

ITC Event Management System

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Abstract

The ITC Event Management System is a web-based platform developed for the Information Technology Club (ITC Club), a student organization in the Faculty of Science Computer and Information Technology at UTHM. Previously, the club faced problems with the manual event proposal submission process, which often led to communication breakdowns, scheduling conflicts, and considerable inefficiencies among its executive committees. The objective is to design an ITC Event Management System using object-oriented approach, develop a web-based approach and to test using user acceptance testing. The software process used was the Prototyping Model and the architecture pattern adopted was Model-View-Controller (MVC). During testing, overall test result of the test cases is 81.08% pass and only 18.92% fail. Alpha testing achieved a 100% pass rate and beta testing achieved 87.2%. This system streamlines event proposal submissions, facilitates event details sharing, and manages paperwork thus improve the event management process at the ITC Club.

1. Introduction

University graduate unemployment is a prevalent concern, emphasizing the need for graduates to possess both academic and essential soft skills. A government survey [1] pinpointed that 60,000 unemployed graduates lacked essential soft skills like leadership and teamwork. Universities, including University Teknologi Malaysia (UTM), offer clubs and associations as platforms for honing these skills [2].

The Information Technology Club (ITC Club), situated within Universiti Tun Hussin Onn Malaysia (UTHM), plays a pivotal role in enhancing members' academic and extracurricular experiences. Comprising five executive committees, the club oversees various programs throughout the semester. However, existing manual processes, such as relying on the mobile chat application, WhatsApp for event proposals, have led to communication gaps and operational inefficiencies.

To address these challenges, a centralized ITC Event Management System is proposed. This web-based platform aims to streamline event proposal submissions, enhance communication, and prevent scheduling conflicts. The system's implementation is expected to foster collaboration among executive committees, ensuring transparency and efficient event execution.

The primary objectives include designing the ITC Event Management System using an object-oriented approach, developing a web-based platform for streamlined event management, and conducting user acceptance testing to ensure system efficiency and user satisfaction. The ITC Event Management System comprises nine integral modules, catering to various functionalities like event proposal submission, proposal review, event calendar display, and event report generation.

This paper is structured into five sections. The first section introduces the project. The second section delves into the related work. In the third section, the methodology employed in the project is outlined, detailing each

phase. The fourth section presents the results and subsequent discussions. Finally, the fifth section offers a conclusion to the project.

2. Related Work

In this section, the domain background, event management system, and result of the comparative analysis are discussed.

2.1 Domain Background

ITC Club, a student organization nestled within the Faculty of Computer Science and Information at UTHM (Universiti Tun Hussein Onn Malaysia). This club plays a pivotal role in shaping the academic and extracurricular experiences of its members. The ITC Club is a dynamic entity, organized into five distinct executive committees, each composed of six to seven dedicated Members. These committees are entrusted with the task of overseeing a multitude of programs and events that enrich the academic calendar throughout the semester.

As of now, ITC Club Members rely solely on WhatsApp for submitting event proposals to the club advisor. While functional, this approach has led to a series of complications that have at times hindered the club's operational efficiency. A primary issue is the lack of transparency and communication between the executive committees. Each committee operates in isolation, unaware of the event proposals or approvals granted by the club advisor to their fellow committees.

2.2 Event Management System

Events are crucial in society, serving as platforms for social interaction, cultural enrichment, and professional networking [3]. Event management can be characterized as a dynamic system where each functional aspect relies on and impacts all other components [4]. It serves as a holistic solution crafted to streamline the planning, coordination, and implementation of events. An Event Management System serves as a tool for organizers to aid in the planning, execution, and oversight of their events. Without a doubt, utilizing such a system can enhance the efficiency of event planning, boost attendee interaction, and foster connections among conference participants. As advancements in technology and systems persist, it's evident that event planners must adopt these tools to remain abreast of emerging trends [5].

An Event Management System is typically a web-based system accessed through standard web browsers on desktops or laptops. However, to enhance accessibility and provide users with on-the-go functionality, many event management system providers implement mobile-enabled features. This means that users can view and interact with the system through mobile devices such as smartphones and tablets.

2.3 Comparative Analysis

This section provides a comparative analysis of three existing applications which are SAMS (Student Affair Management System), Cvent [8], and ISTAR (Talent, Activity, and Student Resume Integration System). Table 1 shows the comparison between the three existing systems and the proposed system. The compared features include event proposal submission, proposal review and checking, display event calendar, manage event, generate event report, user registration and profile management

Table 1 System's comparison

Features/System	SAMS	Cvent	ISTAR	ITC Event Management System
Login and Registration	Login, Yes Register, No	No	Login, Yes Register, No	Yes
Manage Profile Management	No	No	Yes	Yes
Submit Event Proposal	No	No	No	Yes
Review and Check Proposal	Yes	No	Yes	Yes
Display Event Calendar	No	No	No	Yes

Table 1: (cont)

Review and Check Proposal	Yes	No	Yes	Yes
Display Event Calendar	No	No	No	Yes

In summary, the proposed system offers a comprehensive set of features, including login and registration, manage profile management, submit event proposal, review and check proposal, display event calendar, manage event and generate event report. The comparison shows that the proposed system is improved from the existing systems.

3. Methodology

This section explained the methodology used to develop the ITC Event Management System. Prototyping model is chosen as software process model of this project. Prototyping involves producing early working versions (prototypes) of the future application system and experimenting with them [6]. A prototype is a potent way of understanding the customer’s expectations before even write even a single line of code. Purpose of a prototype is to give the customers a feel of the system early in the development life cycle so that the developers can understand the customer’s expectation, thereby eliminating all requirements-related defects [7]. Figure 1 show the prototype model used to develop the system.

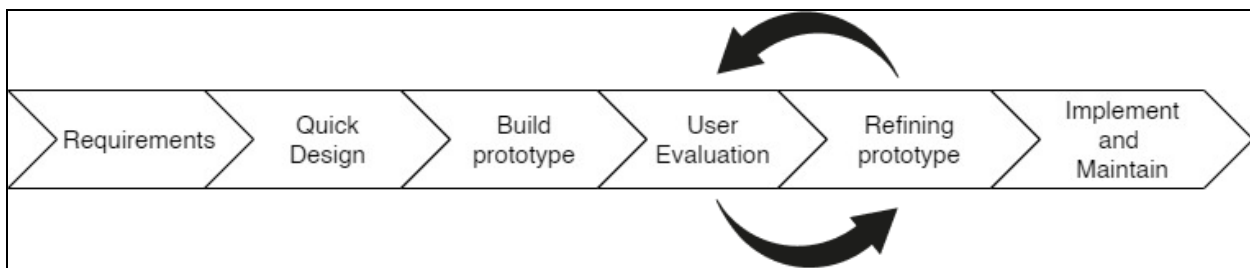


Fig. 1 Prototype Methodology

The development of the ITC Event Management System followed a structured process beginning with the requirement phase, where system needs were identified through interviews and surveys with users, including meetings with the ITC Club advisor to understand the manual process and its shortcomings. In the quick design phase, a preliminary system structure was conceptualized using Figma to create wireframes and conduct brainstorming sessions. The build prototype phase followed, where these designs were transformed into a functional prototype using Figma. During the user evaluation phase, the prototype was reviewed by ITC Club members and the advisor, with feedback collected through usability testing to assess functionality and user satisfaction. The refining prototype phase focused on making improvements based on this feedback, iteratively enhancing the system's features and interface. Finally, in the implement and maintain phase, the system underwent rigorous testing before production, transforming the prototype into a fully functional system. Training sessions for ITC Club members and the advisor, along with feedback mechanisms, were established to ensure continuous improvement.

4. Results and Discussion

This chapter explains the analysis and design of the proposed system. In Section 4.1, system requirement analysis including user, functional, and non-functional requirements is presented. Section 4.2 discusses the Use Case Diagram. Section 4.4 discusses the class diagram. The general system architecture will be discussed in Section 4.4, while Section 4.5 will discuss the design of the interface and schema table of the database.

4.1 System Requirements Analysis

In this section, user requirements, functional requirements, and non-functional requirements are presented. Specifically, user requirements are listed in Table 2, functional requirements are outlined in Table 3, and non-functional requirements are specified in Table 4.

