

A Web Based Project on “Virtual Judge Panel”

-a smart solution for coders.

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

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APPROVAL

This Project titled “Virtual Judge Panel” submitted by Humayra Haque Mohona Id No: 151-15-4720 to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial. Fulfillment of the requirements for the degree of B.Sc (Bachelor of Science) in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on 25th October 2018.

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We hereby declare that, this project has been done by us under the supervision of Dr. Syed Akhter Hossain, Professor and Head, Department of Computer Science and Engineering, Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

The main purpose of this project is to develop a website called Virtual Judge Panel where student can register and submit their projects under an event. Admin can create event and add judges. Judge can view and rate a project. According to their ratings every single project will get a rank by calculating average rating. By this process we will find the final best project of an event. To develop this web application, we used RAW PHP which helps us to build this application faster. We also used HTML, CSS, Bootstrap, JavaScript for better web design and make this application more user friendly. After implementation of all functions, the system is tested in different stages and it works successfully as a prototype.

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CHAPTER 1

INTRODUCTION

1.1 Introduction to Recommendation system

Virtual Judge Panel is considered to be a type of web base application, this website is designed to be used for every smart citizen. Recommendation system means a application where student can register and submit their projects under an event. Admin can create event and add judges. Judge can view and rate a project. According to their ratings every single project will get a rank by calculating average rating. By this process we will find the final best project of an event.

1.2 Motivation

In a app contest, it is difficult to attend physically for students and mentors who are far away from the venue. So we tried to solve this problem.

To solve this problem, we will build an online platform by which both students and mentors can attend virtually to an app contest. As a result it will easy for students to submit their project from a far distance and will also easy for mentors to judge their project.

1.3 Objective

- To help user who want participate in long distance app contest.
- To help coders to show their creative idea .
- Give coders feedback and expert guidance form judges from overseas .

1.4 Expected Outcome

- Here Admin can create an event and add some judge and visitor.
- Student can register and submit their project under an event.
- They can add demo video of their running project.
- They can update their project according to judges suggestion .
- Judge can review and rate those project.
- Judge can suggest and ask for some new requirements.
- Project will get a rank according to their average rating.

1.5 Report Layout

Chapter 1: Introduction

In this chapter we have discussed about the motivation, objectives and the expected Outcome of the project. Later followed by the report layout.

Chapter 2: Background

We discuss about the background circumstances of our project. We also talk about the related work, comparison to other candidate systems, the scope of the problem and Challenges of the project.

Chapter 3: Requirement Specification

This chapter is all about the requirements like business process modeling, the Requirement collection and analysis, the use case model of the project and their Description, the logical relational database model and the design requirements.

Chapter 4: Design Specification

In this chapter all the designs of the project. Front-end design, back-end design, Interaction design and UX and the implementation requirements.

Chapter 5: Implementation and Testing

This chapter contains the implementation of database, front-end designs and interactions and the test results of the project.

Chapter 6: Conclusion and Future Scope

We discussed about the conclusion and the scope for further developments which pretty much derive about the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

To start a project, we need to concern about many things. Background of the project is more important issue to complete the project very nicely. To start a project, we need to study about many more subject which will be related or not related with the topic. We need to fixed the areas in which we will work. To build a good project study is must. So we need to research about the related sectors and also find out the similar work. From the similar work we will find out our target and features of the project. To estimate the scope of problem we can ensure that what problem we will faced. So background of any project is most important thing to build up a successful project.

2.2 Related Work

There is some website we found which are

- Challenge Rocket
- Agorize
- IT School Race - PHP
- Connected Challenge

2.3 Comparative Studies

Challenge Rocket ,Agorize ,IT School Race – PHP,Connected Challenge all those are similar none of those perform as a platform where we can create diffirent events in different time and record data of coders and update their ranking according to performance in events.because of the 2 phase of that event they can also update their according to judges opinion.

2.4 Scope of problem

To complete this project, we face many problems. There are some problems which are more difficult and some problem which are little bit easy. After solving all problem, I develop this system. The problems which I faced to develop this system is given below:

- I have to talk with programmers of different level for their opinion and update the website.
- I have to advertise our website which may due cost.
- I have to connect with client who want to create event in this platform.

2.5 Challenges

Our project should have some challenges to make it different to provide a better service:

- Attractive design and useful features.
- User friendly
- Giving information about upcoming event.
- For being member, user must register with real information's.
- Ensure security
- Profile confirmation by admin.
- Web site updating option.
- Make the project very friendly to user.

CHAPTER 3

REQUIRMENT SPECIFICATION

3.1 Business Processing Model

Business process model is actually mapping concept. It is a tool for building a flowing diagram or model . BPM basically define the appropriate flow of data from the start to end. We can define the capability of the project. Every engineering project there will must need to develop a business model before start the project work. Business processing model helps us to give the client services in an efficient way. This model makes the project flexible to both user and developer.

A company or any organization is using the Business Model Diagram for graphical representation. There are many method or regulatory body like flowchart, data-flow diagram etc. are used to represent the model . There are many kind of Business Processing Model. Here we discuss about the process of adding new features or solving the program error after realizing the project. Figure 3.1 show how developers are with the system.

