Optimized approach for Sports Event Management System using MVC Design Pattern

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Abstract- This paper concentrated on online management and coordination of sport events. Because of every sports event have different rules and criterions, offline sport management and coordination of sport events is a tedious and time-consuming activity. However, developing appropriate algorithms and implementing it using software aids provides better online solution. An online sports management system allows to create sports events as per requirements and provides automated scheduling as per event constraints to successfully finish events activities. Model–view–controller (MVC) architecture pattern is suitable for creating an immersive and stable web application. Since MVC-based applications are designed and evaluated in a single address space, certain same MVC architecture patterns are used. Partitioning decisions may also be reversed without having to recompile the application. As a consequence, the outcome of this paper is a functioning online sports event management framework web application.

Keywords-sports event, web application, MVC design pattern.

I. INTRODUCTION

Sport is one of the activities in which a large number of people of various ages, genders, and educational levels may participate and it is managed in accordance with policies. The process of organizing sports or scheduling activities on paper is a complex and critical job. However, in this modern age, it is possible to create the algorithm and use an applied application to plan and schedule activities. The old generation, a sporting event was held for a long period of time by the sports event promoter, who collected all of the details concerning the sports event offline; so that athlete will be prohibited from participating in multiple sports activities. As a result, organizing and arranging a sporting event can be a time-consuming and boring process. In the present era, and with the aid of emerging technologies, Proposed system will complete this task in a fraction of a second, allowing athletes to participate in various sporting activities at their convenience [1].

The MVC architecture pattern is ideal for creating an immersive web application. The MVC architecture distinguishes the user interface from the underlying data that represents the user interface, which is extremely helpful for developing software systems [2].

This paper focuses on organising and arranging sporting events online rather than offline. The MVC concept architecture is the best way to architecturally build this web application [2]. This knowledge would assist technical colleges and higher secondary schools in developing a more effective and collaborative online framework for sports event management.

II. LITERATURE REVIEW

The helps us to understand IDEs and different versions of Visual Studio. Analysed developers' perspective on Visual Studio; There are two aspects first is how much time they spend on each activity and second the frequency of use of ID codes. There are also many features that help us to understand the Visual Studio usage as per the developer's perspective [3] [4].

J. T. R. Avraham Leff helps us to understand the description of the partition in independent MVC architecture which used in the intrinsically locution-dependent environment of partitioned web applications. Improvising the partitioned application performance can be done by understanding the MVC scenario flow. The algorithms which are implemented, and infrastructure are needed which enable the applications to measure over non-trivial application model [2].

Weerakoon Ranjan describe about how the sports event happen, how the sponsorship works in our system which can be implemented in the future. How the environment affected due to the sports events. Analysis of what challenges faced due to sports events. Author is also concerned about the local community issues and challenges [5].

Like every event management, sports event also have limitations. Detailed study required to understand the limitations of sports events and how to organize the sports competitions which include planning, structure, and method to reach the goal [6].

There are many ways to improve a developer's effectiveness through tool support and the exchange of best practises. For example, tool support for recognising context switches and visualising them to a developer can aid a developer in reflecting on their own productivity. There are also intriguing possibilities for assisting developers in defining aggregate personal output metrics for recording and retrospection [7].

Before adopting any technology need to understand study of students' coding behaviour during the first few weeks of a web development course. The review emphasises the importance of confirmation of how beginners overcome these mistakes. The overwhelming majority of unresolved errors resulted in untested code, while the vast majority of errors discovered by validation were ultimately corrected. The contribution of work on the thorough characterization of mistakes students created with HTML and CSS syntax when they performed in-class and homework tests help to reduce failures of development [8].