Table 2 User requirements

User	Requirements
ITC Club Members	Enable to register, login to the system, manage and update profile, submit event proposal, view event calendar, manage event by assigning secretariat and generate event reports.
Club Advisor	Enable to login to the system, review and approve/reject, view progress of upcoming events and provide feedback on rejected event proposal

Table 3 *Functional requirements*

Modules	Requirements
Login and Registration	The system should authenticate valid usernames and passwords.
Manage Profile Management	The system should allow ITC Club Members to modify their profile details.
Submit Event Proposal	The system should provide a pre-filled HEP template for users to complete.
Review and Check Proposal	The system should allow Club Advisor to approve an event proposal, updating its status to "Approved" and reject an event proposal, updating its status to "Rejected" and give feedback.
Display Event Calendar	The system should present a detailed view of events including name, date, time, and location.
Manage Event	The system should allow the Event Director to register club members as secretariats for events and display progress indicators for upcoming events to the Club Advisor.
Generate Event Report	The system should provide a pre-filled report template for Club Members to input event details and providing download option.

Table 4 *Non-functional requirements*

Modules	Requirements
Operational	The system should always be accessible, and the interface should be user-friendly
Performance	The system should respond to user interactions within 3 seconds.
Security	The system will deny access to any user if the input email and password are incorrect.
Usability	The system's navigation and features should be intuitive for all users.
Integrity	The stored passwords in the database should be encrypted.

4.2 Use Case Diagram

Figure 2 shows the use case diagram of the proposed system. There are two types of actor who are involved in the system and each actor involved with some of the system use case. ITC Club Members are involved in login and registration, manage profile management, submit event proposal, display event calendar, manage event and generate event report. Club Advisor are involved in login and registration, review and check proposal and display event calendar.

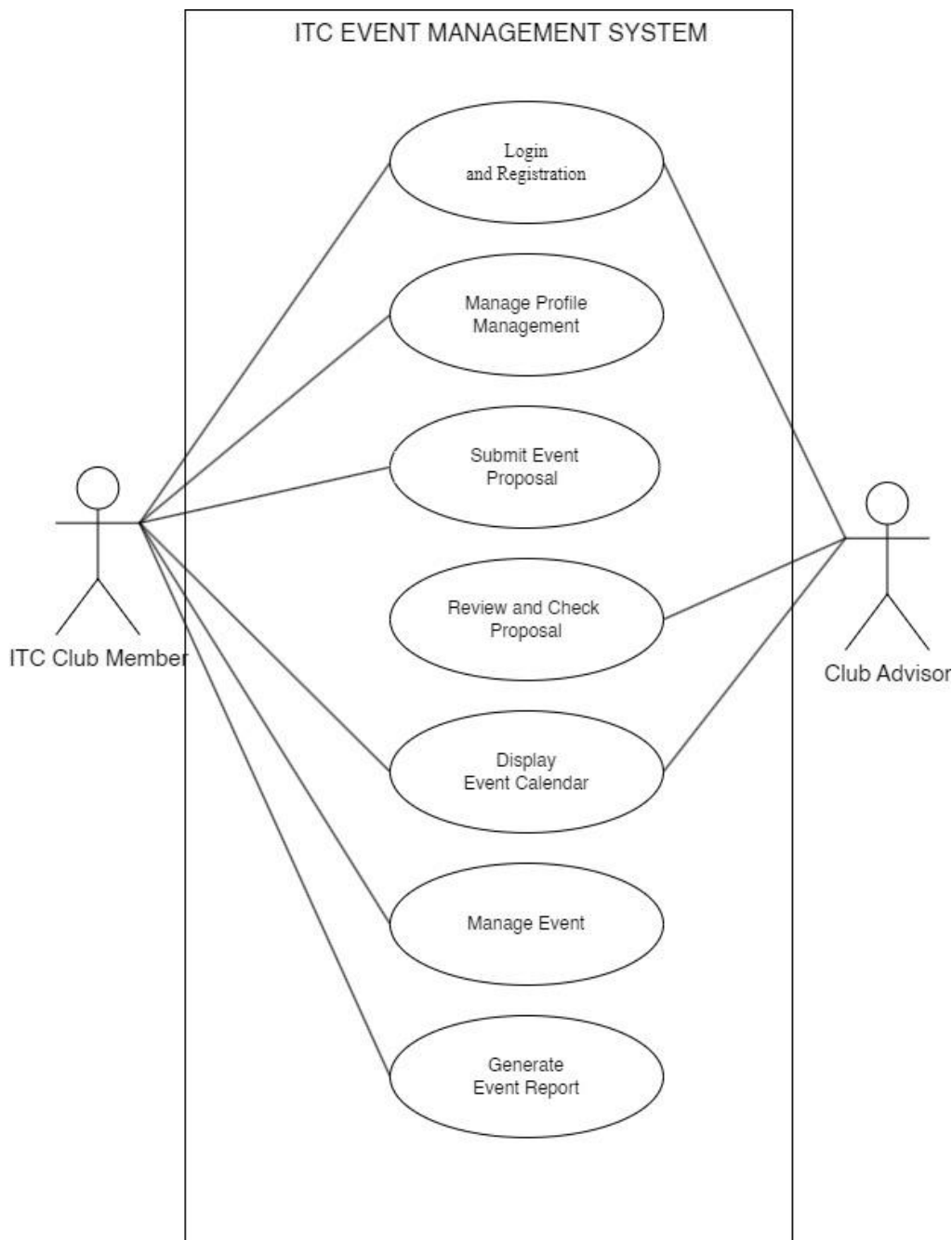


Fig. 2 Use case diagram

4.3 Sequence Diagram

Figure 3. Shows the shows the sequence diagram for submit event proposal. There are three object which are event proposal submission page, submission controller, user table in database and one actor (ITC Club Members) involved.

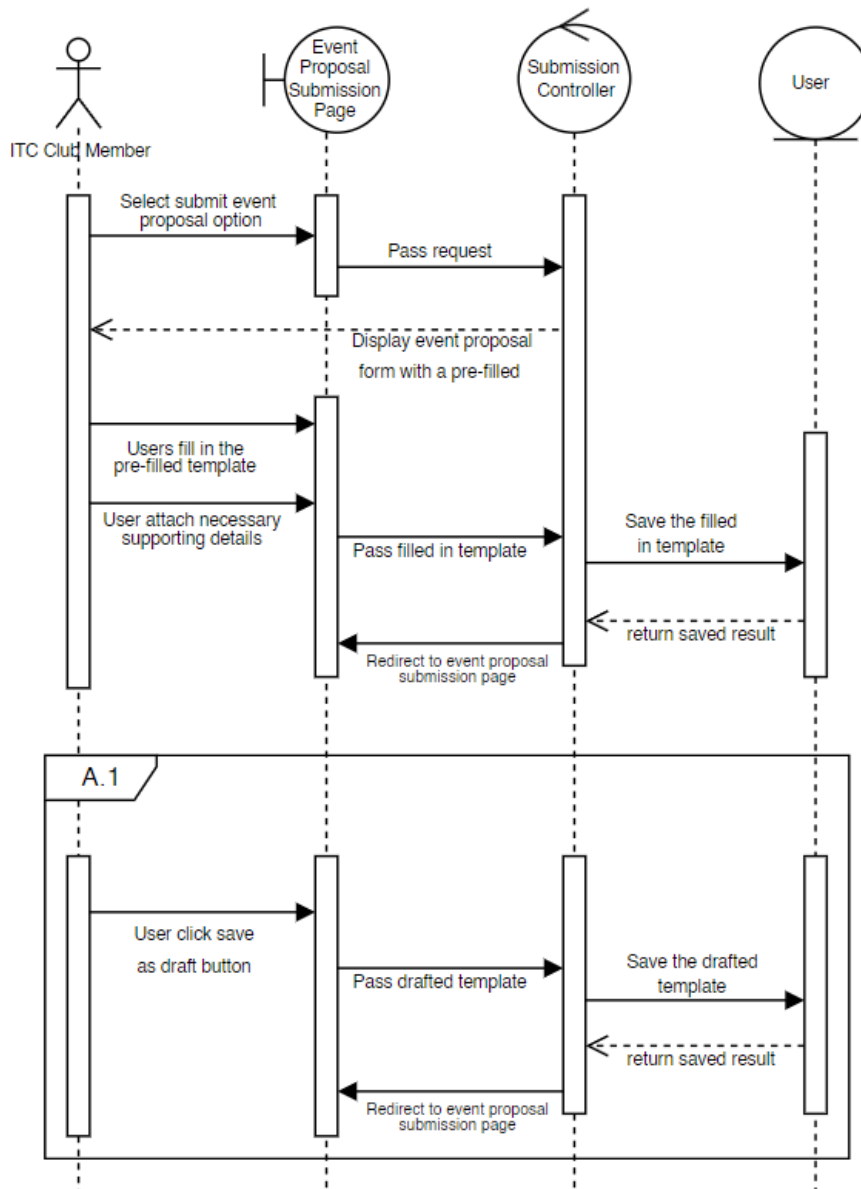


Fig. 3 Submit Event Proposal Sequence Diagram

4.4 Class Diagram

The class diagram illustrates the conceptual model in database modelling as shown in Figure 4. The class diagram includes the user, secretariat, profile, event proposal, event, event report, notification, and feedback of the database tables. An ITC club member can submit multiple event proposals. A club advisor can review multiple event proposals. An ITC Club Member can be assigned as a secretariat member for multiple events. An event can have one associated event proposal. A secretariat member can be assigned to multiple events.