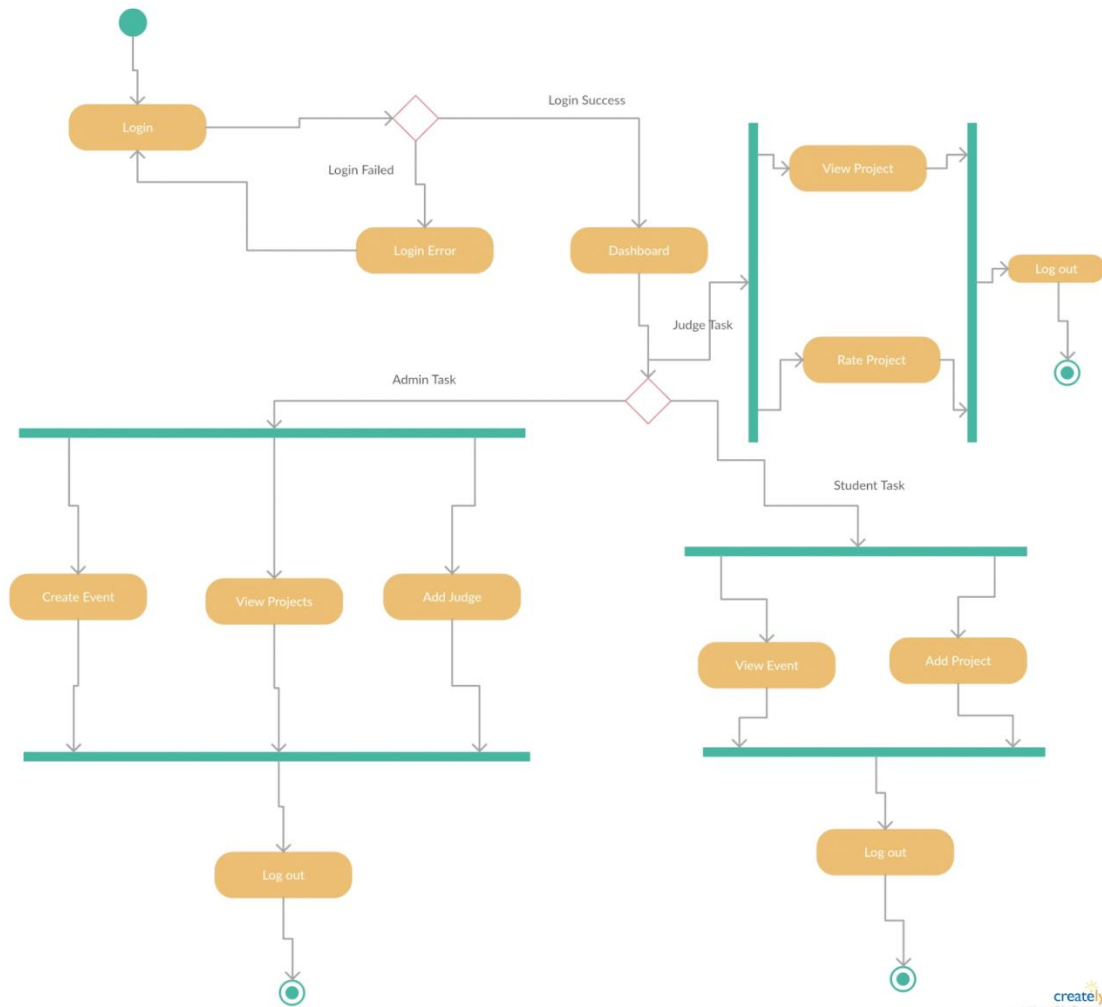


Figure3.1: Business Process Model for virtual judge panel

3.2 Requirement Collection & Analysis

In every single project, initial work is specifying the necessary requirements and also collecting the requirement. Because without requirement we cannot draw a graphical view of a project. Graphical view is very important for a project to implement every single task. It is a bad practice to start a project without collecting the requirement first. On this project requirement collection is very big challenge for us. Because requirement for this project is not available everywhere. We need to communicate with the agent to know their working process. After knowing the working process, we

need to specify the tools which we are use on our project. We divide our project into several part. Because several part of data we need to use here. On the basis of data, we collect the requirement. We specify what kind of users are use this system. After completing the requirement collection, we need to analysis the requirements. By analyzing we can prepare many method and model to represent the system. We can specify how the users complete their task through the system. Data moving is also set by analyzing the requirements. So requirement and requirements analysis is very important for any project. To build a successful project need to collect the requirement first and then we need to analyzing the requirement and specify the method for the project.

3.3 Use Case Modeling and Description

In Requirement Specification, a use case is a list of actions or every steps, typically defining the interaction between a role (Known in the Unified Modeling Language as an actor) and a system, to an achieve a goal.

The actor can be a human or other external system. Use case model is the smartest way to represent a system. A developer can easily represent the system to the client in simplest way through use case modeling. A use case diagram at its simplest is a representative of a user's interaction with the system that shows the relationship between the user and the different use case in which the user is involved . So to create use case model, the analyst must first identify the different types of user who use the system. These actions actually represent the procedures; which people have to follow to operate the system. Use case describes scenarios that will be perceived differently by different actors. Our system is so complex. As a result, we do the use case part by part according to ER diagram or schema diagram.

