Acknowledgement

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DHWANI HINGU

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Abstract

Athletes who perform gymnastics face several issues like registering for an event, documents verification, event schedule, etc. With such a mess to just register for an event, It even becomes difficult for the athletes to know their ranking and performance.

The gymnastic event management system enables athletes to register for an event, upload documents and details online. The inbuilt algorithms will generate a schedule and inform the users for the same, this will help athletes to easily keep track of their upcoming events. Based on their performance judges will rank them and results will be generated in real time and the same will be updated on website/app, basically a real time scoreboard will be shown on system.

This system will thus help athletes to keep tracks of their events and performance, it will also reduce the overhead for the organizers to manually schedule the events, verify documents and update scoreboards.

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CHAPTER 1

INTRODUCTION

1.1 Basic Concept

Gymnastics is a sport that requires balance, strength, flexibility, agility, coordination and endurance. The movements involved in gymnastics contribute to the development of the arms, legs, shoulders, back, chest and abdominal muscle groups. Alertness, precision, daring, self-confidence and self-discipline are mental traits that can also be developed through gymnastics.

Most forms of competitive gymnastics events are governed by the Fédération Internationale de Gymnastique(FIG). Each country has its own national governing body (BIW) affiliated to FIG. Competitive artistic gymnastics is the best known of the gymnastic events. It typically involves the women's events of vault, uneven bars, balance beam and floor exercise as well as the men's events of floor exercise, pommel horse, still rings, vault, parallel bars and horizontal bar.

Gymnasts who perform gymnastics face several issues like registering for an event, documents verification, event schedule, etc. With such a mess to just register for an event, It even becomes difficult for the athletes to know their ranking and performance.

Gymnastics Event Management System is a system to help organize competitions. The system primarily has 4 modules: Registration, Event Day Logistics, Record/Result History and Personal Profile Management for the in-house players.

The Registration module allows home players of a club to enroll into upcoming events. Guest athletes can apply for their desired event or sport as per the Age, Apparatus, Element, etc.

Event Day Logistics consists of all participant records playing at the event which will be used to schedule players, provide scoresheets, generate ranking, publish scores and update records.

- Verification: Participant documents are verified and approved.
- Scheduling: The system schedules the competition as per the Age Group, Apparatus and Gender to display order of events.
- Scoring: An online scoresheet for Judges to enter scores for each participant and view the next participant. Scoresheets can also be reviewed to settle disputes.
- Ranking: Once judges finalize the scores, it can be displayed on the scoreboard and ranking will be done to be displayed on the websites.
- Updating: The results and achievements will be uploaded to the system for in-house players.

Record/Result History maintains a log of all events and results of events held at this club till the current date.

Personal Profile Management provides a portfolio for its players. In-house players can upload their certificates and medals won at external clubs into the system.

As part of quality of life features, all database objects such as participation forms, results, history of an athlete, etc could be converted to a different version of soft copy such as PDF or Word file and can be downloaded as and when required.

1.2 Scope

The scope of the project is to save the time in managing the events. The participants will be updated of the newly events which are upcoming The user can easily learn how to use the system and as well can easily manage the events by using our system. The participants data/information is safe and secure at the back end. The events results are displayed on the spot , which saves judges as well as participants time. This system can also be used in any type of event management system

1.3 Problem Statement

Gymnastics in is still a very niche sport in India but that hasn't stopped hundreds of people from playing it and participating in gymnastic competitions. Such competitions should have a nice and fluid system to register participants for a competition and be able to record all required information about players digitally so that it can be retrieved as and when required by event staff, judges or even club members to schedule, score or analyze a player's data and maintain and database of all players in that club.

However, such a system is non-existent at the time being which has made the entire process of enrolling into a club and participating in any kind of event a huge chore. All processes from enrollment to registration is done on paper and hence is extremely time consuming. Almost an entire day could be spent easily on just filling registration forms and verifying them. A lot of staff is also needed on the day of the event just to retrieve and distribute these information sheets. All of the staff are also on a separate payroll for the event days which is cost that can be cut down of the system was a bit more streamlined and did not require so many staff doing small jobs.

Thus to make it this entire process a lot simpler, a software system can be introduced which enrolls players into a club, maintains records of all enrolled players, can conduct events and provide judges with an interface to score the participants, all the while eliminating the need for hardcopies and need for extra staff that would otherwise be required. It also makes it extremely beneficial for a club if the software can maintain and help coaches analyze every player's strengths and weaknesses to help them get better results.

CHAPTER 2

LITERATURE SURVEY

Established Sports Management Systems

- **MindFire Solutions:**

  Our [2] client was aiming to, streamline management of various sporting events held at schools, and make it easily accessible for the users. Schools can buy this product from him and efficiently manage details of various games/sports played. Apart from this the client also wanted to keep track of the results of various events and also there mapping with many-to-many relations. There was also requirement to create different statistical reports, charts, graph of different games, students, schools against their opponents thus providing every minute detail of the event. He also was interested in providing a video upload and image upload feature to the application which can be viewed by the users later. He was keen to implement these features both for game and students.

  With these many number of objectives and critical business logic implementation in mind, the client approached Mindfire Solutions Adobe team to find and propose them with a feasible solution. Mindfire's experts took no time to start discussing about the specifications sent by the client and finally proposed a way to get a robust application in place.

Technologies used: Adobe Flex 3.0, ActionScript 3.0, ColdFusion 8.0, MySQL.

- DreamzTech Solution:

  We delivered a high-quality and result-oriented Web development Solution. We offered the following functional features:[3]

  - Configurable product
  - Advance Search with Apache
  - Ubercart Commerce
  - Memcache
  - Livechat

Technologies used:

User Interface: jQuery, HTML, CSS

Business Logic: Drupal, Webform, Views, Block etc.

Communication: Google SMTP Server

Persistence (DB): MySQL

Our System:

Angular JS

AngularJS is a structural framework for dynamic web apps. With AngularJS, designers can use HTML as the template language and it allows for the extension of HTML's syntax to convey the application's components effortlessly. Angular makes much of the code you would otherwise have to write completely redundant. Despite the fact that AngularJS is commonly related to SPA, you can use Angular to build any kind of app, taking advantage of features like: Two-way binding, templating, RESTful api handling, modularization, AJAX handling, dependency injection, etc.[4]

NodeJS

As an asynchronous event driven JavaScript runtime, Node is designed to build scalable network applications. In the following "hello world" example, many connections can be handled concurrently. Upon each connection the callback is fired, but if there is no work to be done, Node will sleep.[5]

```
const http = require('http');

const hostname = '127.0.0.1';

const port = 3000;

const server = http.createServer((req, res) => {

  res.statusCode = 200;

  res.setHeader('Content-Type', 'text/plain');

  res.end('Hello World\n');

});

server.listen(port, hostname, () => {

  console.log(`Server running at http://${hostname}:${port}/`);

});
```

This is in contrast to today's more common concurrency model where OS threads are employed. Thread-based networking is relatively inefficient and very difficult to use. Furthermore, users of Node are free from worries of dead-locking the process, since there are no locks. Almost no function in Node directly performs I/O, so the process never blocks. Because nothing blocks, scalable systems are very reasonable to develop in Node.

Apache JMeter

The Apache JMeter™ application is open source software, a 100% pure Java application designed to load test functional behavior and measure performance. It was originally designed for testing Web Applications but has since expanded to other test functions.[6]

Apache JMeter may be used to test performance both on static and dynamic resources, Web dynamic applications.

It can be used to simulate a heavy load on a server, group of servers, network or object to test its strength or to analyze overall performance under different load types.

Apache JMeter features include:

- Ability to load and performance test many different applications/server/protocol types:
- Web - HTTP, HTTPS (Java, NodeJS, PHP, ASP.NET, …)
- SOAP / REST Webservices
- FTP
- Database via JDBC
- LDAP
- Message-oriented middleware (MOM) via JMS
- Mail - SMTP(S), POP3(S) and IMAP(S)
- Native commands or shell scripts
- TCP
- Java Objects

PrimeNG

PrimeNG is a collection of rich UI components for Angular. All widgets are open source and free to use under MIT License. PrimeNG is developed by PrimeTek Informatics, a vendor with years of expertise in developing open source UI solutions.

MongoDB

- MongoDB **stores data in flexible, JSON-like documents**, meaning fields can vary from document to document and data structure can be changed over time

- The document model **maps to the objects in your application code**, making data easy to work with

- **Ad hoc queries, indexing, and real time aggregation** provide powerful ways to access and analyze your data

- MongoDB is a **distributed database at its core**, so high availability, horizontal scaling, and geographic distribution are built in and easy to use

- MongoDB is **free and open-source**. Versions released prior to October 16, 2018 are published under the AGPL. All versions released after October 16, 2018, including patch fixes for prior versions, are published under the Server Side Public License (SSPL) v1.[7]

ExpressJS

Express.js, or simply Express, is a web application framework for Node.js, released as free and open-source software under the MIT License. It is designed for building web applications and APIs. It has been called the de facto standard server framework for Node.js.

You can then use a database like MongoDB with Mongoose (for modeling) to provide a backend for your Node.js application. Express.js basically helps you manage everything, from routes, to handling requests and views.

CHAPTER 3

SYSTEM DESIGN

3.1 Proposed System

The proposed Gymnastics Event Management System will assist organizing a gymnastics competition. This software has Registration for participants, Event day management and Distribution of certificates. This software also maintains the Inhouse players data i.e. achievements, Rankings, etc.

- **Registration**
  - **Players Registration form** :- Online Forms for the Registration of the players from other teams.
  - **Inhouse Players Registration**:- The Inhouse players could register automatically using internal portal.

- **Event day process**
  1. **Documents Verification:-** Verification will be done of the documents submitted by the players on the event day.
  2. **Scheduling:-** After the verification, the software will arrange the players in the certain categories and schedule their events. The Scheduling will be done according to the No. of participants, Age Group, Gender, Events and Apparatus. The schedules will be displayed on Website.
  3. **Scoring System:-** At the event Judges are able to see the players score card according to the apparatus and events as per the schedule.
     - Score card will be displayed where judges can enter the scores.
     - After finalizing the scores, judges can confirm the final scorecard.
     - After confirmation of the scorecard judges can view the scorecard of the next player immediately.
  4. **Displaying Result**:- After each performance scores will be updated. At the end of the particular event, judges will finalize the scores and the scores will be displayed. If any changes in scores, judges can edit the scores and confirm it finally.
  5. **Ranking**: After end of the event finalized scores will be computed and ranking will be generated.
  6. **Distribution of Certificates and Medals**:- Once the final Rankings are decided, the software will print the certificates. Organisers can keep track of distributed Certificates and Medals.
- **Inhouse Players profile management**

This feature records the achievements and details of the players and information of coaches.

3.2 Methodology

To develop the Gymnastic Management System Software, There we are decided the three Different layers-Presentation Layer, Logical Layer and Database Layer. In Presentation Layer to design the interface of the software. In Logical Layer to decide and write the program for to performing the whole management task execution under the decide module. In Database layer to analysis and design the database of the Module.

- The Client-side webapp is developed in AngularJS using Visual Studio Code. In this, the tasks of collecting the information from user i.e. registration and verification, displaying their slots and results is carried out.
- HTML is great for declaring static documents, but it falters when we try to use it for declaring dynamic views in web-applications. AngularJS lets you extend HTML vocabulary for your application. The resulting environment is extraordinarily expressive, readable, and quick to develop.
- In angular JS, we are using angular seed which is an application skeleton for a typical AngularJS web app. You can use it to quickly bootstrap your angular webapp projects and dev environment for the projects.)
- Node JS is used for handling server-side task in the Gymnastic Management Software.As an asynchronous event driven JavaScript runtime, Node is designed to build scalable network applications. In the this, many connections can be handled concurrently. Upon each connection the callback is fired, but if there is no work to be done, Node will sleep.
- For the Database we are using MongoDB, MongoDB is a free and open-source cross-platform document-oriented database program. Classified as a NoSQL database program, MongoDB uses JSON-like documents with schemata. MongoDB is developed by MongoDB Inc. , and is published under a combination of the Server Side Public License and the Apache License.
- All the information collected will be stored in database in json files. Json follows the same framework as angular JS, therefore there is no need of converting the data to store into database. When exchanging data between a browser and a server, the data can only be text. JSON is text, and we can convert any JavaScript object into

JSON, and send JSON to the server. We can also convert any JSON received from the server into JavaScript objects. This way we can work with the data as JavaScript objects, with no complicated parsing and translations.

3.3 Feasibility Analysis

3.3.1 Executive summary:

We are developing a project for a NGO where there is no existing system to manage gymnastics events. Gymnastics Event Management System is a system to aid athletes enroll into their clubs as well as participate in upcoming events. The system primarily has 4 modules: Registration, Event Day Logistics, Record/Result History and Personal Profile Management for the in-house players.

3.3.2 Product/service market place:

In existing system there are lot of paper work and manual processing. While writing a paper records the management have to keep the records very carefully as the entire data is written in those books. Everything is paper based hence it is very time consuming. More than one person cannot access the data at same time.

Disadvantages In existing product :

- Lot of paper work required.
- Man power was more.
- Time consuming process.

Our product over comes the existing product in the market as follows:

- Our product save the time in managing the events.
- The participants will be updated of the newly events which are upcoming.
- User friendly Interface, the user can easily learn how to use the system and as well can easily manage the events by using our system.
- The participants data/information is safe and secure at the back end.
- The events results are displayed on the spot , which saves judges as well as participants time.

