

**DESIGN AND DEVELOPMENT OF A VIDEO CONFERENCE  
APPLICATION**

**BY**

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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

Supervised By

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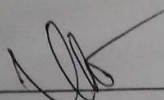
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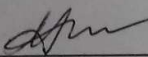
## **APPROVAL**

This Project/internship titled “**Design and Development of a Video Conference Application**”, submitted by Basudev Goswami, ID No: 122-15-1859 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. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 4-5-2019.

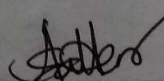
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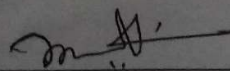
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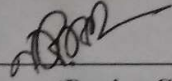
  
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## DECLARATION

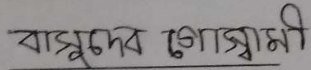
I hereby declare that, this project has been done by me under the supervision of **Narayan Ranjan Chakraborty, Assistant Professor, Department of CSE** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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I would like to thank my entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

## **ABSTRACT**

This project title is ‘Design and Development of a Video Conference Application’. This is a one-to-one and one-to-many relationships method video conferencing application. Where the users can join in the video conference by connecting each other.

Here, anyone can see their event list and can join in the event without login or registration. If an user wants to create an event he/she must be successfully logged in. Before login, users must have been registered. After registration, users will have an email address with a password. After login, users will have his/her own event list, and then, he/she can edit, delete and join in the live events. I hope, this application will be very helpful for all categories of users.

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# CHAPTER 1

## Introduction

### 1.1 Introduction

Video conferencing means to conducting a video conference or video teleconference in which multiple sets of hardware and software interact while simultaneously sending and receiving video and audio signals from different geographic locations. Video conferencing may also involve sharing documents, various presentation materials, whiteboards, flip charts and similar group presentation visual aids. A telepresence system is most often used at the corporate or enterprise level and represents high-end video conferencing systems. Video conferencing is differentiated from video phone calls, which serve individuals as opposed to a conference. Video conferencing is also known as online video conferencing and PC video conferencing. [1]

### 1.2 Motivation

Video conferencing has quickly become a very effective communication tools in many working environments. The technology has made it easier than ever to connect with patients/doctors/medical students, parents/educators/students, ministers/civilians, disaster management team, businessmen, employers and employees across the globe. Video conferencing breaks barriers of the distance amongst the people those who are involved in any kind of relationships, which is very favorable.

Medical professionals can communicate with other professionals as well as patients, regardless their locations. Multi-user chats are an effective way for medical professionals to consult multiple parties or patients. A specialist doctor can serve both the patient and the medical professionals as well as the medical students from a far distance to the operation theatre directly through this technology. Naturally it saves time and costs.

Educators' can teach any lessons directly for the classroom, specially those who are deaf and dumb, they can see and understand their language smoothly. When a student can't present in a class and wants to learn the content of any lessons again, then video conferencing system can be used for playback in order to teach or repeat a lessons.

Pupil who live in very far from their institutions may not get many opportunities for the transportation problem, political strikes or some natural calamities etc., they can be learned the lessons from their own places via video conferencing.

Disasters like flood, earthquake and fire strike. The list could on and on. While no one likes to think about these things, the reality is that they affect us each and every year. They destroy homes and topple businesses, wreaking havoc on our daily lives and routines. The good news in all of these, you can take a steps to lessen impact and move towards a smoother recovery, and videoconferencing can help.

During these days, when proper healthcare and education cannot be easily accessed, obviously video conferencing comes in the way. Then I thought it would be a brilliant idea to create a video conference website for our final project.

### **1.3 Objective**

1. User satisfaction: User is the main part of my application so, it's very important to make my user happy and satisfied by providing transmission of full-motion video and high-quality audio between multiple locations.
2. Social popularity: Unless and until you are not famous and popular among people you can't establish your application.
3. Improving relationships: Video conferencing break barriers of the distance in the people those who are involved in any kind of relationships, which is very helpful. You can see the body language and facial expressions of the participants, which will improve relationships.
4. Reducing time & travel costs: If I want to connect a member from USA, it will take a huge amount money and time to travel all the way to USA and connect my member, but through videoconferencing I can do the same job from my home through this technology with a minimum expense.

#### **1.4 Expected Outcome**

- Improve user's relationship.
- Credibility and reputation of the application will develop.
- You can access information easily.
- Faster transmission of video and audio signals.
- It will reduce communication costs.
- Office's recruitment can be possible.
- You can advertise your marketable commodities.
- Enable faster retrieval of information.
- Creates an improved teamwork.

## **CHAPTER 2**

### **Background**

#### **2.1 Introduction**

This is a web-based event management system which will deal with the users for intimating them to the current events and upcoming events. At present, we can see that all events are streaming on online around the globe. People realize on saving their important times. In this web-based service people can easily have an account to create an event list to communicate with other users through videoconference. Here, one user can use edit option to change the data, delete data and can go for live videoconference. While videoconferencing users can share their display.

#### **2.2 Related Works**

- Hiring an IT Professional.

#### **2.3 Comparative Studies**

The challenge is to get access to data from all the users which is a must in comparative analysis. This is the way to obtain the actual picture of the members and to draw conclusions effectively. To achieve Global standard which varies in terms of the quality of data analysis. A mature approach in adapted, where competitors agree to share information.

#### **2.4 Scope of The Problem**

Scopes of the problem in this project are:

- Slow network connection causes many interruptions during video conferences like buffering the video, low quality of audio or delay to screen-share. In order to properly stream a video conference, you will need minimum 4Mbps bandwidth or speed.
- Sometimes, you may experience choppy or unclear audio during video conference which is not pleasing to hear. Be sure your audio device has noise canceling technology. You can use a headphone instead of computer audio, it is the best option in this circumstance.

- If your web browsers and devices are not updated, this application won't function accurately. Make sure you have a webcam and microphone which are working properly and update them if needed. Be sure you are using an updated version of google chrome or mozilla firefox. Any browser which provides WebRTC technology, can run this application.
- Problems can occur if you don't know how to use this application. You have to be familiar with this application.
- Check wire connections whether its loose or tight.

## **2.5 Challenges**

### **Requirement:**

The most important challenge for me was to download JavaScript SDK from vidyo.io for setup and manage API keys (This key is used to authenticate your account) to generate tokens. Because, to run each and every videoconference we must generate a token. [8]

### **Time Scheduling:**

To complete a project, we need to maintain time schedule.

So that, I just divided my project work and time to finish every task to complete the whole project.