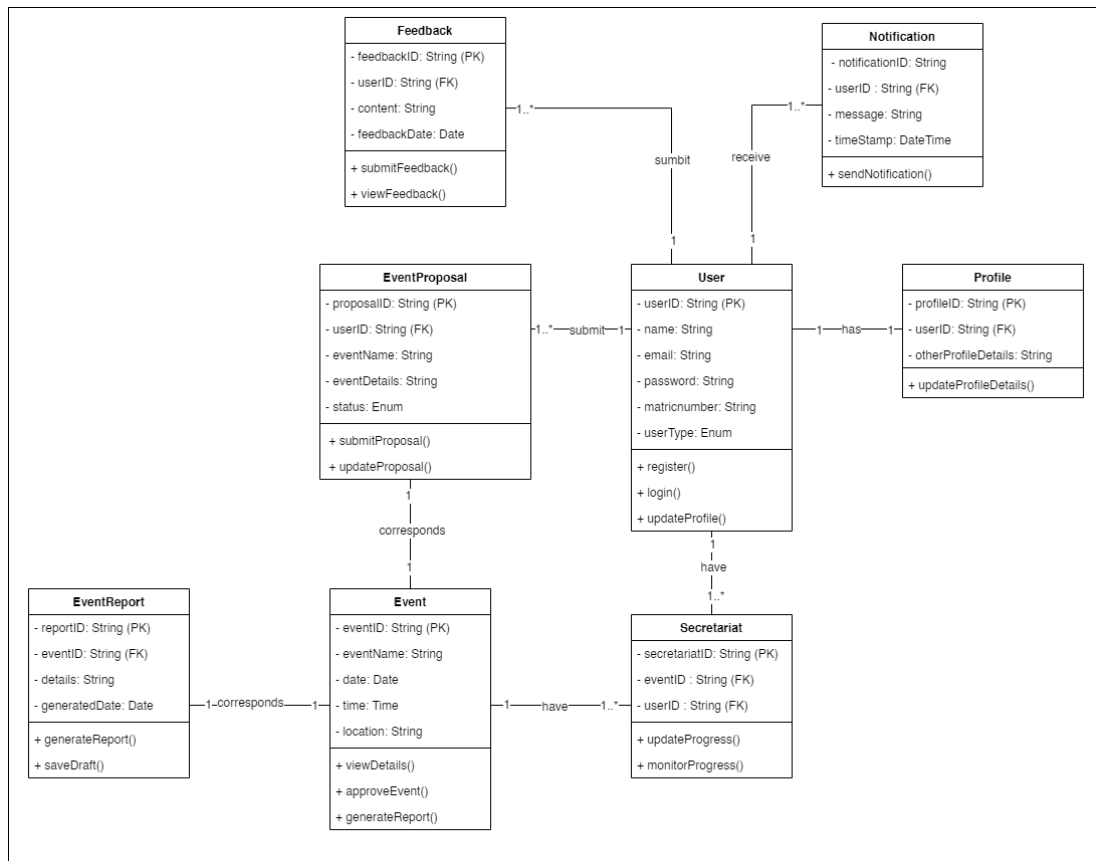


Fig. 4 Class Diagram

4.5 General System Architecture

Figure 5 shows the system architecture of the ITC Event Management System. ITC Event Management System follows the MVC (Model-View-Controller) architecture, which separates an application into three components which is model, view, and controller.

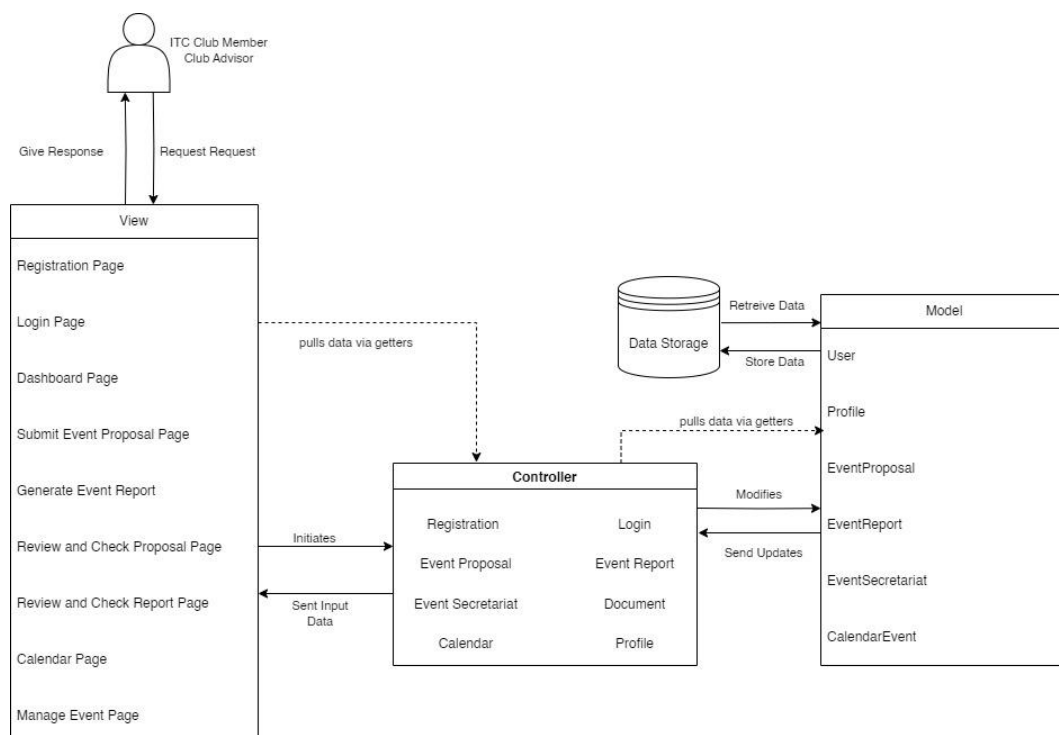


Fig. 5 System architecture

4.6 Interface Design

In this section, each interface of the system module will be shown. The interfaces shown in each system module are prototypes that represent the illustration of each page interface. Figure 6 shows the interface for submit event proposal modules. The system will display a form with a pre-filled template. User will fill in the template, attach any necessary documents, and click the “Submit” button. If the details are valid, a success message will be displayed.

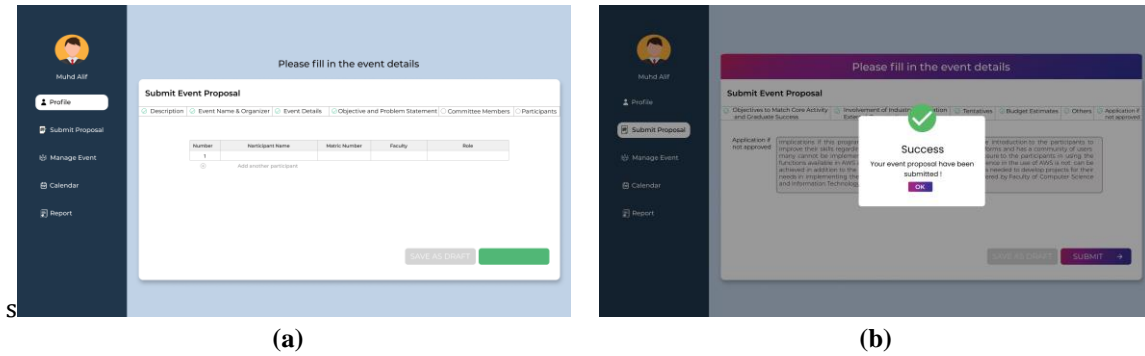


Fig. 6 Interface for Submit Event Proposal module (a)Event Proposal Submit Form; (b) Successfully Submitted Even Proposal

Fig. 7 shows the interface for manage event module. Users can select events and register club members as secretariat.