3.3.3 Technical feasibility

Evaluating Technical feasibility is the trickiest part of feasibility study. This is because at the point in time there is no detailed designed of the system, making it difficult to access issues like performance , cost etc. A number of issues have to be considered while doing a technical analysis , understand different technologies involved in the proposed system. Before commencing the project, we have to be very clear about what are the technologies that are to required for the development of new system. Is the required technology available? Our system is technically feasible since all the required tools are easily available

3.3.4 Operation feasibility

Proposed project is beneficial only if it can be turned into information system that will meet the operating system requirement. Simply stated , this test of feasibility asks if the system will work when it developed and installed. Are there major barriers to implementation ? The proposed system was to make a simplified system. It is simpler to operate and easy to understand. It is free and not costly to operate.

3.3.5 Economical feasibility

Economic feasibility attempts to weight the cost of developing and implementing a new system , against benefits that would accrue from having the new system in the place. A simple economic analysis which gives the actual comparison of cost and benefit of cost and benefit are much more meaningful in this case. Our system is economical feasible as creation of the system is not costly.

3.3.6 User Feasibility

The proposed software will provide ease to the user and will be very easy to understand.

3.4 Designs

Data flow diagram can dive into progressively more detail by using levels and layers, zeroing in on a particular piece. DFD levels are numbered 0, 1 or 2, and occasionally go to even Level 3 or beyond. The necessary level of detail depends on the scope of what you are trying to accomplish. A data flow diagram can dive into progressively more detail by using levels and layers, zeroing in on a particular piece. DFD levels are numbered 0, 1 or 2, and occasionally go to even Level 3 or beyond. The necessary level of detail depends on the scope of what you are trying to accomplish.

3.4.1 Data Flow Diagram (Level 0)

A ***level 0 data flow diagram (DFD)***, also known as a context diagram, shows a data system as a whole and emphasizes the way it interacts with external entities.

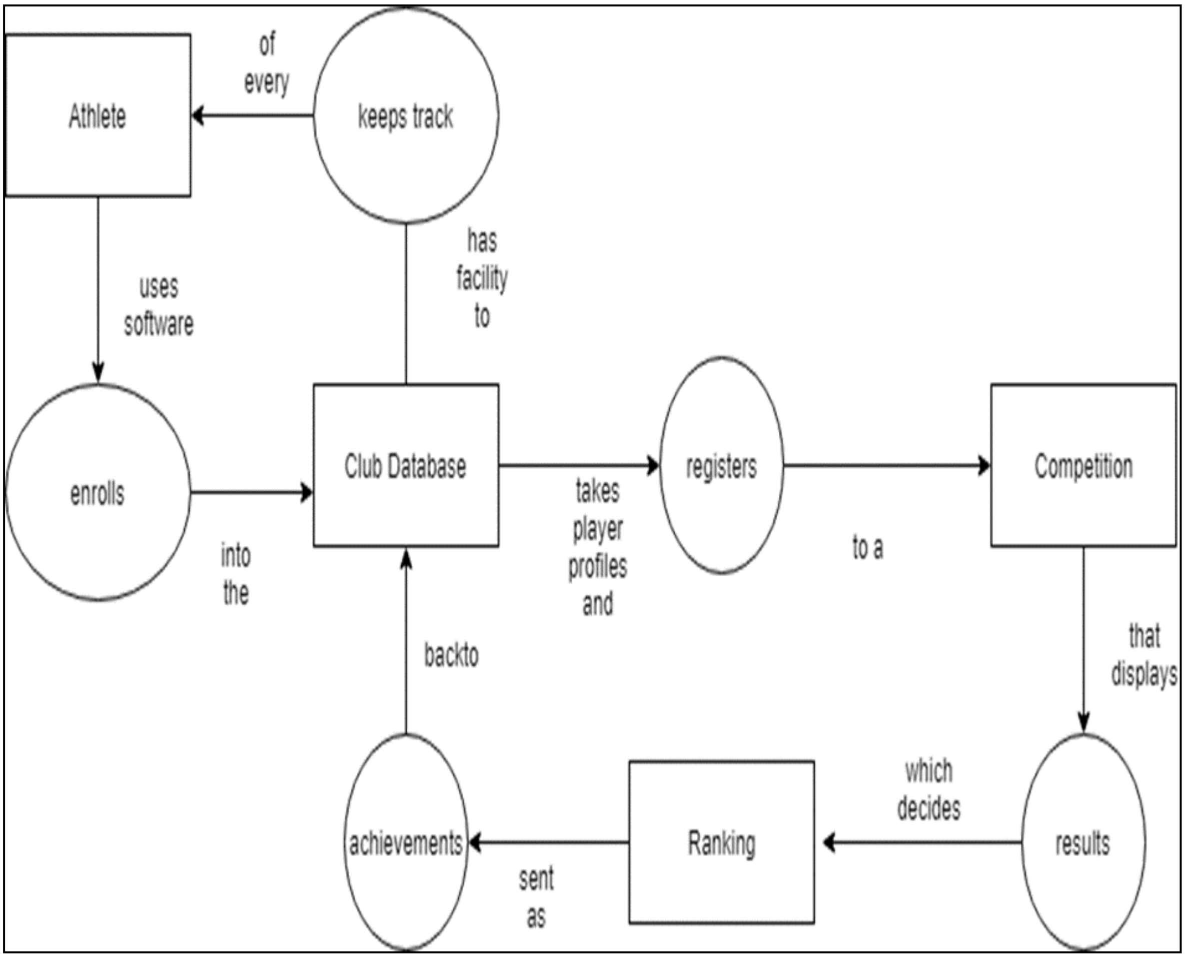


Figure 3.4.1 DFD Level 0

3.4.2 Data Flow Diagram (Level 1)

As described previously, context diagrams (**level** 0 **DFDs**) are diagrams where the whole system is represented as a single process. A **level 1 DFD** notates each of the main sub-processes that together form the complete system. We can think of a **level 1 DFD** as an "exploded view" of the context diagram

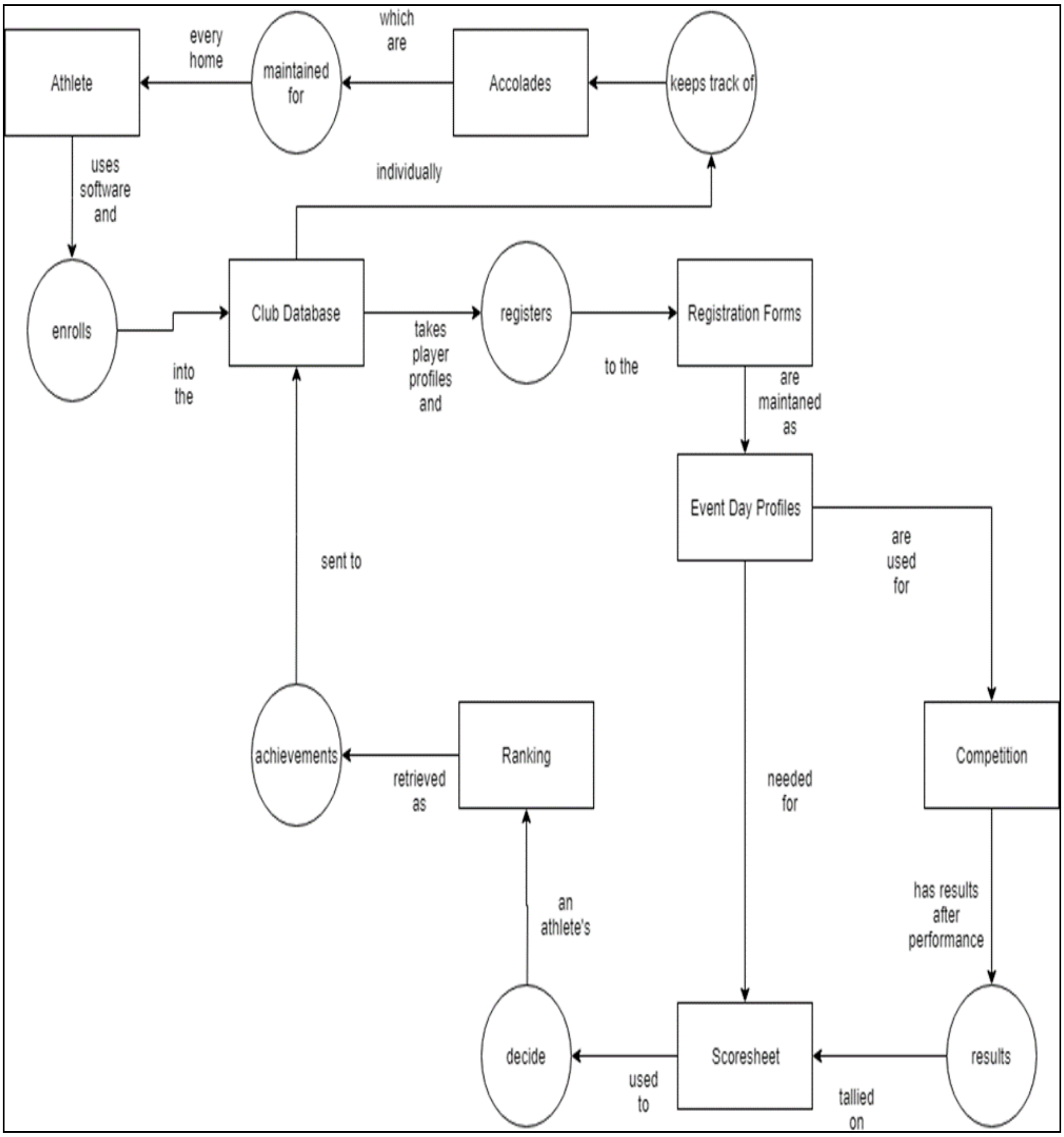


Figure 3.4.2. DFD Level 1

3.5 UML Diagram

3.5.1 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well.

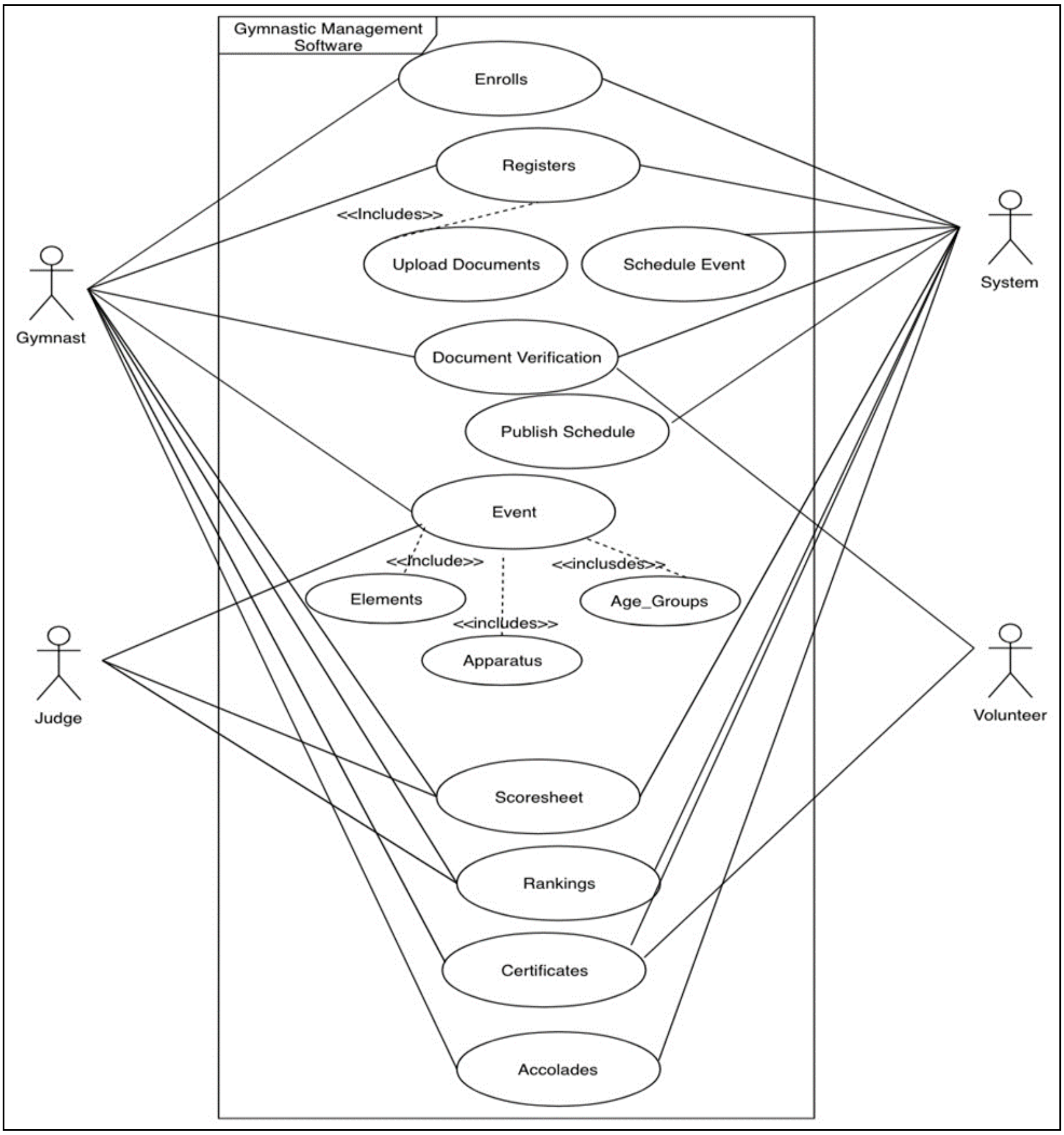


Figure 3.5.1 Use case Diagram

3.5.2 Sequence Diagram

Sequence diagram is an interaction diagram that emphasizes the time ordering of messages. A sequence diagram is a structured representation of behavior as a series of sequential steps over time. It is used primarily to show the interactions between objects in the sequential order. The sequence diagram is also called as Message Sequence Chart.

