


## SafeAssign Originality Report

SOFTWARE DESIGN • Creating a Prototype User Interface and Usability Testing (20%)

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## CHOW Ching Huey -

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① 4067CEM Software Design-APR 2022 INTI International College Penang School of Engineering and Technology

3+0 Bachelor of Science (Hons) in Computer Science, in collaboration with Coventry University, UK

3+0 Bachelor of Science (Hons) in Computing, in collaboration with Coventry University, UK

Coursework cover sheet

Section A - To be completed by the student Full Name: Chow Ching Huey

① CU Student ID Number: 12673195

Semester:2

Session: April 2022

Lecturer: ① Nadhrah Abdul Hadi (nadhrah.abdulahadi@newinti.edu.my)

Module Code and Title: 4067CEM Software Design

Assignment No. / Title: ① Continuous Assessment % of Module Mark: 50

① Hand out Date: 22nd April 2022 Due Date: Task 1: ① 13 May 2022, by 11.59pm

Task 2: ① 1 July 2022, by 11.59pm

Task 3: ① 19 June 2022, by 11.59pm. Task 4: ① 19 June 2022, by 11.59pm. Task 5: ① 19 June 2022, by 11.59pm.

Penalties: ① No late work will be accepted. If you are unable to submit coursework on time due to extenuating circumstances, you may be eligible for an extension. Please consult the lecturer.

Declaration: ① I/we the undersigned confirm that I/we have read and agree to abide by the University regulations on plagiarism and cheating and Faculty course-work policies and procedures. I/we confirm that this piece of work is my/our own. I/we consent to appropriate storage of our work for plagiarism checking.

Signature(s): \_\_\_\_\_

- ① Section B - To be completed by the module leader Intended learning outcomes assessed by this work: 1. ① Understand and apply appropriate concepts, tools and techniques to each stage of the software development
2. ① Understand and apply design patterns to software components in developing new software
3. ① Demonstrate an understanding of project planning and working to agreed deadlines, along with professional, interpersonal skills and effective communication required for software production
5. ① Demonstrate an awareness of, and ability to apply, social, professional, legal and ethical standards as documented in relevant laws and professional codes of conduct such as that of the Malaysian National Computer Confederation.

Marking scheme Max Mark

1. ② User Story Mapping 2. Setting up a GitHub Repository 3. ① Creating a Class diagram and design pattern selection
4. ② Creating a Prototype User Interface and Usability Testing 5. ① Discuss the ethical issue related to the software 20

10

30

20

20

Total 100

TASK 4: ① CREATING A PROTOTYPE USER INTERFACE AND USABILITY TESTING

#### 1. Prototype User Interface

The College Event System used for INTI International College Penang will be in mobile application as shown in the results in task 1. There are three types of users: 1. Student

2. Club

3. Admin

Student

A student can be either a non-member, member, or committee of a club(s). A non-member will have lesser access to clubs' contents compared to a club member/club committee and will need to fill in form for each participation of any events. For a member/committee, they can access all contents of their clubs and participate without the extra step of fill in forms as they had already given their information details when joining the club. There is no difference between the member and committee in terms of using the app, except that the committee's name is in the committee list and display their contacts so that students can reach out to them. For this user account, they can: · View club profiles · join clubs · view posts/events · participate events · ask questions about a club in QNA · post and comment in club forums (members and committees only)

Club

Each club has only one club account. The club account is used to: · upload posts/events · manage events: upload event proposals and booking facilities/rooms · answer questions about the club in QNA · post and comment in forums as the club itself · access analytics to track their performance · manage club committee team and membership requests

The club president uses this account to conduct some/all the tasks stated above. Meaning that only the president has full control on the club account and other committee members do not have the power to use the club account despite that they had distributed their work in the background. The other committees can only help the president in this app is by replying to posts/comments in their club forum. Unless if anything happens to the club president, the club president may lend the power to the vice president as a temporary club account user. Admin

Admin's tasks: · create accounts for students and clubs. Until an account is created, students or clubs do not have access to use the system. The admin creates students accounts using student email accounts and create club accounts using the email address given by the club president. · Approve event proposals · Approve facility/room bookings

The prototype user interface is designed to fit all feedbacks from 17 interviewees including both students and club committee members in INTI International College Penang for an ideal college event system.