### **Poor Communication:**

In this project I always discussed with the project supervisor. Project Supervisor provided me the direction at every step of the project and I tried to accomplish every step very carefully, so, I continued to communicate with the project supervisor efficiently and effectively.

### **Skill for the Project:**

A project requires skills to go on. A project leader determines the needed skills and other team member should have determined to do the same to complete the project. In this project I have no team member but some helping hands they always with me and I always took all the decisions and discussed with them.

# CHAPTER 3

## Requirement Specification

### 3.1 Business process Modeling

In this project, the model we have used is given below. Business process modeling is a technique for representing the workflow of a system. When Flow of the data, it's modelling process aspects have represented in graphically, then it is called Data Flow Diagram of the system. To produce an overview of the system as a primary step you can use a DFD. We can also link up our DFD and business process diagram (BPD) for connection our system processes and activities. Our system DFD is based on a videoconference application with WebRTC technology the figure is shown below.

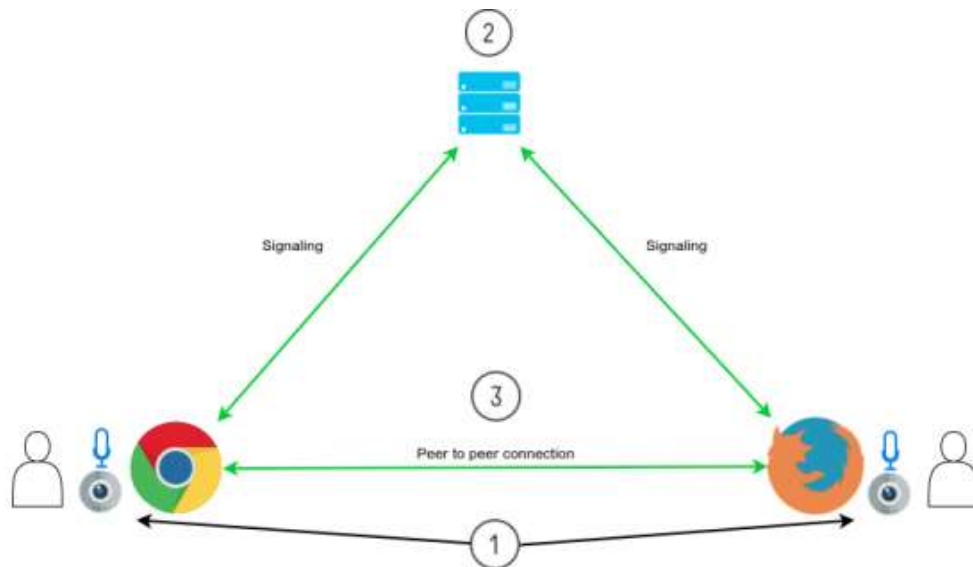


Figure 3.1: Data flow diagram [2]

### 3.2 Requirement collection and analysis

For development of an application requirement collection and analysis is a primary condition. Requirement can be two types, first type is the functional requirements and second type is the non-functional requirements. Briefly, functional requirements refer that what operations can be done by your application. It mentions the core functions. The non-functional requirements refer that the system qualities or system attributes like usability, reliability, security, performance etc. of the application. These requirements help to run your application exactly.

**Functional Requirement:** In the context of our application, there are many functional requirements such as, create, edit and delete event sections where only authenticate person can access. Event details section for check the event title, timings, venue etc. and the join section can open to all.

**Non-functional Requirement:** In this application, I used PHP codeigniter framework which provides database security, reliability and great performance of application. For user friendly, responsive and interactive UI, I used CSS bootstrap framework and JQuery.

Here, I have used the web browsers built in WebRTC technology [7] to run video conference. WebRTC means Web Real Time Communication. If we want to create a web application for Real Time Communication like live streaming of video, real time voice and data transfer then this technology is used. There is no need to download any software or plugin for these features.

### 3.3 Use Case Modeling and description

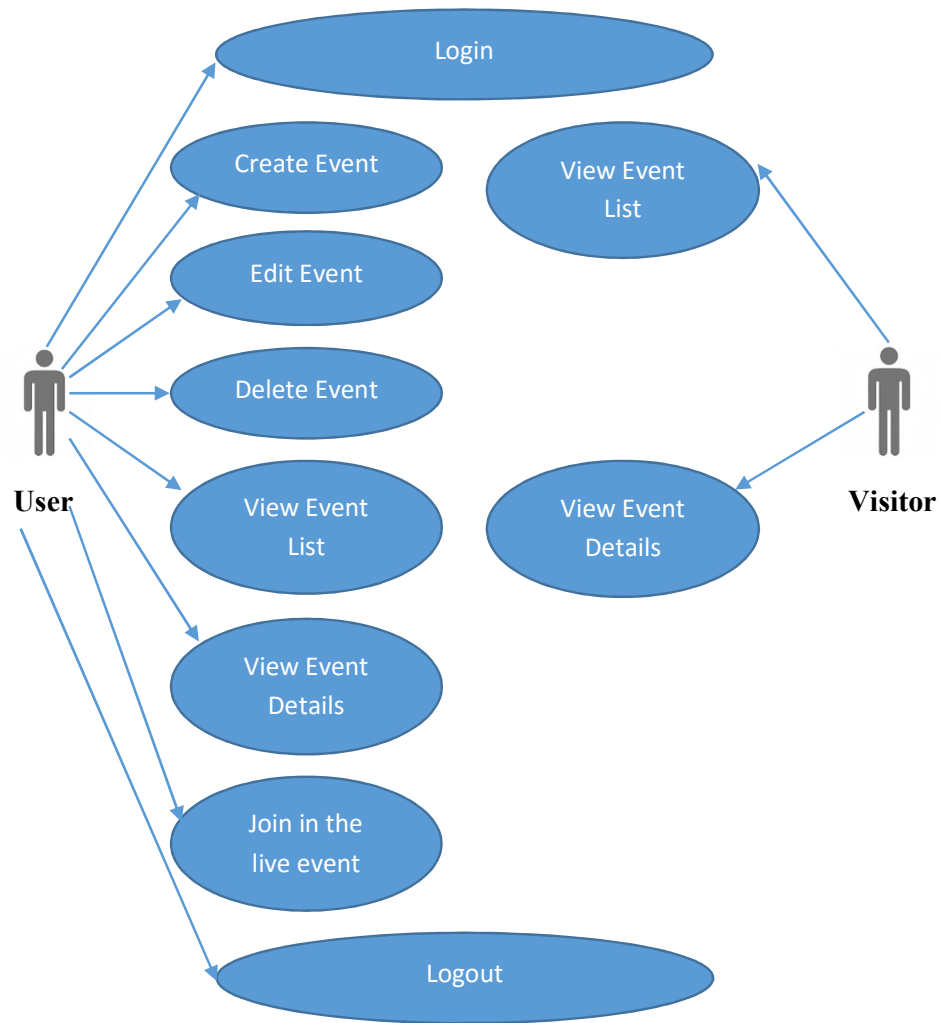


Figure 3.2: Use case diagram

A user visits the online videoconference portal by login. The user can create, edit, delete, view event list and details and can join in the live videoconference. The user can select the event for the videoconference. After the process completed the user can logout from the system. The process can be repeated for more conferences.