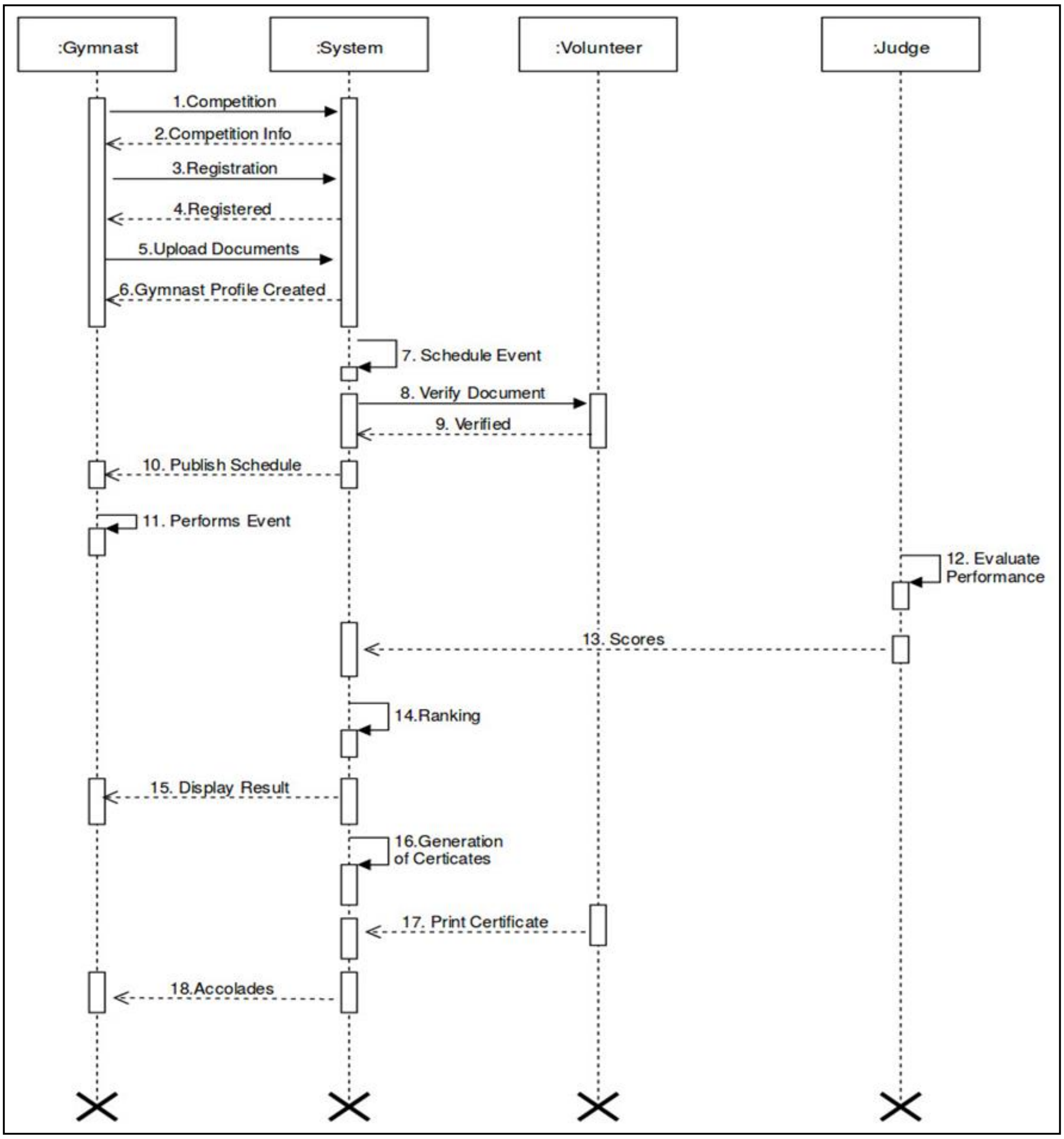


Figure 3.5.2 Sequence Diagram

3.5.3 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 process.

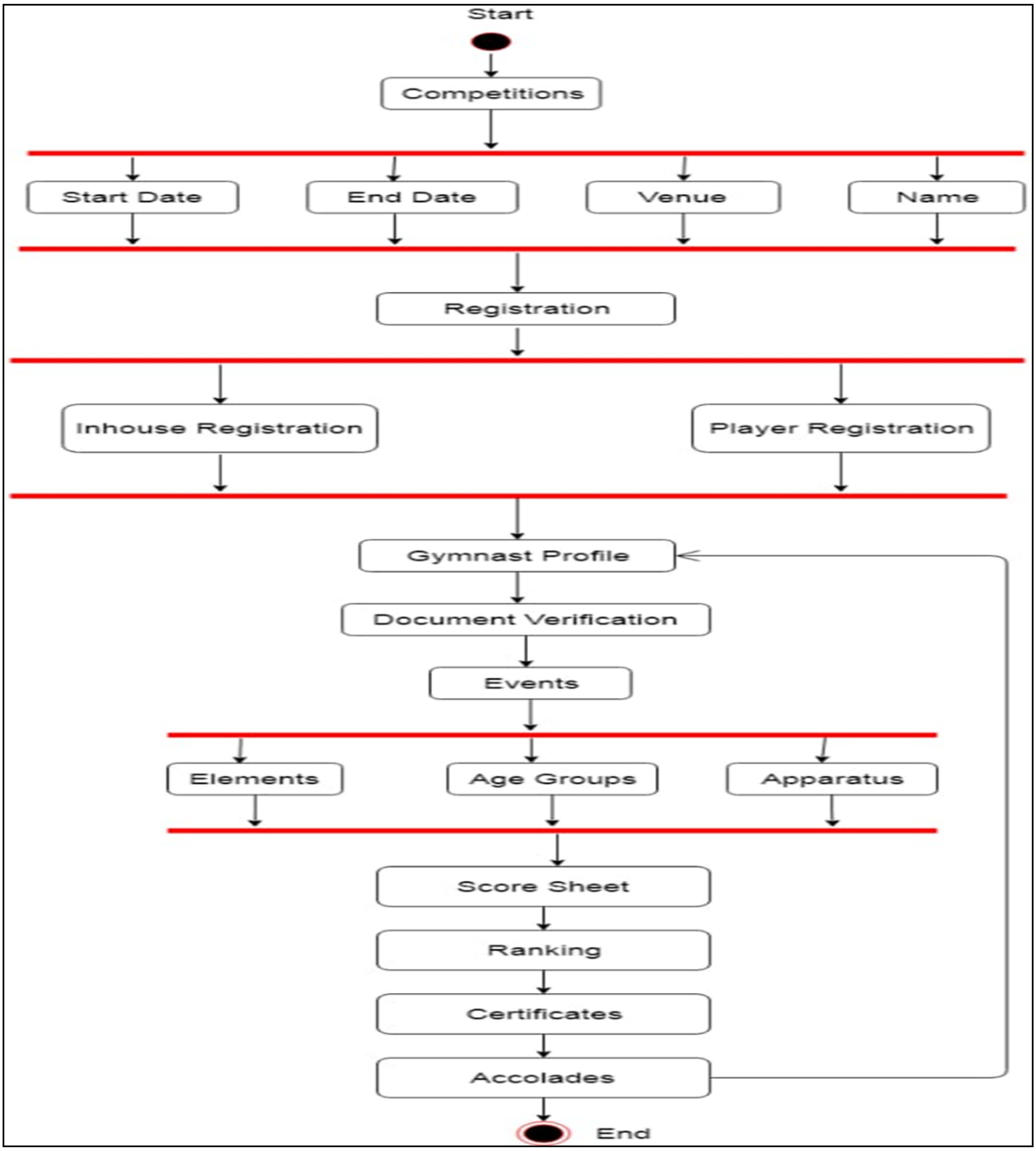


Figure 3.5.3 Activity Diagram

3.5.4 Class Diagram

A class diagram is an illustration of the relationships and source code dependencies among classes in the Unified Modeling Language (UML). In this context, a class defines the methods and variables in an object, which is a specific entity in a program or the unit of code representing that entity.

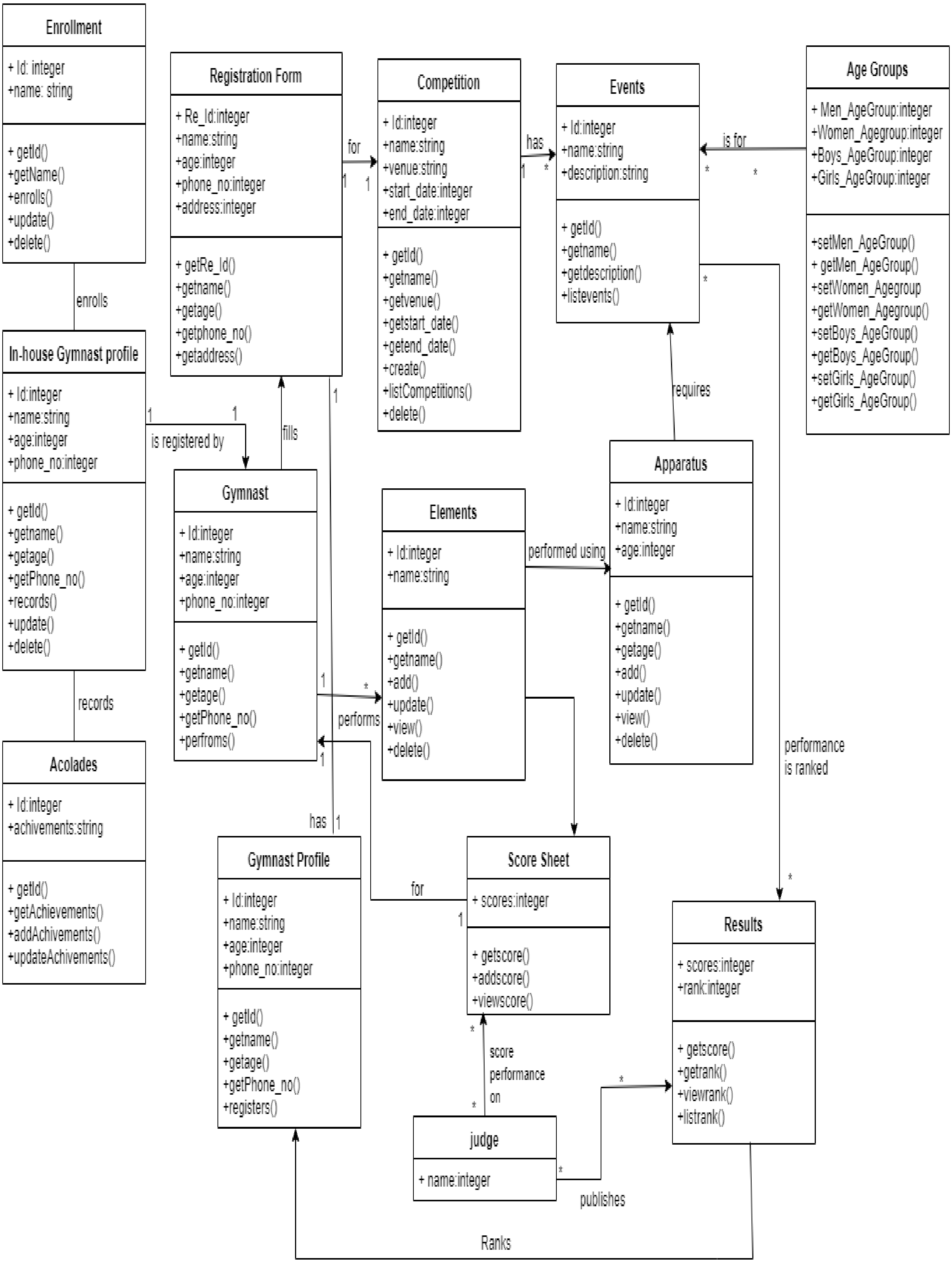


Figure. 3.5.4 Class diagram

3.5.5 EER Diagram

It reflects the data properties and constraints more precisely. It includes all modeling concepts of the ER model. Diagrammatic technique helps for displaying the EER schema.

