Chapter 1
Introduction

1.1   Introduction

Sport tournament scheduling is a challenging activity. Sport is one of the activities that most of the sport person like to participate whether it is at the individual or professional level. There is problem regarding scheduling matches, conflict time slots and availability of resources. To solve these problems, the sports scheduling system can play a very good role. The system will be able to automatically generate the tournament schedule using round robin and group Stage algorithms. Firstly, each team will play with all other teams. An elimination from tournament is divided into successive rounds where by each competitor plays in at least one match per round. At final round only one winner, the winner of which is the overall champion auto scheduling system, scores will be keyed-in and the system will automatically calculate the points based on rules that have been pre-identified to determine the qualified team for next round.

1.2   Motivation

Most of time Sport scheduling event have problems regarding overlapping of matches, conflict time slots ,availability of resources .It takes lots of time to manage all this process. To overcome this problems our system has provided permutation & combination method for arranging the teams and auto scheduling of matches by using round-robin algorithm. Finally, system will display winner on basis of score.

1.3   Purpose

Sport scheduling System is a web application . It will reduce time than manual paper work. It will give proper information about winner and ranking in sports . It has automatically generate winner on basis of score. Any user can handle easily and at anytime.

1.4   Problem Statement

Proposed system is used to automate sport scheduling and displaying results for any sport tournament or sport event. The proposed work is distributed in following five phases:

1.Design tournament and sport activities.

2.Registration of individual or teams with specified categories.

3.Avaliability of resources.

4.Scheduling

5.Result

1.5   Objective

-To provide information and manage the system regarding sports event.

-To reduce the human efforts as well as to reduce the lot of paper work.

-To reduce the time which is required by the work that are manually done.

- To provide facility of easy result generation and view rankings.

-Easy to access the system from anywhere at any time.

Chapter 2
Literature Survey

2.1   Existing System

All process of tournament schedule is a pen paper method also organizers need to calculate the mark or score in manual process and it requires time to calculate the result. All this while, the process of creating the schedule, providing the score sheet as well as standing result is being done manually by the organizer using manual spreadsheet which is a complicated task. There is no such an automated system except national, international and renowned level.

2.1.1   Referred Journal/Conference Papers :

a. Van Bulck D, Goossens D, Sch ̈onberger J, Guajardo M: RobinX: A three-field classification and unified data format for round-robin sports timetabling.European Journal of Operational Research280(2), 568-580 (2020)

b. Scheduling Double Round-Robin Sports Tournaments Carlos Lamas-Fernandez· AntonioMartinez-Sykora·Chris N Potts

c. Sport Tournament Automated Scheduling System – Raof R. A. A , Sudin S., Mahrom N. and Rosli A. N. https://doi.org/10.1051/matecconf/201815005027

2.1.3   Limitations or Challenges in Existing System :
• Manual process of generating results of sports tournament takes lots of time consuming & require more power to complete the task.

• There can lots of errors because of time limitations due to which organizers capability can be questioned.

• There is problem regarding scheduling matches, conflict time slots and availability of resources.

• There is no such system which caters both processes (auto scheduling for round-robin and knock-out)

2.2   Proposed System with block diagram

In the proposed system admin will set different types of tournaments for game. Then user will register for the games according choice of interest by providing necessary details. Next, system has provided permutation & combination method for arranging the teams and auto scheduling of matches by using round-robin algorithm. Finally, system will display winner on basis of score.
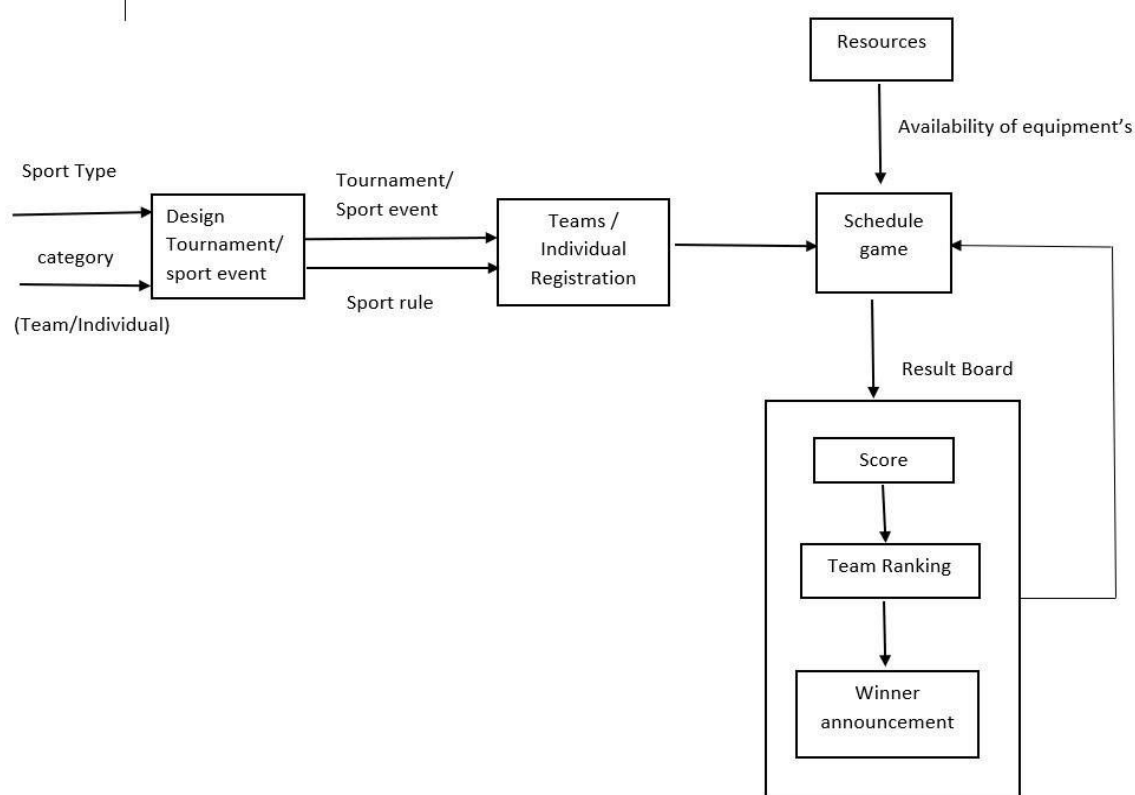

Fig 2.2 Block Diagram of Sport Scheduling System

Modules:

1. Design of tournament / Sport event:
The system will automatically generate tournaments or sport event. Tournament generation process should be done on the basis of sport type and user categories one by randomly choosing the names from the participating teams. Next process is generating the match schedule for each tournament.

2. Registration:
In the registration module user needs to register entering details in the registration form for individual in case of a team there are minor changes including team leader, team members etc. other details are same.

3. Availability of Resources:
In this module verifies availability of grounds, equipment's, time slot, number of registered team for schedule.

4. Scheduling:

Schedule for each tournament use round robin algorithm whereas it is assumed that there are enough fields or courts so that all the games in a round can be played simultaneously. If N is the number of competitors, then a round robin tournament requires (N-1) rounds of games. Therefore, the time needed for the whole round robin tournament to complete is depending on the number of team or player.

5. Result:

The next process is calculating the total score of the teams, The score for each team needs to be keyed into the system in the result table after the completion of each match. Then the points will be combined together to get the total marks. If the team has higher score, then the team will be proceeding to the next match. On the other hand, the losing team will be eliminated. The match will be considered finished when the winner has been determined.

2.3   Feasibility Study

2.3.1   Technical Feasibility:

Algorithm

Round Robin Scheduling Algorithm is one of the simplest scheduling algorithms used in various operating systems for process scheduling and networks. The key idea is to allocate CPU to all processes in the same order for the same amount of time.

It is also a pre-emptive scheduling algorithm famous for CPU Scheduling and used in various Operating Systems. It is better than other approaches like Shortest Job First algorithms considering that there is a guarantee that all processes will be completed at the cost of overall performance but it is better than brute force approach.In fact, Round Robin scheduling algorithm is one of the first algorithms to provide a real timecomputing experience.

Algorithm Explanation

The aim of this algorithm is to determine or schedule the order of execution of the processes.Now first each process is given with a fixed amount of time period known as quanta, this time quantum remains fixed throughout the process.

Each process can only be executed for one quanta at a time if the process manages to complete the execution within this time then it is terminated else it is pre-empted and has to wait for its turn in a circular order to execute again, here context switching is used to save states of the pre-empted processes.

Round Robin Scheduling Example

Consider the following 5 processes: A, B, C, D, and E, with arrival time and burst time asgiven below:

Process	Arrival time	Burst time
Team A - Team D	0	2
Team B – Team F	1	3
Team C – Team E	2	1

What are the average waiting and turnaround times for the round robin scheduling algorithm(RR) with a time quantum of 2?

For the round-robin scheduling algorithm, we have the
ready queue as:A, B, C, D, E, B, E, B
The Gantt chart using the RR algorithm is as follows.

Now, we know

- Turnaround time = Completion time – Arrival time
- Waiting time = Turnaround time – Burst time

Team	Arrival time	Burst time	Completion time	Turnaround time	Waiting time
TeamA-TeamD	0	2	2	2 – 0 = 2	2 – 2 = 0
TeamB-Team F	1	3	11	11 – 1 = 10	10 – 5 =5
TeamC-TeamE	2	1	5	5 – 2 = 3	3 – 1 = 2

2.3.2   Legal Feasibility:

- Sport Scheduling system is absolutely legally doable.

- No threats to user's/institute's confidential data.

- This project does not contain copyright issues.

- From above it is clear that sport scheduling system is legally feasible with no potential infringement.

- Sport Scheduling system is Authenticated .

Chapter 3
Project Scope and Requirement Analysis

3.1   Project Scope

3.1.1   In-Scope

Primary goal in this project is to include more functionality & resources are available as per user requirement. To provide information about game and system will automatically schedule the matches.

3.1.2   Out-Scope

Even though the tournament can be planned with various different algorithms however this project (Sport Scheduling System) considers round robin algorithm .

3.2   Requirement Gathering & Analysis

Requirement Gathering --

3.2.1   Functional Requirement:

•Scheduling are categories by two parts:

1. **Data Requirement: -**
   - Schedule
   - Team Size
   - Rule
   - Resources

2. **Process Requirement:**

   - Round Robin algorithm

3.2.2   Non-Functional Requirement:

•**Security:**

Secure access of confidential data (user details).

• **Availability & Reliability:**

It is available anytime and anywhere.

• **Usability:**

It is easy to handle this software and there is simple user interface that does not contain any complex design.

3.2.3   Requirement Analysis

We want to develop the project Sport Scheduling System. It is a complete Web Application. The main technologies and tools are associated with Sport Scheduling system are

– Markup Language : HTML5

– Style Sheet Language : CSS 3

– Scripting Language : JavaScript

– Backend Language: PHP

 – RDBMS : MySQL 8.0.27

– Server: Xampp

Chapter 4
Project Design and Modeling Details

4.1   Software Requirement Specification (SRS)

4.1.1   Development Environment:

• **Software Requirements:**

Operating system: Windows 7/8/10

System type: 64-bit operating system

• **Hardware Requirements:**

Processor: Intel(R) Core (TM) i3-5015U CPU @2.10GHZ

RAM: 2.00GB

Hard Disk: 500 GB

4.1.2   Deployment Environment:

• **Software Requirements:**

DBMS used: MySQL

User Interface: XAMPP 8.1.6-0 Local Server with MySQL

Programming language: PHP, HTML, JavaScript

IDE: Notepad++

4.2 System Modules

Modules:

6. Design of tournament / Sport event:

The system will automatically generate tournaments or sport event. Tournament generation process should be done on the basis of sport type and user categories one by randomly choosing the names from the participating teams. Next process is generating the match schedule for each tournament.

7. Registration:

In the registration module user needs to register entering details in the registration form for individual in case of a team there are minor changes including team leader, team members etc. other details are same.

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In this module verifies availability of grounds, equipment's, time slot, number of registered team for schedule.

9. Scheduling:

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10. Result:

The next process is calculating the total score of the teams, The score for each team needs to be keyed into the system in the result table after the completion of each match. Then the points will be combined together to get the total marks. If the team has higher score, then the team will be proceeding to the next match. On the other hand, the losing team will be eliminated. The match will be considered finished when the winner has been determined.