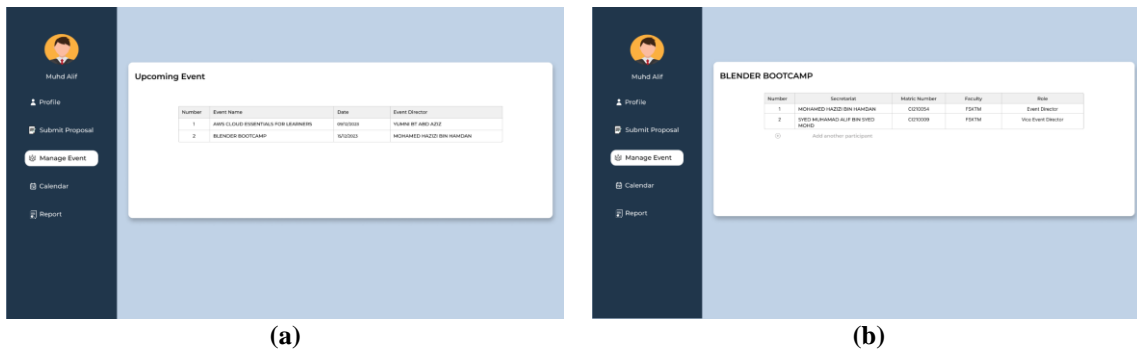


Fig. 7 Interface for Manage Event module (a) Select Event (b) Register Secretariat

5. Implementation

This section will discuss two sub section which are software for system development and function module development.

5.1 Software for System Development

This section outlines the software utilized in the ITC Event Management System development process and their respective functions. Figure 8 shows the Laravel ‘web . app’ code segment that defines the route for the system application and Laragon project setup which are used to streamline the development workflow. Figure 9 shows the Visual Studio Code file explorer that was used throughout the coding phase and Heidi SQL that are used during the database design and implementation phases. Figure 10 shows the Git and GitHub that are used for storing and sharing code and managing the ITC Event Management System project’s progress.

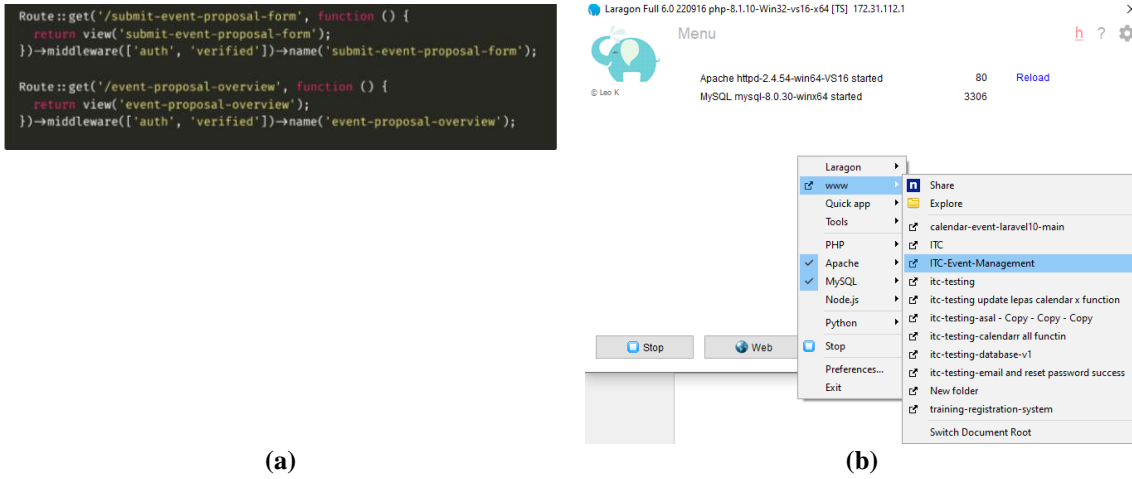


Fig. 8 Software for System Development (a) Web.app (b) Laragon Project Setup

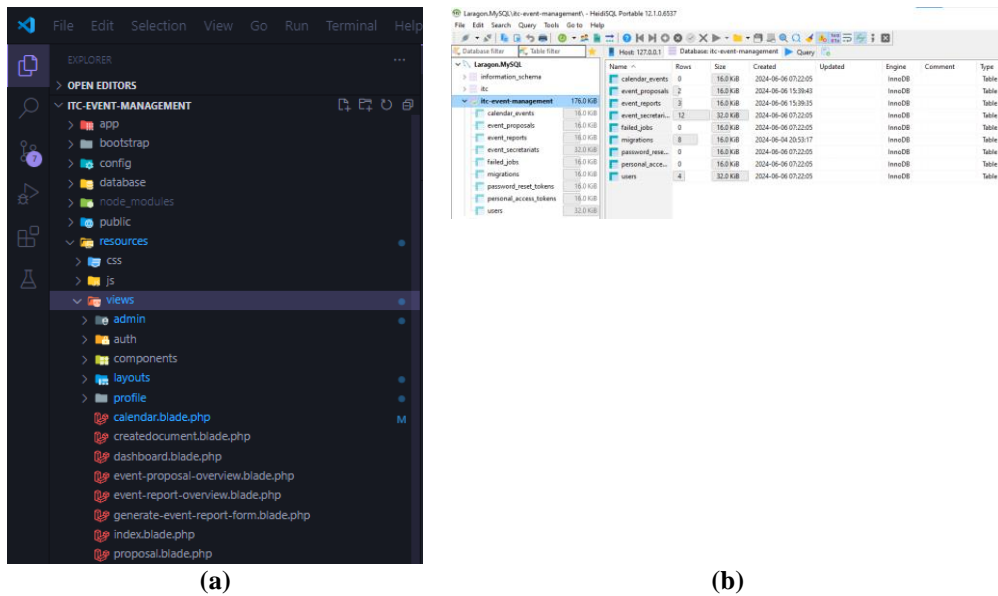


Fig. 9 Software for System Development (a) Visual Studio Code File Explorer (b) Heidi SQL

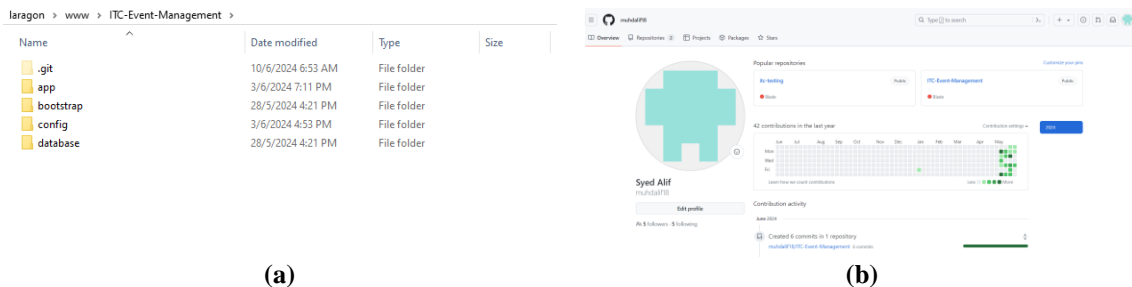


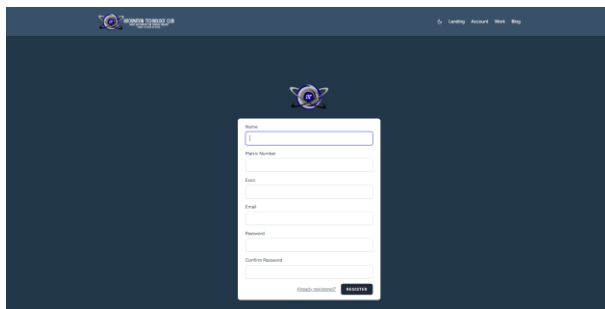
Fig. 10 Software for System Development (a) Git File inside Project Folder (b) GitHub Profile

5.2 Functional Module Development

In this section, the user interface and code segments of each module will be explained. The programming languages used include (PHP: Hypertext Preprocessor)PHP, (Hypertext Markup Language) HTML, (Cascading Style Sheets) CSS, and JavaScript. For the local server, Laragon was utilized, and Heidi SQL was employed for database management.