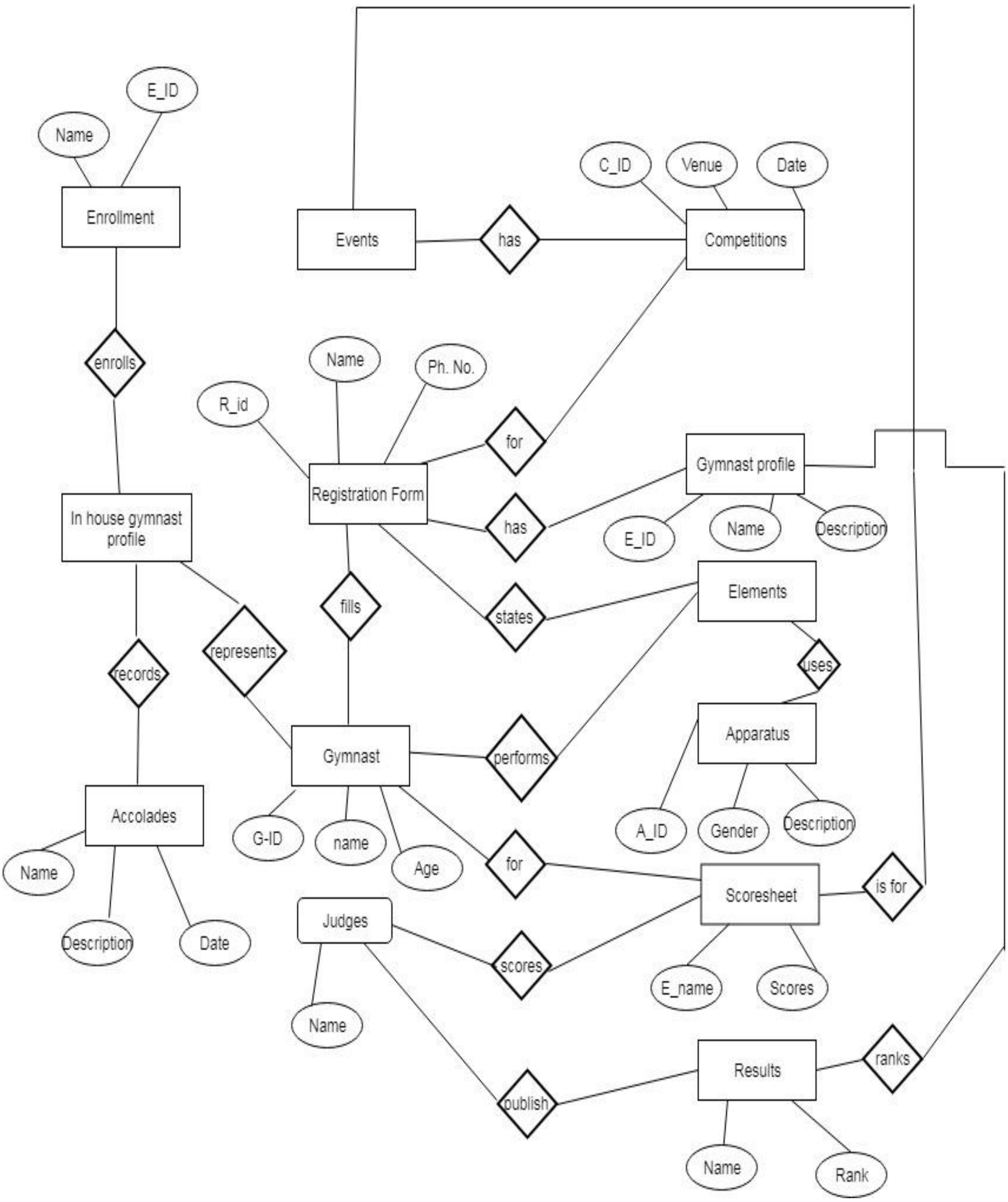


Figure. 3.5.5 EER diagram

CHAPTER 4

SYSTEM IMPLEMENTATION

4.1 Hardware & Software Requirements

4.1.1 Hardware requirements:

- Core 2 duo or higher.
- Memory 2 GB or higher.
- Hard disk 500 MB or higher.
- Network card.
- Windows operating system

4.1.2 Software

- visual studio code
- angular seed
- node js
- mongoDb

4.2 Angular Cli

Angular JS is an open source framework built over JavaScript. It was built by the developers at Google. This framework was used to overcome obstacles encountered while working with Single Page applications. Also, testing was considered as a key aspect while building the framework. It was ensured that the framework could be easily tested. The initial release of the framework was in October 2010.

Features of Angular

Following are the key features of Angular −

- **Components** − The earlier version of Angular had a focus of Controllers but now has changed the focus to having components over controllers. Components help to build the applications into many modules. This helps in better maintaining the application over a period of time.
- **TypeScript** − The newer version of Angular is based on TypeScript. This is a superset of JavaScript and is maintained by Microsoft.
- **Services** − Services are a set of code that can be shared by different components of an application. So for example if you had a data component that picked data from a database, you could have it as a shared service that could be used across multiple applications.

In addition, Angular has better event-handling capabilities, powerful templates, and better support for mobile devices.

4.3 Visual studio code

Visual Studio Code is a source-code editor developed by Microsoft for Windows, Linux and macOS. It includes support for debugging, embedded Git control, syntax highlighting, intelligent code completion, snippets, and code refactoring. It is also customizable, so users can change the editor's theme, keyboard shortcuts, and preferences. The source code is free and open source and released under the permissive MIT License. The compiled binaries are freeware and free for private or commercial use.

4.4 Node Js

Node.js is an open-source and cross-platform JavaScript runtime environment. It is a popular tool for almost any kind of project!

Node.js runs the V8 JavaScript engine, the core of Google Chrome, outside of the browser. Node.js can leverage the work of the engineers that made (and continue to make) the Chrome JavaScript runtime blazing fast, and this allows Node.js to benefit from the substantial performance improvements and the Just-In-Time compilation that V8 performs. Thanks to this, JavaScript code running in Node.js can become very performant.

A Node.js app is run in a single process, without creating a new thread for every request. Node.js provides a set of asynchronous I/O primitives in its standard library that prevent JavaScript code from blocking and generally, libraries in Node.js are written using non-blocking paradigms, making blocking behavior the exception rather than the norm.

4.5 MongoDB

MongoDB is a cross-platform, document oriented database that provides, high performance, high availability, and easy scalability. MongoDB works on concept of collection and document.

Database

Database is a physical container for collections. Each database gets its own set of files on the file system. A single MongoDB server typically has multiple databases.

Collection

Collection is a group of MongoDB documents. It is the equivalent of an RDBMS table. A collection exists within a single database. Collections do not enforce a schema. Documents within a collection can have different fields. Typically, all documents in a collection are of similar or related purpose.

Document

A document is a set of key-value pairs. Documents have dynamic schema. Dynamic schema means that documents in the same collection do not need to have the same set of fields or structure, and common fields in a collection's documents may hold different types of data.

The following table shows the relationship of RDBMS terminology with MongoDB.

RDBMS	**MongoDB**
Database	Database
Table	Collection
Tuple/Row	Document
column	Field
Table Join	Embedded Documents
Primary Key	Primary Key (Default key _id provided by mongodb itself)

Table 4.5: RDBMS vs MongoDb

CHAPTER 5

ANALYSIS

5.1 Process Model used for project

Agile SDLC model is a combination of iterative and incremental process models with focus on process adaptability and customer satisfaction by rapid delivery of working software product. Agile Methods break the product into small incremental builds. These builds are provided in iterations. Each iteration typically lasts from about one to three weeks. Every iteration involves cross functional teams working simultaneously on various areas like

- Planning
- Requirements Analysis
- Design
- Coding
- Unit Testing and
- Acceptance Testing.

At the end of the iteration, a working product is displayed to the customer and important stakeholders.

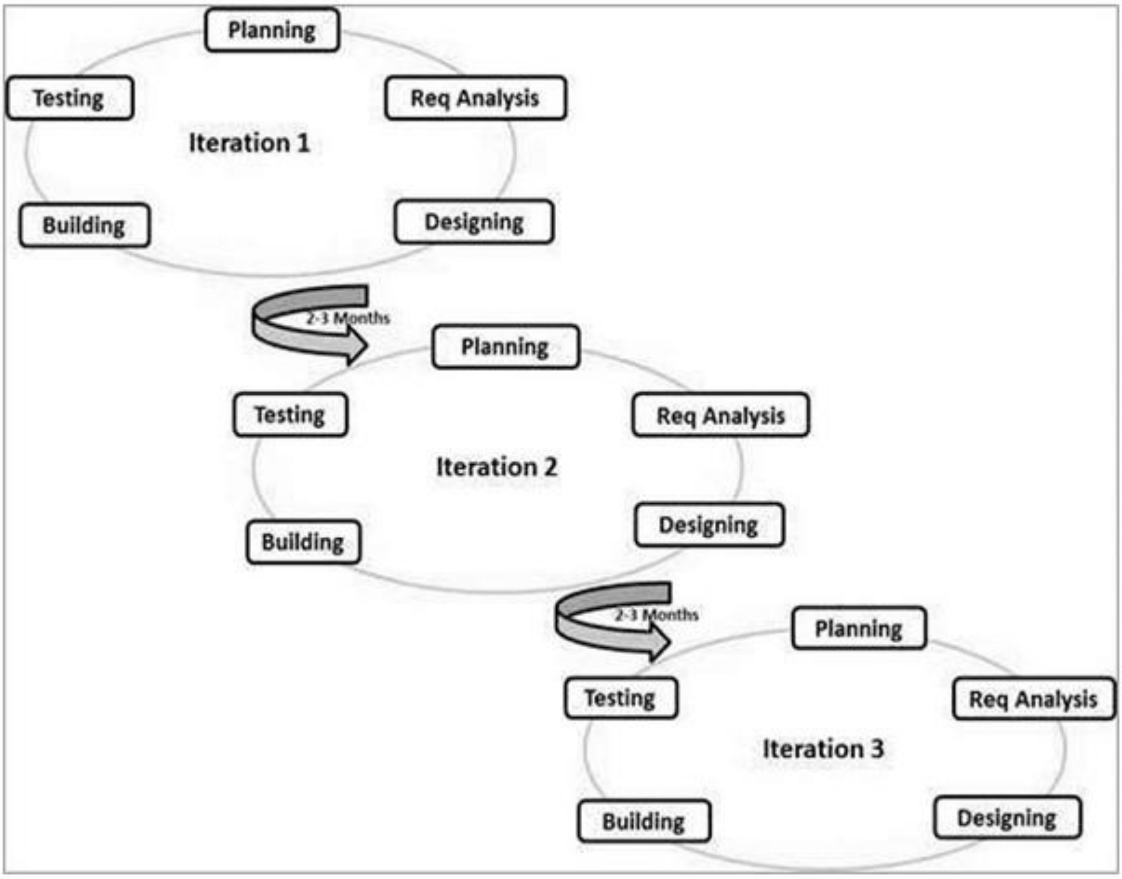
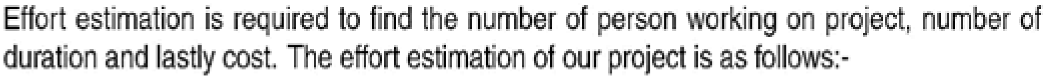


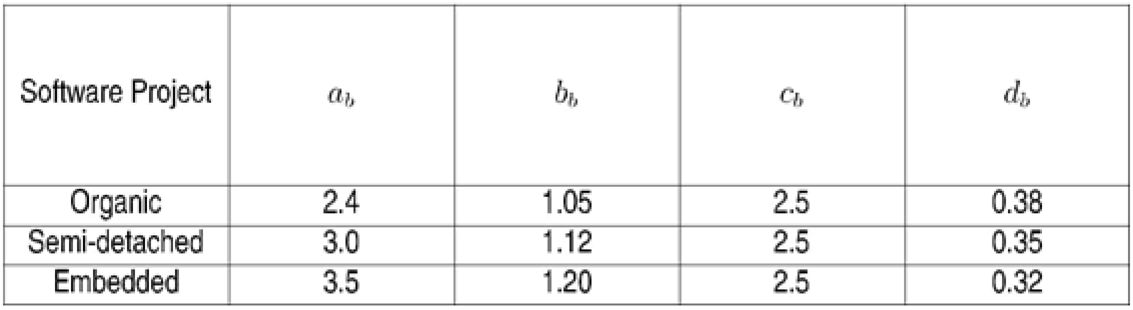
Fig:5.1.1 Agile Model

We are using agile model because the agile method is based on giving high priority to customer participation, from the very beginning of the development cycle. The objective is to keep the client involved at every step so that they have a product that they are happy with at the end. This method saves the client money and time because the client tests and approves the product at each step of development. If there are defects or challenges, then changes can be made during production cycles to fix the issue. Traditional models of project management would not find defects as early because they do not test as often. Typically (in traditional methods of production) defects that are not discovered at the different stages can find their way into the final product. This can result in increased overhead prices and client dissatisfaction..

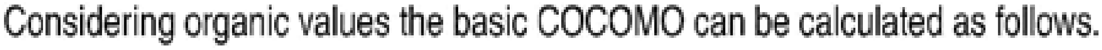
5.2 Cost Analysis



Effort estimation is required to find the number of person working on project, number of duration and lastly cost. The effort estimation of our project is as follows:-



Software Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semi-detached	3.0	1.12	2.5	0.35
Embedded	3.5	1.20	2.5	0.32



Considering organic values the basic COCOMO can be calculated as follows.

1. **Calculating Effort:**

Effort Applied (E) = a_b (KLOC)^{b_b}

= 2.4 (4)$^{1.05}$

Effort (E) = 10.289 Person per Month.

2. **Calculating Project Duration**

D = C_b (E)^{db}

D = 2.5 (10.289)$^{0.38}$

D = 6.06 Months that is 6 Months.

3. **Calculating Number of Person**

N = E / D

N = 10.289 / 6.06 = 1.697 that is 3 Person.

Let’s assume cost per person monthly is 100.