III. PROPOSED SYSTEM

Participant actor uses developed website to register in an event. A login use case can be used by the coordinator and admin actors to get in their portals. View profile use case shows the participant registered event and his or her achievements. Certificate use case include participation certificate and winner certificate. Participation certificate allocates to every participant. Figure 1 allows us to understand behaviour of sports management system.
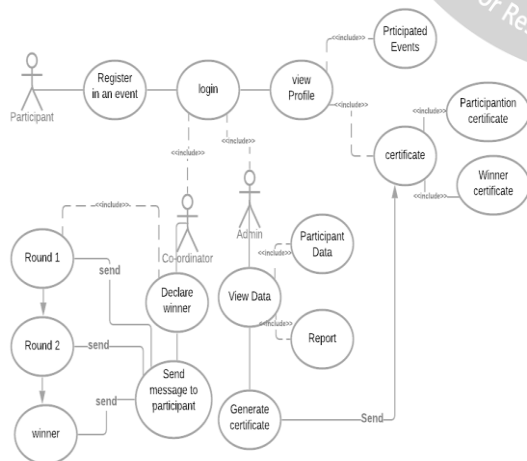

Figure 1: Behavioural UML diagram of Sport event management system

The declare winner use case used by the coordinator, where the actor declare the winner according to the round selection and sends the message to participants. After the declaration of winner certificate gets automatically allocate to that

participant via the system. View data use case include participant data and the report of the database. Generate certificate use case generator specific certificate for a particular student and locate the certificate to them.

IV. METHODOLOGY

The development of the sports event management system is divided into stages. Collect data after conducting a review of several academic papers and gaining a basic understanding of the technology and algorithms in use.

Create web pages using Figma, Adobe XD, or other modelling applications to serve as a guide. Create a framework using the MVC Design Pattern. Figure 2 demonstrate the data-related logic, UI logic of the application and an interface between Model and View components to process all the business logic and incoming requests. The MVC architecture pattern divides the system into three parts: the first model, where the database or all of the data is generated. second component is the view, which is where the website's user interface is generated using a reference template, [8] and the last component is the controller, which is nothing more than a connection between the model and the view.
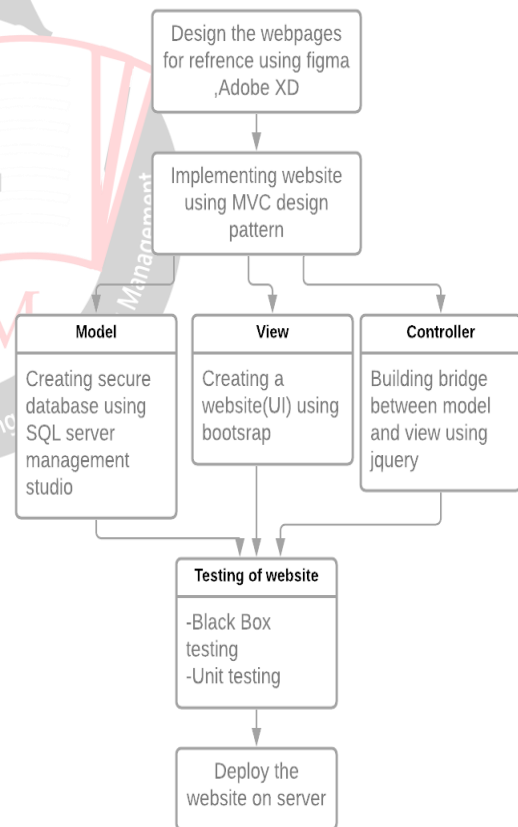

Figure 2:Architecture of sport event management system

A controller is used to enter or retrieve data from the model in the view. Following implementation, the website enters the testing phase, which is divided into two parts: black box testing and unit testing. Debug all bugs before deploying the sporting event management system to the server.