4.3 System Modeling & Design
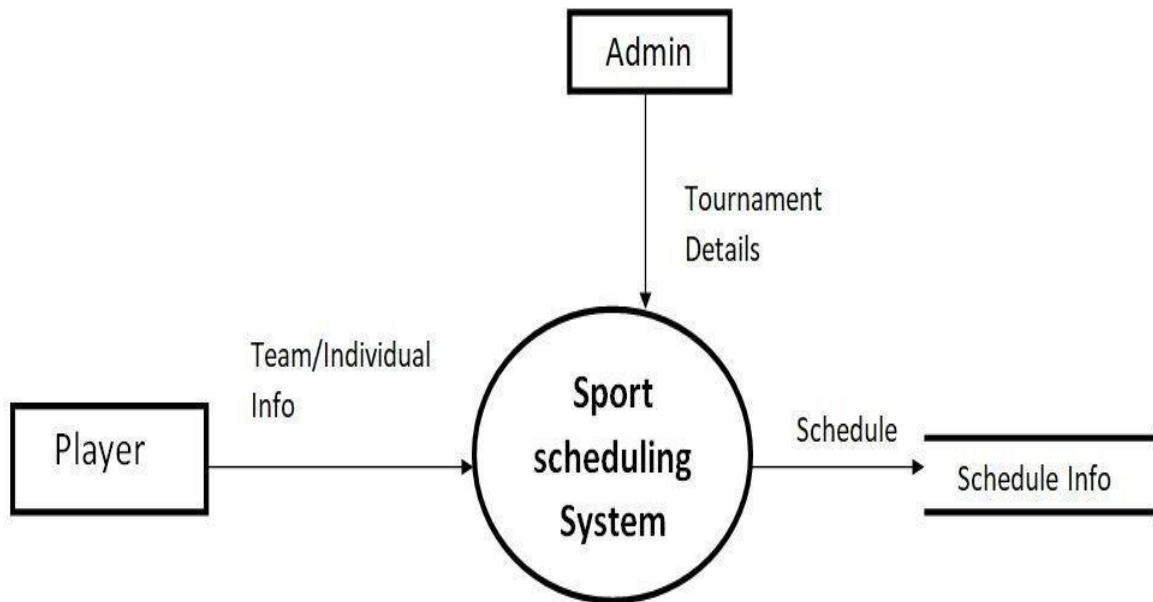
4.3.1 DFD Level 0 :

Fig.4.3.1 Data Flow Diagram Level 0

Team or individual registration, admin sets tournament by applying all the constraints like availability of ground, equipment's for particular game, rules etc. and Storethe scheduled match details in database.

DFD 0 Level –

1. It is also known as a context diagram: The DFD level 0 is often referred to as a context diagram because it provides an overview of the system's context or environment. It helps us understand the system's interactions with external entities.

2. It is designed to be an abstraction view, showing the system as a single process with its relationship to external entities: The DFD level 0 represents the system as a single process,

without going into the internal details. It focuses on the interactions between the system and its external entities, providing a high-level understanding of these relationships.

3.The DFD 0 shows the abstract overview of the system and its process: The DFD level 0 provides an abstract overview of the system's processes and how they interact with external entities. It helps stakeholders understand the system's overall purpose and its interactions with the external environment.

4. The square represents external entities, which are users and admins: External entities, such as users or administrators, are represented by squares in the DFD level 0. These entities interact with the system by providing input data or receiving output data.

5. The process is defined in a circle: The system's process, which represents its functions or operations, is depicted as a circle in the DFD level 0. This circle symbolizes the transformation of input data into output data within the system.

6. Data Flow is shown through arrows from one entity to another: The flow of data between entities, including input and output data, is depicted using arrows in the DFD level 0. These arrows illustrate how data moves from one entity to another within the system.

The DFD level 0 serves as a foundational diagram, providing a holistic view of the system and its interactions with external entities. It helps stakeholders understand the system's boundaries, functions, and data flow at a high level before delving into more detailed levels of the DFD.
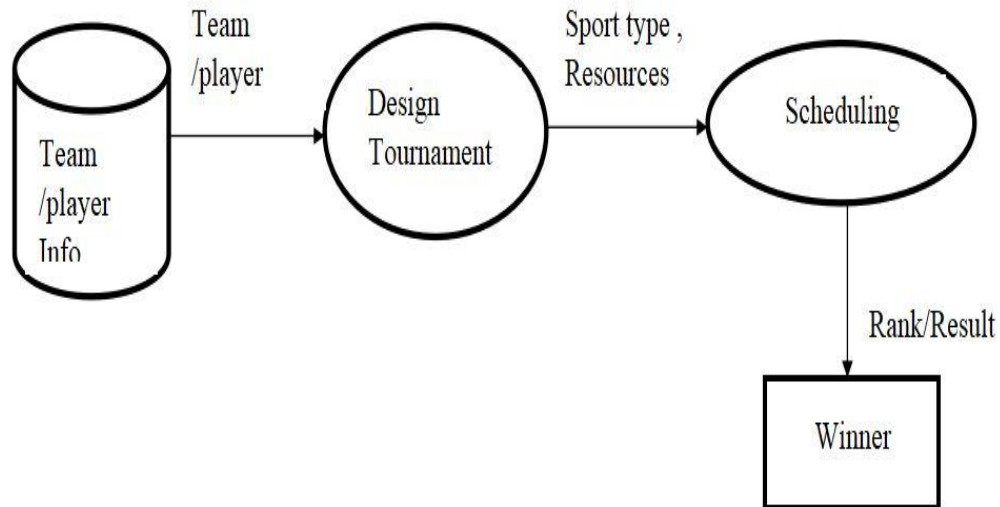
4.3.2 **DFD Level 1:**

Fig.4.3.2Data Flow Diagram Level 1

By fetching the team or players information from database admin design tournament by checking sport type and resources then system schedule matches and according to the rank of the team system displays the winner.

DFD Level 1:

1. Level 1 DFDs are still a general overview, but they go into more detail than a context diagram: A Level 1 DFD provides a more detailed overview compared to a context diagram. While the context diagram focuses on the system, the Level 1 DFD breaks down the system into subprocesses, offering a deeper understanding of its internal structure.

2. In a Level 1 DFD, the single process node from the context diagram is broken down into subprocesses: The single process node in the context diagram is decomposed into smaller subprocesses in the Level 1 DFD. This decomposition allows for a more granular representation of the system's functions and processes.

3. As these processes are added, the diagram will need additional data flows and data stores to link them together: With the introduction of sub-processes in the Level 1 DFD, additional data flows and data stores are included to establish the connections between these processes. Data flows depict the movement of data between processes, while data stores represent the storage of data within the system.

4. Parallel lines show data stored: In a Level 1 DFD, parallel lines are used to represent data stores. These data stores indicate where data is stored within the system. They serve as repositories for data that can be accessed or updated by different processes within the DFD.

By decomposing the system into sub-processes, the Level 1 DFD provides a more detailed and structured representation of the system's functions and interactions. It helps stakeholders understand the flow of data and the relationships between processes within the system. As more sub-processes are added, the diagram becomes more intricate, capturing the complexity of the system's operations. The inclusion of data flows and data stores further enhances the understanding of how data is utilized and stored throughout the
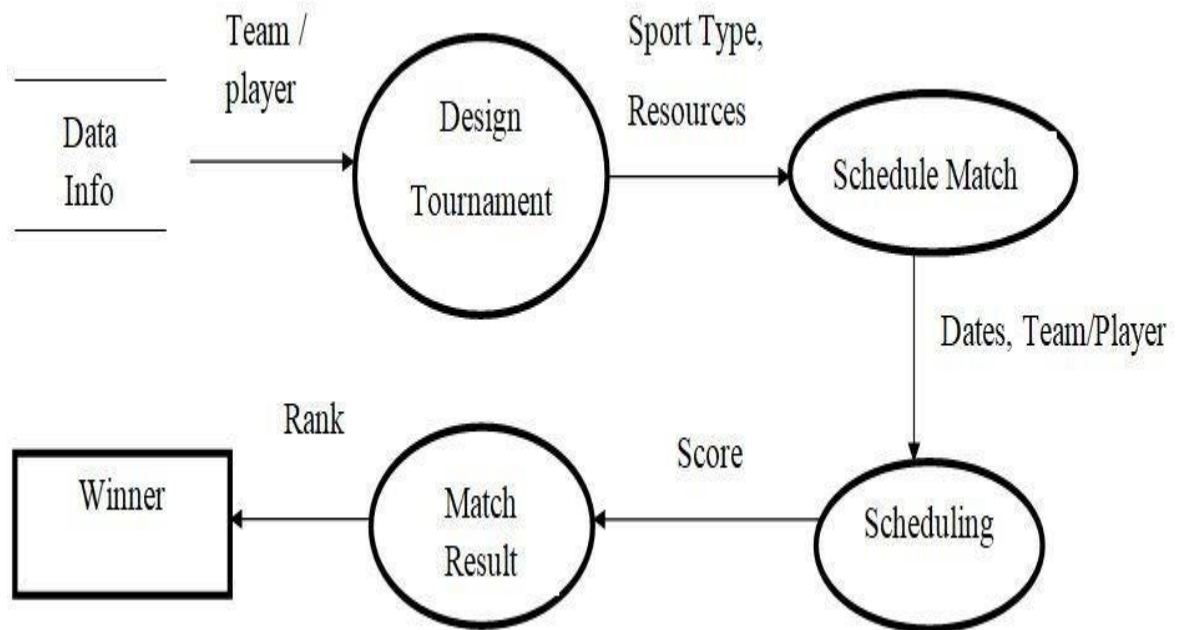
system.

4.3.3   DFD Level 2:

Fig.4.3.3 Data Flow Diagram Level 2

System fetches the team or players information from database admin design tournament by checking sport type and resources then system schedule matches then according to the score of the team system gives rank to teams or players and according to the rank of the team system displays the winner.
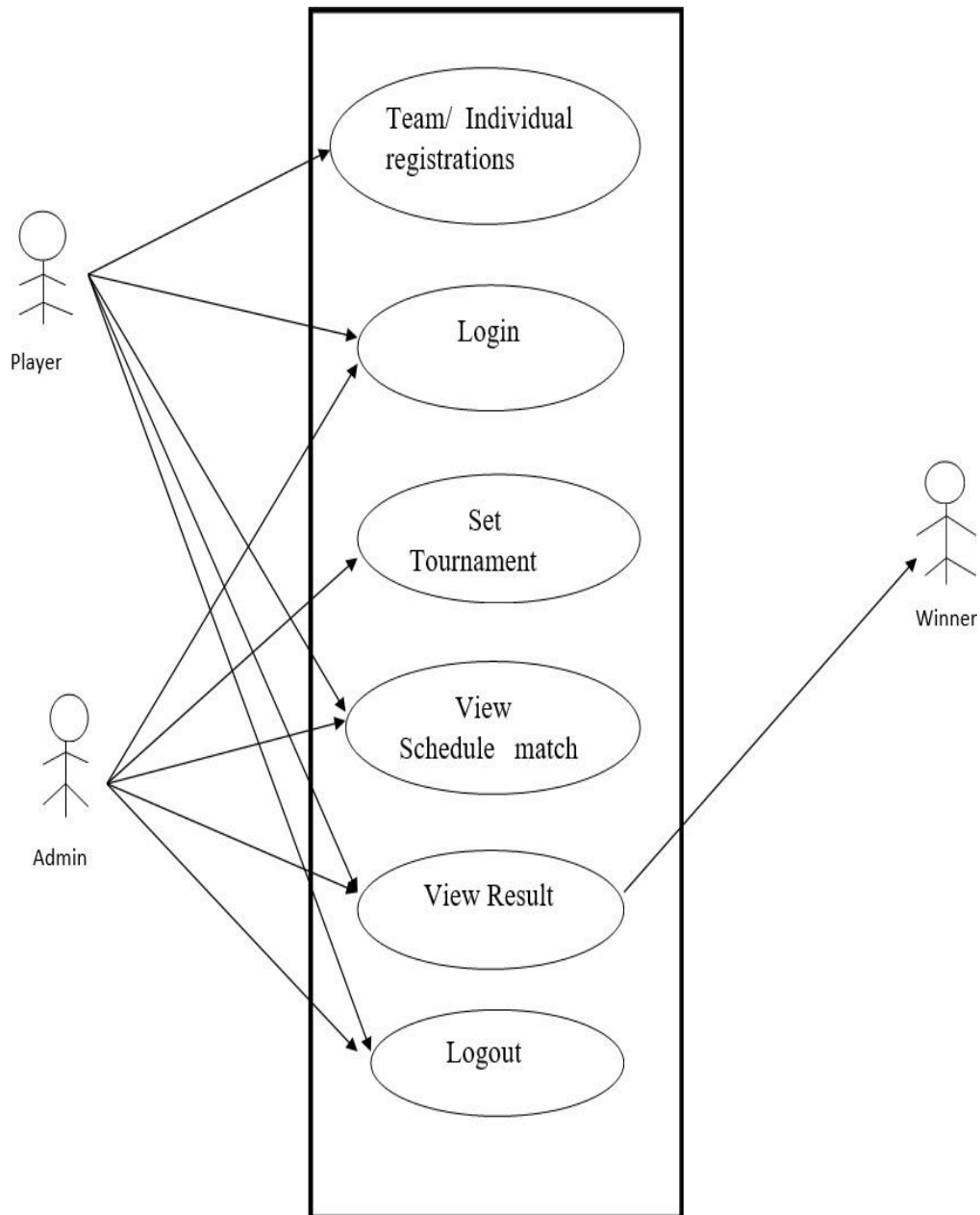
4.3.4   Use Case Diagram:

Fig 4.3.4 Use case Diagram

Team/Individual registration:

Only player have the access to this process for the registration.

Registration & Authentication :

Player and Admin both have the access to this process for login to the system.

Set Tournament:

Only admin have the access to this process for setting tournament.

View scheduled matches:

Admin and player both have the access to this process for viewing scheduled matches.

View results:

Admin and player both have access to this process for viewing tournament results.