Estimated Cost = E x 100 x number of person.

Estimated Cost = 10.289 x 100 x 3 = Rs. 3,086.

5.3 Timeline Chart

It depicts a part of a research schedule that emphasizes the concept scoping various steps carried out in completion of this research work.

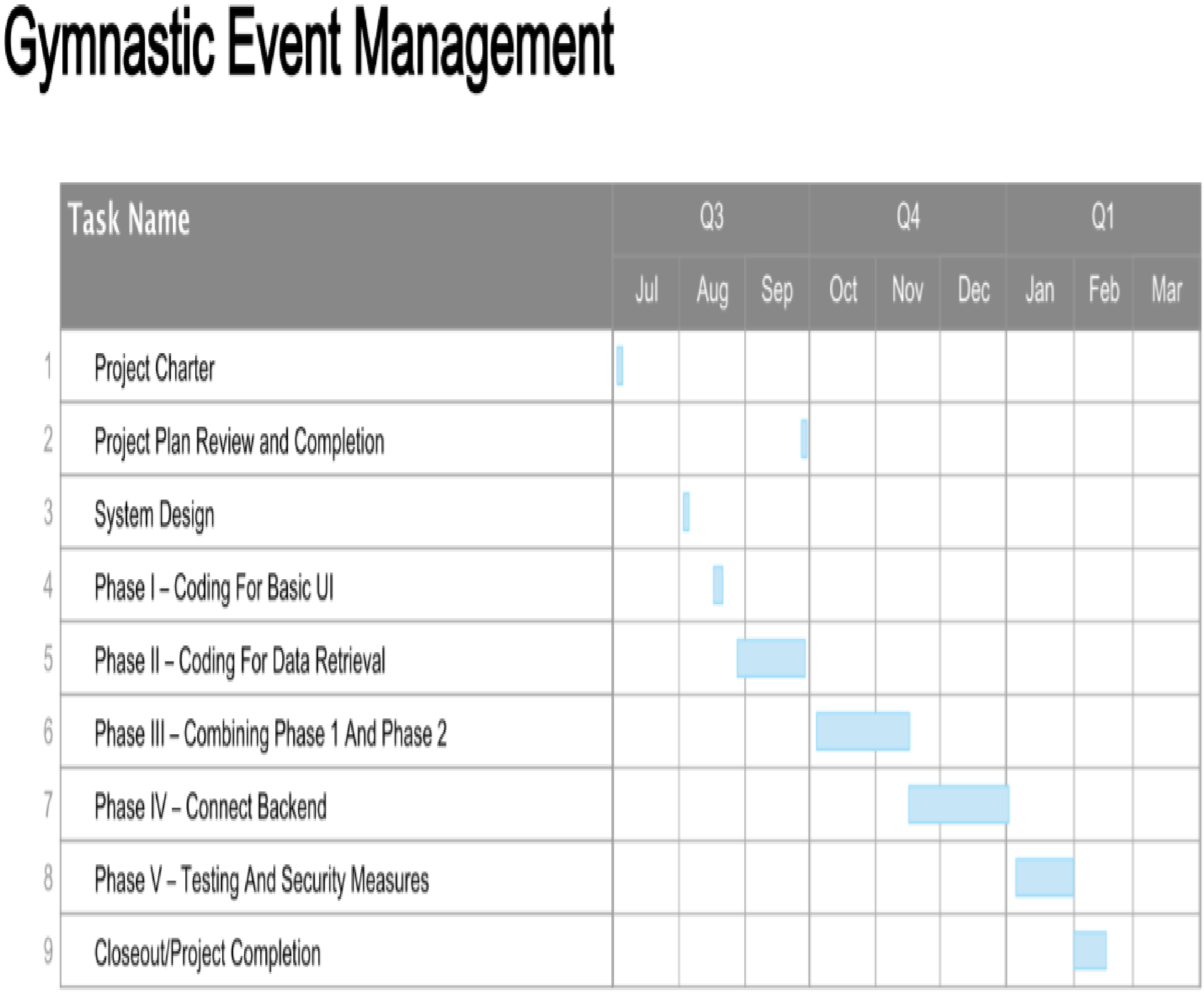


Figure 5.3.1 Timeline Chart

CHAPTER 6

SYSTEM TESTING

Testing is one of the most important quality assurance measures. Software testing is a manual or automatic investigation done to ensure the participants with information regarding the quality of the system or service that is under testing. Testing can also give an objective, individual perspective of the software to enable the business to appreciate and conceive the risks involved in implementation. The techniques for testing consist, but are not limited to, the process of running any software with the purpose of finding bugs or other defects. This chapter explains the basics of testing like testing principles, testing objectives, different types of testing such as unit testing, integration testing, system testing and user acceptance testing.

6.1 Types of Testing

6.1.1 Software Testing

Software testing is an investigation done to ensure the participants with information regarding the quality of the system or service that is under testing. Software testing can also give an objective, individual perspective of the software to enable the business to appreciate and conceive the risks involved in implementation. The techniques for testing consist, but are not limited to, the process of running any software with the purpose of finding bugs or other defects. Software testing or simply testing may be defined as a procedure to validate and verify that any software program/product:

1. Qualifies the prerequisites that guided its design and development.
2. Functions as expected.
3. Can be executed with the same properties.
4. Qualifies the necessities of owners.

Software testing, based on the testing methodology deployed, can be executed in any instance within the development cycle. But, much of the test effort traditionally happens after the prerequisites have been specified and the coding procedure has finished. However, in the fast approach, much of the test effort is, conversely, ongoing. As such, the methodology of testing revolves around the software development methodology used. Tests are frequently sorted according to where they are included within the software development cycle or by the extent of specificity of the test. Various software development cycles will perform the test effort at different stages in the development procedure. Latest development models often deploy test driven development and place a major chunk of testing in the hands of the developer, before it eventually reaches a formal team of testers. In the traditional approach, much of the test execution happens after the requirements have been specified and the coding procedure has finished.

6.1.2 Phases of Software Testing

Tests are frequently sorted according to where they are included within the software development cycle or by the extent of specificity of the test. The main layers during the development procedure are unit, integration, and system testing that can be differentiated by the test target without specifying any process model. Other test levels are grouped as per the test objective.

a) **Unit Testing**:- The foremost test in the development procedure is the unit test. The source code is usually subdivided into modules, which in turn are subdivided into tiny modules called units. A unit is the smallest testable part of an application. Each unit has a unique behavior. The test done carried out on these units is referred to as a unit test. Unit tests are typically written and run by software developers to ensure that code meets its design and behaves as intended. Its implementation can vary from being very manual to being formalized as part of build automation. Unit tests guarantee that each different pathway of the project executes correctly as per the specifications that are documented and contains clearly specified inputs and expected outcomes. The principal reasons for unit testing are to:

Testing

- Verify the functionalities of the module under test.
- Find undiscovered errors.
- Ensure quality of software.
- Test the lowest level entity.

Unit testing is also called as white box testing and tries to ensure:

- Independent paths are exercised at least once.
- Logical decisions are exercised for both true and false paths.
- Loops are executed at their boundaries and within operational bounds.
- Internal data structures are exercised to ensure validity.

b) **System Testing**:-Several modules constitute a project. If the project is a long-term project, several developers write the modules. Once all the modules are integrated, several errors may arise. The testing done at this stage is called system test. System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

c) **Integration Testing**:- Integration testing is any type of software testing that seeks to verify the interfaces between components of a software design. Software components may be integrated in an iterative way or all together “”big bang””. Normally the former is considered a better practice since it allows interface issues to be localized more quickly and fixed. Integration testing works to expose defects in the interfaces and interaction between integrated components (modules). Progressively larger groups of tested software components corresponding to elements of the architectural design are integrated and tested until the software works as a system.

d) **User Acceptance Testing**:-When custom software is built for one user, a series of acceptance tests are conducted to enable the user to validate all requirements. Conducted by the end-user rather than software engineers, an acceptance test can range from an informal “test drive” to a planned and systematically executed series of tests. In fact, acceptance testing can be conducted over a period of weeks or months, thereby uncovering cumulative errors that might degrade the system over time.

User Acceptance Testing (UAT) ensures that any new or upgraded system meets the requirements of the end-users and suits their operational and business procedures. There are a number of potential operational benefits of UAT:

- Validation of all manual and clerical procedures. Verification of control procedures and constraints to prevent improper use and enforce security standards.
- Checking of error-processing and exception procedures.
- Confirmation of the data-handling capacities and off-line processing and operating performance of the system.
- Verification of accurate, complete, and understandable user, operation, and maintenance documentation. User Acceptance Testing allows sign-off and formal, official, acceptance of the system, dependent upon the system satisfying all requirements and meeting all established Acceptance Criteria.

e) **Prototype Testing:** Prototype Testing is conducted with the intent of finding defects before the website goes live. Online Prototype Testing allows seamlessly to collect quantitative, qualitative, and behavioral data while evaluating the user experience.

Characteristics of Prototype Testing:

- To evaluate new designs prior to the actual go live to ensure that the designs are clear, easy to use and meet user's requirements.
- Is best when iterative testing is built into the development process, so that changes can be easily made often to ensure that major issues do not arise well before going live.
- Provides confirmation about the new design direction, branding and messaging are going in the right direction.

6.2 Test Case

Test Case ID	Test Case	Description	Excepted output	Actual output	Result
1	Login	User should access with valid credentials.	Valid login	Valid Login	Successful
2	Signup	User should Signup with valid credentials	Valid Signup	Valid Signup	Successful
3	Gymnast Register	User should Register with valid credentials	Valid Register	Valid Register	Successful
4	Give Scores	To give scores to particpants	Submit scores	Submit scores	Successful
5	Results	Display Results	Display Results	Display Results	Successful

Table 6.2.1 Test Cases

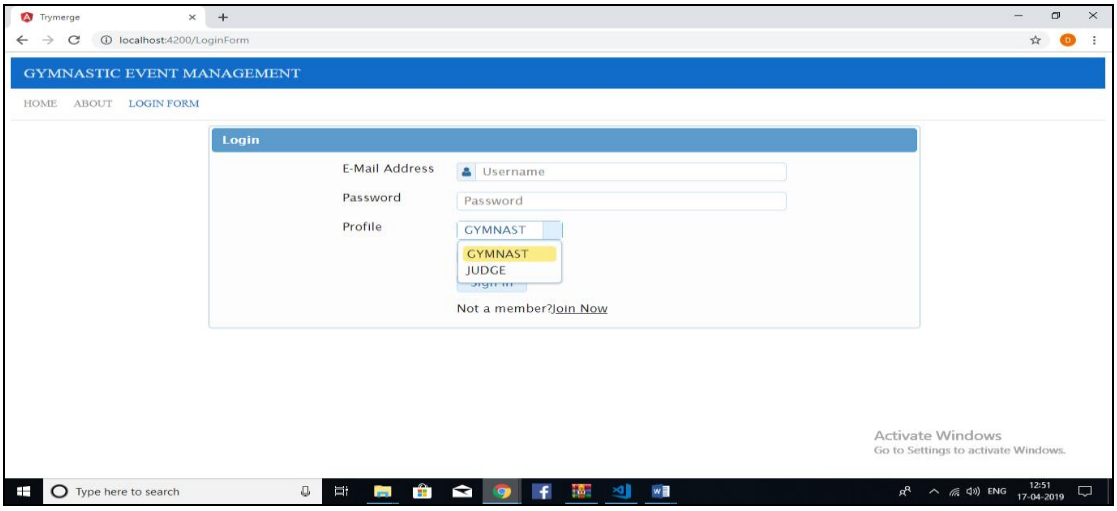
CHAPTER 7

RESULTS AND DISCUSSION

The aim of this chapter is to present results of the empirical analysis done for characterization of contextual features which contributes to a various field in an application. At the end of this chapter, accuracy results are discussed that significance the effectiveness of the proposed solution approach.

7.1 Implementation Screenshots

- **Login**: This is the login Page of our system, if user is a valid user and have their login credentials then user(gymnast/ judge) can directly login into the system using their login credentials.



Login

E-Mail Address: Username

Password: Password

Profile: GYMNAST

Not a member?Join Now

Figure 7.1.1 Login

- **Gymnast Dashboard:** Once the user(gymnast) Logs in into the system successfully using their valid credentials, the gymnast can see the following gymnast dashboard.