A visitor can also visit the online videoconference portal. Visitors can view all the events and details.



### 3.4 Logical Data Model

By logical data model, we can get a graphical view of data architecture. Actually, it represents all the information of various entities and the entities relationships which are stored in a database. Entity Relationship Diagram (ERD) is a way to demonstrate the logical data model. An entity is a container of information. In a database, entity is a table. A table can have many attributes. A ER diagram shows all the entities and their attributes, relationships between entities and actions of entities. The ER diagram of this application is given below:

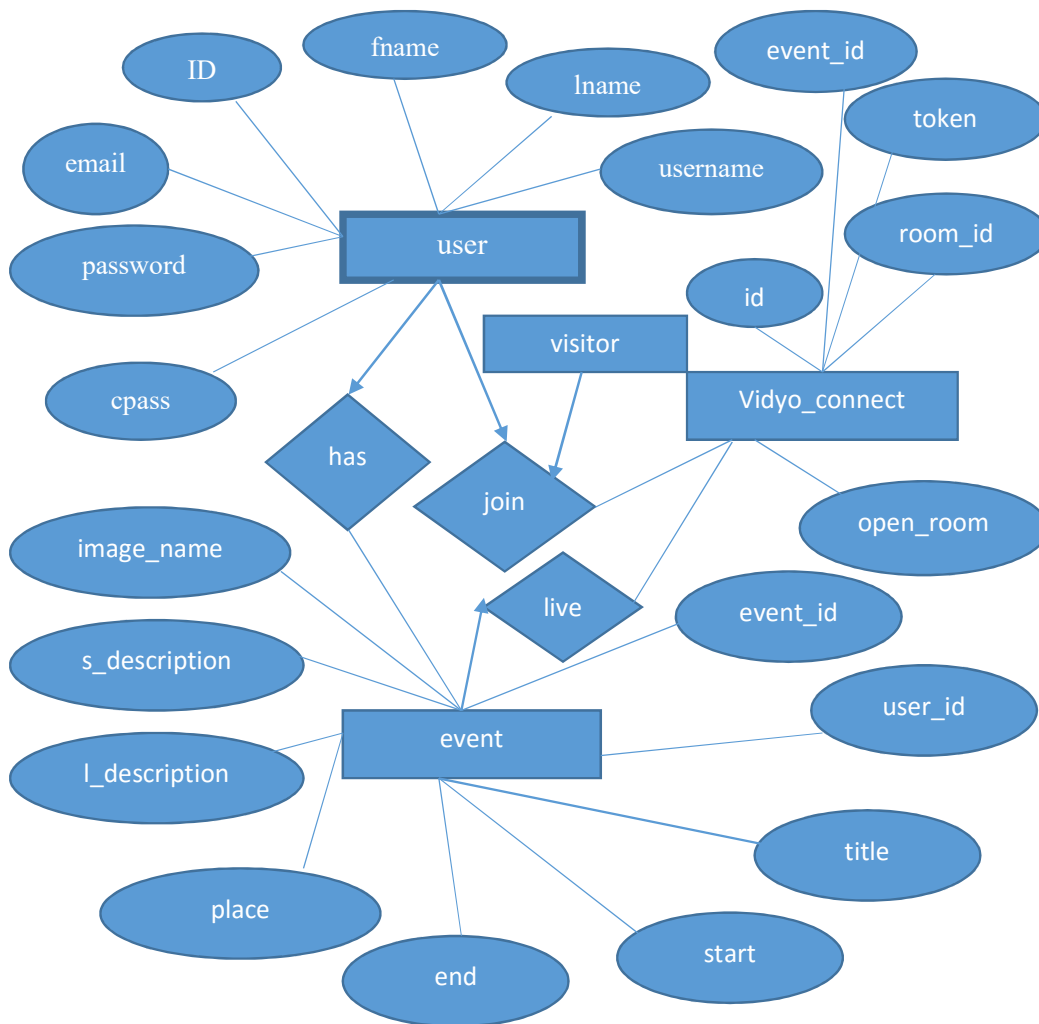


Figure 3.3: Entity Relationship Model of the system

### 3.5 Design Requirements

When designing systems or software, following issues must be considered that reproduce the overall design of the goals that the system expected to achieve. the following goals were unbroken in mind whereas coming up with the system. We have followed below points:

**User Friendly:** The application must be user friendly so that the user browses the website easily and see their needed information.

**Compatible to various web browser:** There are a lots of web browser, we don't know which version or which one is our user will be using. so we have to implement our website such a way that it can be access from any browser.

**Efficient:** To run faster I have tried to keep this application as light as possible. Now we are going to discuss some extra feature.

- This system will contain only user.
- Only user can create, edit or delete the event.
- User can view all events and join in the live videoconference.
- Visitors can view all events and can join in the live videoconference at any point of time.
- User no need to install this application.

## CHAPTER 4

### Design specification

#### 4.1 Front-End Design

Commonly, front-end has two parts:

- The web design.
- Front-end web development.

Frontend designs entangle creating the HTML, CSS, Bootstrap, JavaScript and jQuery code that make up a user interface. Coding design patterns are about forming a set of relationships between elements. By codifying these relationships as a set of ethics instead of a single, stand-alone template, I try to make it possible for other developers to extend my work while remaining faithful to its core ideas.

In a website all the visible things are made by HTML, CSS and JavaScript, which are conducted by your web browser. By using these language, you can add such as fonts, buttons, navigation bar, icons, drop-down menus, visual effects, slide show, list, tabs, different types like register, login forms etc. I have basically used the HTML, Bootstrap, and JQuery to design my site. [4] [5] I will discuss with my supervisor about the each and every element that I have used in my project. I have used HTML for creating the structure of the page, CSS for style the page, Bootstrap for make the page responsive. I also used some plugin for designing the front-end part. jQuery play's an important role for design the front-end. I make this website as responsive as possible for the user so that they can access the website from any web browser without any problem.