5.2.1 Login and Register Module

The Login and Registration module allows ITC Club Members and Club Advisors to register and log into the system. Upon registration, users enter their name, matric number, email, and password on the registration page. Figure 11 shows the Register interface and code segment. The system then verifies the information and sends a verification email. Figure 12 shows the Email Verification interface and Email Verification code segment. Once the email is verified, the account is created, and the user is directed to the login page.



(a)

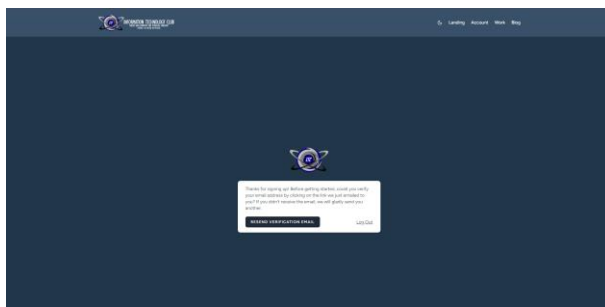
```


<x input label for "name" :value "__({Name})" />
  <x text input id "name" class "block mt-1 w-full" type "text" name "name" :value "old('name')" required
  autofocus autocomplete "name" />
  <x input error :messages "$errors->get('name')" class "mt-2" />
</div>
<div class "mt-4">
  <x input label for "matric_number" :value "__({Matric Number})" />
  <x text input id "matric_number" class "block mt-1 w-full" type "text" name "matric_number"
  :value "old('matric_number')" required autocomplete "matric_number" />
  <x input error :messages "$errors->get('matric_number')" class "mt-2" />
</div>


```

(b)

Fig. 11 Register Interface and Code Segment (a) Register Interface (b) Register Code Segment



(a)

```

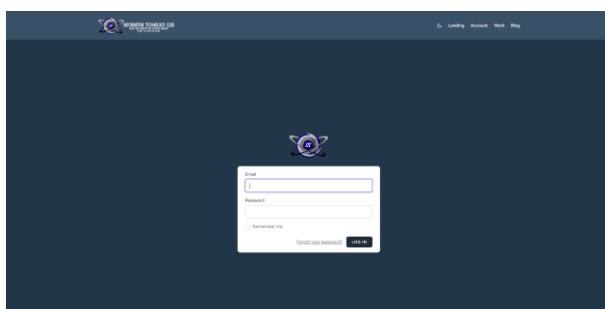
<div class="mb-4 text-on text-gray-600">
  {{ __('Thanks for signing up! Before getting started, could you verify your email address by clicking
  on the link we just emailed to you? If you didn't receive the email, we will gladly send you another.')}}
</div>
@if (session('status') == 'verification-link-sent')
  <div class="text-green-600 font-medium text-on">
    {{ __('A new verification link has been sent to the email address you provided during
    registration.')}}
  </div>
@endif

```

(b)

Fig. 12 Email Verification Interface and Code Segment (a) Email Verification Interface (b) Email Verification Code Segment

To login, users enter their username and password on the login page. After clicking 'login,' the system validates the credentials and redirects successful users to the home page. Fig 13 shows the Login interface and code segment. If users forget their password, they can click 'forgot password,' enter their registered email, and receive a reset link if the email is recognized. Figure 14 shows the Forgot Password interface and Forgot Password code segment. They follow the link to reset their password.



(a)

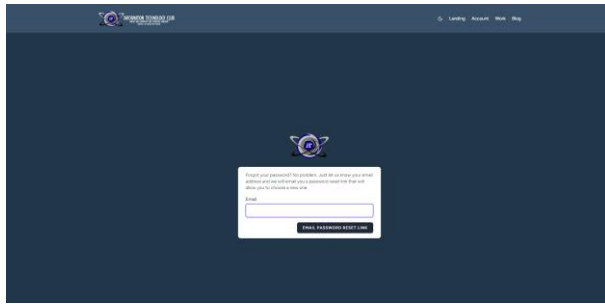
```


<x input label for "email" :value "__({Email})" />
  <x text input id "email" class "block mt-1 w-full" type "email" name "email" :value "old('email')"
  required
  autofocus autocomplete "username" />
  <x input error :messages "$errors->get('email')" class "mt-2" />
</div>
<div class "mt-4">
  <x input label for "password" :value "__({Password})" />
  <x text input id "password" class "block mt-1 w-full" type "password" name "password" required
  autocomplete "current-password" />
  <x input error :messages "$errors->get('password')" class "mt-2" />
</div>


```

(b)

Fig. 13 Login Interface and Code Segment (a) Login Interface (b) Login Code Segment



(a)

```

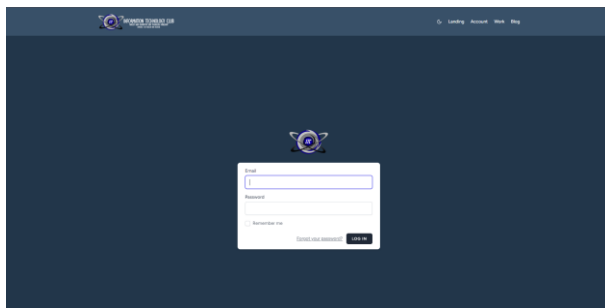
div
  x input label for "email" :value "__('email')__"
  x text input id "email" class "block mt-1 w-full" type "email" name "email" :value "old('email')"
  x input error :messages "$errors->get('email')" class "mt-2"
  div
  div class "flex items-center justify-end mt-4"
  x primary button {{ __('Email Password Reset Link') }}
  x primary button
  div
    
```

(b)

Fig. 14 *Forgot Password Interface and Code Segment (a)Email Verification Interface (b) Email Verification Code Segment*

5.2.2 Manage Profile Module

The Manage Profile Management module allows ITC Club Members to update their personal information within the system. Members must be logged into their accounts to access this feature. When updating their profile, members navigate to the profile option, bringing up a form for changing profile details. Figure 15 shows the Manage Profile Management interface and code segment. After entering the new information and successfully updating it, the system redirects them back to the update profile information page.



(a)

```

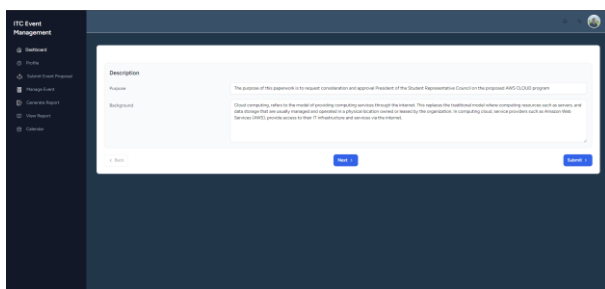
div
  x input label for "email" :value "__('email')__"
  x text input id "email" class "block mt-1 w-full" type "email" name "email" :value "old('email')"
  x input error :messages "$errors->get('email')" class "mt-2"
  x text input id "password" class "block mt-1 w-full" type "password" name "password" required
  autofocus autocomplete "current-password"
  x input error :messages "$errors->get('password')" class "mt-2"
  div
  div class "mt-4"
  x input label for "password" :value "__('Password')__"
  x text input id "password" class "block mt-1 w-full" type "password" name "password" required
  autofocus autocomplete "current-password"
  x input error :messages "$errors->get('password')" class "mt-2"
  div
    
```

(b)

Fig. 15 *Manage Profile Management Interface and Code Segment (a) Manage Profile Management Interface(b) Manage Profile Management Code Segment*

5.2.3 Submit Event Proposal Module

The Submit Event Proposal module allows ITC Club Members to submit their event proposals easily. Members must be logged into their accounts to access this feature. On the event proposal submission page, they select the "Submit Event Proposal" option, which displays a form with a pre-filled template. Figure 16 shows the Submit Event Proposal Form and code segment. Members fill in the template, attach any necessary documents, and click "Submit." If the details are valid, a success message is displayed, and the system redirects them back to the submission page. If the details are invalid, an error message is shown.