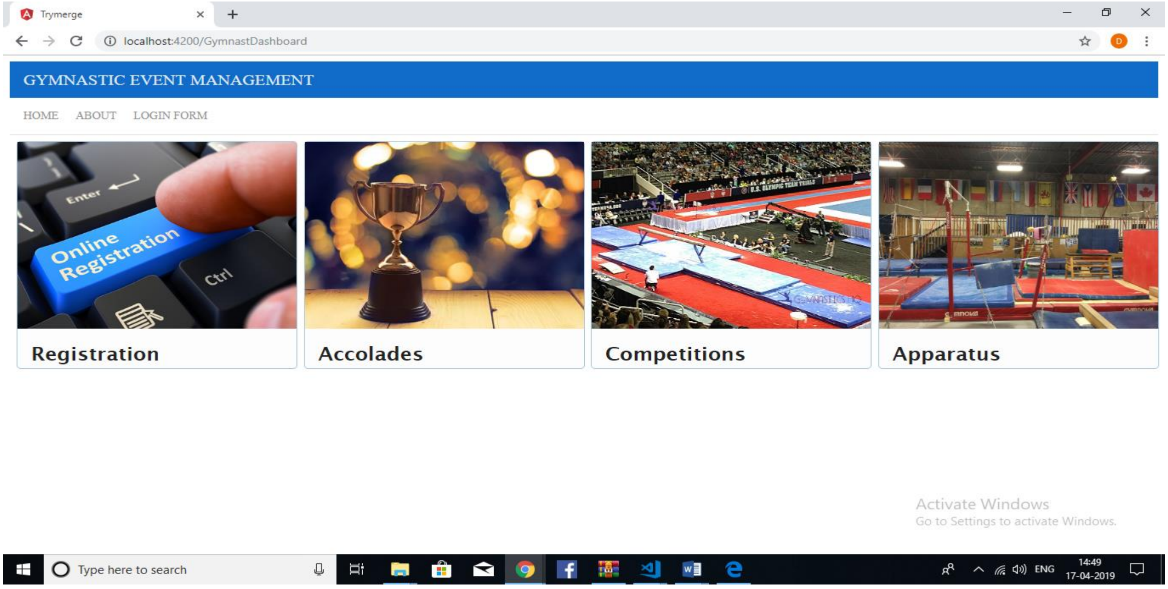
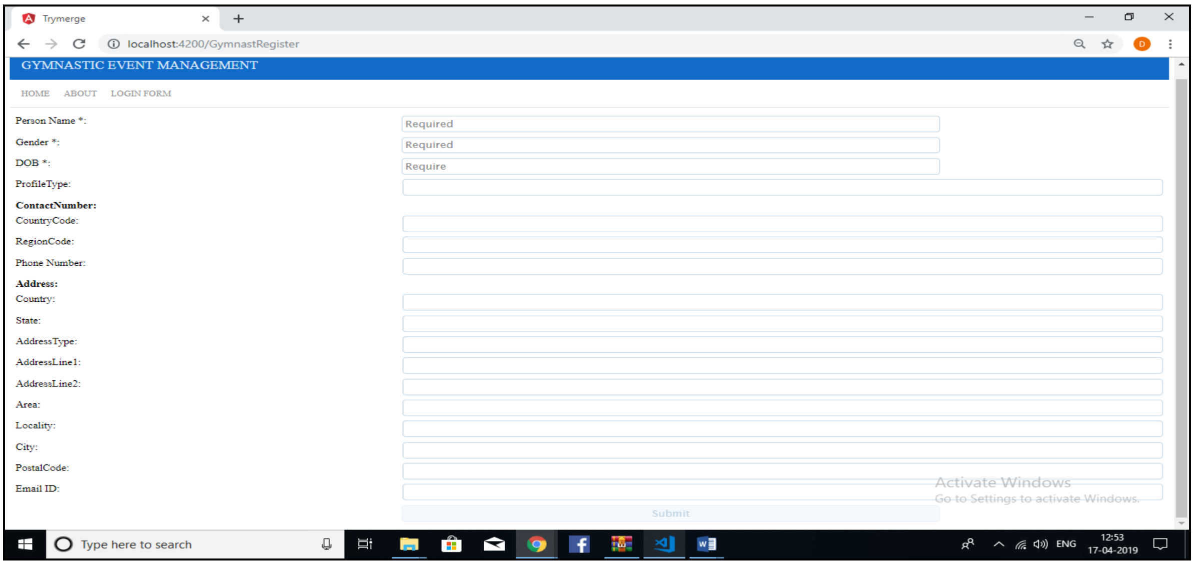


Figure 7.1.2 Gymnast Dashboard

- **Gymnast Registration Form:** Once the gymnast login themselves into the system successfully, Gymnast can fill registration form in order to participate into various competitions and events.


Trymerge
localhost:4200/GymnastRegister
GYMNASTIC EVENT MANAGEMENT
HOME
ABOUT
LOGIN FORM
Submit
Activate Windows
Go to Settings to activate Windows.
Type here to search
ENG
12:53
17-04-2019

Person Name *: Required

Gender *: Required

DOB *: Require

ProfileType:

ContactNumber:

CountryCode:

RegionCode:

Phone Number:

Address:

Country:

State:

AddressType:

AddressLine1:

AddressLine2:

Area:

Locality:

City:

PostalCode:

Email ID:

Figure 7.1.3 Registration form

- **Judge Dashboard :** Through Login page judge can select profile type as judge and enter their login credentials to enter into the judge dashboard. Following image shows all features of judge dashboard. A judge can view schedule in which he wants to judge, a judge can see list of participants who have participated in the competition, a judge can give scores to the participants performing gymnastics, and a judge can generate and display results of the participants.

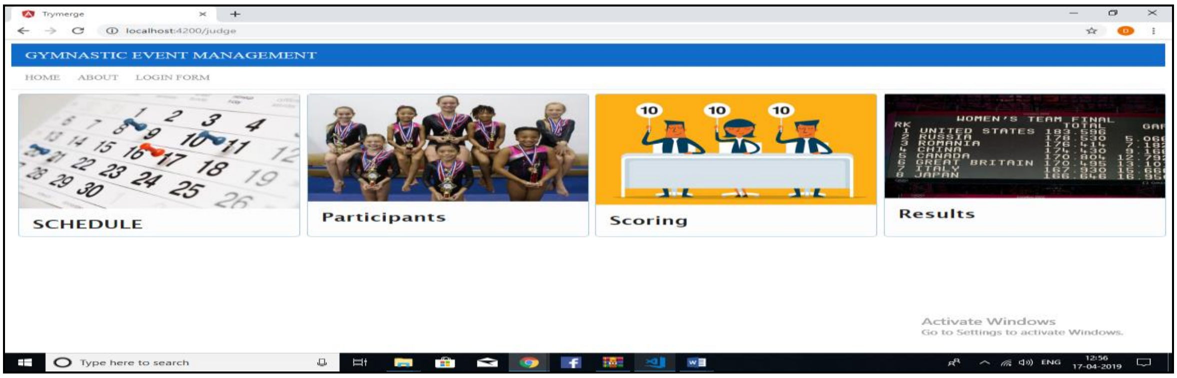
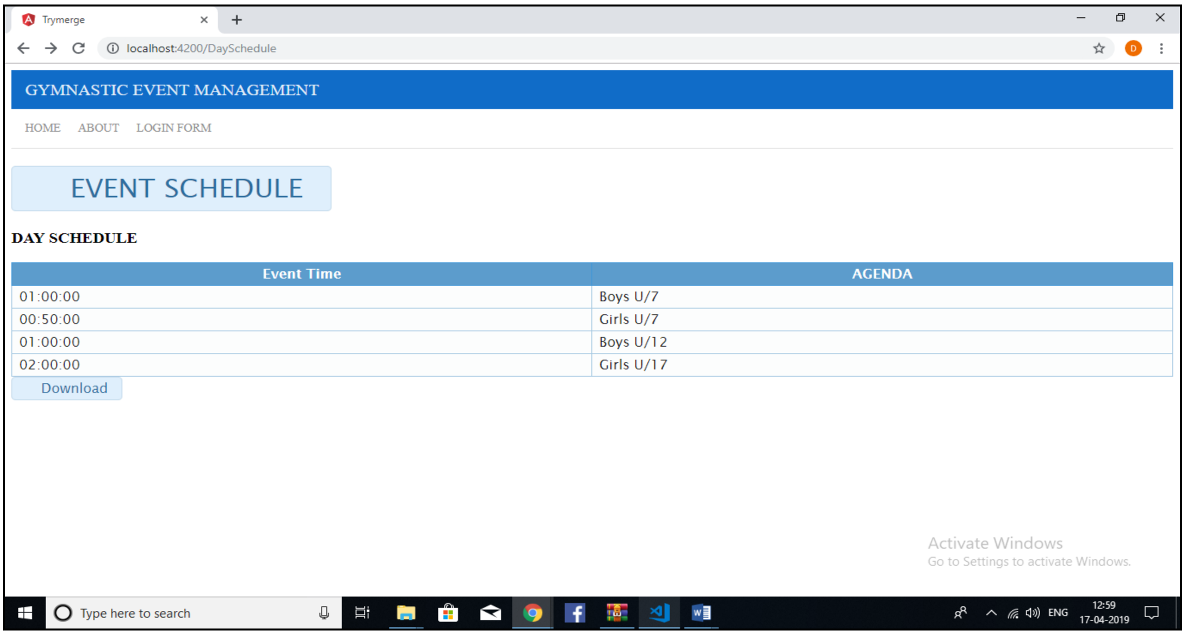


Figure 7.1.4 Judge Dashboard

- **Schedule:** The following image shows the schedule of the events. A judge can select time slot under which he wants to judge the participants.


Trymerge
localhost:4200/DaySchedule
Type here to search
Activate Windows
Go to Settings to activate Windows.
ENG
12:59
17-04-2019

GYMNASTIC EVENT MANAGEMENT

HOME ABOUT LOGIN FORM

EVENT SCHEDULE

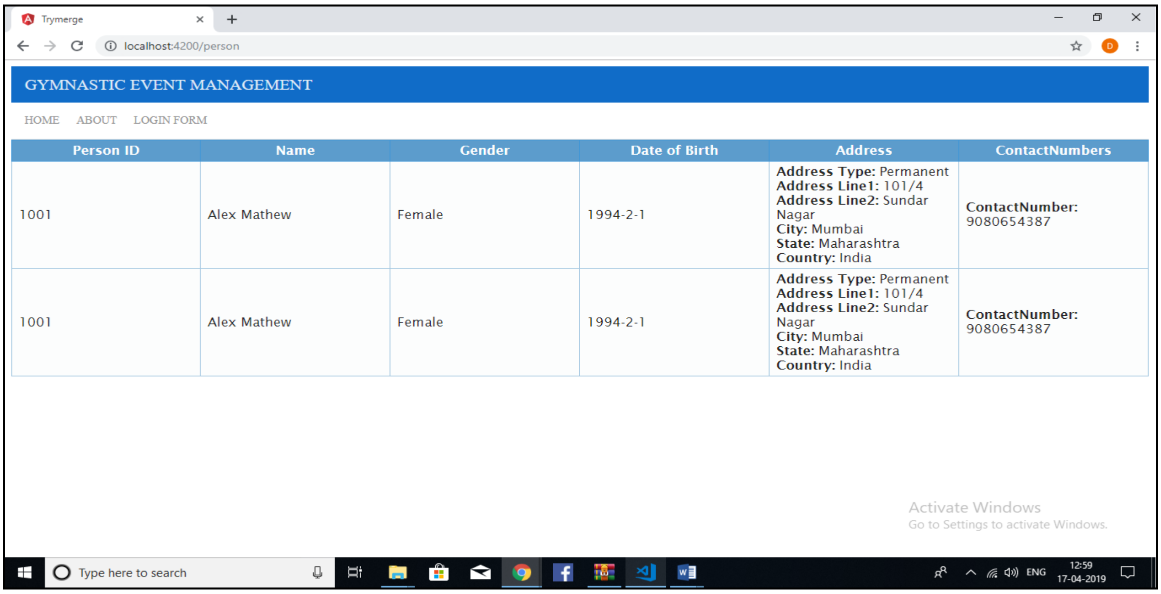
DAY SCHEDULE

Event Time	AGENDA
01:00:00	Boys U/7
00:50:00	Girls U/7
01:00:00	Boys U/12
02:00:00	Girls U/17

Download

Figure 7.1.5 Schedule

- **List of participants:** The following screen shots shows the list of participants registered for a competition.



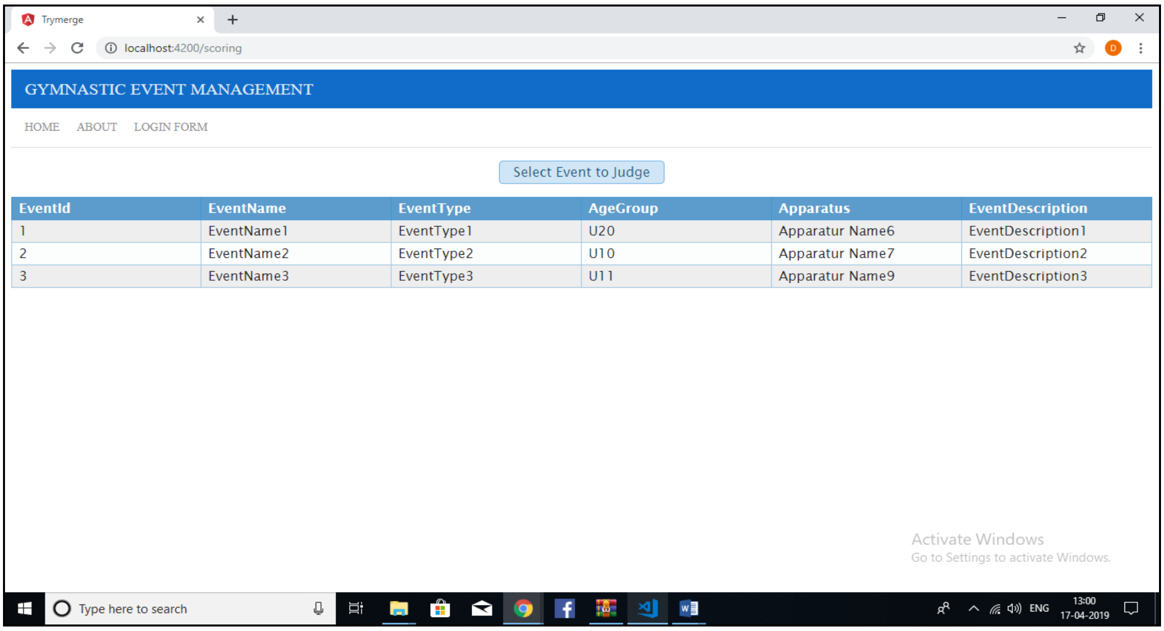
GYMNASTIC EVENT MANAGEMENT

HOME ABOUT LOGIN FORM

Person ID	Name	Gender	Date of Birth	Address	ContactNumbers
1001	Alex Mathew	Female	1994-2-1	**Address Type:** Permanent **Address Line1:** 101/4 **Address Line2:** Sundar Nagar **City:** Mumbai **State:** Maharashtra **Country:** India	**ContactNumber:** 9080654387
1001	Alex Mathew	Female	1994-2-1	**Address Type:** Permanent **Address Line1:** 101/4 **Address Line2:** Sundar Nagar **City:** Mumbai **State:** Maharashtra **Country:** India	**ContactNumber:** 9080654387