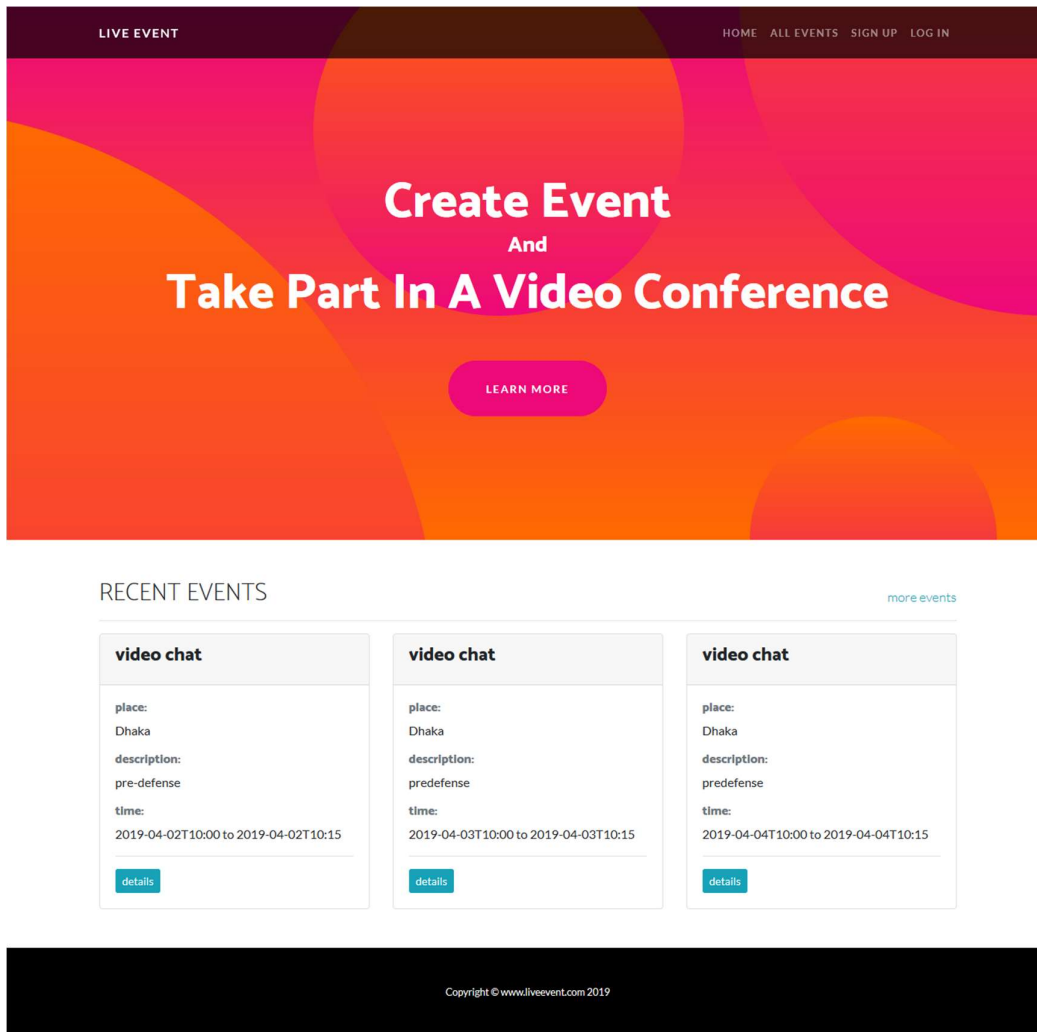


Figure 4.1: Homepage of the website

This is the home page of the project, here visitors can see the recent events, more events event location, event date, event details and can join in the event.

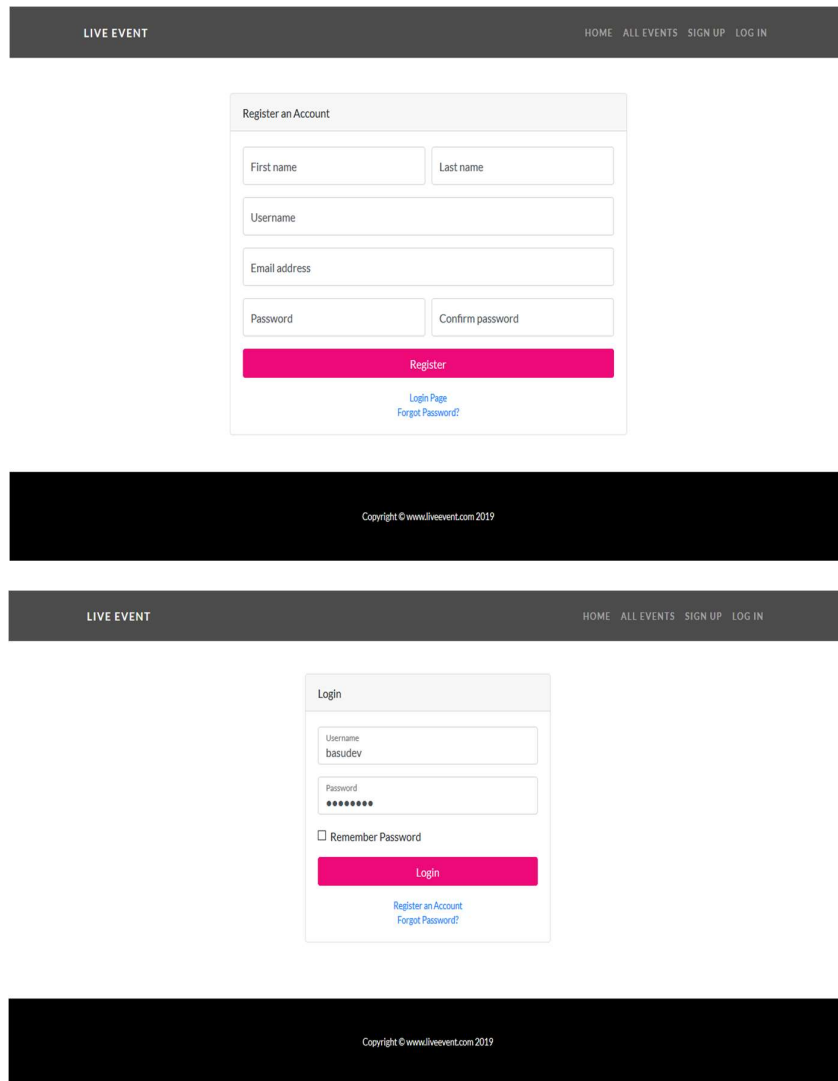


Figure 4.2: User login and registration page

The login and registration page. If the user is an existing user, then they can login here using their unique username and password. If they are new user, they can create a new account using their information. If they provide any wrong information like username and password, they get an error message like username or password isn't correct. After providing correct information they can successfully login into the system. If the user wants to create an event, delete the event or edit the event they need to create an account. It is an easy process; anyone can create or login into this system very easily.