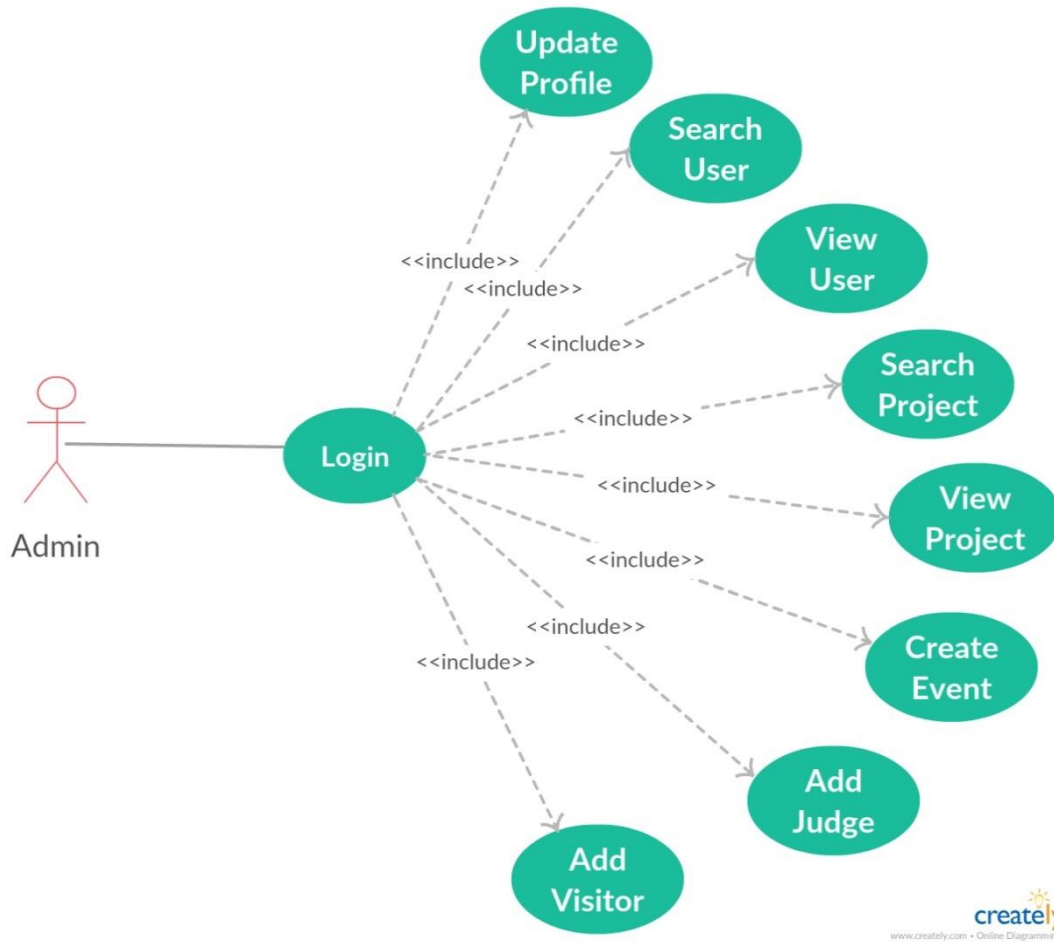


Figure3.1: Use case for admin

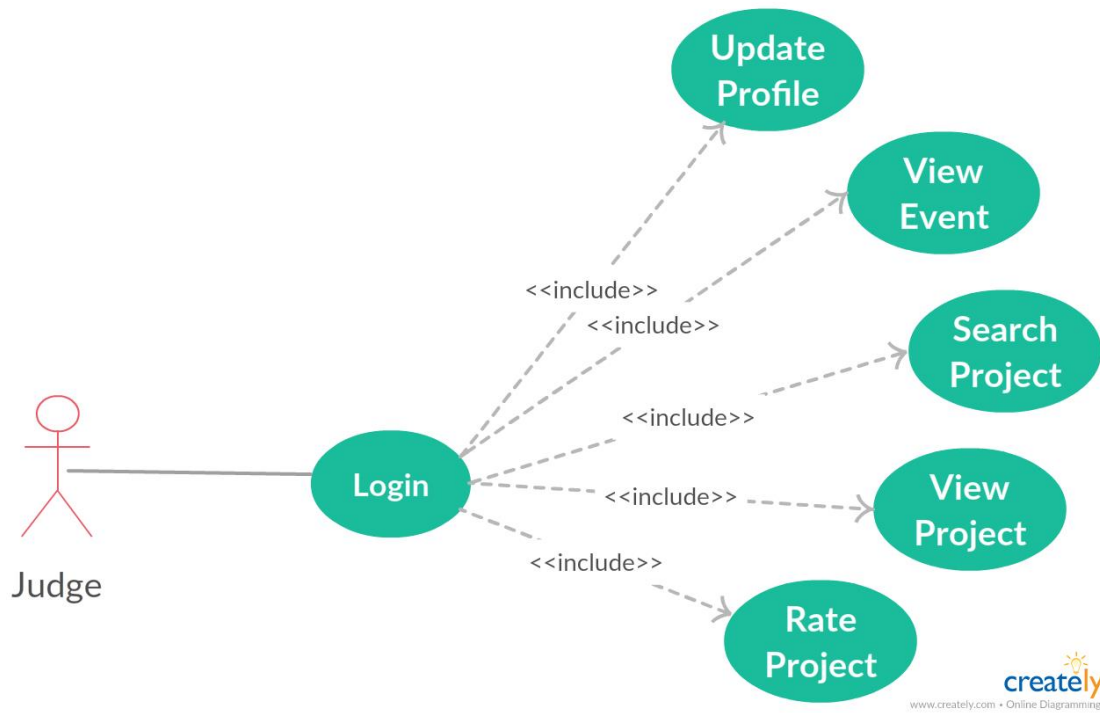


Figure 3.2: Use case for judge

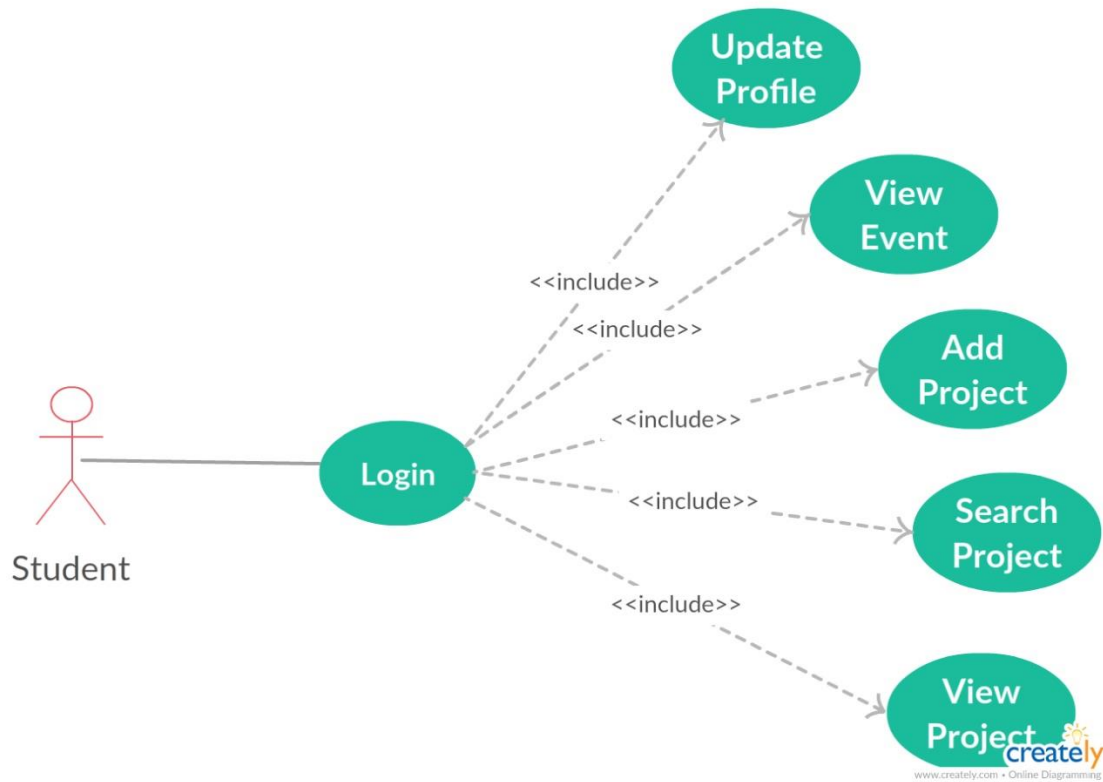


Figure 3.3: Use case for student

3.4 Logical Data Model

Logical data model is diagram by which we can represent the activity of a system data. How logically the data can move through the system and the reaction of the systems with the data is represented by these kind of model. Some Logical Data model for this system is given below:

3.4.1 Entity Relationship Diagram (ERD)

An ER diagram is a means of visualizing how the information a system produces is related. There are five components of ERD. Entity, Weak Entity, Relational, Attribute, Multivalued attribute, Derived attribute . With the help of these five components Entity Relationship Diagram is drawn. In our ERD we are using these components. A basic ERD model is composed of entity types and specifies relations that can exist between instances of those entity types. Figure 2.6 shows the Entity Relationship Diagram for our project.