Figure 7.1.6 List of participants

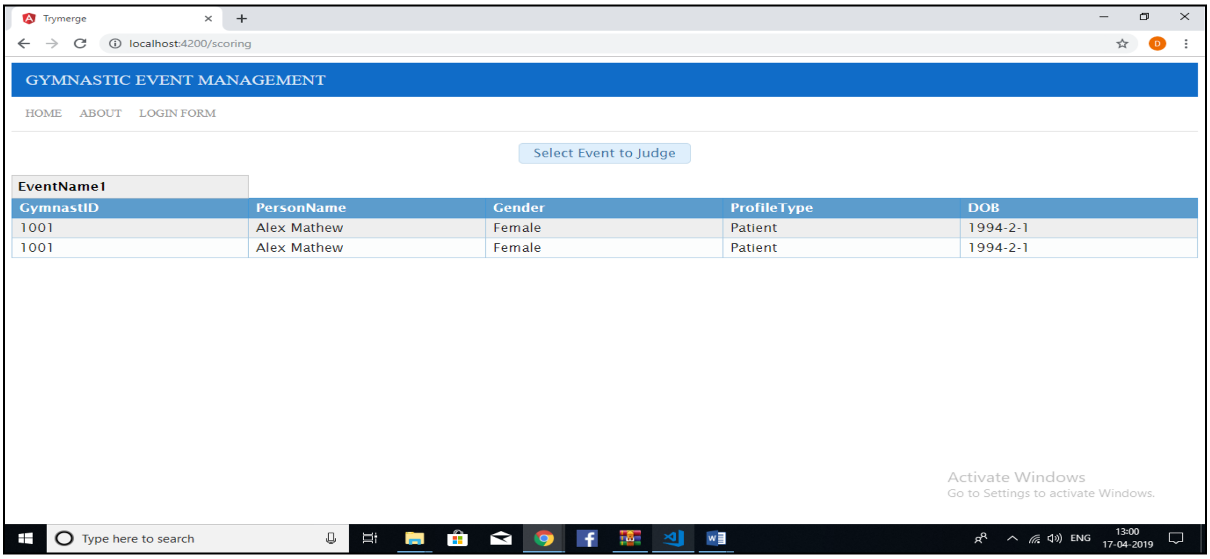
- **Events:** A competition consists of many different events based on age groups, apparatus , elements etc. The below screen shot lists the different types of the events, a judge can select any one event and judge the participants performing gymnastics.



EventId	EventName	EventType	AgeGroup	Apparatus	EventDescription
1	EventName1	EventType1	U20	Apparatur Name6	EventDescription1
2	EventName2	EventType2	U10	Apparatur Name7	EventDescription2
3	EventName3	EventType3	U11	Apparatur Name9	EventDescription3

Figure 7.1.7 Events

- **Participants:** After selecting the event for judging, the judge will select any one participant who is performing gymnastics, in order to give him/her scores.

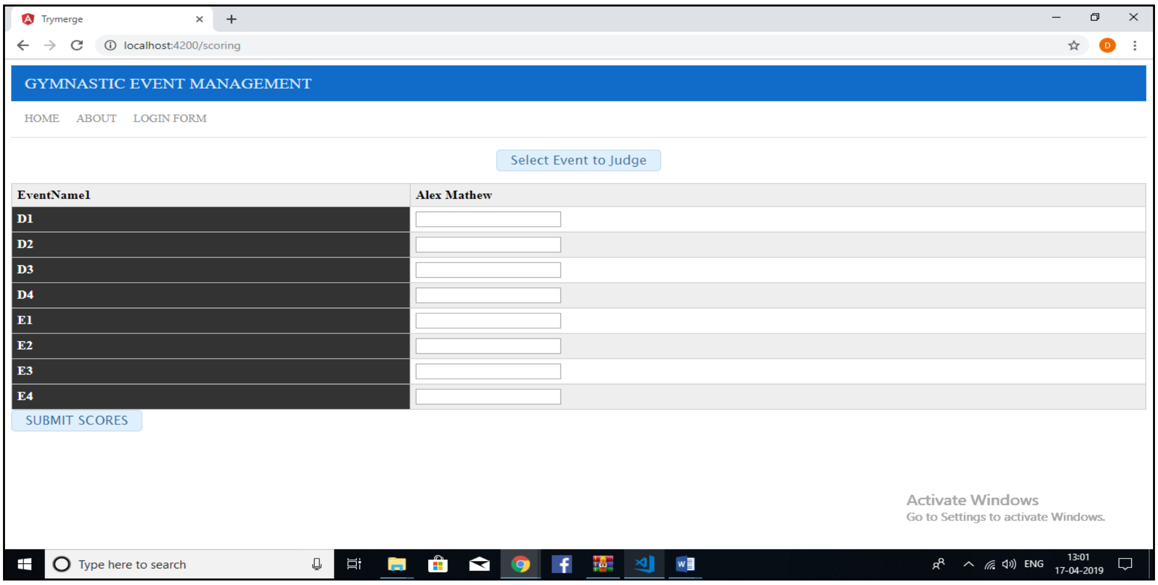


EventName1

GymnastID	PersonName	Gender	ProfileType	DOB
1001	Alex Mathew	Female	Patient	1994-2-1
1001	Alex Mathew	Female	Patient	1994-2-1

Figure 7.1.8 Participants

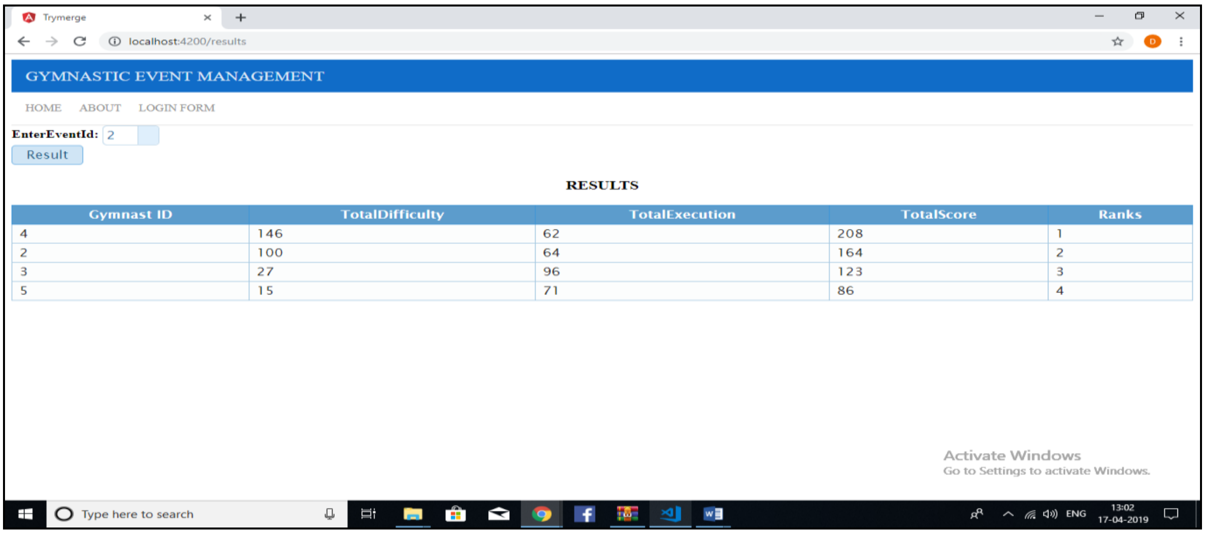
- **Scores:** After selecting the participant judge can give scores to the partipants. As shown in the below screen shot, D1, D2,D,3,D4 and E1,E2,E,3,E4 are the judging scretia in term of gymnastics. D1, D2,D,3,D4 are the DIFFICULTY LEVELS. E1,E2,E,3,E4 are EXECUTION LEVELS



EventName1	Alex Mathew
D1	
D2	
D3	
D4	
E1	
E2	
E3	
E4	

Figure 7.1.9 Scores

- **Results:** Following Screenshot shows the final results and ranking of the participants.



EnterEventId: 2

RESULTS

Gymnast ID	TotalDifficulty	TotalExecution	TotalScore	Ranks
4	146	62	208	1
2	100	64	164	2
3	27	96	123	3
5	15	71	86	4

Figure 7.1.10 Results

CHAPTER 8

CONCLUSION AND FUTURE SCOPE

8.1 Conclusion

Considering existing problems faced during gymnastic competitions, we developed gymnastics event management system in order ease the process of gymnastic competitions for gymnast, judges and organizers. Using our system organizers can easily organize gymnastic competitions, gymnast can easily register to the competitions as well as judge can easily give scores to all gymnast performing the events.

8.2 Future Scope

In future updates we will include all other sports competition like swimming, running, badminton, basketball, football, field hockey, archery etc. We can also add payment gateway for students registering into the competitions.

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GYMNASTIC EVENT MANAGEMENT SYSTEM

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Abstract - *Athletes who perform gymnastics face several issues like registering for an event, documents verification, event schedule, etc. With such a mess to just register for an event, It even becomes difficult for the athletes to know their ranking and performance.*

The gymnastic event management system enables athletes to register for an event, upload documents and details online. The inbuilt algorithms will generate a schedule and inform the users for the same, this will help athletes to easily keep track of their upcoming events. Based on their performance judges will rank them and results will be generated in real time and the same will be updated on website/app, basically a real time scoreboard will be shown on system.

This system will thus help athletes to keep tracks of their events and performance, it will also reduce the overhead for the organizers to manually schedule the events, verify documents and update scoreboards.

Key Words: Athlete, gymnast, gymnastics, event management system.

I. INTRODUCTION

Gymnastics is a sport that needs balance, strength, flexibility, agility, coordination and endurance. Gymnastics events are governed by the Fédération Internationale de Gymnastic(FIG). Competitive artistic gymnastics is the most known and famous of the gymnastic events. It involves the women's events of vault, uneven bars, balance beam and floor exercise as well as the men's events of floor exercise, pommel horse, still rings, vault, parallel bars and horizontal bar.

Gymnasts who perform gymnastics face several issues like registering for an event, documents verification, event schedule, etc. With such a mess to just register for an event, It even becomes difficult for the athletes to know their ranking and performance.

Gymnastics Event Management System is a system to help organize competitions. The system primarily has 4 modules: Registration, Event Day Logistics, Record/Result History and Personal Profile Management for the in-house players.

The Registration module allows home players of a club to enrol into upcoming events. Guest athletes can apply for their desired event or sport as per the Age, Apparatus, Element, etc.

Event Day Logistics consists of all participant records playing at the event which will be used to schedule players, provide scoresheets, generate ranking, publish scores and update records.

Verification: Participant documents are verified and approved.

Scheduling: The system schedules the competition as per the Age Group, Apparatus and Gender to display order of events.

Scoring: An online scoresheet for Judges to enter scores for each participant and view the next participant. Scoresheets can also be reviewed to settle disputes.

Ranking: Once judges finalize the scores, it can be displayed on the scoreboard and ranking will be done to be displayed on the websites.

Updating: The results and achievements will be uploaded to the system for in-house players.

Record/Result History maintains a log of all events and results of events held at this club till the current date.

Personal Profile Management provides a portfolio for its players. In-house players can upload their certificates and medals won at external clubs into the system.

As part of quality of life features, all database objects such as participation forms, results, history of an athlete, etc could be converted to a different version of soft copy such as PDF or Word file and can be downloaded as and when required.

II. LITERATURE SURVEY

A. In the year 2016, Khalil Pinjari at el [1] proposed a paper on event management system. In this paper he explained the events such as wedding, festivals etc. have become a part of life which has given rise to event planning and Management Companies. With the increasing rate of customers and events, it gets complicated to manage using traditional system using spreadsheets, traditional database and more. Due to this, a new Smart Event Management System has been introduced which uses the latest technology of .Net Framework for managing various tasks and planning for employees, customer, location, transport and more. With the help of this system, the transparency between customer and management team has increased.

B. In the year 2014, Phanuphong Hathaiwichian at el [2] propose the paper on event management and information propagation. It intends to solve the problems of propagating news and information, and also alleviate the issues of conventional event managing procedures such as loads of paper work, or long queue at the registration desk. The aim of this project is to build an android application which provides interesting news and events. The users will be able to manage their event participation, such as reserving their seats in events, registering at the event site, and so on. The application uses QR code to provide an easy way to verify participants' identity in an event.