Use Case Diagram:

1. Use-case diagrams describe the high-level functions and scope of a system. These diagrams also identify the interactions between the system and its actors: Use Case diagrams provide a visual representation of the high-level functions and boundaries of a system. They depict the interactions between the system (represented as use cases) and its external entities or actors. Actors can be individuals, other systems, or even hardware devices that interact with the system.

2. The use cases and actors in use-case diagrams describe what the system does and how the actors use it, but not how the system operates internally: Use Case diagrams focus on the external behavior of the system rather than its internal workings. They highlight the functionalities or services (use cases) that the system provides to its actors, as well as the interactions between them. Use Case diagrams do not delve into the internal implementation details of the system

3. The actors that the system you are describing interacts with, the system itself, the use cases, or services, that the system knows how to perform, and the lines that represent relationships between these elements: A Use Case diagram includes actors, the system, and use cases as its main elements. Actors are represented as stick figures, the system is typically depicted as a box or boundary, and use cases are represented as ovals or ellipses. Relationships between these elements are depicted using lines or connectors.

4. Actor user performs actions such as register, login, home remedies, bookmark, feedback, and logout operations: In the specific Use Case diagram you described, the actor "user" interacts with the system by performing various actions or use cases. These actions may include registering on the system, logging in, accessing home remedies, bookmarking content, providing feedback, and logging out.

5. Actor admin performs actions such as register, login, verification, update information, manage application: The actor "admin" also interacts with the system and performs specific actions or use cases. These actions may include registering as an administrator, logging in, performing verification tasks, updating information, and managing the application.

Use Case diagrams provide an overview of the system's functionalities and interactions with actors. They help stakeholders understand the system's scope, the actors involved, and the specific actions or use cases that can be performed. This diagram serves as a valuable communication tool between stakeholders to align their understanding of the system's behavior and requirements

4.3.5   Activity Diagram
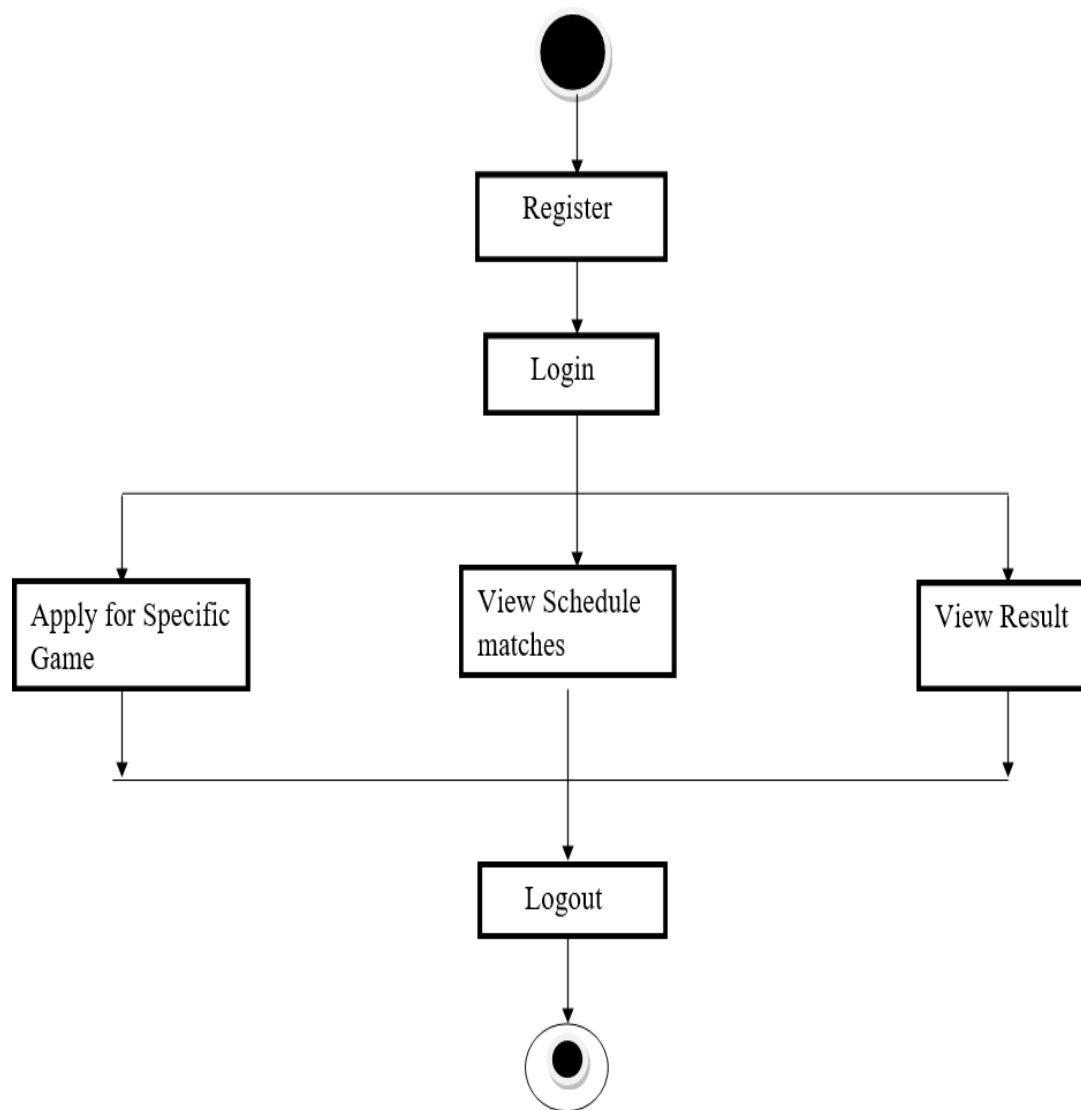
4.3.5.1 Activity diagram for player:

Fig.4.3.5.1 Activity diagram for player

For user there are two options Login and Register. After Login user can apply forspecific game, can view scheduled matches and view results..
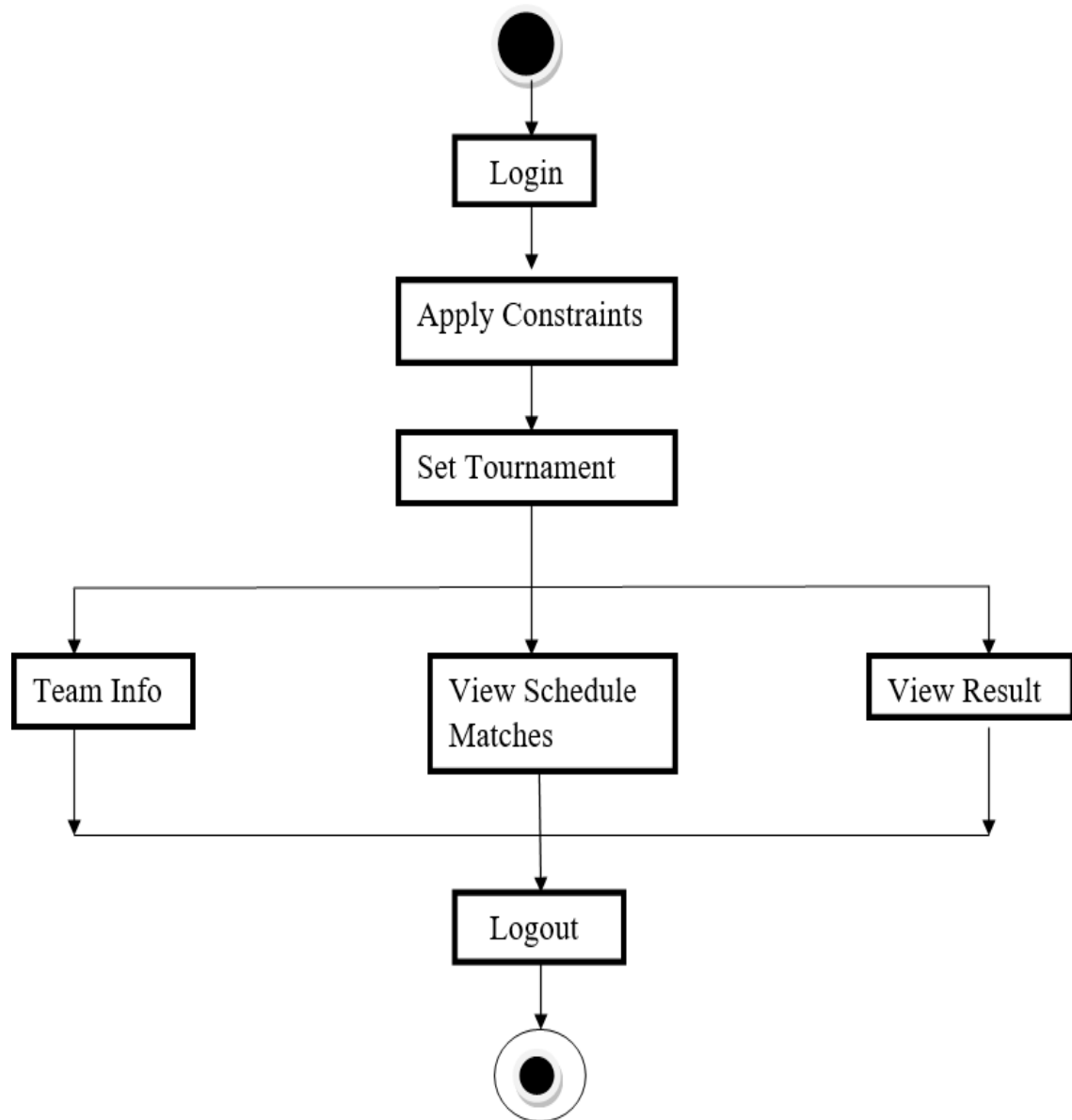
4.3.5.2   Activity diagram for Admin:

Fig.4.3.5.2 Activity diagram for Admin

Admin can login to system using their login credentials. Admin apply all the constraints required for setting tournament after this admin sets tournament also admin have access to team information, view scheduled matches and view results.

1. Activity diagrams represent the flow from one activity to another: Activity diagrams are a type of behavioral diagram in the UML (Unified Modeling Language). They provide a visual representation of the flow of activities or operations within a system. An activity diagram can be seen as a flowchart that shows the sequential flow of activities.

2. Activities represent operations of the system: In an activity diagram, activities represent specific operations or actions that are performed within the system. These activities can be functions, processes, or tasks that contribute to the overall behavior of the system. Each activity represents a unit of work that is carried out.

3. Control flow depicts the sequence of activities: The control flow in an activity diagram illustrates the flow of control or execution from one activity to another. It represents the order in which activities are performed. The control flow is typically shown using arrows that connect the activities, indicating the direction of the flow.

4. Flow can be sequential, branched, or concurrent: The flow of activities in an activity diagram can have different structures: - Sequential Flow: Activities are executed one after another in a linear sequence. Each activity starts only after the completion of the previous activity. - Branched Flow: The flow branches out into multiple paths based on conditions or decisions. It represents alternative flows or choices in the system's behavior. - Concurrent Flow: Activities can be executed concurrently or in parallel. This indicates that multiple activities can be performed simultaneously, without any strict order or dependency.

5. Activity diagrams show message flow between activities: In addition to depicting the control flow between activities, activity diagrams can also show the flow of messages or data between activities. This allows for the representation of the communication or information exchange between activities within the system.