E-R Diagram of Recommendation System

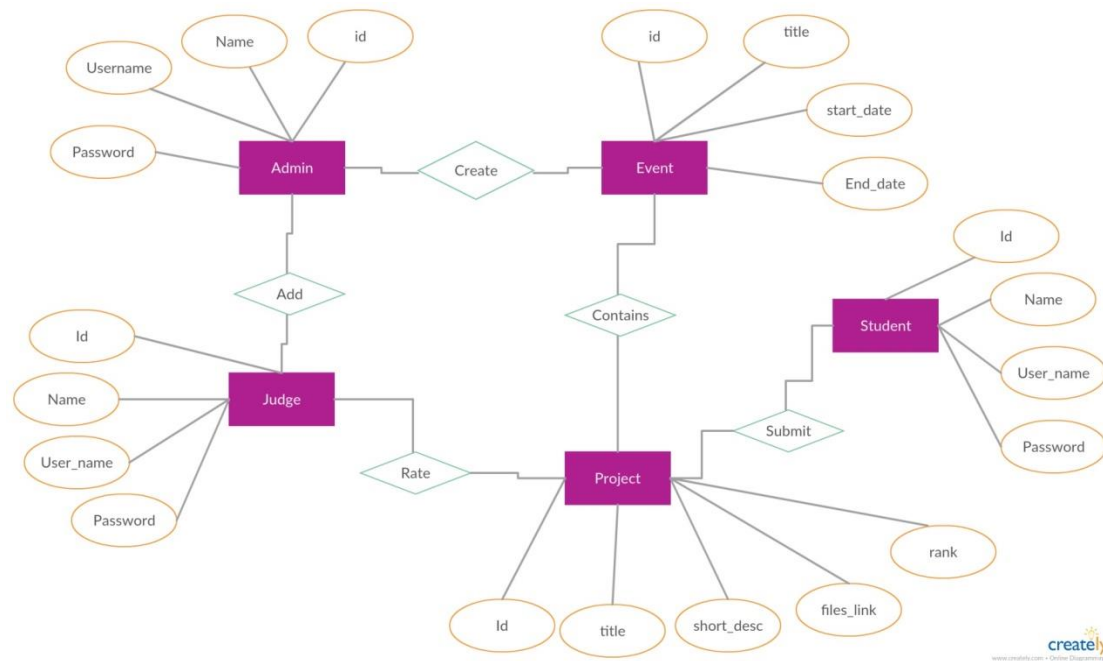


Figure 3.4.1: E-R diagram

3.5 Design Requirement

- Here Admin can create an event and add some judge and visitor.
- Student can register and submit their project under an event.
- They can add demo video of their running project.
- They can update their project according to judges suggestion .
- Judge can review and rate those project.
- Judge can suggest and ask for some new requirements.
- Project will get a rank according to their average rating.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

HTML (Hypertext Markup Language)

HTML is a markup language by which we complete whole markup of our project [5]. HTML is actually helps us to set a structure of a system. We use HTML in our system for doing markup.

CSS: Cascading Style Sheet

When you create a website for your business, time and money are likely to be major concerns. Luckily, there is a web design method that can help you save time and money while also improving your visitor's experience. CSS is actually help to present a system nicely by give color, border, margin and padding. We can give margin Padding of any HTML by CSS. We use CSS in our project for styling.

Bootstrap:

Bootstrap is one of the coolest ccs and js framework. It has the flexibility and also ability to do a lot of things and save time [6]. Bootstrap actually reduce the work of a developer. We can design a system smartly using Bootstrap. So to give the user a smart and fresh feeling we use Bootstrap in our project.

JavaScript:

JavaScript is like a scripting or programming language which helps to implement complex things on web pages. To develop a integrative website we need to use JavaScript. There are many frameworks in JavaScript like jQuery. jQuery helps to represent the website smartly. To develop interactive, we pages JavaScript plays vital role. Maximum browser are dedicated to use the JavaScript. [7]

4.2 Back-end Design

PHP

PHP is a programming language. It is very popular language in new generation developers in web [8]. Because this language is very flexible to use with html. We can easily write PHP code in any HTML tag. As our system is a web based system for that reason we use PHP for our Back-end Development Language.

Laravel

There are many more PHP framework like LARAVEL, Symfony, Codeigniter, CakePHP etc. On this project we used PHP framework LARAVEL to build our web base project. LARAVEL is a free, open-source PHP web framework, created by Taylor Orwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symphony[9] .

MySQL

There are many more popular organization who are using MySQL for efficiency and low costing. It is open source relational database. We use laravel query builder to manage our database [13].

4.3 Interaction Design and UX

Admin Page Design:

- Student Information (View and Search)
- Judge Information (view and search)
- Admin Information (Add, Delete and Update)
- Create event(date,time,type and detail)
- Reset
- View (project,rank)

Student Page Design:

- Student Information (Add, Delete, Update, View and Search)
- Join event
- Add project
- View coments
- Add demo video and source code
- View project

Judge Page Design:

- Search events
- Compare best project (view project)
- Ranking
- Giving feedbank

UX:

UX means User Experience. But we did not launch my project in public so this time I don't have any information.

4.4 Implementation Requirements

To implement this project, we have needed text editor named PhpStrom, Atom.. To upload our website, we will need domain and hosting to show our project in online. To work with the project, the important requirement is data.

- The design needed to implement in web programming language PHP and PHP.
- framework Laravel.
- Preferred Database is MySQL (Engine: XAMPP).
- Schedule wise backup from server (Both source code and Database).
- Failed log in needed to store in database.

Minimum Software Requirements for our application

- Any kind of Browser to run this project.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Database is the main requirement for any kind of management system projects. We develop this project using PHP framework laravel. On database we save the data and retrieve the data when we need to use. Figure 5.1 shows the database implantation diagram. As we develop this system in laravel and the MySQL database is used. So we need to use SQL query to implement many task the project.

Structured Query Language (SQL) is the standard means of manipulating and querying data in relational database, though with proprietary extension among the products. In this project we use SQL for writing query [13]. We can easily add, edit, delete and create data from the table of database using query. There are five tables in our DBMS.

Student Login: From the student table, student can complete their authentication.

Student Registration: Students information is added to the student table from this page.

Judge Login: From the judge table, judge can complete their authentication.

Judge Registration: judge information is added to the judge table from this page.

Admin Login: From the admin table, admin can complete their authentication.

Admin Registration: Admin's information is added to the admin table from this page.

Event: Admin can add event and update event.

Project: All project information added from this table.

Search Information: Any kind of user can easily search event related information for the database.

Student Rank: All student ranking information added from this table.