The screenshot shows the 'LIVE EVENT' dashboard. The main content area displays an 'Event List' table with the following data:

Event title	Start date	End date	Action
conference	2019-02-18T09:00	2019-02-18T12:00	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
conference1	2019-02-19T09:00	2019-02-19T12:00	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
conference2	2019-02-20T09:00	2019-02-20T17:00	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
Video chat	2019-04-02T10:00	2019-04-02T10:15	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
video chat	2019-04-02T10:00	2019-04-02T10:15	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
video chat	2019-04-03T10:00	2019-04-03T10:15	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
video chat	2019-04-04T10:00	2019-04-04T10:15	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>
video conference	2019-04-02T10:00	2019-04-02T10:15	<a href="#">Edit</a> / <a href="#">Delete</a> / <a href="#">Live</a>

The interface also includes a sidebar with navigation options: Dashboard, Create an event, My Events, Edit Profile, and Pages. A search bar is located at the top right, and pagination controls show 'Showing 1 to 8 of 8 entries' with 'Previous', '1', and 'Next' buttons. The footer contains the text 'Copyright © www.liveevent.com 2019'.

Figure 4.3: Dashboard page.

Here, you can see your event list, then you can add, delete, edit and go to live videoconference.

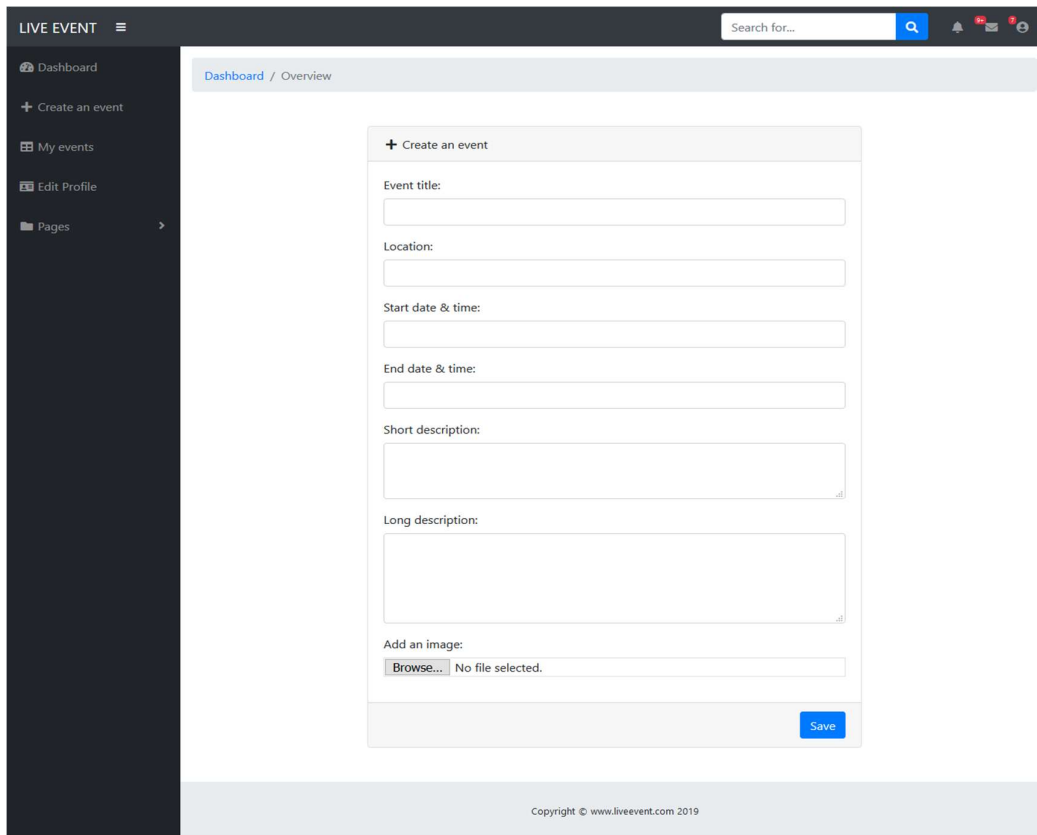


Figure 4.4: Create event page

Here, you can create an event by fill-up the fields those are listed below;

- Event title
- Location
- Start date & time
- End date & time
- Short description
- Long description
- Add an image

**Note:** All fields are required except add an image field.

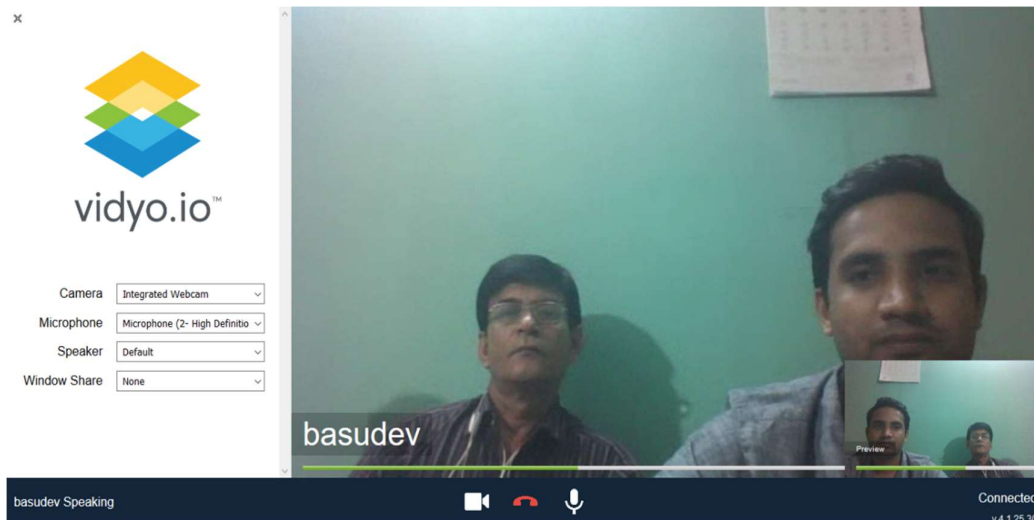


Figure 4.5: Live videoconference image

The above figure is showing the image of live videoconference. Here, you can see the conference is connected with opposite end and you can identify the devices like Camera, Microphone and Speaker which are used in this system. You can have established your conference as one-to-one or one-to-many relationships basis. Also, you can share your window with others by using window share feature.