Figure 3: E-R Diagram of sport event management system

This E-R diagram (Figure 3) illustrates the Sports Events Management System model. This often serve as a visual representation of database tables and the relationships between users, activities, administrators, and so on. It makes use of data structure to describe the relationship between data classes and sports event management system features and functions.
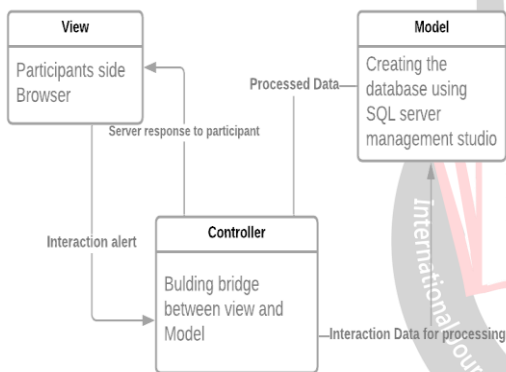

Figure 4: Implementation of sport event management system using MVC design Pattern

As shown in figure 4, MVC is nothing more than an m-model, a V-view, and a C-control. It divides an application into three parts: model, view, and controller. Since MVC-based applications are developed and validated in a single address space, they can be distributed to different client-server architectures without modifying the application's source code. Partitioning decisions may also be reversed without having to recompile the application. [9]

Model- model shows the shape of the data. As for describing the model class in C# are used. The model illustrates data that is retrieved from the database. The model has an interaction with the database. And it communicates with the controller. [10]

View: The view is something that the end-user sees. The view can pass the dynamic values from controller in the proposed system bootstrap is used for the UI. [8]

Controller: controller takes the user's input so that can be from the user visiting the page or clicking a link. Which makes get request or submitted of form, which makes post request also have delete request, put a request for updating controller. Controllers get the data from the model and pass the data to view in short it handles the user request.

V. RESULT AND DISCUSSION

The landing page allows to participant securely register for various sports events (Figure 5). Two types of registration allowed here as a participant and sports volunteer.
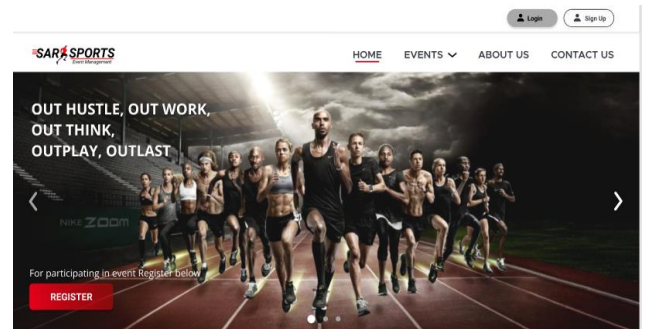

Figure 5: Home Page

User will register for an event by going to the homepage and pressing the **REGISTER** button (figure 6).
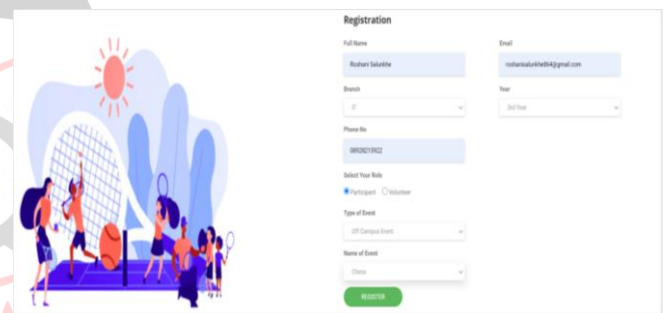

Figure 6: Registration Page

Following that, the registration form will appear, prompting the user to fill in the required information. user must choose the 'REGISTER' alternative to complete the registration process (figure 6). Then it will immediately redirect to the homepage.

Figure 7: Sign up Page

If a user wants to see their registered events or certificates, they must first build an account by clicking the 'SIGN UP' button (figure 7).