Activity diagrams are widely used to model and analyze the behavior of complex systems. They provide a clear visual representation of how activities are organized and executed, allowing stakeholders to understand the sequential, branched, or concurrent nature of the system's behavior.
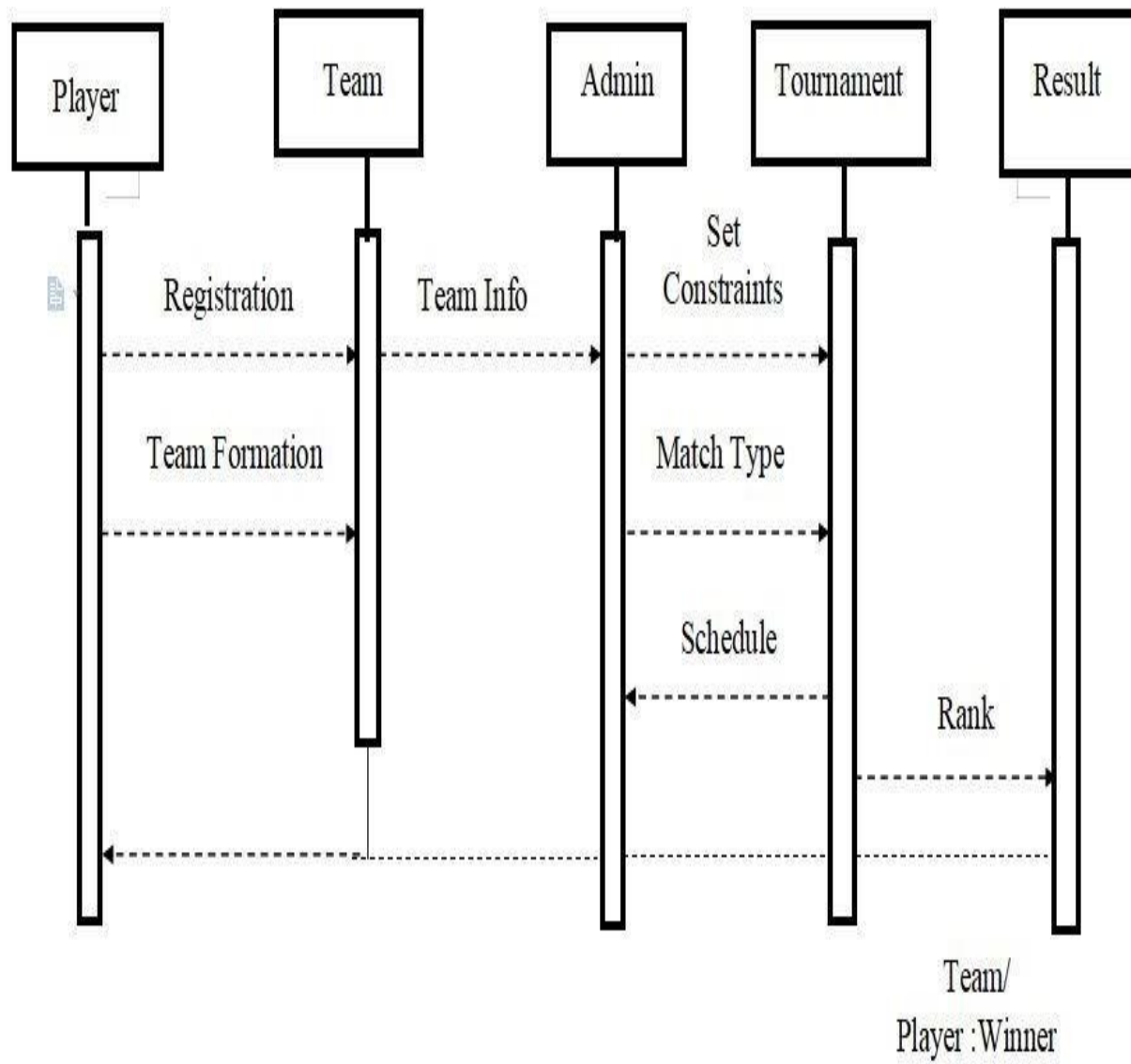
4.3.6   Sequence Diagram

Fig.4.3.6 Sequence Diagram

1. Sequence diagrams are a part of the UML (Unified Modeling Language): Sequence diagrams are a type of behavioral diagram in the UML. They illustrate the sequence of messages exchanged between objects during an interaction. Sequence diagrams provide a visual representation of the dynamic behavior of a system.

2. Sequence diagrams represent the flow of messages in the system: The primary purpose of a sequence diagram is to depict the flow of messages exchanged between objects over time. It shows how objects interact and collaborate to accomplish a specific task or behavior.

3. Lifelines represent individual participants: In a sequence diagram, each individual participant or object involved in the interaction is represented by a lifeline. A lifeline is typically depicted as a vertical dashed line positioned at the top of the diagram. It represents the existence and lifespan of an object during the interaction.

4. Actors represent roles, not necessarily physical entities: Actors in a sequence diagram represent the roles that entities play in the system. They can be external entities such as users, systems, or even other components of the system. Actors depict the interaction from their specific role perspective, rather than representing physical entities.

5. Messages depict interactions between objects: Messages in a sequence diagram represent the communication or interaction between objects. Messages are represented by arrows between lifelines, indicating the flow of communication. There are different types of messages: - Call Message: Represents the invocation of a method or operation by one object to another. - Return Message: Represents the response or return of a method or operation back to the calling object.

- Self-Message: Represents a message sent by an object to itself, indicating internal behavior or logic.

Sequence diagrams provide a dynamic view of how objects collaborate and communicate with each other to accomplish a specific behavior. They highlight the order of interactions, the timing of messages, and the overall flow of control during the interaction. By visualizing the sequence of messages, sequence diagrams help in understanding and analyzing the behavior and interactions within a system.
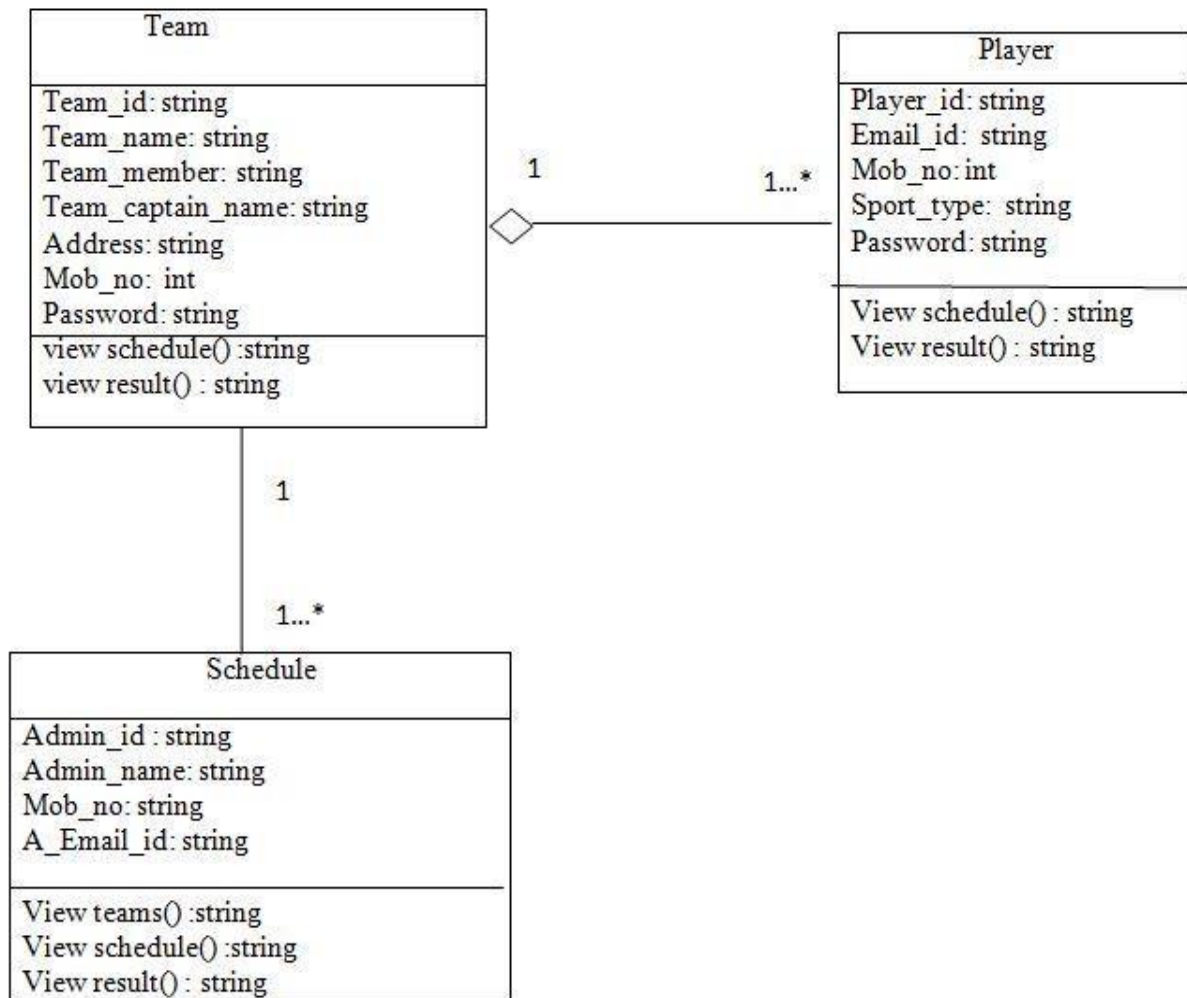
4.3.7   Class Diagram

Fig.4.3.7 Class Diagram

1. A class diagram represents the structure of a system: A class diagram is a type of static structure diagram that depicts the structure of a system. It focuses on the classes, their attributes, and the relationships between them. It provides a visual representation of how the system's components are organized and interact with each other.

2. Classes, attributes, and relationships are key components of a class diagram:
 - Classes: In a class diagram, classes are represented as boxes. The name of the class is typically written in bold and capitalized.
- Attributes: Each class can have attributes, which are the variables or properties associated with the class. Attributes are listed within the class box, typically below the class name.
- Operations: Operations represent the methods or functions that the class can perform. They are also listed within the class box, typically below the attributes.

3. Class diagrams show the relationships between classes:
 - Inheritance: Inheritance represents an "is-a" relationship between classes, where one class inherits the attributes and operations of another class. In a class diagram, inheritance is shown as a line with a solid arrowhead pointing from the subclass to the superclass.
 - Aggregation: Aggregation represents a "has-a" relationship between classes, where one class is composed of or contains another class. It is depicted as a line with a diamond shape at one end. The class at the diamond end represents the whole, and the class at the other end represents the part.
- Association: Association represents a relationship between classes, without indicating any strong ownership or composition. It is shown as a line with a simple arrowhead, indicating that the two classes are related in some way.

Overall, class diagrams are a valuable tool for understanding and communicating the static structure of a system. They provide an overview of classes, their attributes, and their relationships, facilitating effective system design and development.

4.4 Database Design
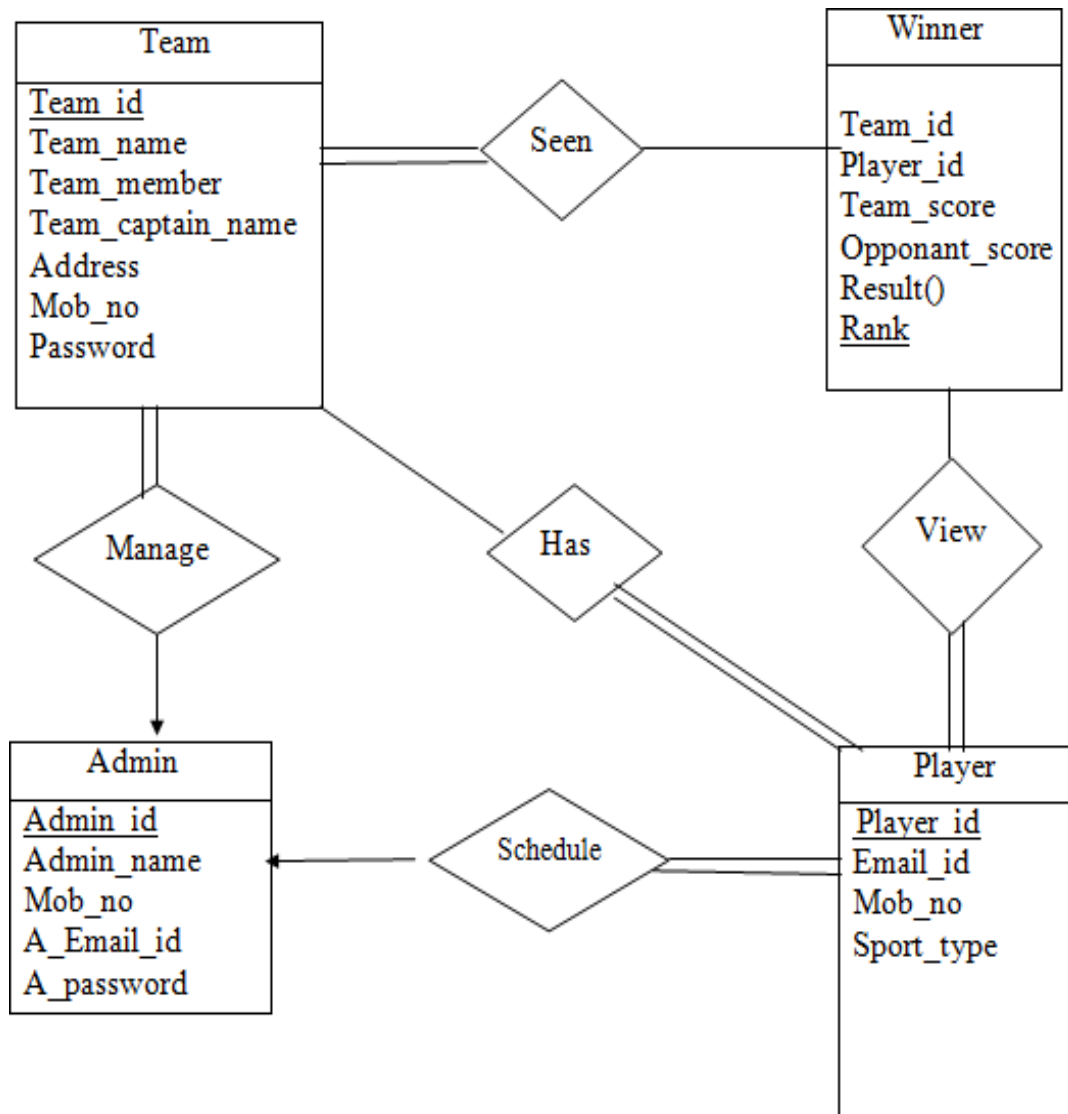
4.4.1 E-R Diagram

Fig.4.4.1 E-R Diagram

4.4.2   Schema

Team:(Team_id,Team_name,Team_member,Team_captain_name,Address,Mob_no,Pass word)

Winner: (Team_id,Player_id,Team_score,Opponant_score,Result,Rank)

Admin:(Admin_id,Admin_name,Mob_no,A_Email_id,A_password)

Player:(Player_id,Email_id,Mob_no,Sport_type)

4.4.3   Reduction of E-R

Team(team_id,team_name,team_member,team_captain_name,address,mob_no, password)

Winner (team_id, rank, player_id, team_score, opponent_score)

Admin(Admin_id, Admin_name, mob_no, a_email_id, a_password)

Player(player_id, email_id, p_mob_no, sport_type)

Seen(team_id, rank)

Manage(admin_id, team_id)

View(player_id, rank)

Has(team_id, player_id)

Schedule (admin_id,player_id)

4.4.4   Normalization

1NF -

      Every given relation with functional dependency is already in 1NF .