## 4.2 Back-end Design

Back-end has 3 parts:

- A server
- Associate degree application
- An information

When we go to a website link and see interface its frontend and when we want to know any information, the application sends it from a database that was created on a server. Construction of back-end is the logical part of an application. In associate degree application which is the highest necessary part. The application relies on it. Generally, in web application back-end portion means server side. The server side languages, scripting languages, database management, data validation, data parsing, data backups and authorization are the factors of back-end. In this application these factors are developed by PHP Codeigniter and JavaScript. Affords internet developers have the liberty to decide on their software and internet server.



In database management, I used MySQL database for storing or retrieving any information which is requested by the user. If you want fast, reliable and flexible database management system, then MySQL is the best choice. Because, it is a free Relational Database Management System. It is the most used and popular database management system. MySQL uses SQL. SQL stands for Structured Query Language, which is a language for accessing, inserting and maintaining information of the database. I used this in my application.

PHP is a server side language and PHP codeigniter is a framework. I used this framework because, it is easy to understand, light weight, capable, it provides security of data, protects from hackers, it has many built in functions, easy to debug which helps to find error in code etc.

I worked on XAMPP server to develop this application. XAMPP is a local hosted web server. It is used by developers for deployment and testing the application. It is made up with the server application (Apache), MySQL database and server side language PHP. Important advantage of using XAMPP is, actual internet server is almost same as XAMPP server. They use same elements as XAMPP. It is very easy to use, straight forward and light weight. Additionally, XAMPP runs equally well on every platform such as Linux, Mac and Windows.

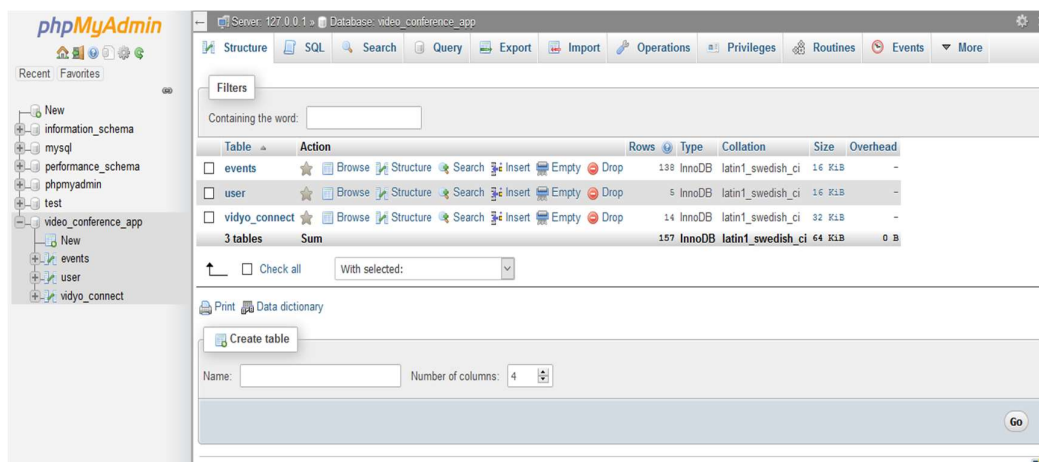


Figure 4.6: Database Sample

### 4.3 Interaction Design and UX

Main purpose of this application is to launch a video conference. For this purpose, need some interactions between user and system. The interaction design of this application is given below:

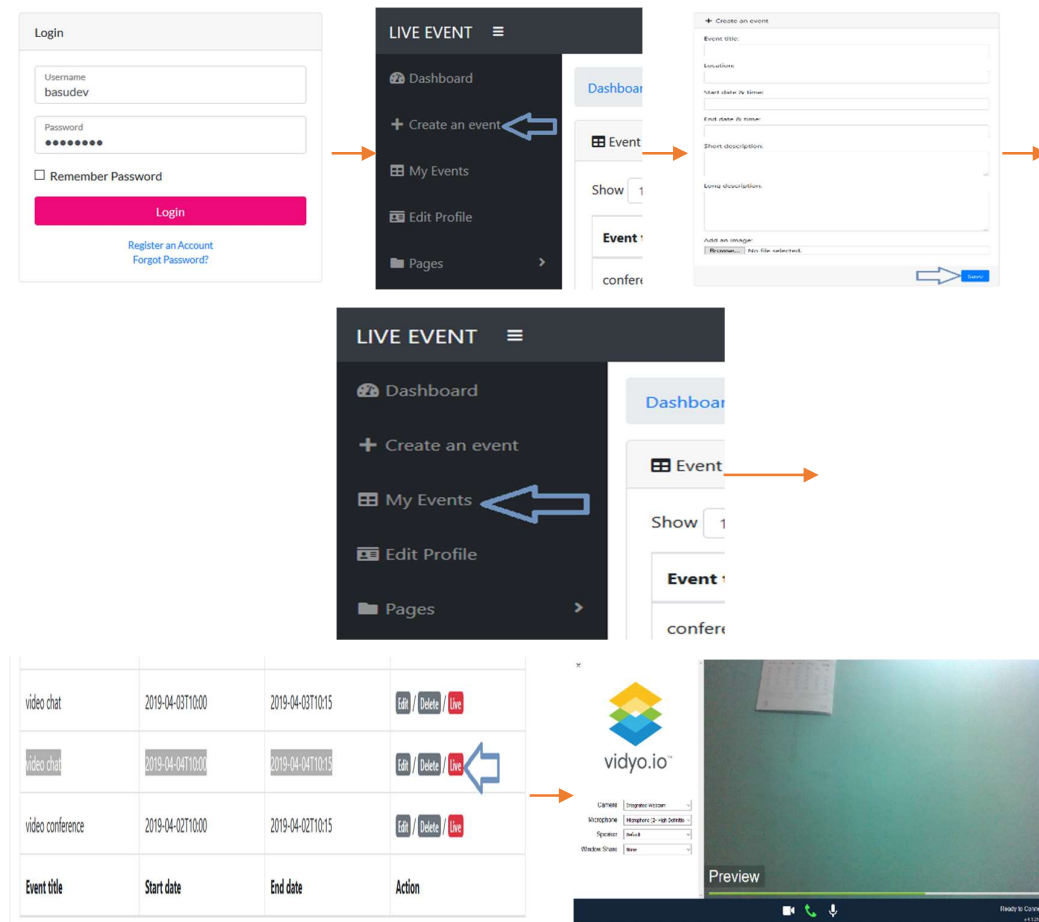


Figure 4.7: Interaction design of the system

In the above figure shows that the interactions between user and system for video conferencing. At first user have to login in the system then select the 'Create an event' menu option in the left side of page then an event form will appear in front of you, fill up this form by giving exact time and place name and click on the 'Save' button after that select the menu option 'My Events' here you can see your recently created event which is marked in the above figure then click on the 'live' button to join in the video conference finally click the 'Dial' button to connect other users.