(a)

```

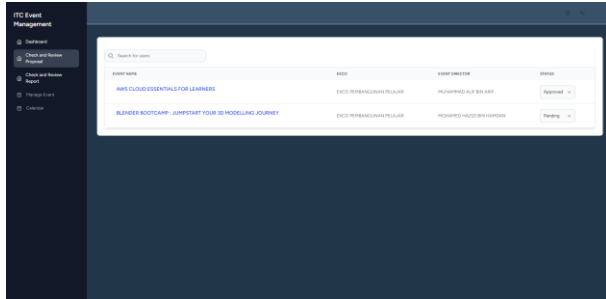
div class "sm:col-span-3"
  label for "purpose" class "inline-block text-sm font-medium text-gray-500 mt-2.5"
  Purpose
  Label
  div
  div class "sm:col-span-9"
  div class "sm:flex"
  input type "text" id "purpose" name "purpose" value "{{ old('purpose') }}" class "py-2 px-3 pe-11 block w-full border-gray-200 shadow-sm -mt-px -ms-px first:rounded-t-lg last:rounded-b-lg sm:first:rounded-s-lg sm:mt-0 sm:first:ms-0 sm:first:rounded-se-none sm:last:rounded-es-none sm:last:rounded-e-lg text-sm relative focus:z-10 focus:border-blue-500 focus:ring-blue-500 disabled:opacity-50 disabled:pointer-events-none dark:bg-slate-900 dark:border-gray-700 dark:text-gray-400 dark:focus:ring-gray-600"
  x input error class "mt-2" :messages "$errors->get('purpose')"
  div
  div
    
```

(b)

Fig. 16 *Submit Event Proposal Form Interface and Code Segment (a) Submit Event Proposal Form Interface (b) Submit Event Proposal Form Code Segment*

5.2.4 Review and Check Proposal Module

The Review and Check Proposal module allows club advisors to review and approve event proposals submitted by ITC Club Members. To review proposals, at least one must be submitted. The club advisor accesses the review page, where the system displays a list of submitted proposals awaiting review. Figure 17 shows the List of Submitted Event Proposal Interface and code segment. The advisor selects a proposal to view its details, including the pre-filled HEP template and attached documents. The proposal is reviewed for accuracy, completeness, and relevance. Figure 18 shows the Check and Review Proposal Interface and code segment. If approved, the advisor updates the proposal status to "Approved."



(a)

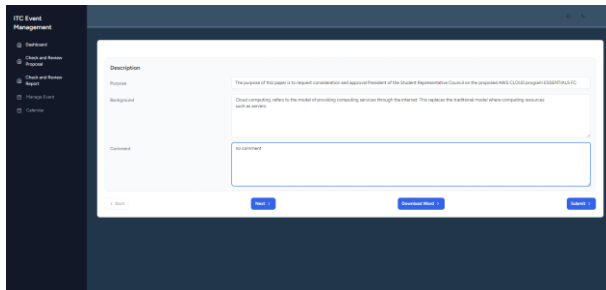
```

<div class="sm:col-span-3">
  <label for="background" class="inline-block text-sm font-medium text-gray-500 mt-2.5">
    Comment
  </label>
</div>
<div class="sm:col-span-9">
  <div class="sm:col-span-9">
    <textarea id="description_Comment" name="description_Comment" class="py-2 px-3 block w-full border-gray-200 rounded-lg text-sm focus:border-blue-500 focus:ring-blue-500 disabled:opacity-50 disabled:pointer-events-none dark:bg-slate-900 dark:border-gray-700 dark:text-gray-400 dark:focus:ring-gray-600">{{ old('description_Comment', $eventProposalData->description_Comment) }}
  </textarea>
  <x-input-error class="mt-2" :messages="$errors->get('description_Comment')"/>
</div>
</div>

```

(b)

Fig. 17 List of Submitted Event Proposal Interface and Code Segment (a) List of Submitted Event Proposal Interface (b) List of Submitted Event Proposal Code Segment



(a)

```

<div class="sm:col-span-3">
  <label for="purpose" class="inline-block text-sm font-medium text-gray-500 mt-2.5">
    Purpose
  </label>
</div>
<div class="sm:col-span-9">
  <div class="sm:flex">
    <input type="text" id="purpose" name="purpose" value="{{ old('purpose') }}" class="py-2 px-3 pe-11 block w-full border-gray-200 shadow-sm -mt-px -ms-px first:rounded-t-lg last:rounded-b-lg sm:first:rounded-s-lg sm:mt-8 sm:is:time:8 sm:is:float:right:rounded-se-none sm:is:float:right:rounded-ss-none sm:is:float:right:rounded-e-lg text-sm relative focus:z-10 focus:border-blue-500 focus:ring-blue-500 disabled:opacity-50 disabled:pointer-events-none dark:bg-slate-900 dark:border-gray-700 dark:text-gray-400 dark:focus:ring-gray-600">
    <x-input-error class="mt-2" :messages="$errors->get('purpose')"/>
  </div>
</div>

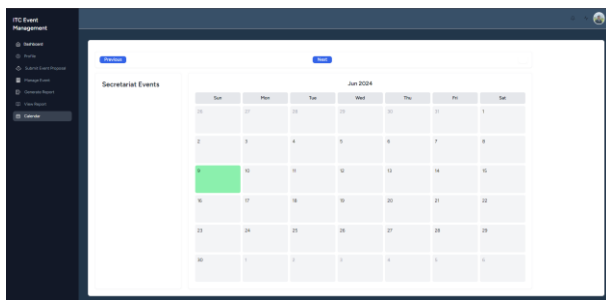
```

(b)

Fig. 18 Check and Review Proposal Interface and Code Segment (a) Check and Review Proposal Interface (b) Check and Review Proposal Code Segment

5.2.5 Display Event Calendar Module

The Display Event Calendar module allows ITC Club Members and the Club Advisor to view all proposed and approved events in a calendar format. Figure 19 shows the Display Event Calendar interface and code segment. The Event Director can schedule proposed events on the calendar. Figure 20 shows the Scheduling Event Form and code segment.



(a)

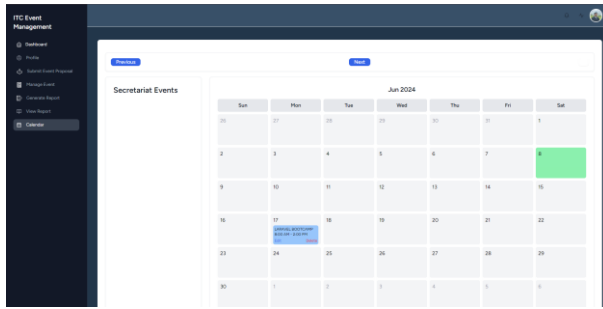
```

($startDateCalendar->format('Y-m-d') = $dateFormat->format('Y-m-d'))
<div class="event {{ $colorClass }}" rounded-md p-1 text-xs mt-1">
  <div {{ $calendarEventData->event }}</div>
  <div {{ $calendarEventData->time }}</div>
  <div class="flex justify-between mt-1">
    <button class="edit-event text-blue-600 hover:text-blue-800" data-id="{{ $calendarEventData->id }}" data-date="{{ $calendarEventData->date }}" data-event="{{ $calendarEventData->event }}" data-time="{{ $calendarEventData->time }}">Edit</button>
    <button class="delete-event text-red-600 hover:text-red-800" data-id="{{ $calendarEventData->id }}">Delete</button>
  </div>
</div>

```

(b)

Fig. 19 Display Event Calendar Interface and Code Segment (a) Display Event Calendar Interface (b) Display Event Calendar Code Segment



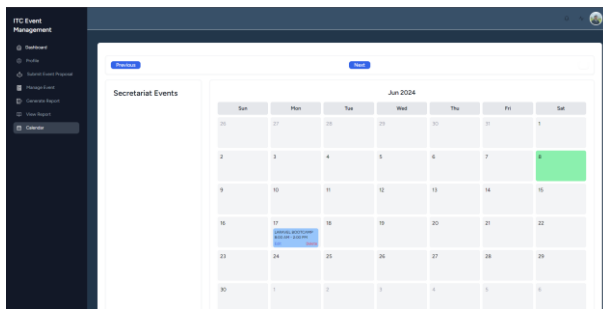
(a)

```
<div class="event" {{ $colorclass }} rounded-md p-1 text-xs mt-1>
<div{{ $calendarEventData-event }}
</div>
<div{{ $calendarEventData-time }}
</div>
<div class="flex justify-between mt-1">
<button class="edit-event text-blue-600 hover:text-blue-800"
data-id="{{ $calendarEventData-id }}" data-date="{{ $calendarEventData-date }}"
data-event="{{ $calendarEventData-event }}"
data-time="{{ $calendarEventData-time }}">Edit
</button>
<button class="delete-event text-red-600 hover:text-red-800"
data-id="{{ $calendarEventData-id }}">Delete</button>
</div>
</div>
```

(b)

Fig. 20 Scheduling Event Form Interface and Code Segment (a) Scheduling Event Form Interface (b) Scheduling Event Form Code Segment

After that, the system displays a calendar with all scheduled events. Figure 21 shows the Scheduled Event interface and code segment. Users can click on an event to view detailed information, including the event's name, date, time, location, and other relevant details.