2NF -

Sport_Details(Team_Id,Player_ID,Team_name,Team_Member,Team_Captain_name,Address,password,Player_Email_ID,Sport_type,Rank,Team_score,Opponent_score)

3NF :

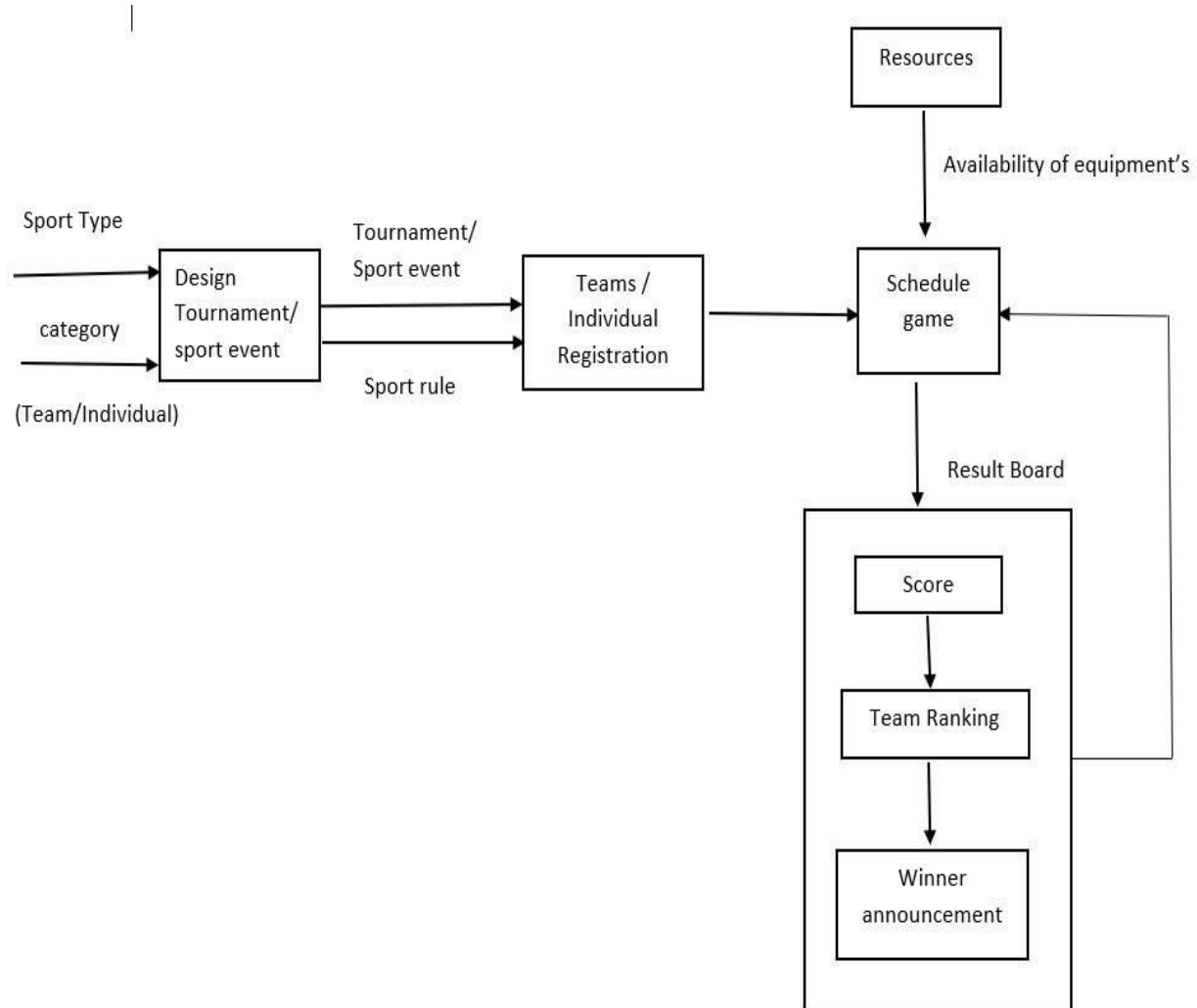Team_Info(Team_ID,Team_name,Team_Member,Address,Team_captain_name,Mobile_no,password,Rank,Team_score,Opponent_score)

Rank_Details(Rank,Team_ID,Team_Score,Opponent_score)

Player_Info(Player_ID,Player_Email_ID,Sport_type,Mob_no)

BCNF-

  BCNF is not possible

4.5   System Architecture

Fig.4.5 System Architecture

Modules:

11.   Design of tournament / Sport event:

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12.   Registration:

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Chapter 5
Implementation & Coding

5.1   Algorithm

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Now, we know

- Turnaround time = Completion time – Arrival time
- Waiting time = Turnaround time – Burst time

Team	Arrival time	Burst time	Completion time	Turnaround time	Waiting time
TeamA-TeamD	0	2	2	$2 - 0 = 2$	$2 - 2 = 0$
TeamB-Team F	1	3	11	$11 - 1 = 10$	$10 - 5 = 5$
TeamC-TeamE	2	1	5	$5 - 2 = 3$	$3 - 1 = 2$

5.3   Software Requirements with relevant justifications

1) Notepad++

Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by GNU General Public License. Based on the powerful editing component Scintilla, Notepad++ is written in C++ and uses pure Win32 API and STL which ensures a higher execution speed and smaller program size. By optimizing as many routines as possible without losing user friendliness, Notepad++ is trying to reduce the world carbon dioxide emissions. When using less CPU power, the PC can throttle down and reduce power consumption, resulting in a greener environment.

2)HTML

HTML is an acronym which stands for Hyper Text Markup Language which is used for creating web pages and web applications. Let's see what is meant by Hypertext Markup Language, and Web page. A web page is a document which is commonly written in HTML and translated by a web browser. A web page can be identified by entering an URL. A Web page is a Static. With the help of HTML only, we can create static web pages.

3) CSS

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

4) JavaScript

JavaScript is a dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS. Many browsers use JavaScript as a scripting language for doing dynamic things on the web. Any time you see a click-to-show dropdown menu, extra content added to a page, and dynamically changing element colors on a page, to name a few features, you're seeing the effects of JavaScript.

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7) XAMPP

XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself. Among these technologies, Perl is a programming language used for web development, PHP is a backend scripting language, and MariaDB is the most vividly used database developed by MySQL. The detailed description of these components is given below.

8) MySQL

MySQL is the world's most popular open source database. According to DB-Engines, MySQL ranks as the second-most-popular database, behind Oracle Database. Since MySQL is open source, it includes numerous features developed in close cooperation with users over more than 25 years. So it's very likely that your favorite application or programming language is supported by MySQL Database. MySQL Database is a client/server system that consists of a multithreaded SQL server that supports different back ends, several different client programs and libraries, administrative tools, and a wide range of application-programming interfaces (APIs). We also provide MySQL as an embedded multithreaded library that you can link into your application to get a smaller, faster, easier-to-manage standalone product.

5.4   Hardware Requirements with relevant justification

1. Memory (RAM): 4 GB or more

-       A minimum of 8 GB of RAM is recommended to ensure smooth and efficient execution of the Sport Scheduling System and other necessary processes.

-       More memory is advantageous when dealing with large data sets or performing resource intensive operations, improving overall performance and responsiveness.

2. Hard Disk Space: 4 GB or more

  - The recommended minimum of 4 GB of hard disk space is based on the assumption that the Sport scheduling System and related dependencies will consume a certain amount of storage.

 - Additional disk space may be required for storing log files, temporary files, and other project-related data.

3. Processor: x86_64 CPU architecture; 2nd generation Intel Core or newer

-        The x86_64 CPU architecture is a common and widely supported architecture for modern desktop and laptop processors.

-        The mention of a 2nd generation Intel Core or newer suggests a reasonable minimum processor requirement to ensure efficient execution of the parseable client and related tasks.

4. Screen Resolution: 1024×768 minimum screen resolution

-        A minimum screen resolution of 1024×768 ensures that the user interface of the IDE and other tools used during development are displayed properly.

-        This resolution is commonly supported by most modern monitors and laptops, allowing developers to work comfortably without display issues.

-        These specifications are provided as recommendations to ensure optimal performance and compatibility. Actual system requirements may vary depending on the specific project, the size of the data being processed, and any additional dependencies or tools used in the development environment.

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Chapter 6
Testing

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6.1   Fundamentals of Testing

Software Testing :-

Testing is an important part of the software development process. It helps to ensure that the software is of high quality and meets the requirements. Testing can be done manually or using automated tools. There are many different types of software testing, including unit testing, integration testing, system testing, and acceptance testing. Testing is an iterative process. It is often necessary to repeat the testing process several times to find all the defects in the software.

The goal of testing is to find defects in the software as early as possible. This will help to reduce the cost of fixing the defects and the impact of the defects on the users. Testing is an important part of ensuring that software is of high quality and meets the requirements.

Testing is the process of evaluating a system or its components with intent to find whether it satisfies specified requirements or not. In simple words, the software testing is executing a system in order to identify any gaps, or missing requirements, in contrary to the actual requirements. In most the cases, software tester, software developer, project manager and end users are involved in testing a system within their respective capacities.

Test Planning and Control:

This phase involves planning the entire testing process, including identifying the test cases, setting the test environment, and scheduling the tests.

Test Analysis and Design:

This phase involves analyzing the requirements and design documents to identify the test cases. It also involves designing the test cases and the test environment.

Test Implementation and Execution:

This phase involves implementing the test cases and executing them on the test environment.

Evaluating Exit Criteria and Reporting:

This phase involves evaluating the test results and reporting the findings to the development team.

Test Closure:

This phase involves closing the test cases and the test environment.

Here are some of the key concepts in software testing:

Defect:

A defect is a flaw in the software that can cause it to malfunction.

Bug:

A bug is a specific instance of a defect.

Testing:

Testing is the process of finding defects in the software.

Quality Assurance (QA):

QA is a process of ensuring that the software meets the requirements and is of high quality.

Test Case:

A test case is a document that describes how to test a specific part of the software.

Test Environment:

A test environment is a set of hardware and software that is used to test the software.

Test Data:

Test data is the data that is used to test the software. Test Results: Test results are the output of the testing process.

Test Report:

A test report is a document that summarizes the test results. Software testing is an important part of the software development process. It helps to ensure that the software is of high quality and meets the requirements.

Types of Software Testing :-

1) Unit Testing:

Unit testing focuses on smallest unit of software design. It is often done by programmers by using simple input and observing its corresponding outputs.

2) Integration Testing:

Integration testing is defined as the testing of combined parts of an application to determine if the work correctly. It is done by two ways, first is bottom-up testing which starts testing by single unit to higher level components and top-down testing is test first higher-level components to lower level The technique of testing without having any knowledge of interior

3)Black-Box Testing:

The technique of testing without having any knowledge of interior working of the application. While performing a black-box testing, a tester will interact with the systems user interface by providing inputs and examining outputs without knowing how and where the inputs are worked upon.

4) White-Box Testing:

White-box testing is the detailed investigation of internal logic and structure of the code. In order to perform white-box testing on an application, a tester needs to know the internal workings of the code.

5)Grey-Box Testing:

This technique to test the application with having knowledge of the internal workings of an application. The grey box testers don't rely on the source code, instead they rely on interface definition and functional specification

6) System Testing:

System testing tests the system as a whole. Once all the components are integrated , the application as a   whole is tested rigorously to see that it meets the specified quality standards.

7) Manual Testing:

Manual testing includes testing software manually i.e. without using any automated tool or any script. In this type, the tester takes over the role of an end-user and tests the software to identify any unexpected behavior or bug.

Testing is an iterative process. It is often necessary to repeat the testing process several times to find all the defects in the software. The goal of testing is to find defects in the software as early as possible. This will help to reduce the cost of fixing the defects and the impact of the defects on the users. Testing is an important part of the software development process. It helps to ensure that the software is of high quality and meets the requirements.

6.2   Test Plan of the Project

Test cases should be based primarily on the software requirements and developed to verify correct functionality and to establish conditions that reveal potential errors Individual PASS/FAIL criteria are written for each test case. All the tests need to get a PASS result for proper working of an application.