Figure 8: Login Page

After signing in, the user must type their own username and password and then click the log in button (figure 8).
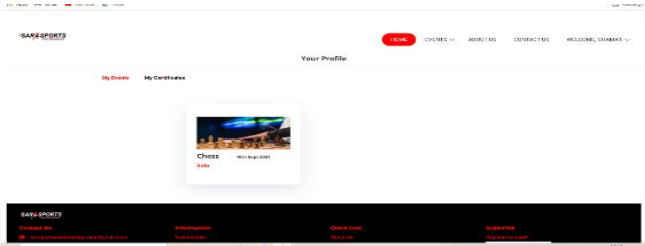

Figure 9: Student Profile-view participated Games

After logging in, the user will see the homepage, and to see the recorded events or certifications, he or she must click the profile icon in the upper right corner (the profile icon will show the user's name, for example 'WELCOME, SHAMA')(figure 9 & 10).
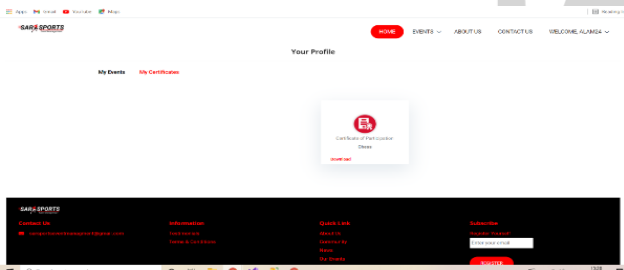

Figure 10: Student Profile-view certificates

Figure 11: Downloaded certificate

To obtain the required certificate, the user must choose the download option (figure 11).
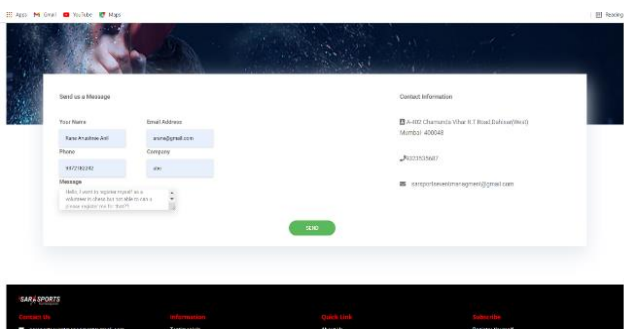
Figure 12: Contact us page

Users can email or share feedback by clicking on the 'CONTACT US' button, where they can enter their information and write a message or feedback (figure 12). Graphical user interface for administrative portal:
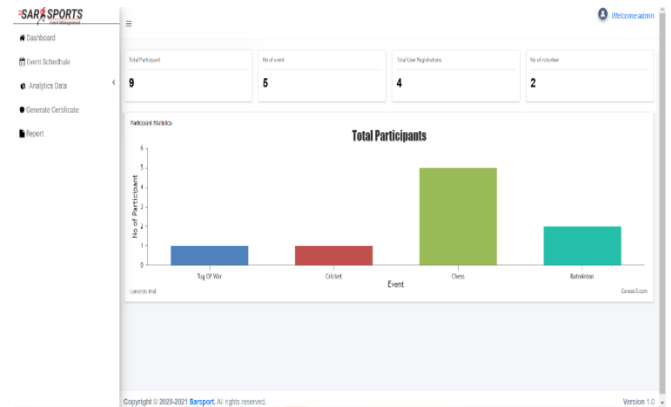

Figure 13: Dashboard for Admin

Admin can use a predefined username and password to log in. After logging in, he or she can see a dashboard containing statistics and graphs (figure 13).
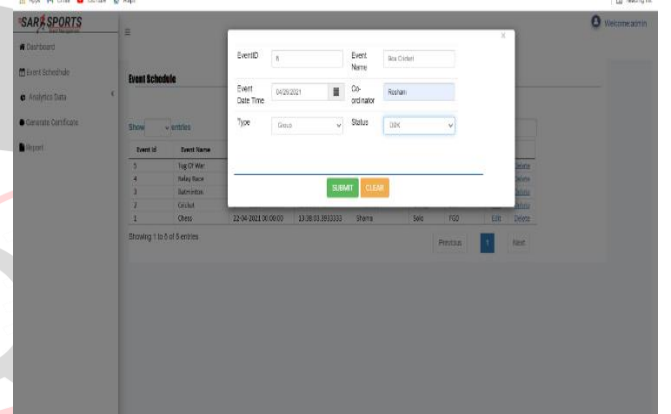