#### **4.4 Implementation Requirements**

To implement this project, we need XAMPP for apache server and MySQL database for storing our website information. We need notepad++ for the coding part. In the notepad++ we can write the html, CSS, JavaScript, jQuery, PHP code. Before we run the project we need to make sure that the XAMPP is running the apache and MySQL is running. We also need a browser to test the project. To access the XAMPP server internet isn't required.

# CHAPTER 5

## Implementation and Testing

### 5.1 Implementation of Database

The implementation of database refers that how I install, configure, customize the Database Management System, connect with the application, create database and table and process data into tables.

In this application, the free and popular phpMyAdmin software has used for MySQL database management. Where you can write SQL queries to manipulate data.

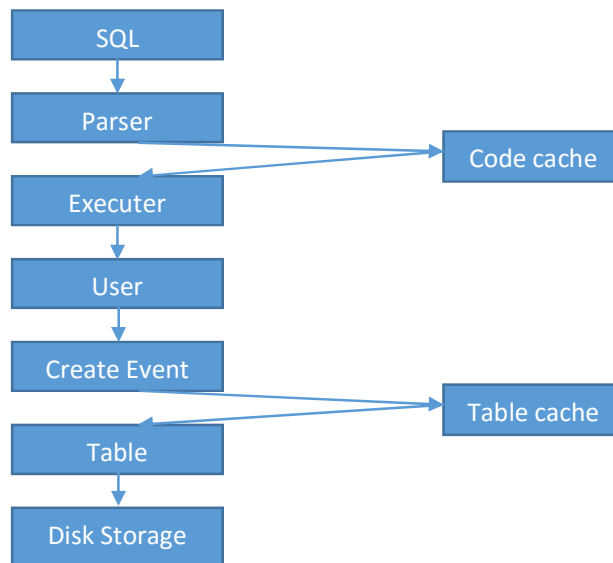


Figure 5.1: Database Processing System

The 'user' context is handled in a number of different ways, it's depend on the which database system is being used. The following diagram gives you an idea of working process what system MySQL and Oracle used.

In the upper image you can see that how to store the user's information in each time they register this system and when update information or create event. When user register then information saved in users table, when create event then information saved in events table and other information store and process the same way in my project.

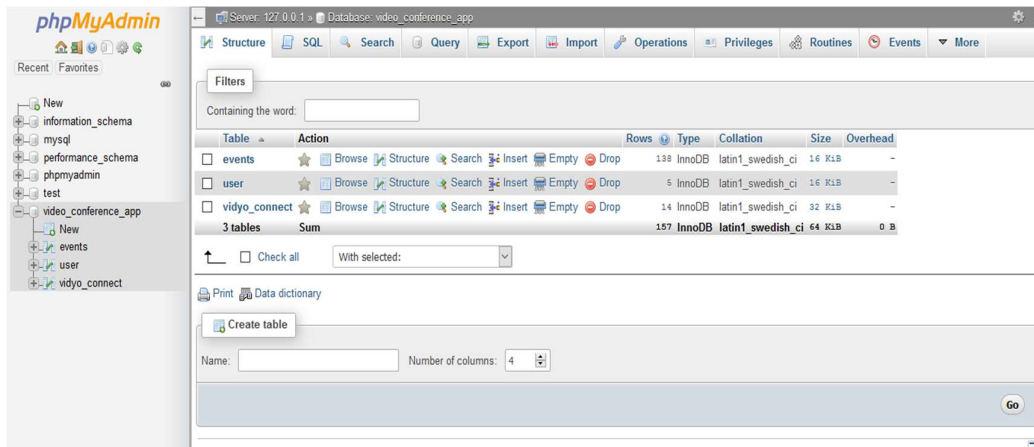


Figure 5.2: Database and all table used in project

## 5.2 Implementation of Front-end Design

While web design is the way of a website look on the other hand the front-end development is how that design actually get implemented on the web. For the front-end design we used HTML for the markup language, [5] Bootstrap and fontawesome icon to style the application. I also used jQuery and Bootstrap plugin for the front-end design. [4] Basically internet is a common fact in this application. We make this responsive so that you get a great experience. It doesn't matter which device are you in, all the device will have the same responsive website. it's a dynamic website.