6.3 Test Cases and Test Results

6.3.1 Admin login:

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_01	Verify login Functionality of admin	1.Enter valid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:Nisha@15	Successful login	Successful login	Pass
TC_01	Verify login Functionality of admin	1.Enter valid email id 2.Enter invalid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	Pass
TC_01	Verify login Functionality of admin	1.Enter invalid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete@gmail.com Password:Nisha@15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	Pass

6.3.2   Registration Module :

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
1)Sign- In Page						
TC_01	Verify sign-in Functionality of user	1.Enter valid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:Nisha@15	Successful login	Successful login	Pass
TC_01	Verify sign-in Functionality of user	1.Enter valid email id 2.Enter invalid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	**Pass**
TC_01	Verify sign-in Functionality of user	1.Enter invalid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete@gmail.com Password:Nisha@15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	**Pass**
2) Team Registration						
TC_01	Verify Registration	1.Enter captain name only alphabet. 2. Minimum 3 length	Captain name: Nisha	Correct Data as per rules.	Correct Data as per rules.	Pass
TC_01	Verify Registration	1.Enter captain name only alphabet & number. 2. Minimum 3 length	Captain name: Nisha15	Enter Captain Name(First Last)(Min Length 3)	Enter Captain Name(First Last)(Min Length 3)	Pass

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_01	Verify Registration	1.Enter captain name only alphabet. 2. Enter incorrect Minimum 3 length	Captain name: Ni	Enter Captain Name(First Last)(Min Length 3)	Enter Captain Name(First Last)(Min Length 3)	Pass
TC_02	Verify Registration	Enter Email -id	Email-id: nishashete15gmail.com	Correct data as per rules.	Correct data as per rules.	Pass
TC_02	Verify Registration	Enter incorrect email-id	Email-id: nishashete15gmail.com	Enter valid email-id	Enter valid email-id	Pass
TC_03	Verify Registration	Enter mobile number	Mobile no: 1234567890	Correct data as per rules.	Correct data as per rules.	Pass
TC_03	Verify Registration	1.Enter incorrect mobile no 2.Enter mobile no. in alphabet	Mobile no: 1234ghh	Enter Valid Mob. No,(Min Length 10)	Enter Valid Mob. No,(Min Length 10)	Pass
TC_04	Verify Registration	Enter Password in alphabet , number & signs	Password: TKIET@15	Correct data as per rules.	Correct data as per rules.	Pass
TC_05	Verify Registration	Enter conform password	Password: TKIET@15	Correct data as per rules.	Correct data as per rules.	Pass
TC_05	Verify Registration	Enter incorrect password	Password: 15	Both password does not match	Both password does not match	Pass
TC_06	Verify Registration	Select tournament in drop-down list	Tournament: Basketball	Correct data as per rules.	Correct data as per rules.	Pass
TC_07	Verify Registration	Enter team name using alphabet, number & signs	Team name: Error	Correct data as per rules.	Correct data as per rules.	Pass
TC_08	Verify Registration	Enter valid address	Address: Warana	Correct data as per rules.	Correct data as per rules.	Pass
TC_09	Verify Registration	Enter team members using alphabet and number	Team members: 7	Correct data as per rules.	Correct data as per rules.	Pass

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_10	Verify Registration	Click on Sign-on button	All fields are fill.	Team registration successfully	Team registration successfully	Pass
TC_10	Verify Registration	Click on Sign-on button	Any fields are missing.	Pop up message shown .	Pop up message shown .	Pass
TC_11	Verify Registration	Click on reset button.	All fields are rested.	Successful reset.	Successful reset.	Pass

3) Single Player Registration

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_01	Verify Registration	1.Enter captain name only alphabet. 2. Minimum 3 length	Captain name: Nisha	Correct Data as per rules.	Correct Data as per rules.	Pass
TC_01	Verify Registration	1.Enter captain name only alphabet & number. 2. Minimum 3 length	Captain name: Nisha15	Enter Captain Name(First Last)(Min Length 3)	Enter Captain Name(First Last)(Min Length 3)	Pass
TC_01	Verify Registration	1.Enter captain name only alphabet. 2. Enter incorrect Minimum 3 length	Captain name: Ni	Enter Captain Name(First Last)(Min Length 3)	Enter Captain Name(First Last)(Min Length 3)	Pass
TC_02	Verify Registration	Enter Email -id	Email-id: nishashete15gmail.com	Correct data as per rules.	Correct data as per rules.	Pass
Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_02	Verify Registration	Enter incorrect email-id	Email-id: nishashete15gmail.com	Enter valid email-id	Enter valid email-id	Pass
TC_03	Verify Registration	Enter mobile number	Mobile no: 1234567890	Correct data as per rules.	Correct data as per rules.	Pass

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_03	Verify Registration	1.Enter incorrect mobile no 2.Enter mobile no. in alphabet	Mobile no: 1234ghh	Enter Valid Mob. No,(Min Length 10)	Enter Valid Mob. No,(Min Length 10)	Pass
TC_04	Verify Registration	Enter Password in alphabet , number & signs	Password: TKIET@15	Correct data as per rules.	Correct data as per rules.	Pass
TC_05	Verify Registration	Enter conform password	Password: TKIET@15	Correct data as per rules.	Correct data as per rules.	Pass
TC_05	Verify Registration	Enter incorrect password	Password: 15	Both password does not match	Both password does not match	Pass
TC_06	Verify Registration	Select tournament in drop-down list	Tournament: Basketball	Correct data as per rules.	Correct data as per rules.	Pass
TC_07	Verify Registration	Enter team name using alphabet, number & signs	Team name: Error	Correct data as per rules.	Correct data as per rules.	Pass
TC_08	Verify Registration	Enter valid address	Address: Warana	Correct data as per rules.	Correct data as per rules.	Pass
TC_09	Verify Registration	Click on Sign-on button	All fields are fill.	Team registration successfully	Team registration successfully	Pass
TC_09	Verify Registration	Click on Sign-on button	Any fields are missing.	Pop up message shown .	Pop up message shown .	Pass
TC_10	Verify Registration	Click on reset button.	All fields are rested.	Successful reset.	Successful reset.	Pass

6.3.3 Design Tournament Module

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
1) All Team & Single Player						
TC_01	Verify login Functionality of admin	1.Enter valid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:Nisha@15	Successful login	Successful login	Pass
TC_01	Verify login Functionality of admin	1.Enter valid email id 2.Enter invalid password 3.Click on sign in button	Username: nishashete15@gmail.com Password:15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	Pass
TC_01	Verify login Functionality of admin	1.Enter invalid email id 2.Enter valid password 3.Click on sign in button	Username: nishashete@gmail.com Password:Nisha@15	Login Fail Please Check Email and Password	Login Fail Please Check Email and Password	Pass
TC_02	Verify Team & single player	Search the Team /Single player by using searching key- name ,address, mobile & email	1.Search Key name: Nisha 2.Search Key Mobile:123456454 3. Search Key address: Pargaon	Successfully Searched.	Successfully Searched	Pass
TC_02	Verify Team & single player	Invalid Search the Team /Single player by using searching key- name ,address, mobile & email	1.Search Key name: 122 2.Search Key Mobile:1236454 3. Search Key address: Pargaon	Search key not found	Search key not found	Pass

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
2) Set Tournament						
TC_03	Set the tournament	1) Enter the tournament title 2) Select the Date 3)Choose Sport type 4)Click on post button	Tournament title: Skating Date: 22-04-2023 Sport type: Skating	Record saved successfully.	Record saved successfully.	Pass
TC_03	Set the tournament	1) Not Enter the tournament title 2) Select the Date 3)Choose Sport type 4)Click on post button	Tournament title: Date: 22-04-2023 Sport type: Skating	Enter the tournament title	Enter the tournament title	Pass
TC_03	Set the tournament	1) Enter the tournament title 2) Not Selected the Date 3)Choose Sport type 4)Click on post button	Tournament title: Skating Date: Sport type: Skating	Enter the date	Enter the date	Pass
TC_04	Set the tournament	1)List of all courses. 2)Click button on edited. 3) Click button on Deleted.	1)Shown All registered tournament. 2) Tournament edited.	Successfully edited.	Successfully edited.	Pass
TC_04	Set the tournament	1)List of all courses. 2)Click button on edited. 3) Click button on Deleted	1)Shown All registered tournament. 2)Delete Record.	Record Successfully deleted.	Successfully edited.	Pass

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
3) Manage Admin User						
TC_05	Verify Admin detail	Enter the admin name using alphabet	Admin name: Nisha	Correct data as per rules.	Correct data as per rules.	Pass
TC_05	Verify Admin detail	Enter the admin name using alphabet & number	Admin name: Nisha15	Enter valid name	Enter valid name	Pass
TC_06	Verify Admin detail	Enter admin email	Email: nisha@gmail.com	Correct data as per rules.	Correct data as per rules.	Pass
TC_06	Verify Admin detail	Enter invalid email	Email: nishahghjdg	Enter valid email	Enter valid email	Pass
TC_07	Verify Admin detail	Enter password	Password: vvb123	Correct data as per rules.	Correct data as per rules.	Pass
TC_08	Verify Admin detail	Enter valid Mobile no min length 10	Mobile no: 1234567890	Correct data as per rules.	Correct data as per rules.	Pass
TC_08	Verify Admin detail	Enter incorrect mobile no	Mobile no: 121545	Enter Phone Number,(Min Length 10),	Enter Phone Number,(Min Length 10),	Pass
TC_09	Verify Admin detail	Click on post button	All fields are filled.	Successfully Posted	Successfully Posted	Pass
TC_10	Verify Ranking & Winner	Click on Sign out	Go to Main Admin page	Successfully sign-out.	Successfully sign-out.	Pass

6.3.4   Sport Scheduling

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
1)Tournament Scheduling						
TC_01	Verify Sport Scheduling	1)Choose Tournament list 2) Select start time 3) Click on set button	Tournament: Basketball Start time: 10.00am	Successfully Scheduled matches.	Successfully Scheduled matches.	Pass
TC_02	Verify Sport Scheduling	Show Slot table of tournament.	Team Name 1: Nisha Team name 2: Sayali Time: 10.00 Round: 1 Winner: Pending	Successfully Show the schedule matches.	Successfully Show the schedule matches.	Pass
2) Score and Knock out						
TC_03	Verify Sport Scheduling	1)Select tournament list 2)Click on search button	Tournament: Basketball	Successfully searched.	Successfully searched.	Pass
TC-04	Verify Sport Scheduling	1)Showing tournament slot table 2) Click on Win button	Team Name 1: Nisha-win Team name 2: Sayali-win Time: 10.00 Round: 1 Winner: Nisha	Successfully show winner of round 1.	Successfully show winner of round 1.	Pass
TC_05	Verify Ranking & Winner	Click on Sign out	Go to Main Admin page	Successfully sign-out.	Successfully sign-out.	Pass

6.3.5   Result

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Actual Result	Status
TC_01	Verify Ranking & Winner	1)Select tournament list 2)Click on search button	Tournament: Basketball	Successfully searched.	Successfully searched.	Pass
TC_02	Verify Ranking & Winner	1)Showing tournament winner slot table 2) Click on view button	Captain name: Nisha Team name: Nisha Email id: n@gmail.com Mob no:123456790 Score: 1	Successfully shown all information of winner which score is 1.	Successfully shown all information of winner which score is 1 .	Pass
TC_03	Verify Ranking & Winner	1)Showing tournament Knockout slot table 2) Click on view button	Captain name: Sayali Team name: Sayali Email id: s@gmail.com Mob no:123456790 Score: 0	Successfully shown all information of knock out person which score is 0.	Successfully shown all information of knockout person which score is 0.	Pass
TC_04	Verify Ranking & Winner	Click on Sign out	Go to Main Admin page	Successfully sign-out.	Successfully sign-out.	Pass

Chapter 7

Project Plan & Schedule

7.1 Project Planning and Project Resources

Task	Description	Duration
Domain Knowledge	Discussion with guide about different problems	15 days
Problem Definition	Selection of project and problem statement with guide and client	20 days
Requirement Analysis	Client meeting	10 days
	Information Gathering	10 days
Design	System Architecture	10 days
	Synopsis	15 days
Planning	DFD, UML, Activity diagram, State diagram, Use-case diagram	20 days
Initial Report	Compilation of initial report	15 days
Implementation	Initializing and finalizing implementation	75 days
System Testing	Testing different scenarios	15 days
Pushing code on GitHub	Pushing and maintaining final code on GitHub	8 days
Final Report	Compiling final report	18 days

Project Planning:

1. Define Project Goals and Scope: -

    Clearly define the goals and objectives of the project, which include automatically generate winner on basis of score , It will reduce time than manual paper work .Define the scope of the project, including the specific functionalities, features, and modules to be implemented.

2. Breakdown of Tasks:

    Break down the project into smaller tasks based on the identified system modules, such as fetching data, and data forwarding. Identify dependencies between tasks and establish a logical sequence for their execution.

3. Estimation of Effort and Resources:

    Estimate the effort required for each task, considering factors such as complexity, development time, and testing requirements. Identify the resources needed for the project, including development tools, hardware, and software requirements.

4. Timeline and Milestones:

    Create a timeline for the project, setting milestones and deliverables for each phase or task. Consider factors such as development time, testing, integration, and deployment to establish a realistic timeline.

5. Risk Management:

    Identify potential risks and their impact on the project, such as network failures, hardware failures, broker malfunctions, and platform corruption. Develop risk mitigation strategies, including contingency plans, redundancy measures, and security protocols.

6. Project Communication and Collaboration:

    Establish communication channels and protocols for effective collaboration among team members, stakeholders, and external partners.