#### ③ 1.0 Log In

Figure 1: Log In · This Log In page is the first page ever in the app. · The admin is responsible for creating student accounts using student emails, and club accounts using emails given by the club president.

With that, there is no need for students and clubs to register accounts in this mobile application. · 2 attributes/inputs: 1) Email – Attribute to identify the type of user (student or club account) 2) Password – Create first line of defense from unauthorized access to the user's personal information. · The Log In feature uses the emails to identify the type of account the user is (student account and club account). For example, when student A keys in their student email, pXXXXXXXX@student.newinti.edu.my, the system will open their student account. When student A is a club president and keys in their club email, xxx@gmail.com, the system will open the club account. · The system will prompt users if there are null inputs and if the passwords do not match.

#### ④ 1.1 Student: Main Menu Slide

Figure 2: student main menu · This is the Main Menu Slide for student user accounts, which is the most important feature for the system as it provides the user with various options or selections for accessing features. There are seven features which aid the college event system: 1) My account – view-only user's name and email address set by the admin

2) Notifications – indicates reminders, communication from communities and other timely information

3) Feed - where students can view and join clubs

4) Saved posts – where saved posts are stored privately for the user

5) Participating events – shows list of registered events to be participated

6) Participated events – where event participation history is stored, and ratings are done

7) Calendar – shows reminders set by the user

8) Log Out – to prevent other users from accessing the system without verifying their credentials. It also helps protect the current user's access or prevent unauthorized actions on the current login session and is thus an important part of security

##### 1.1.1 Student: Feed

Figure 3 Figure 4 Figure 5 · This is the feature Feed, where all students can browse on club related contents of all clubs in INTI International College Penang. It is like how social media works, such as feeds in Facebook and Instagram. · There are 2 types of post: 1) Normal post – just a regular post from clubs. 2) Event post – posts that are events and has a register button for students to participate. · Elements of a post: 1) The club's name and club profile image – to show the post belongs to which club

2) Visual components (posters, videos or other) 3) Like button – To let the clubs know that students/community liked the contents of the posts

4) Save – To let users save posts for later in a private tab in the mobile app (Saved Posts feature). 5) Remind (for event posts only) – Forwards the user to the Calendar feature to set a reminder. 6) Register(for event posts only) – Forwards user to the Event Participation Form page to participate the event. 7) Number of likes and views – To show that other users have like a particular post. 8) Captions – To add context to the visual components, that users may not have known the details of the post very well. 9) Date – Used to trigger a specific memory in time, to make the posts more relevant and memorable to all users. · The button bar has New, Hot and My subpages in Feed: 1) New – displays all posts from all clubs displayed from the newest to the oldest posts. 2) Hot – displays trending posts that in a short duration of recent time, have high number of likes or/and views, or set as featured by the clubs. 3) My – displays all posts from clubs that the user had joined as member or committee member. · The Search button aids the user to search for posts that are relevant to the words they have entered to search. · A Filter feature is also added to filter and sort customized posts for the user. · The figures above have slight differences for the post: 1) Figure 3 – This is a normal post 2) Figure 4 – This is an event post. The user has not registered to participate

3) Figure 5 – This is an event post. The user has already registered to participate · There are event posts that have set by clubs with different types of audience allowed to participate:

Target audience set by the club for the event post User Is that event post visible?