5.2 Implementation of Front-end Design

It's very challenging to make a simple UI design for the users, we try make as simple as possible. Nowadays, there are many devices like smart mobile, tablets, desktop, 4k desktop etc. We are trying our website responsive so that user can visit from different devices with a marginable scale of the website and easily interact. We make interface relative and standard with the help of HTML, CSS, JavaScript and JQuery technologies. There are some factors of implementing the front-end design is given below.

- There will be three types of users like Admin, user admin and agent.
- Every types of user must be registered by filling up the required information fields.
- User admin can login using their registered email and password.
- User admin can reset password by filling up the form of forget password. For updating user profile, user must enter the password for the security purpose.

5.2.1 Login page

Figure 5.2 shows the login page of our project.

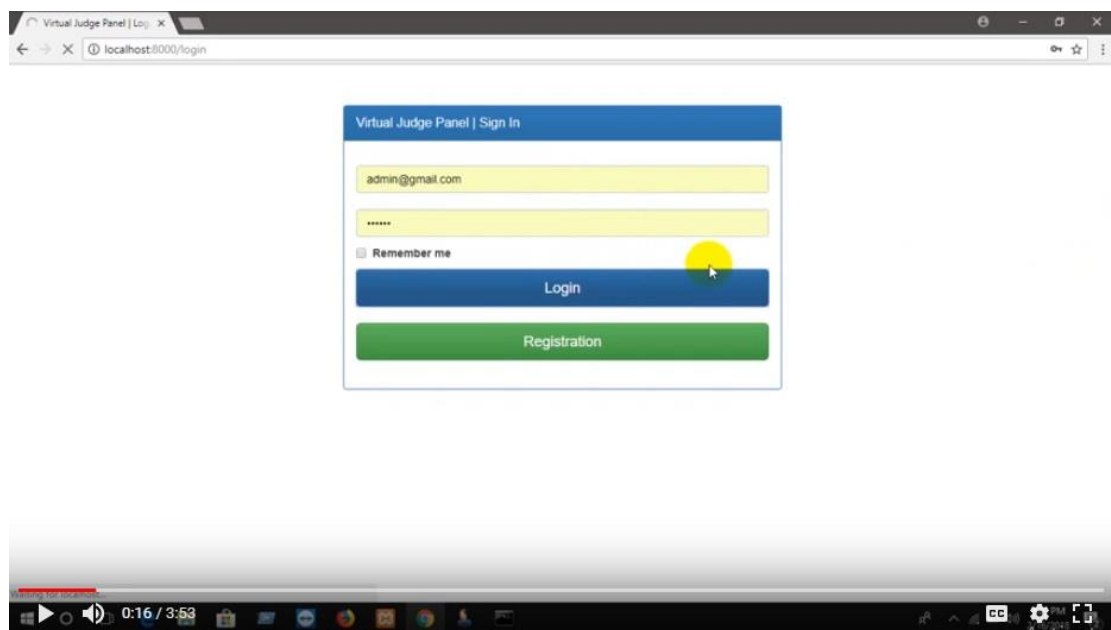


Figure: 5.1 login page

5.2.2: Admin dashboard:

Figure 5.2 shows the Admin dashboard of our project.

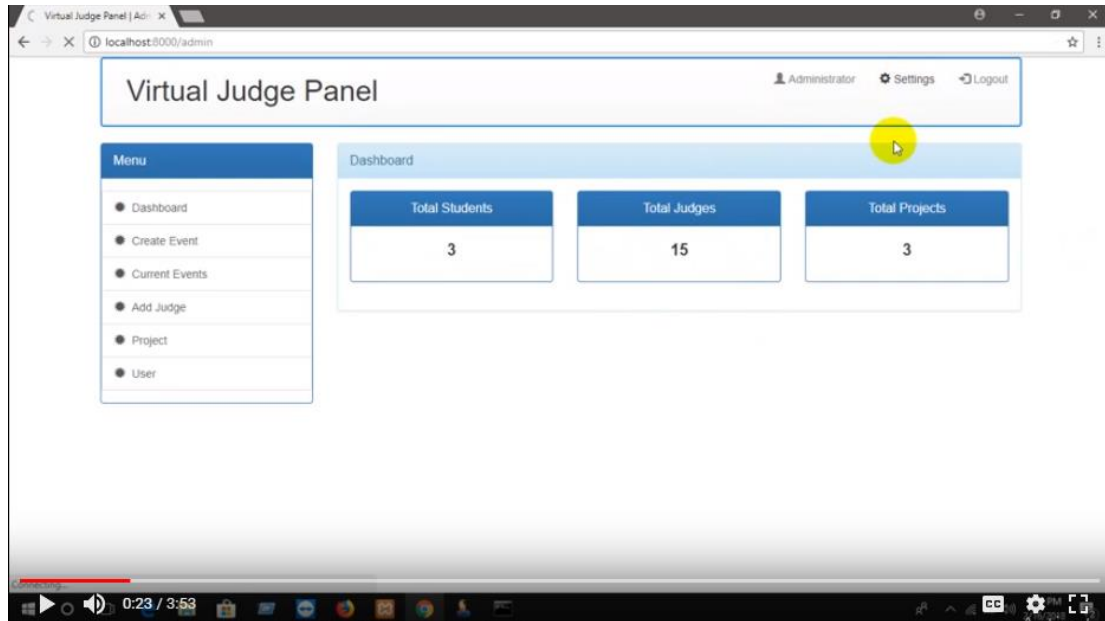


Figure: 5.2: Admin dashboard

5.2.3: Event create:

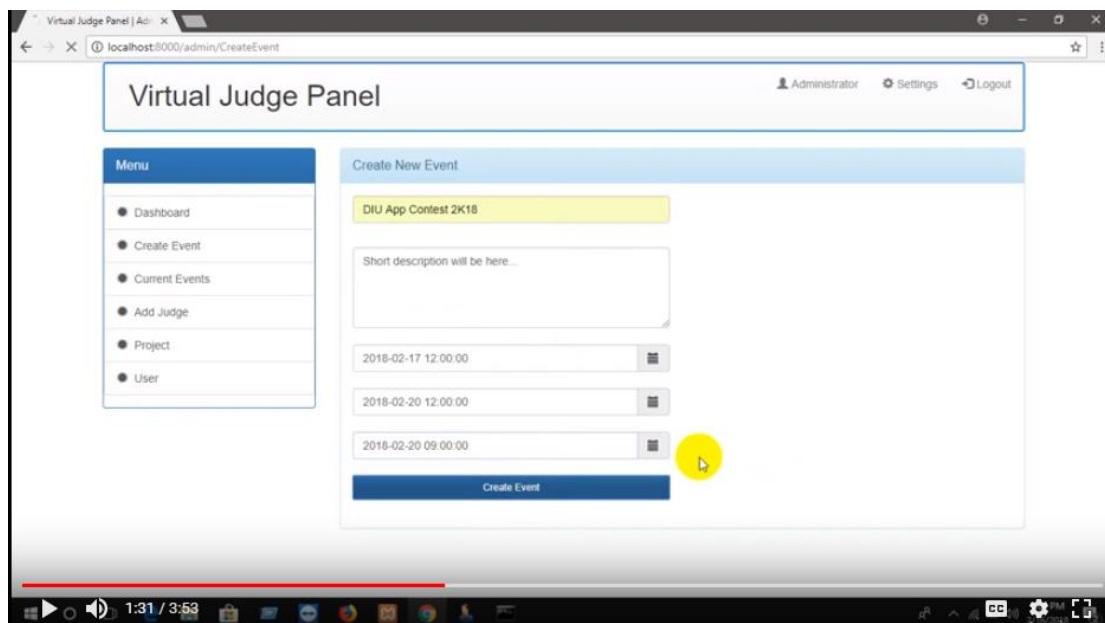


Figure 5.3: event creation

5.2.4 Event category:

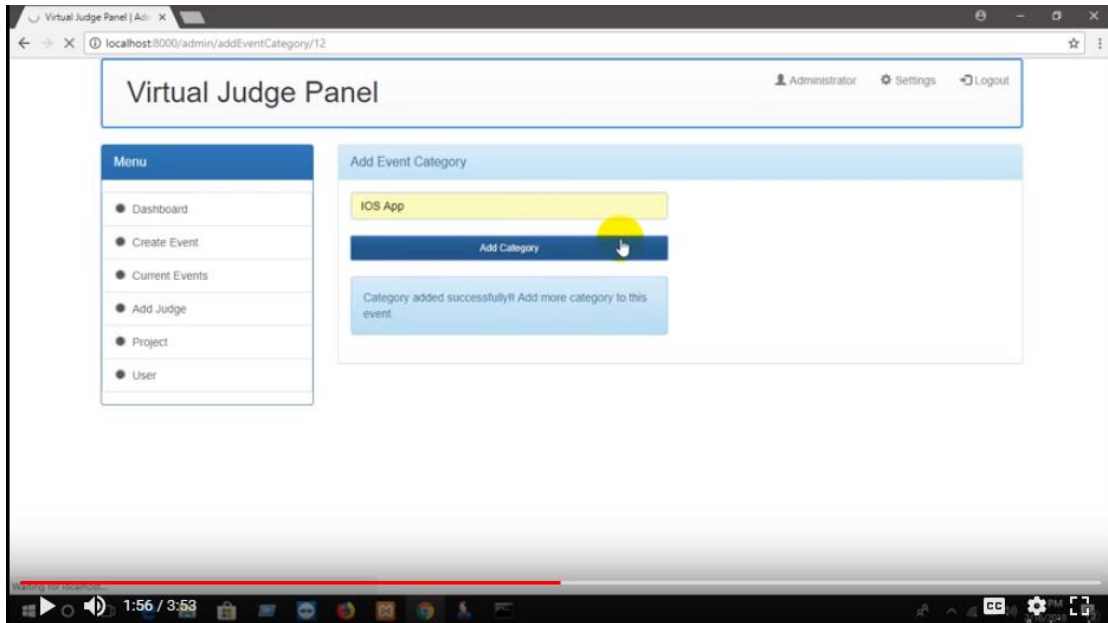


Figure 5.4: Add event category

5.2.4 Event board:

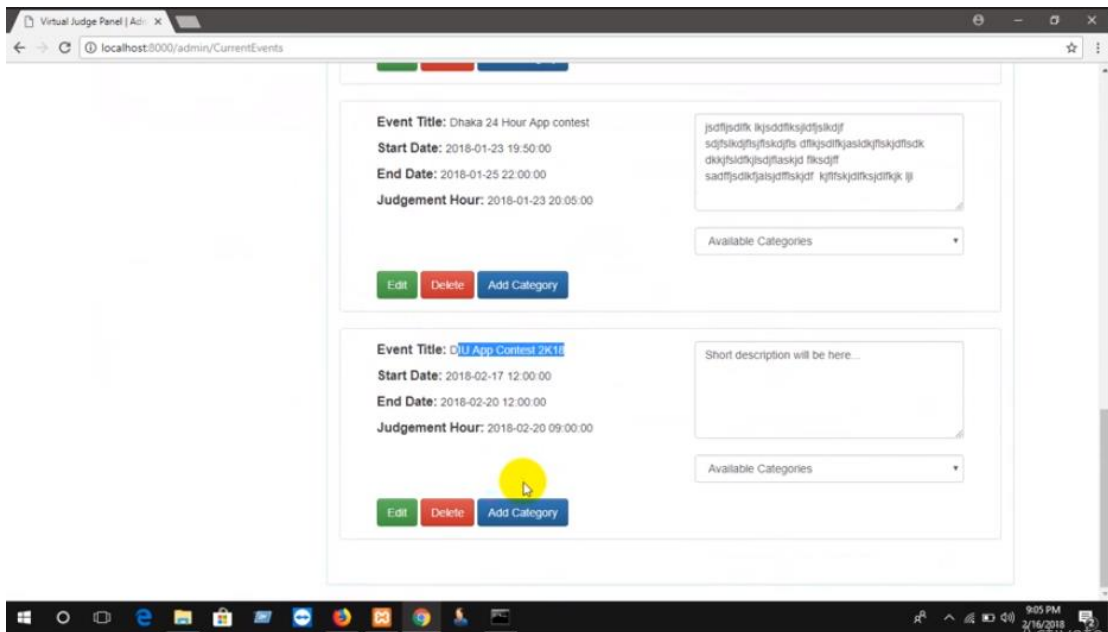


Figure 5.5: event board

5.3 Implementation of Interaction

Here to make our system we have implemented responsive UI for better user experience. In the cases make things easy we use icon, text link and button. The system design of our web site is user friendly. Any kind of user can create his profile easily.

5.4: Testing Implementation

Table 5.1: Testing information and date.

Test case for recommendation system web application

Test Case	Test Input	Expected outcome	Obtained outcome	Pass / fail	Tested on
1. User admin Login	Login via pc	Successfully login	Successfully login	Pass	15-07-2018
2. User admin Registration	Empty first name, last name, email, mobile number, password	Show restriction to Fill all the fields	Fields must be filled by data	Pass	15-07-2018
3. Student Login	Login via pc,	Successfully login	Successfully login	Pass	15-07-2018
4. Student Registration	Empty first name, last name, email, mobile number, password	Show restriction to Fill all the fields	Fields must be filled by data	Pass	16-07-2018
5. judgeLogin	Login via pc	Successfully login	Successfully login	Pass	16-07-2018

6. Password	Incorrect password or empty field	Warn the incorrect password or field is empty	Show warning	Pass	16-07-2018
7. Student, Admin, judge Profile settings	View profile, Update profile	Show and update profile information	Show and update information successfully	Pass	16-07-2018
8. Add event	Input event Information	Event Information add	Event Information add successfully	Pass	16-07-8017
9. Add project	Input project Information	Project Information add	Project Information add successfully	Pass	16-07-8017
10. Logout	Click logout button	Logout from the account	Logged out successfully	Pass	16-07-2018

5.5 Testing Result and Reports

Testing is very important to success of any project that aims at delivering working software. There are many strategies to test one software. To get user satisfaction testing very important tool. A good project mostly depends on its testing result. So every software must be tasted all of its features. We need to run through many types of testing. There are many types of testing:

- Functionality
- Regression
- Security
- Performance, Localization