Figure 14: create a new event

The administrator is the only one who has the authority to plan and create events. To do so, he or she must complete all of the event specifics and press the submit button (figure 14).
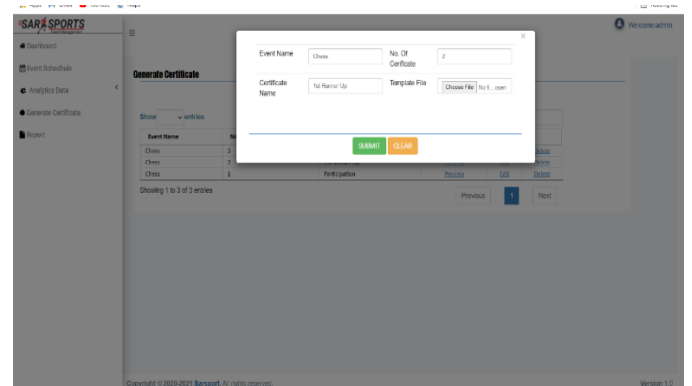

Figure 15: Generate certificate

If an user is eligible for an extra certificate, the administrator will create it by pressing the 'ADD NEW' button, which will bring up a pop-up window in which the administrator must fill out all of the required information before clicking the submit button (figure 15).
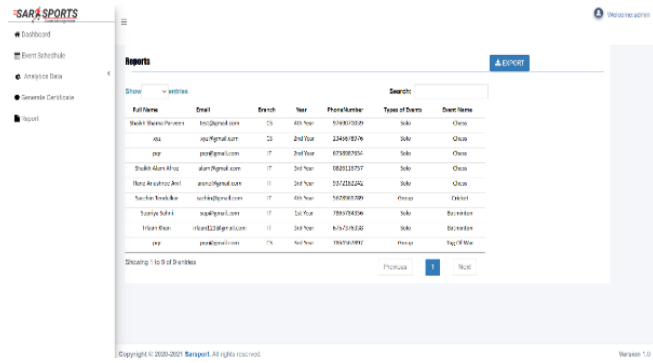
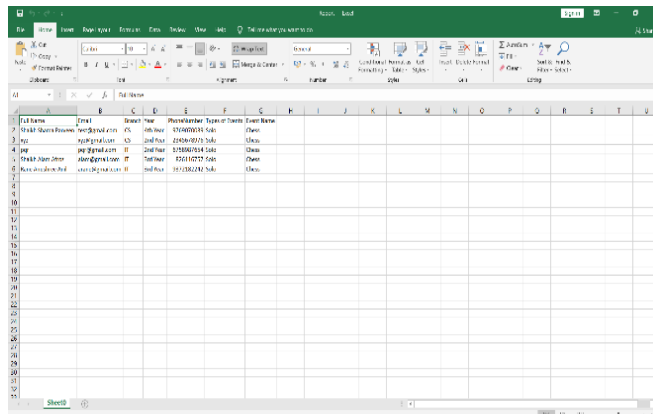**Figure 16: Report**

Figure 17: Downloaded Report

Admin will view all event information in the 'Report' option. He or she can also download the report (figure 16 & 17).
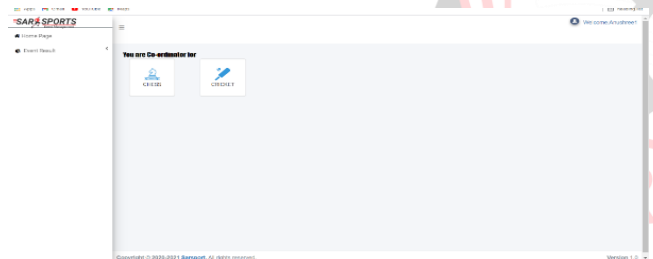
Graphical user interface for coordinator portal:

Figure 18: Home page for coordinator panel

After the login procedure, the coordinator panel will open, and admin will assign events to the coordinator, which will be displayed on the homepage (figure 18).
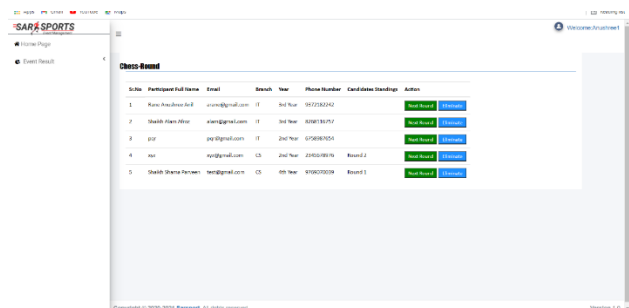

Figure 19: User list for specific event

To see the user list for a specific event, the coordinator must first pick the event. Following that, he or she will be given a list of users along with their details. For each person, the coordinator will be given two options: next round or eliminate (figure 19).
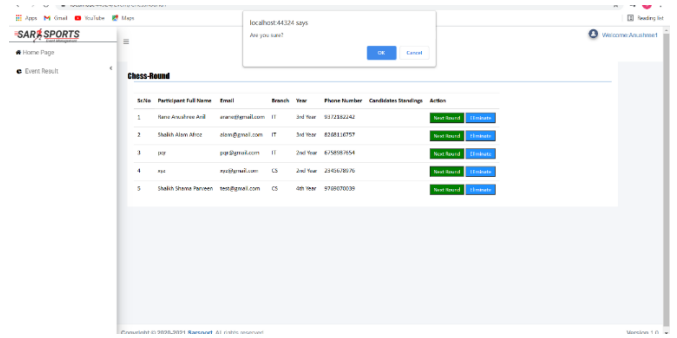

Figure 20: pop up for conforming action

The coordinator must choose one of two options after the match. After selecting an alternative, the coordinator will receive a popup for the same and user will receive participation certificate automatically. Then he or she must affirm the operation. The user will be told via SMS whether he or she is chosen for the next round or eliminated (figure 20).
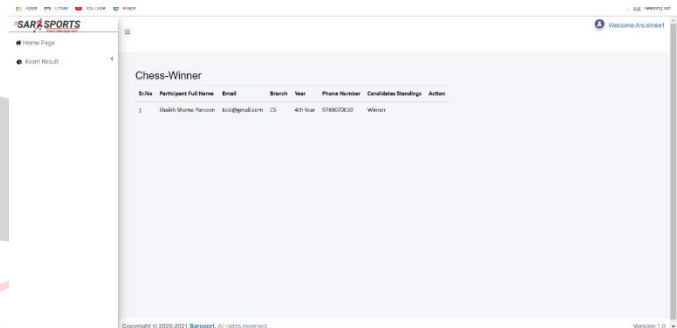

Figure 21: winner list

The same procedure will be followed for each round until the coordinator declares a winner. After declaring winner, user will receive winner certificate (figure 21).

VI. CONCLUSION

This paper explains how an online sport management system network platform design pattern can be found in the essential context of a partitioned web application. The created event management system would enhance the existing offline event management system. From the registration of players to the announcement of the winner, the procedure is lengthy, and the promoter of a sporting event will never get an up-to-the-minute update. In contrast, in a developed framework, the event planner receives real-time updates about the state of a specific event and can also determine who will win the event. Participant also receives their current status and may schedule his/her attendance for the next round based on it. Admin is gathering all of the data containing knowledge about the attendees and activities. Additionally, a certificate is produced that is immediately assigned to the participant after the coordinator determines whether he/she is the winner, which is dependent on the match. This entire algorithmic application of a basic operating procedure for sport event management was shown effectively using a case study.

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