III. AIMS AND OBJECTIVE

- To allow In House gymnast to automatically register for an event.
- To maintain Accolades of gymnast.
- To update results and achievement to In House database.

IV. PROBLEM STATEMENT

Gymnastics in is still a very niche sport in India but that hasn't stopped hundreds of people from playing it and participating in gymnastic competitions. Such competitions should have a nice and fluid system to register participants for a competition and be able to record all required information about players digitally so that it can be retrieved as and when required by event staff, judges or even club members to schedule, score or analyze a player's data and maintain and database of all players in that club.

However, such a system is non-existent at the time being which has made the entire process of enrolling into a club and participating in any kind of event a huge chore. All processes from enrolment to registration is done on paper and hence is extremely time consuming. Almost an entire day could be spent easily on just filling registration forms and verifying them. A lot of staff is also needed on the day of the event just to retrieve and distribute these information sheets. All of the staff are also on a separate payroll for the event days which is cost that can be cut down of the system was a bit more streamlined and did not require so many staff doing small jobs.

Thus to make it this entire process a lot simpler, a software system can be introduced which enrols players into a club, maintains records of all enrolled players, can conduct events and provide judges with an interface to score the participants, all the while eliminating the need for hardcopies and need for extra staff that would otherwise be required. It also makes it extremely beneficial for a club if the software can maintain and help coaches analyse every player's strengths and weaknesses to help them get better results

V. PROPOSED SYSTEM

The proposed system is an website which can run on any internet enabled devices. Gymnastics Event Management System will assist organizing a gymnastics competition. Thus this will make entire process a lot simpler, a software system can be introduced which enrols players into a club, maintains records of all enrolled players, can conduct events and provide judges with an interface to score the participants, all the while eliminating the need for hardcopies and need for extra staff that would otherwise be required. It also makes it extremely beneficial for a club if the software can maintain and help coaches analyse every player's strengths and weaknesses to help them get better results.

VI. SCOPE

The scope of the project is to save the time in managing the events. The participants will be updated of the newly events which are upcoming The user can easily learn how to use the system and as well can easily manage the events by using our system. The participants data/information is safe and secure at the back end. The events results are displayed on the spot, which saves judges as well as participants time. This system can also be used in any type of event management system.

VII. METHODOLOGY

The software has Registration for participants, Event day management and Distribution of certificates. This software also maintains the In-house player data i.e. achievements, Rankings, etc.

A. **Registration**
   - ➢ **Players Registration form** :- Online Forms for the Registration of the players from other teams.
   - ➢ **In-house Players Registration**:- The In-house players could register automatically using internal portal.

B. **Event day process**

Documents Verification:- Verification will be done of the documents submitted by the players on the event day.

1. **Scheduling:-** After the verification, the software will arrange the players in the certain categories and schedule their events. The Scheduling will be done according to the No. of participants, Age Group, Gender, Events and

Apparatus. The schedules will be displayed on Website.

2. **Scoring System:-** At the event Judges are able to see the players score card according to the apparatus and events as per the schedule.
   - Score card will be displayed where judges can enter the scores.
   - After finalizing the scores, judges can confirm the final scorecard.
   - After confirmation of the scorecard judges can view the scorecard of the next player immediately.
3. **Displaying Result**:- After each performance scores will be updated. At the end of the particular event, judges will finalize the scores and the scores will be displayed. If any changes in scores, judges can edit the scores and confirm it finally.
4. **Ranking**: After end of the event finalized scores will be computed and ranking will be generated.
5. **Distribution of Certificates and Medals**:- Once the final Rankings are decided, the software will print the certificates. Organizers can keep track of distributed Certificates and Medals.

C. In-house Players profile management

This feature records the achievements and details of the players and information of coaches.

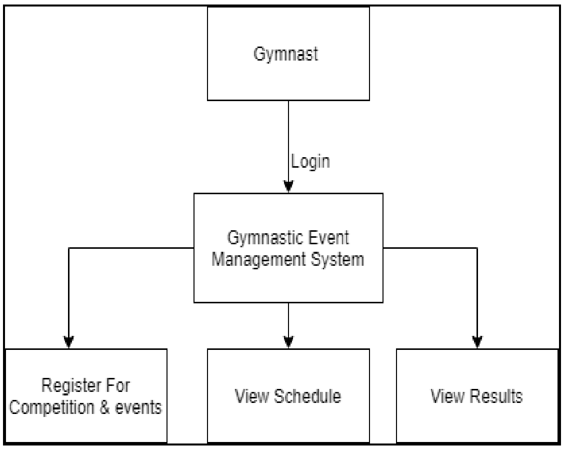
Gymnast
Login
Gymnastic Event Management System
Register For Competition & events
View Schedule
View Results

Fig.1 Gymnast Flow

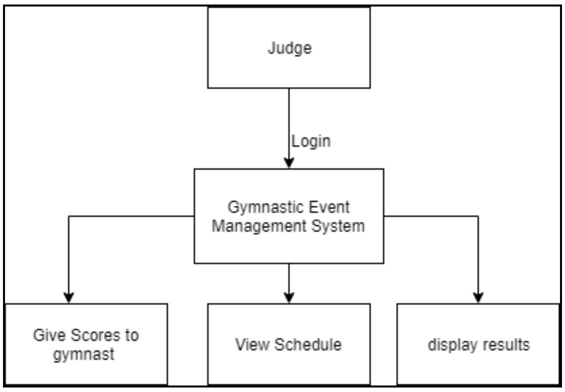

Fig.2 Judge Flow

VIII. CONCLUSION

Considering existing problems faced during gymnastic competitions, we developed gymnastics event management system in order ease the process of gymnastic competitions for gymnast, judges and organizers. Using our system organizers can easily organize gymnastic competitions, gymnast can easily register to the competitions as well as judge can easily give scores to all gymnast performing the events.

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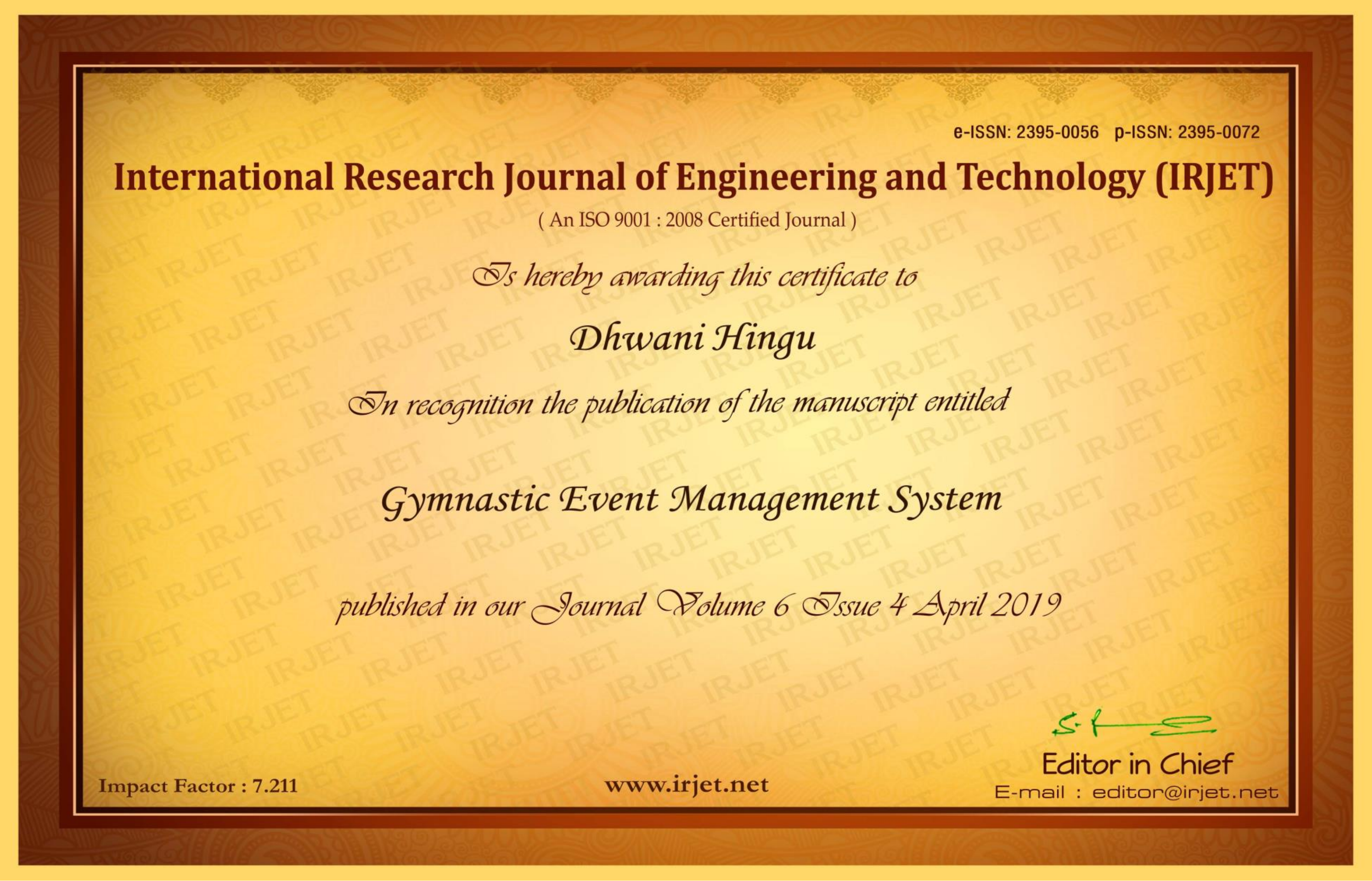

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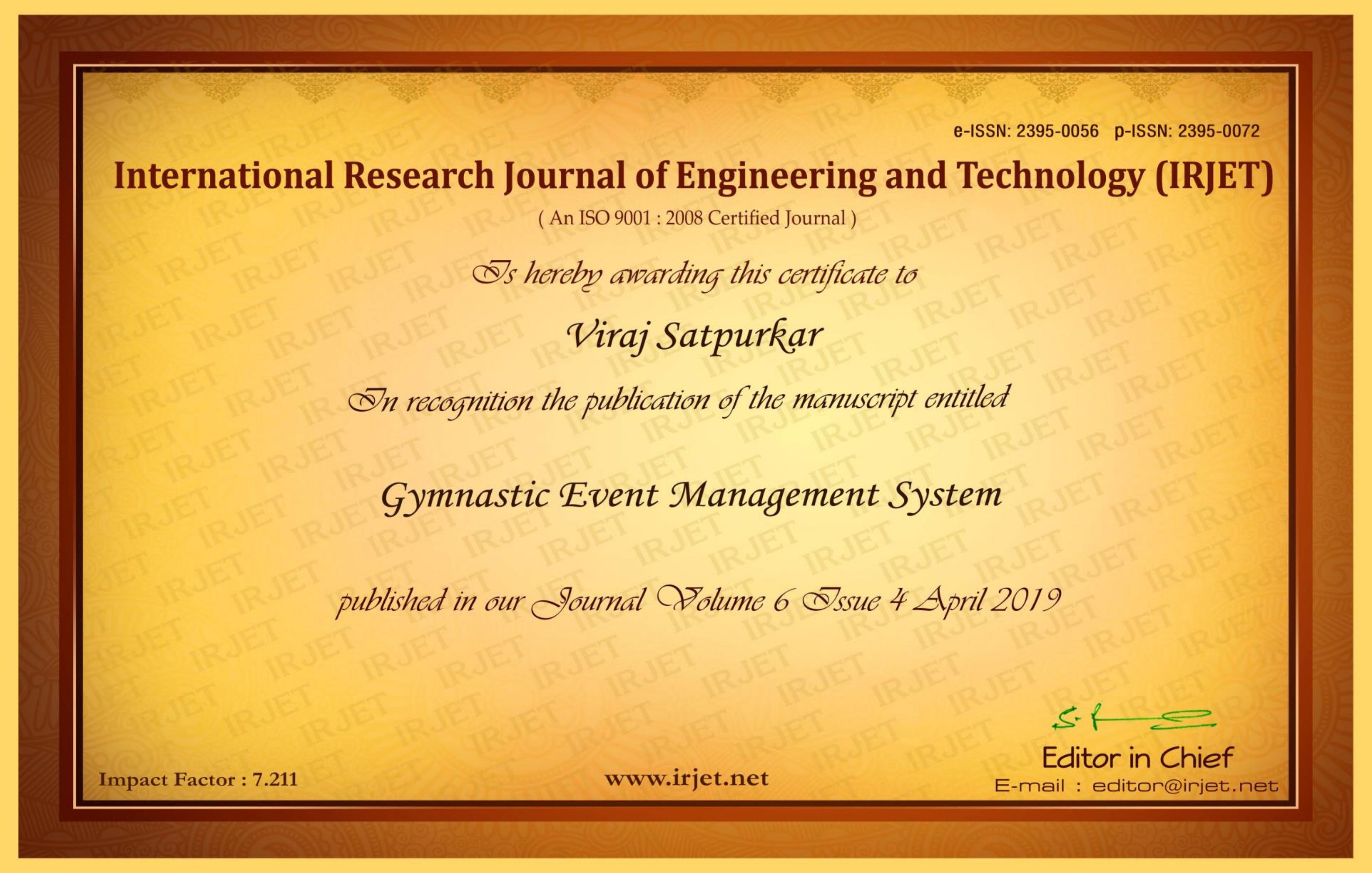

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