(a)

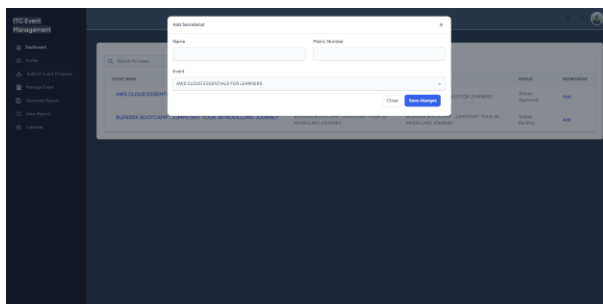
```
<div class="event" {{ $colorclass }} rounded-md p-1 text-xs mt-1>
<div{{ $calendarEventData-event }}
</div>
<div{{ $calendarEventData-time }}
</div>
<div class="flex justify-between mt-1">
<button class="edit-event text-blue-600 hover:text-blue-800"
data-id="{{ $calendarEventData-id }}" data-date="{{ $calendarEventData-date }}"
data-event="{{ $calendarEventData-event }}"
data-time="{{ $calendarEventData-time }}">Edit
</button>
<button class="delete-event text-red-600 hover:text-red-800"
data-id="{{ $calendarEventData-id }}">Delete</button>
</div>
</div>
```

(b)

Fig. 21 Scheduled Event Interface and Code Segment (a) Scheduled Event Interface (b) Scheduled Event Code Segment

5.2.6 Manage Event Module

The Manage Event module enables ITC Club Members, including the director, to assign secretariat members to events. On the Manage Event page, the event director can select events and register members as secretariat. Figure 22 shows the Assign Secretariat Form and code segment. The secretariat can then view their assigned events on the calendar, see their committee assignments, and update task progress.



(a)

```
<div class="flex justify-between items-center py-3 px-4 border-b dark:border-neutral-700">
<h3 class="font-bold text-gray-800 dark:text-white">Add Secretariat</h3>
<button type="button" class="flex justify-center items-center size-7 text-sm font-semibold rounded-full border border-transparent text-gray-800 hover:bg-gray-100 disabled:opacity-50 disabled:pointer-events-none dark:text-white dark:hover:bg-neutral-700 data-hs-overlay="#hs-large-modal">
<span class="sr-only">Close</span>
<svg class="flex-shrink-0 size-4" xmlns="http://www.w3.org/2000/svg" width="24" height="24" viewBox="0 0 24 24" fill="none" stroke="currentColor" stroke-width="2" stroke-linecap="round" stroke-join="round">
<path d="M18 6 18 18"></path>
<path d="m6 6 12 12"></path>
</svg>
</button>
</div>
```

(b)

Fig. 22 Assign Secretariat Form Interface and Code Segment (a) Assign Secretariat Form Interface (b) Assign Secretariat Form Interface Code Segment

5.2.7 Generate Event Report

The Generate Event Report module allows ITC Club Members to create event reports using a pre-filled template. Users must be logged in and have access to completed event details. The Generate Event Report page displays the template. Figure 23 shows the Generate Event Report interface and code segment. Users complete the report with details about the event, outcomes, challenges, and recommendations, then click "Generate Report." If inputs are valid, the allows it to be downloaded

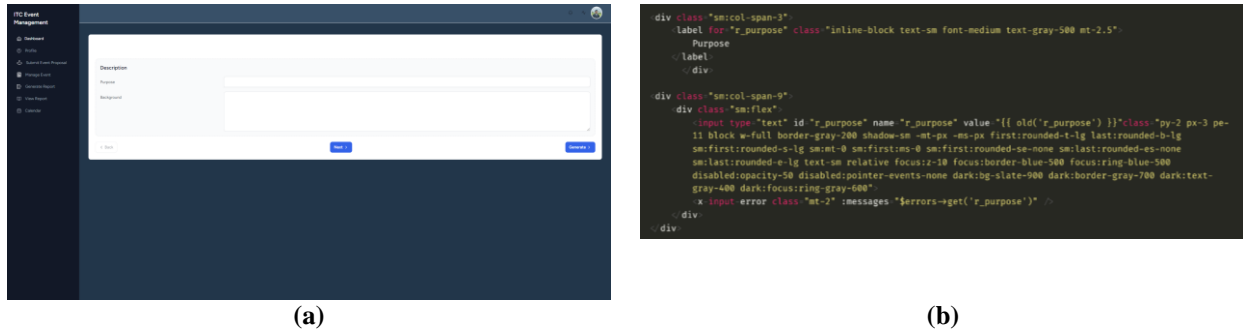


Fig. 23 Generate Event Report Interface and Code Segment (a) Generate Event Report Interface (b) Generate Event Report Code Segment

6. Testing

The testing phase focuses on assessing the functionality of the system. This section involves two different testing methods, which are functional testing and user acceptance testing.

6.1 Functional Testing

Functional testing is conducted to ensure that the developed system's modules function as intended. The list of test cases and results is presented in Table 5.

Table 5 List of Test Cases

Test Case ID	Requirement ID	Description	Test Status
TC_100	REQ_100	Login and Register	
TC_100_01	REQ_101	The system should display the registration page.	PASS
TC_100_02	REQ_102	The system should accept input for registration details.	PASS
TC_100_03	REQ_103	The system should verify the password format.	PASS
TC_100_04	REQ_104	The system should display the login page.	PASS
TC_100_05	REQ_105	The system should authenticate valid usernames and passwords.	PASS
TC_100_06	REQ_106	The system should redirect users to the home page after successful login.	PASS
TC_100_07	REQ_107	The system should provide a 'forgot password' option.	PASS
TC_200	REQ_200	Manage Profile Management	
TC_200_01	REQ_201	The system should display the update profile page for ITC Club Members.	PASS
TC_200_02	REQ_202	The system should allow ITC Club Members to modify their profile details.	PASS
TC_200_03	REQ_203	The system should validate user inputs for updating profile information.	PASS
TC_200_04	REQ_204	The system should provide a success message upon successful profile update.	FAIL
TC_300	REQ_300	Submit Event Proposal	
TC_300_01	REQ_301	The system should display the event proposal submission page for ITC Club Members.	PASS
TC_300_02	REQ_302	The system should provide a pre-filled HEP template for users to complete.	PASS
TC_300_03	REQ_303	The system should allow users to attach supporting documents during proposal submission.	PASS

Table 5: (cont)

TC_300_04	REQ_304	The system should validate the completeness and validity of the submitted proposal.	PASS
TC_300_05	REQ_305	The system should provide a success message upon successful event proposal submission.	FAIL
TC_400	REQ_400	Review and Check Proposal	
TC_400_01	REQ_401	The system should display the review and check proposal page for Club Advisor.	PASS
TC_400_02	REQ_402	The system should list submitted event proposals awaiting review by Club Advisor.	PASS
TC_400_03	REQ_403	The system should present detailed content of selected event proposals for Club Advisor review.	PASS
TC_400_04	REQ_404	The system should allow Club Advisor to approve an event proposal, updating its status to "Approved".	PASS
TC_400_05	REQ_405	The system should allow Club Advisor to reject an event proposal, updating its status to "Rejected" and capture feedback.	PASS
TC_500	REQ_500	Display Event Calendar	
TC_500_01	REQ_501	The system should display the Event Calendar page for ITC Club Members and Club Advisor.	PASS
TC_500_02	REQ_502	The system should present a detailed view of events including name, date, time, and location.	PASS
TC_500_03	REQ_503	The system should allow users to click on specific events to view more detailed information.	PASS
TC_500_04	REQ_504	The system should provide filtering options for users to refine the displayed events on the calendar.	FAIL
TC_500_05	REQ_505	The system should indicate if no events are currently scheduled and display an appropriate message.	FAIL
TC_600	REQ_600	Manage Event	
TC_600_01	REQ_601	The system should display the manage event page for ITC Club Members (Event Director).	PASS
TC_600_02	REQ_602	The system should list upcoming events for the Event Director to assign secretariat Members.	PASS
TC_600_03	REQ_603	The system should allow the Event Director to register club Members as secretariats for events.	PASS
TC_600_04	REQ_604	The system should provide a dedicated "Secretariat Dashboard" for secretariat Members to monitor tasks.	PASS
TC_600_05	REQ_605	The system should display progress indicators for upcoming events to the Club Advisor.	FAIL
TC_600_06	REQ_606	The system should enable secretariat Members to update and monitor event progress from their dashboard	FAIL
TC_700	REQ_700	Generate Event Report	
TC_700_01	REQ_701	The system should display the event report generation page for ITC Club Members.	PASS
TC_700_02	REQ_702	The system should list completed events for Club Members to select for report generation.	PASS
TC_700_03	REQ_703	The system should provide a pre-filled report template for Club Members to input event details.	PASS