Project Resources :

1) Notepad++

Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by GNU General Public License. Based on the powerful editing component Scintilla, Notepad++ is written in C++ and uses pure Win32 API and STL which ensures a higher execution speed and smaller program size. By optimizing as many routines as possible without losing user friendliness, Notepad++ is trying to reduce the world carbon dioxide emissions. When using less CPU power, the PC can throttle down and reduce power consumption, resulting in a greener environment.

2) HTML

HTML is an acronym which stands for Hyper Text Markup Language which is used for creating web pages and web applications. Let's see what is meant by Hypertext Markup Language, and Web page. A web page is a document which is commonly written in HTML and translated by a web browser. A web page can be identified by entering an URL. A Web page is a Static. With the help of HTML only, we can create static web pages.

3) CSS

CSS stands for Cascading Style Sheets. It is a style sheet language which is used to describe the look and formatting of a document written in markup language. It provides an additional feature to HTML. It is generally used with HTML to change the style of web pages and user interfaces. It can also be used with any kind of XML documents including plain XML, SVG and XUL.CSS is used along with HTML and JavaScript in most websites to create user interfaces for web applications and user interfaces for many mobile applications.

4) JavaScript

JavaScript is a dynamic programming language that's used for web development, in web applications, for game development, and lots more. It allows you to implement dynamic features on web pages that cannot be done with only HTML and CSS. Many browsers use JavaScript as a scripting language for doing dynamic things on the web. Any time you see a click-to-show dropdown menu, extra content added to a page, and dynamically changing element colors on a page, to name a few features, you're seeing the effects of JavaScript.

5) PHP

PHP (Hypertext Processor) is a general-purpose scripting language and interpreter that is freely available and widely used for web development. The language is used primarily for server-side scripting, although it can also be used for command-line scripting and, to a limited degree, desktop applications. The acronym PHP was originally derived from Personal Home Page Tools, but it now stands for PHP: Hypertext Preprocessor, which the PHP Group's documentation describes as a "recursive acronym."

6) Apache

Apache HTTP Server is a free and open-source web server that delivers web content through the internet. It is commonly referred to as Apache and after development, it quickly became the most popular HTTP client on the web. It's widely thought that Apache gets its name from its development history and process of improvement through applied patches and modules but that was corrected back in 2000. It was revealed that the name originated from the respect of the Native American tribe for its resiliency and durability. Now, before we get too in depth on Apache, we should first go over what a web application is and the standard architecture usually found in web apps.

7) XAMPP

XAMPP helps a local host or server to test its website and clients via computers and laptops before releasing it to the main server. It is a platform that furnishes a suitable environment to test and verify the working of projects based on Apache, Perl, MySQL database, and PHP through the system of the host itself. Among these technologies, Perl is a programming language used for web development, PHP is a backend scripting language, and MariaDB is the most vividly used database developed by MySQL. The detailed description of these components is given below.

8) MySQL

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7.2   Project Scheduling (Gantt Chart etc.)

A Gantt chart is a type of bar chart, developed by Henry Gantt that illustrates a project schedule. Gantt charts illustrate the start and finish of the terminal elements and summary elements of the project. Terminal elements and summary elements comprise the work breakdown structure of the project. With reference to Gantt chart methodology and concept of it in Training and placement management we planned this system as follows:

Task	Sept - Oct	Nov.	Dec.	Jan.	Feb.	Mar.	April	May
Domain Knowledge	▬							
Problem Definition		▬						
Requirement Analysis			▬					
Design				▬				
Planning				▬				
Initial Report					▬			
Implementation						▬▬▬		
Testing							▬	
GitHub Code Publishing and Maintenance								▬
Final report								▬
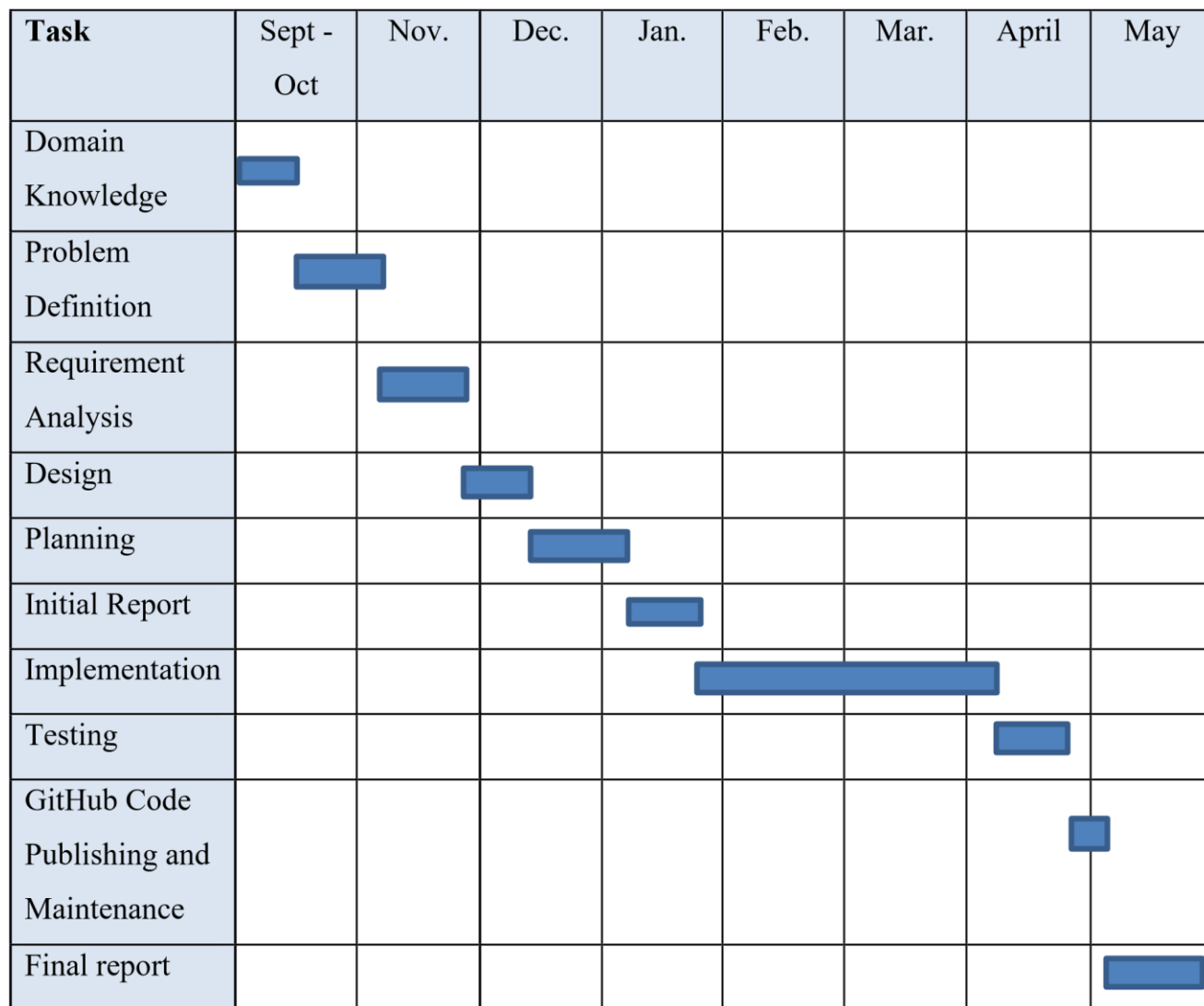
7.3   Effort Estimation

In software development, Effort Estimation is the process of predicting the most realistic amount of effort required to develop or maintain software based on incomplete, uncertain and noisy input. This effort is traditionally measured in hours worked by a person or the money needed to pay for this work.

Effort estimation typically involves breaking down a project into smaller, more manageable tasks or work packages. Each task is then analyzed to determine the effort required, considering factors such as complexity, skill level, dependencies, and historical data from similar projects. Various techniques and methodologies are employed to estimate effort, including expert judgment, analogous estimation, parametric estimation, three-point estimation, and bottom-up estimation.

Expert judgment relies on the knowledge and experience of individuals or a group of experts who provide their input based on their domain expertise. Analogous estimation involves comparing the current project with similar past projects to determine the effort required. Parametric estimation utilizes statistical models and historical data to estimate effort based on predefined parameters and formulas. Three-point estimation involves estimating effort using optimistic, pessimistic, and most likely scenarios to calculate a weighted average. Bottom-up estimation involves estimating effort for individual tasks and then aggregating them to determine the overall project effort.

Effort estimation is subject to uncertainties and risks, as it relies on assumptions and imperfect information. It is important to consider potential risks and uncertainties while estimating effort and incorporate contingency buffers to accommodate unforeseen challenges.

Effort Estimation is used to help draft project plans and budget in the early stages of the software development lifecycle. This practice enables a project manager or a product owner to accurately predict costs and allocate resources accordingly.

Project manager will estimate the effort required to complete each item Rather than using time or cost estimates they will look at user stories and story points. A product owner will compare the features of their new project with a previous one to determine the complexity of their user story and assign suitable story points.

In proposed system we don't required any paid software, paid tools for implementation purpose.

Effort estimation plays a vital role in project planning, resource allocation, scheduling, and budgeting. Accurate estimation helps stakeholders make informed decisions, manage expectations, and ensure the successful completion of projects within the defined constraints. The effort estimation of this proposed system Sport Scheduling System is as follows:

Name	Technology	Main Work
Group Leader	Front End and Database Design	3 weeks
Member 1	Frond End & back end	3-4 week
Member 2	Front End & Back end	3-4 week
Member 3	UI/UX design	2 weeks

Table 7.3.1: Effort estimation table

Chapter 8
Risk Management and Analysis

6.1   Project Risk Identification

Identifying risk is one of most important or essential and initial steps in risk management process. By chance, if failure occurs in identifying any specific risk, then all other steps that are involved in risk management will not be implemented for that particular risk.

Methods for Identifying Risks:

Earlier, there were no easy methods available that will surely identify all risks. Some of approaches for risk identification are as follows:

1. Checklist Analysis: Checklist Analysis is type of technique generally used to identify or find risks and manage it. Checklist is basically developed by listing items, steps, or even tasks and is then further analyzed against criteria to just identify and determine if procedure is completed correctly or not.

2. Brainstorming: This technique provides and gives free and open approach that usually encourages each and everyone on project team to participate. It is creative and unique technique to gather risks spontaneously by team members.

3. Casual Mapping: Casual Mapping is method that builds or develops on reflection and review of failure factors in cause and effect of the diagrams. It is very useful for facilitating learning with an organization or system simply as method of project-post evaluation.

Registration: If user haven't created team or individual registration, so user cannot access features.

User ignorance: User having insufficient knowledge about user interface.

6.2 Project Risk Analysis

Risk analysis in project management is a sequence of processes to identify the factors that may affect a project's success. These processes include risk identification, analysis of risks, risk management and control, etc. Proper risk analysis helps to control possible future events that may harm the overall project.

Create Account: User must create account with proper details.

User friendly interface: Creating simple and compatible user interface for ease of access the features

1) **Database crash leads to data loss :**

Analysis- we store information into our database. If database get crash, then we face the problem of data loss.

Management- We create copy of existing database which will help us to recover our data.

2) **System Failure:**

System failure can cause loss of hardware, software, data, or information.

Analysis- System failures may Result from a motherboard can cause a system failure because the computer or operate in general and also like processor, RAM. It is defective and must replace. In other side generally software issues may occur like computer freezes, slow processing etc. for troubleshooting restart web application

3) **Connectivity failure:**

Connectivity problems such as database connectivity with .php pages redirection or connection of different pages and modules with database crashes. sometime Proper connectivity is required for data manipulation.

Chapter 9
Configuration Management

9.1   Installation/Uninstallation

1) Notepad++

Step 1. Click here to open the Notepad++ free download page and select the version that you want to install. Here we take the Notepad++ v8.4.4 for example.

Step 2. Select the 32-bit version or 64-bit version of Notepad++ according to your system type and click on Download. Then select a location to save the Notepad++ installation package.

Step 3. Double click the Notepad++ installer, select language from the drop-down menu, and click on OK.

Step 4. Click on Next and then on I Agree to accept the license agreement.

Step 5. Then follow the on-screen instructions to complete the Notepad++ installation. Once installed, you can tick or untick the Run Notepad++ box and click on Finish.

2) XAMPP -

Step 1: Download

XAMPP is a release made available by the non-profit project Apache Friends. Versions with PHP 5.5, 5.6, or 7 are available for download on the Apache Friends website.

Step 2: Run .exe file

Once the software bundle has been downloaded, you can start the installation by double clicking on the file with the ending .exe.

Step 3: Deactivate any antivirus software

Since an active antivirus program can negatively affect the installation process, it's recommended to temporarily pause any antivirus software until all XAMPP components have successfully been installed.

Step 4: Deactivate UAC

User Account Control (UAC) can interfere with the XAMPP installation because it limits writing access to the C: drive, so we recommend you deactivate this too for the duration of the installation process. To find out how to turn off your UAC, head to the Microsoft Windows support pages.

Step 5: Start the setup wizard

After you've opened the .exe file (after deactivating your antivirus program(s) and taken note of the User Account Control, the start screen of the XAMPP setup wizard should appear automatically. Click on 'Next' to configure the installation settings.