Members only Is a member Yes

Members only Is not a member No

All students Is a member Yes

All students Is not a member Yes

##### 1.1.1.1 Student: Filter

Figure 6 · This is the Filter feature. The student user can filter and sort and apply to customize the feed and use the Reset button to erase all of them. · There are 2 checkbox list filters: 1) Clubs – the user can select which club(s) to show in the New subpage. 2) Type of evens (applies for event posts only) – the user can select which type(s) of events to show in the New subpage. · There is a Date/Date Range feature that can let the user to filter out posts from which date to which date. · Below shows some main examples of results with different customizations (excluding the Date/Date Range) for better understanding purposes: Clubs Type of Event Result

IEC only none Show all posts of IEC only (both normal and event posts)

IEC only workshop only Show workshop posts of IEC only

IEC only Seminar and workshop only Show seminar and workshop posts of IEC only

IEC only All Show all IEC posts except normal posts

HYPE+ and IEC only none Show all posts of HYPE+ and IEC only

Table 1

#### 1.1.1.2 Register to Participate Event

Figure 7 · Pressing the Register button of an event post will forward to user to this Event Participation Form page. The information needed to register are name, student ID, student email, Programme and lastly contact number. The user can also cancel the registration by pressing back button, if not they can press the Submit button to participate the event. · After successfully submitting the form, the event post will be stored in a feature called Participating Events that lists out the events that are yet to participate briefly.

#### ③ 1.1.2 Student: Saved Posts

Figure 8 · This is the Saved Posts feature. · After pressing save button from the posts in Feed page or Forums subpage of any club page that are only available in joined clubs, they will be saved privately in this feature for the user. · They can click onto them, and they will be forwarded to the post.

#### ③ 1.1.3 Student: Calendar (reminder)

Figure 9 Figure 10 Figure 11

· The use of the Calendar feature is to help create club or event related reminders for the user. The process starts from Figure 8. As shown in Figure 8, there is a calendar where a blue highlighted date indicates as current date, while the shaded dates indicate dates that have been set with reminders. Below of the calendar is where set reminders are placed. To add a reminder, the user needs to press the Plus button on the upper right of the screen. · After that, the user will be forwarded to the following page, which is in Figure 9, where they are prompted to enter: 1) the event name or simply a title

2) club name

3) notes

4) date/date range

5) time (as shown in Figure 10) · Club name and notes are optional. The user can cancel by pressing the Back button, otherwise the Submit button to finish setting up the reminder. · For the Remind button in an event post in Feed, the user will straightforwardly go to the Figure 9 page to set the reminder. The details will be auto filled except for the notes but the user can modify the contents as well.

#### 1.1.4 Student: Clubs

Figure 12 Figure 13 Figure 14

· This is the feature Clubs. · The button bar has Clubs, My Clubs and Membership Requests subpages: 1) Clubs – displays all clubs as shown in Figure 11. 2) My Clubs – displays clubs that are already joined by the user as shown in Figure 12. 3) Membership Requests – shows view-only pending requests of club memberships or committee memberships as shown in Figure 13. The user can use this to track if they have successfully joined/unjoined the club or the committee team yet · For Clubs and My Clubs subpages, the user can click into the clubs to view their profile pages or register/unregister as members or committee members.

##### 1.1.4.1 Student: Club's Page

· This is the Club Page having IT Club as an example. · The button bar for 4 subpages: 1) Profile 2) Members and Committee

3) QNA

4) Forums

##### 1.1.4.1.1 Student: Club's Profile

Figure 15 Figure 16 · This is the profile page of the club. · This subpage contains: 1) Club name

2) Profile and background image

3) About (description of the club) – lets users get to know about the club

4) Links – other social media that the club has

5) Gallery – visual components to let users get to know about the club

6) Join Button – for those who want to join the club as members

7) Bell Button – can be activated to obtain notifications from the club · Joining the club requires registration using Club Membership Request Form page · While waiting to be joined, then button will be unclickable and shown as “Requested”. · As shown in Figure 15, after successfully joining the club, the button turns from “Requested to Join” to “Unjoin”. Pressing “Unjoin” forwards the user to the Unjoin Club Form. Afterwards, the button turns into “Requested to Unjoin”. · This means there are 2 types of requests in the Membership Requests subpage of Clubs. · Pressing Back button sends the user back to the previous page. This applies to all back buttons in this mobile application.