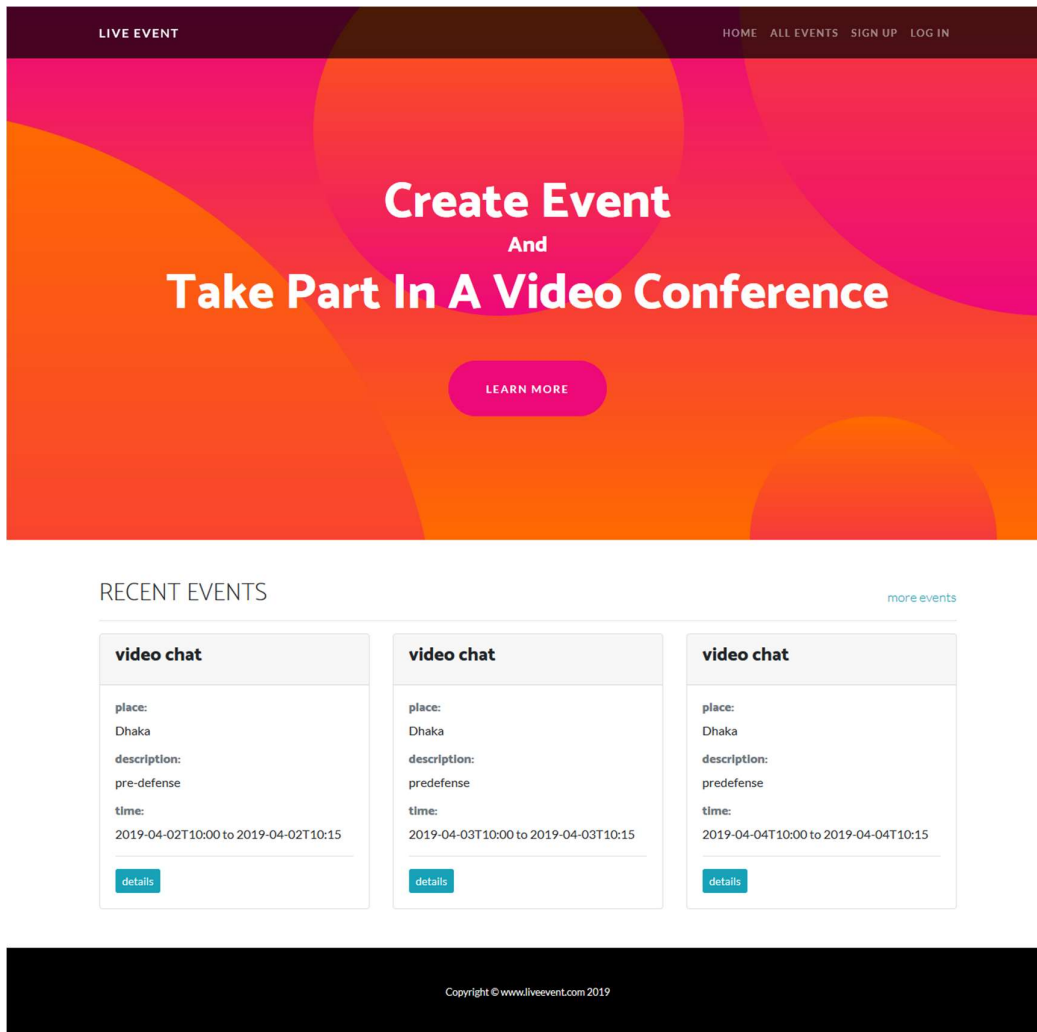


Figure 5.3: Front-end design of the homepage

### 5.3 Implementation of Interactions

User's interactions with a website depend only on the front-end design therefore, I tried my best to make this easy to understand.

Here, I have used Bootstrap and JQuery to make my application interactive, responsive and to enhance user experience. In order to make my website attractive and user friendly standard types of page layout, header, footer, forms, navbar, buttons, links and icons are used which are provided by Bootstrap CSS framework. Actions of launching a video conference are, at first create an event by giving exact time and venue, this will show in your event list, then click on the live button of that event to

join in the conference room. After the creation of that event, other users can view this event and can join in this conference.

#### 5.4 Testing Implementation

Testing implementation is the execution of any aspects of the system's requirements for knowing whether it is performing successfully or not. System testing evaluates the system's agreement with the specified requirements. System architect will decide according to the result of testing whether it is implementable or have limitations to develop this application.

Table 01: Test case for the system

Test case	Test input	Expected outcome	Obtained outcome	Pass/fail	Tested date
1. Login	Login using various browser	Logged in successfully	Successfully logged in	Pass	09-03-2019
2. Create event	Event information save	Successfully shown in event list	Created Successfully	Pass	9-03-2019
3. Delete event	Event information delete	Deleted from the server	Successfully deleted	Pass	9-03-2019
4. Edit event	Correct event information and save	Information edited successfully	Successfully edited	Pass	9-03-2019
5. Join conference	Connect users	Live conference	Successfully connected	Pass	9-03-2019
6. Logout	Logout using various browser	Logout successfully	Successfully logout	Pass	9-03-2019

### **5.5 Test Result and Reports**

To process test results in a methodical way and guess test results quickly test report is necessary. Test report helps to compare the results with the requirements. The test results of this web application are given below:

- Registration system working.
- Login system working.
- Create event working.
- Live conference launching.
- User searching system working.
- View user profile.
- Logout system working.



## CHAPTER 6

### Conclusion and Future Scope

#### 6.1 Discussing and Conclusion

The internet has created a major resource in new generation business, thus event management system has gained a significance not only for the user's but also from the visitor's point of view. For the user, generates new event and for the visitor it makes easily to view.

At last it can be concluded that the "Video Conference Website Application Development" was a real learning experience for me. The principles of software producing were well implemented in this system. The project has been made as per as the given specification. The system has made as user friendly as possible.

Working on the project was really a learning experience and I have come a long way in building my concept of system analysis and design. The overall purpose of the system is to customize the full process and thus prevent the intervening errors. I also tried to follow the best design sites so that the interface of the system is simple.

#### 6.2 Scope for Further Developments

Further developments can be done by the administrator in this project are:

- User's profile can be added.
- Notification option can be added.
- Using this website user can be shared file.
- New content can be added in dashboard.
- A chat app can be added in the system so that the user can communicate with the other members for this website.
- Event can be broadcasted on YouTube live.
- Invite option will be added.

## REFERENCE

- [1] “Video conference” Available at:  
<https://www.techopedia.com/definition/1791/videoconferencing> [last accessed on 12-3-2019 at 2:26 pm]
- [2] “Data-flow-diagram” Available at: <https://webrtc.ventures/2018/07/tutorial-build-video-conference-application-webrtc/>. [ last accessed on 20-3-2019 at 12:48 pm]
- [3] “Uses of video conference” Available at: <https://www.eztalks.com/video-conference/uses-of-video-conferencing-in-healthcare.html>. [ last accessed on 13-3-2019 at 1:56 pm]
- [4] “Learning about Bootstrap 4” Available at:  
<https://www.w3schools.com/bootstrap4/default.asp> . [ last accessed on 13-3-2019 at 7:56 pm]
- [5] “Learning about HTML5” Available at: <https://www.w3schools.com/html/default.asp>. [ last accessed on 15-3-2019 at 12:45 pm]
- [6] “Learning about Codeigniter” Available at: [https://codeigniter.com/user\\_guide/](https://codeigniter.com/user_guide/). [last accessed on 23-3-2019 at 1:18 pm]
- [7] “Learning about WebRTC” Available at: <https://vidyo.io/platform/webrtc/>. [last accessed on 20-3-2019 at 1:08 pm]
- [8] “Vidyo.io developer documentation” Available at:  
<https://developer.vidyo.io/#/documentation/4.1.25.30>. [last accessed on 23-3-2019 at 1:18 pm]