Table 5: (cont)

TC_700_04	REQ_704	The system should validate, and store generated reports, providing a download option for Club Members.	PASS
TC_700_05	REQ_705	The system should offer a "Save as Draft" feature allowing Club Members to save incomplete reports for later.	FAIL

6.2 Overall Result

In this section, the summary of the results for the system testing will be shown and discussed. There are a total of seven modules with 37 test cases that have been carried out to test the system. Overall test is 81.08% pass and only 18.92% fail. Overall test result of the test cases is 81.08% pass and only 18.92% fail. The failures were due to missing notification triggers, form submission handling issues, incomplete filtering options, conditional logic problems, backend linkage issues, and missing draft-saving logic. Table 6 shows the overall result of test cases.

Table 6 Overall Results of Test Cases

Test Case Id	Total Test Cases	Total Success	Total Failed	Pass Percentage	Fail Percentage
TC_100	7	7	-	100%	0%
TC_200	4	3	1	75%	25%
TC_300	5	4	1	80%	20%
TC_400	5	5	-	100%	0%
TC_500	5	3	2	60%	40%
TC_600	6	4	2	66.7%	33.33%
TC_700	5	4	1	80%	20%
Overall	37	30	7	81.08%	18.92%

6.3 User Acceptance Testing

User Acceptance Testing (UAT) is a crucial phase where stakeholders or end-users assess the system to ensure it meets their requirements and expectations. During UAT, stakeholders engage with the system to validate its functionality, usability, and overall suitability for their needs. Users provide feedback on their experience to confirm the system fulfills the specified requirements. Table 7 shows the summary of the alpha testing conducted by stakeholders.

6.3.1 Alpha Testing

Alpha testing, a critical part of User Acceptance Testing (UAT), is carried out in a controlled setting chosen stakeholders. Its main objective is to verify the system's functionality and confirm that it aligns with the defined. Table 7 outlines the results of the alpha testing performed by stakeholders.

Table 7 Alpha Testing Summary

No	Acceptance Criteria Module Covered	Test Result	Pass Percentage (%)
1	Advisor can login to the system with the provided email and password.	PASS	100
2	Advisor can view the dashboard for advisors.	PASS	100
3	Advisor can view a list of event proposals submitted by ITC Club members.	PASS	100
4	Advisor can review details of each event proposal.	PASS	100
5	Advisor can approve or reject event proposals	PASS	100
6	Advisor can provide feedback on rejected proposals.	PASS	100
7	Advisor can view the event calendar showing approved events.	PASS	100
Total Pass Percentage			100

Therefore, based on the summary in Table 7, the alpha testing achieved a 100% pass rate, as confirmed by the stakeholder, Suriawati Binti Suparjoh, the advisor of the ITC Club. The alpha testing form is attached in Appendix A.

6.3.2 Beta Testing

Beta testing, which follows alpha testing, involves a select group of external users testing the system in a real-world environment to gather feedback on usability, performance, and user experience. During this phase, 10 ITC Club members evaluated the ITC Event Management System. Users appreciated the intuitive interface, ease of submitting event proposals, and clear event calendar. They suggested adding a notification feature for event updates, improving the "Save as Draft" functionality, and enhancing search options in the event calendar. The results were positive, highlighting high ease of use and efficient performance, with minor issues like occasional lag in loading the event calendar. This feedback is crucial for refining the system before a broader release. The detailed breakdown of positive aspects and areas for improvement, as expressed by participants, is summarized in Table 8 below.

Table 8 Positive Value Analysis

Question	Positive Value	Total Value Score	Percentage(%)
1	43	50	86.0
2	43	50	86.0
3	42	50	84.0
4	45	50	90.0
5	44	50	88.0
6	45	50	90.0
7	45	50	90.0
8	43	50	86.0
9	44	50	88.0
10	42	50	84.0
Total	430	500	87.2

The positive value analysis showed that 87.2% of the total value scores were positive, indicating good overall user satisfaction and usability. This suggests a strong foundation for the system's potential success. Additionally, users' qualitative feedback during beta testing provided deeper insights into their experiences, highlighting pain points, suggestions for improvement, and system strengths.

Table 9 User Feedback

No	Feedback
1	The interface is user-friendly, but loading time in some pages can be decrease to have better system
2	Good system, can't wait to use it
3	Need to rechoose again the color of the interface
4	need to put tooltips on every field
5	a filter option for different event categories would be beneficial
6	customization options for the report format would be appreciated
7	color contrast and adding more accessibility options would improve the overall user experience
8	profile picture upload feature could use some improvements in terms of image cropping and preview
9	need to improve the creativity of the user interface since it is simple
10	exco option on the register should be in drop down menu

Based on Table 9, user feedback on the ITC Event Management System highlighted its strengths, such as a user-friendly interface and overall functionality. However, users suggested improvements including faster loading times, a revised color scheme, tooltips for every field, a filter for event categories, report customization, better color contrast and accessibility, an improved profile picture upload feature, a more creative UI design, and changing the "exco option" to a drop-down menu. These insights are crucial for refining the system to meet user expectations.

7. Conclusion

In conclusion, the ITC Event Management System has successfully met its primary objectives, resulting in a well-designed, functional, and user-friendly solution for the ITC Club at Universiti Tun Hussein Onn Malaysia. The system was meticulously analyzed and designed using object-oriented methods with comprehensive UML diagrams, ensuring a solid blueprint for development. The web-based application, built with the Laravel framework and incorporating HTML, CSS, JavaScript, and PHP, includes seven essential modules that cover all functionalities needed for managing ITC Club events, confirmed through rigorous testing.

User acceptance testing validated the system's effectiveness. Alpha testing with ITC Club advisors achieved a 100% pass rate, confirming its suitability for administrative operations. Beta testing with club members and advisors yielded overwhelmingly positive feedback, highlighting the system's efficiency, intuitive design, and streamlined administrative processes.

The ITC Event Management System offers significant benefits, addressing operational challenges and aligning with expected outcomes. Automation of event proposal submission, approval, and scheduling reduces time and effort, streamlining workflows and minimizing errors. The system promotes transparency and accountability, prevents scheduling conflicts, and facilitates efficient communication through a comprehensive event calendar. Its intuitive design and centralized database enhance ease of use and efficiency in managing event documentation. The modular design allows for future enhancements and scalability.

However, the system has some limitations, such as the lack of advanced analytics and reporting tools and a comprehensive notification system for real-time updates. Future enhancements could include real-time collaboration features and detailed user activity logs to improve accountability and security.

Overall, the ITC Event Management System has significantly enhanced the ITC Club's operational efficiency and user satisfaction, laying a strong foundation for future improvements and continued growth. By addressing the identified limitations, the system will be well-equipped to support the club's expanding needs and ensure its continued success.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

Author Contribution

The author confirms sole responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

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Appendix A: Alpha Testing

User Acceptance Test (UAT): ITC Event Management System

System Admin User:

Club: Information Technology Club (ITC)

Position: Club Advisor

No	Acceptance Criteria	Test Result		Comment
		Pass	Fail	
1	Advisor can login to the system with the provided email and password.	✓		
2	Advisor can view the dashboard for advisors.	✓		
3	Advisor can view a list of event proposals submitted by ITC Club members.	✓		
4	Advisor can review details of each event proposal.	✓		
5	Advisor can approve or reject event proposals.	✓		
6	Advisor can provide feedback on rejected proposals.	✓		
7	Advisor can view the event calendar showing approved events.	✓		

Overall Comment:

- No notifications for events.
- Drag N Drop is not provided
- No restriction if event had exceed date occurred

1. SURIWATI SUPARJOH hereby declare that the information provided is true and correct.

- No Date Picker available
- Incomplete correct data displayed for dashboard

Agreed by,



Name: SURIWATI SUPARJOH

Date: 10/6/2024

SURIWATI BINTI SUPARJOH
 Pensyarah Kanan
 Jabatan Multimedia
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