|  |  |
| --- | --- |
|  |  |
| Scenario | Club can login to their profile. |
| Input’s | Club’s email, password |
| Desired Output’s | When enter all basic info correctly, club logged into their profile |
| Actual Output’s | Information displays my system work correctly. |
| Verdict | Getting result from Desired outputs and actual outputs decided this system is successfully. |

Table 8. 5: Testing Scenario No- 5

|  |  |
| --- | --- |
|  |  |
| Scenario | Club can add players, blogs |
| Input’s | Player details, blog details |
| Desired Output’s | When valid information are given player and blog details are being stored into the database |
| Actual Output’s | Checked this process and get actual outputs |
| Verdict | This system has worked correctly and successfully. |

Table 8. 6: Testing Scenario No- 6

|  |  |
| --- | --- |
|  |  |
| Scenario | Club can view |
| Input’s | Club id, player id, blog id |
| Desired Output’s | When club wants to see the players and tournament, they can see only their players and tournament |
| Actual Output’s | Checked this process and get actual outputs |
| Verdict | This system has worked correctly and successfully. |

Table 8. 7: Testing Scenario No- 7

|  |  |
| --- | --- |
|  |  |
| Scenario | Visitor can buy ticket |
| Input’s | Name, email, address, phone no. , payment info |
| Desired Output’s | If valid information are given visitor can buy ticket |
| Actual Output’s | Checked this process and get actual outputs |
| Verdict | This system has worked correctly and successfully. |

## Chapter 09: Conclusion

## 9.1 Preface

Today is the age of modern science and communication, which is crucial for the development of more effective management and operational processes. Provide better and uninterrupted services to keep the service constantly. I was fortunate and blessed to have had the good fortune to work with some of these efficient, friendly and hardworking engineers. My sincere thanks, gratitude and greetings to these wonderful people from the bottom of my heart.

## 9.2 Practicum and Its Value

In career development, as in most issues in life, there is a direct relationship between commitment and reward. For me, the internship can be a transition between study life in an engineering school and real-world employment through hands-on experience of engineering practices. The four-year undergraduate engineering studies provide the student with theoretical and practical knowledge. Using this knowledge and observing the operating system in real time, the hands-on program clarifies these topics on another level equipped with practical working skills. Considering this fact, it gives us immense pleasure to say that my internship was a successful event. Practical work experience has no other alternative. Before entering the world of work, the student must have real work experience in a major field of study. Now, a one-day recruiter no longer only considers high grades, good communication skills, and part-time work experience. They place great importance on a candidate's work experience. Students with better work experience get better job opportunities.

CodeCell Limited gave me the opportunity to work in a professional working environment. During the internship period, I tried my best to make my system efficient. I followed the lessons, methods, tools and techniques that I learned during my study period at IUBAT. Successful software development is a mix of standard development practices, adequate theoretical knowledge, and developer creativity. Students at IUBAT's College of Engineering and Technology (CEAT) choose this 6-hour weighted practice program, which is semester-long and usually after classes end. A report delivered after the end of the internship followed by a presentation and a comprehensive review of the entire four-year training.

## 9.3 Conclusion

The biggest experience working at CodeCell ltd is indeed being a part of designing and implementing software. Our biggest experience was with the design issue. I learned a lot of new things that were so unknown to me, problems that will help me to do better in future life. The following indicator will indicate some of our technical issues that I learned and implemented from this project:

* The design strategy of a web-based project
* The analysis strategy of a web-based project the Web.
* New environment of programming languages.

## 9.4 Limitation

* No option for sign up with Facebook or Google.
* Only two type automated match generating system.
* Visitor doesn’t has the ability to get themselves registered to the system.

## 9.5 Future Plan

* Making the app more user friendly
* Adding more types of automated match generating system
* Introducing a new actor as User
* Connecting the user with the clubs

## Chapter 10: Reference