Step 6: Choose software components

Under 'Select Components', you have the option to exclude individual components of the XAMPP software bundle from the installation. But for a full local test server, we recommend you install using the standard setup and all available components. After making your choice, click 'Next'.

Step 7: Choose the installation directory

In this next step, you have the chance to choose where you'd like the XAMPP software packet to be installed. If you opt for the standard setup, then a folder with the name XAMPP will be created under C:\ for you. After you've chosen a location, click 'Next'.

Step 8: Start the installation process

Once all the aforementioned preferences have been decided, click to start the installation. The setup wizard will unpack and install the selected components and save them to the designated directory. This process can take several minutes in total. You can follow the progress of this installation by keeping an eye on the green loading bar in the middle of the screen.

Step 9: Windows Firewall blocking

Your Firewall may interrupt the installation process to block the some components of the XAMPP. Use the corresponding check box to enable communication between the Apache server and your private network or work network. Remember that making your XAMPP server available for public networks isn't recommended

Step 10: Complete installation

Once all the components are unpacked and installed, you can close the setup wizard by clicking on 'Finish'. Click to tick the corresponding check box and open the XAMPP Control Panel once the installation process is finished.

9.2   User Manual

9.2.1 Input Screenshots of Team Registration

New Team Registration

Enter Team Information.

Team Captain Name*

Nisha

Email*

nisha@gmail.com

Mobile NO*

7083722958

Password*

...

Confirm Password*

...

Tournament *:

TKIET-Basketball

Team name*

Nisha
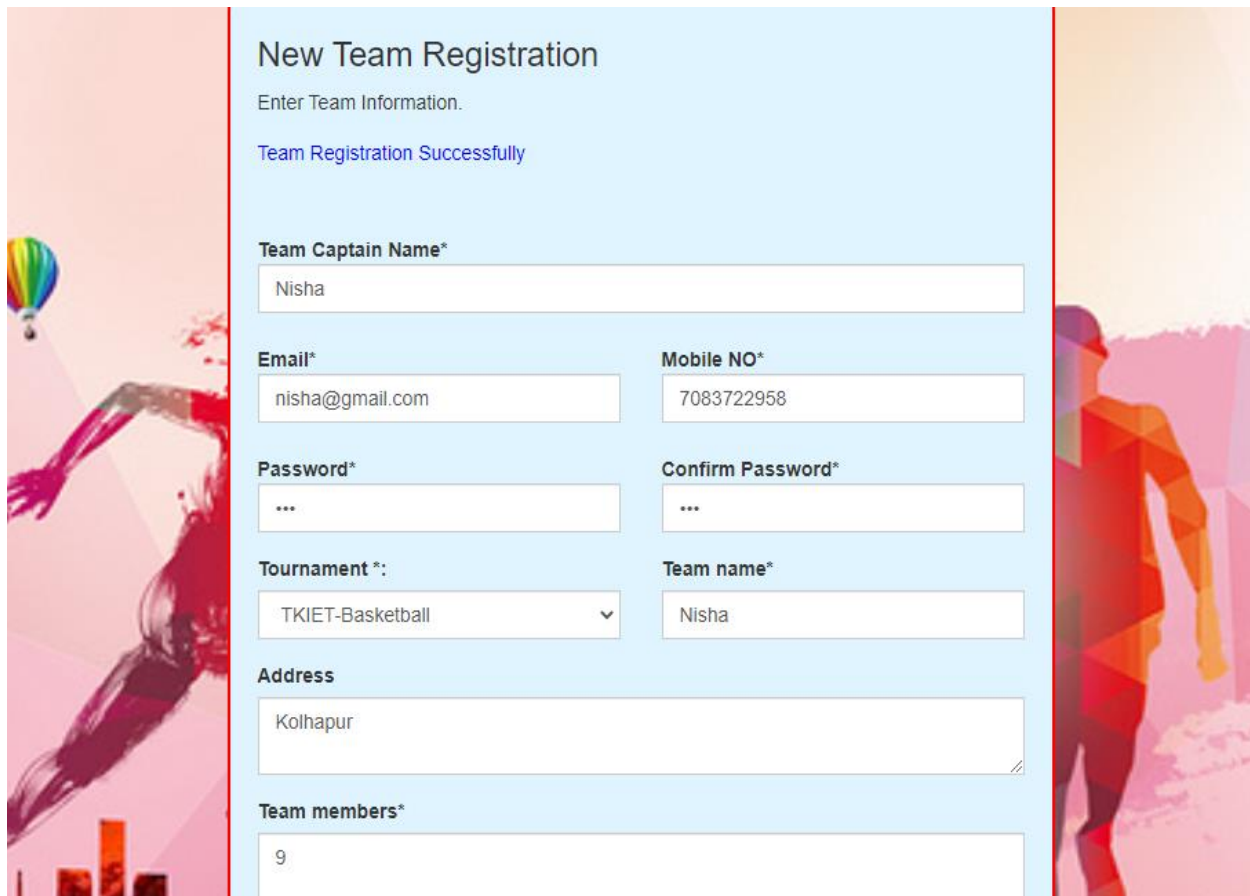
Address

Kolhapur

Team members*

9

Save   Reset

Input of Team Registration

9.2.2 Output Screenshot of Team Registration

New Team Registration

Enter Team Information.

Team Registration Successfully

Team Captain Name*

Nisha

Email*

nisha@gmail.com

Mobile NO*

7083722958

Password*

...

Confirm Password*

...

Tournament *:

TKIET-Basketball

Team name*

Nisha

Address

Kolhapur

Team members*

9

Output of Team Registration Successfully

Extra options

		sid	Cname	mobno	email	Address	Teamname	Tournament	Teammembers	Score	password
☐	Edit ⬚ Copy ⊝ Delete	48	Nisha	7083722958	nisha@gmail.com	Kolhapur	Nisha	11	9	0	123

☐ Check all   With selected: Edit   Copy   Delete   Export

Database Stored team registered information

9.2.3 Input Screenshot of Sign-in Page of Team/Single Players

Input of User Sign-in

9.2.4 Output Screenshot of Sign-in page of Team/Single-Players
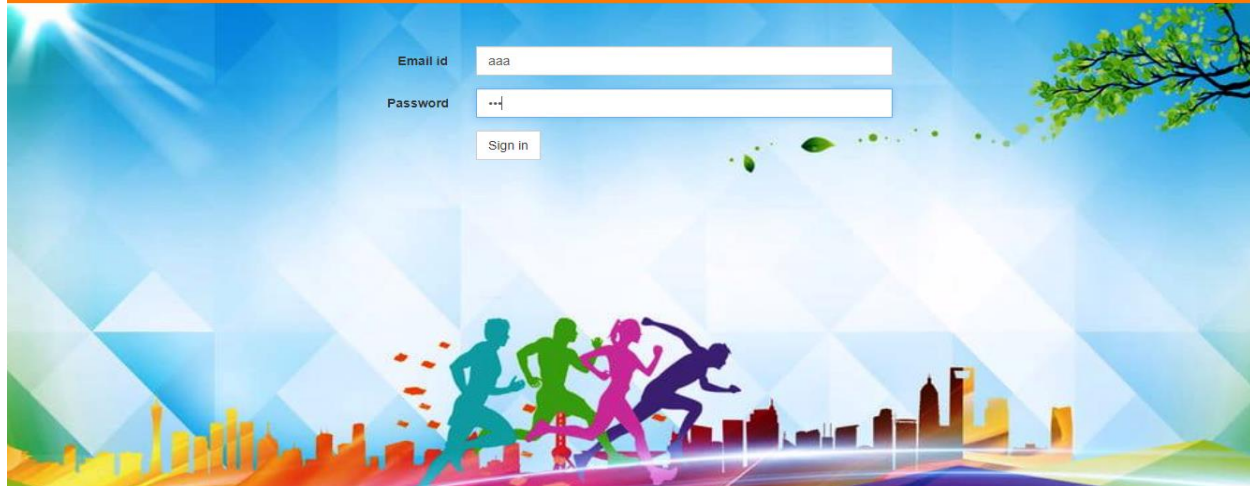
Output of Sign-in page

9.2.5 Input screenshot of Admin Sign-in

Input of Admin sign-in page

9.2.6 Output of Admin sign-in page

Output of Admin sign-in page

sports
New
admin
teams
tournament
tournamentteam
test

Extra options

				Aid	Aname	Aemail	Apwd	Amob
☐	Edit	Copy	Delete	6	aaa	aaa	aaa	

↑ ☐ Check all *With selected:* Edit Copy Delete Export

Database stored information

9.2.7 Input Screenshot of Teams and Single Player

Input of Team & single player

9.2.8 Ouput Screenshot of All Team & Single

9.2.9 Input Screenshot of Set the Tournament

Input of Set the Tournament

9.2.10   Output Screenshot of the Set of the Tournament

All course

ID	Tournament Title	Date	Sport	
6	Basketball	2023-05-17	Basketball	X Edit
7	Football	2023-05-20	Football	X Edit
8	Skating	2023-08-18	Skating	X Edit
9	Cricket	2023-08-25	Cricket	X Edit
10	TKIET-Skating	2023-06-22	Skating	X Edit
11	TKIET-Basketball	2023-05-10	Basketball	X Edit
12	TKIET-Football	2023-05-16	Football	X Edit

Output of the Set of the Tournament

				TID	Name	DateofTournament	Sporttype
☐	Edit	Copy	Delete	6	Basketball	2023-05-17	Basketball
☐	Edit	Copy	Delete	7	Football	2023-05-20	Football
☐	Edit	Copy	Delete	8	Skating	2023-08-18	Skating
☐	Edit	Copy	Delete	9	Cricket	2023-08-25	Cricket
☐	Edit	Copy	Delete	10	TKIET-Skating	2023-06-22	Skating
☐	Edit	Copy	Delete	11	TKIET-Basketball	2023-05-10	Basketball
☐	Edit	Copy	Delete	12	TKIET-Football	2023-05-16	Football

sports
  New
  admin
  teams
  tournament
  tournamentteam
test

Extra options

Database of the Set the Tournament

9.2.11   Input Screenshot of the Manage Admin User

Input of the Manage Admin User

9.2.12   Output Screenshot of the Manage Admin User

Output of the Manage Admin User

9.2.13   Input Screenshot of the Tournament Scheduling

Input of the Tournament Scheduling

9.2.14   Output Screenshot of the Tournament Scheduling

Database Stored Information tournament scheduling

9.2.15   Input Screenshot of the Score & Knockout

Input of the Score & Tournament

9.2.16   Output Screenshot of the Score & Tournament

Output of the Score & Tournament

9.2.17   Input Screenshot of the Ranking & Winner

Tournament Winner and Ranks

Tournament List:

| TKIET-Basketball ⌄ | Search |

Tournament Winner and Ranks

Captain Name	Team Name	Mobile	Email	Score	
Nisha	Nisha	7083722958	nisha@gmail.com	1	View
Mrunal	Mrunal	7083722958	Mrunal@gmail.com	0	View

Input of the Ranking & Winner

9.2.18   Output Screenshot of the Ranking & Winner

Team ID	48
Captain Name	Nisha
Team Name	Nisha
Mobile	7083722958
Email	nisha@gmail.com
Address	Kolhapur
Team Members	9
Tournament ID	11
Score	1

Tournament Winner and Ranks

Captain Name	Team Name	Mobile	Email	Score	
Nisha	Nisha	7083722958	nisha@gmail.com	1	View
Mrunal	Mrunal	7083722958	Mrunal@gmail.com	0	View

Output of the Ranking & Winner

9.2.19   Input Screenshot of the Tournament Score Single player module

Input of the Tournament score single player module

9.2.20   Output Screenshot of Tournament score single player module

Output of the Tournament score single player module

Chapter 10
Conclusion and Future Scope

10.1 Conclusion

Sport tournament scheduling is a challenging activity. Sport is one of the activities that most of the sport person like to participate whether it is at the individual or professional level. There is problem regarding scheduling matches, conflict time slots and availability of resources. To solve these problems, the sports scheduling system can play a very good role. The system is able to automatically generate the tournament schedule using round robin algorithm.

Using this Sport Scheduling System sport Incharge can save time as well as energy required to the schedule matches, checking requirement details, fill the score and find winner .Sport scheduling system made all these things possible within few minutes. This System can help to schedule matches for particular sport academy, college level sport tournaments and also for the university level sport tournaments.

10.2 Future Scope

For the project "Sports Scheduling System" there are several algorithms are suitable. Even though the tournament can be planned using knockout, group league, group stage algorithm however this project considers "Round Robin Algorithm" for Scheduling matches.

References

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1.T. Januario, S. Urrutia, A new neighborhood structure for round robin scheduling problems, Computers & Operations Research.

b) Book References

1. Van Bulck D , A three-field classification and unified data format for round-robin sports timetabling, Goossens D, Sch onberger J, Guajardo M: RobinX .

2. Carlos Lamas-Fernandez , Scheduling Double Round-Robin Sports Tournaments ,· AntonioMartinez-Sykora·Chris N Pott.

c) Web References

1) https://www.javatpoint.com/os-round-robin-scheduling-example

2) https://7esl.com/sports-and-games-vocabulary/