- Scalability
- Usability
- System interoperability, Installation and upgrade

If the system passes through all these types of testing it is finally ready to launch so at the end we can carry out the results as the benefits of usability testing.

- Good Quality of Webapp.
- System is easier to use.
- Webapp is more readily accepted by users.
- Easy to use for the new users.
- Better UI for interaction.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

I have successfully implemented the system “Virtual Judge Panel” with the help of various links and tools. I have been able to provide a system which is running on the localhost. I have been successful in my attempt to take care of the needs of both the student as well as the admin and administrator. Finally I hope that this will go a long way in popularizing the organization and making its work of enrollment.

6.2 Scope for Further Developments

Now this web system is using “local host”. In near future domain should be taken and launch this web application. There will be also added some sector in this system within short time. There is also option to edit this web system in future for taking next challenge. Now this system is using MYSQL. In future it will be transferred into oracle and other further step should be taken as needed. Now this web system is using “local host”. In future we will globalize this project by domain and server for real world use. There will be also added some feature in this system within short time. I will update my project for making more efficient and more helpful for the user. In future we will add-

- i will add a new feature of real time.
- In future i will make android apps for this web application.
- In future we set up data mining to predict user behavior

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APPENDIX

Project Reflection

My journey had started from Summer 2017 to develop a system which helps coders. On this project we try to prepare a smart solution for the online app contest. This system develops a relationship between judge and coders. I use the latest technology and model to prepare this system. I tried hard to develop a system which create an economical value in our county's economy. This system is a part of making Digital Bangladesh. Doing the all necessary task, finally I met to the goal and complete our task. I will keep going to upgrading our system and add new functionalities.

PLAGIARISM