##### 1.1.4.1.1.1 Student: Club Membership Request Form

Figure 17 · Pressing the Join button of an event post will forward to user to this Club Membership Request Form page. The information needed to register are name, student ID, student email, Programme and lastly contact number. The user can also cancel the registration by pressing back button, if not they can press the Submit button to participate the event.

#### 1.1.4.1.1.2 Student: Unjoin Club Form

Figure 18 · When a member wants to unjoin the club, they can press the Unjoin button and will be forwarded to this Unjoin Club Form page. · They are required to write the reason to state why they choose to leave the group. · After that, the member will wait for the club for approval by checking the Membership Requests subpage in Clubs feature.

#### ⑤ 1.1.4.1.2 Student: Club's Members

Figure 19 Figure 20 · This is the Members subpage. · This shows the list of committees and members · Contacts are also displayed for the committee team in case there are people who want to reach out to them.

· To join the committee team, the student must be a member first. The button "Join The Committee!" is only visible for members. Pressing this button will forward the user to the Club Committee Request Form page where information needed from the user is the exact same as the Club Membership Request Form. · After joining the team, the button will change into "Unjoin". The committee can unjoin the team by pressing that button and be forwarded to the Unjoin Committee Team Form page which is the same thing as the Unjoin Club Form. They also need to wait for the club's approval (club president's approval) by checking the Membership Requests subpage in Clubs.

#### 1.1.4.1.3 Student: Club's QNA

Figure 21 Figure 22 · This is QNA subpage. · All students can search or post any questions to ask about the club using the search bar as shown in Figure 22. Repetitive, irrelevant or inappropriate questions will be deleted by the club, otherwise the club will answer the questions.

#### 1.1.4.1.4 Student: Club's Forums

Figure 23 Figure 24 Figure 25 · This is the Forums subpage. · This is where members can share their experiences in the club or anything that is relevant to the club. This can also form a sense of community to all the members. · This subpage is only available to members and committees of the club as it is a place that contains private resources · In Figure 23, there shows list of posts posted by members or committees or the club. The list of posts shows brief information: 1) Title

#### 2) Name of poster

3) Date created · The search bar is used to help to find/filter out relevant posts using the keywords keyed in by the user. · The user can post a forum post by pressing the Plus button. The user will be forwarded to the Post in The Forum page. The user can write in the textbox and upload any files. If the user is not very comfortable to show who they are, they can set their posts as anonymous. The user can cancel the post by simply pressing Back button, otherwise press the Submit button.

#### Figure 26 Figure 27

· Pressing on one of the posts in the list in Figure 23 forwards the user into that post's page as shown in Figure 26. · Elements of a post: 1) The user's name and user profile image – to show the post belongs to which user

#### 2) Visual components (posters, videos or other) – optional for a post

#### 3) Like button – to show that the community liked the contents of the posts

4) Save – to let users save posts for later in a private tab in the mobile app (Saved Posts feature). 5) Number of likes and views – to show that other users have like a particular post. 6) Captions – the contents of the forum post

7) Date – Used to trigger a specific memory in time, to make the posts more relevant and memorable to all users. · Users can post comment by clicking on the comment bar and will be forwarded to the Post Comment page as shown in Figure 27. Same as creating the forum post, the commenters can not just write but also upload files or set comment as anonymous. · If the post and comment are posted by the users themselves, they can delete or edit by simply press and hold onto them, and they can use to delete or edit them.

#### 1.1.5 Student: Participated Events (Giving Event Feedback)

Figure 28 Figure 29 · This is the Participated Events feature, where the user rates the events that they had participated. Figure 29 shows the participated events with necessary brief details. Pressing the Rate button forwards the user to the Rate Event page in Figure 30. The user can rate 1 to 5 stars and write their feedback on the textbox. They can cancel to resubmit other time, otherwise press the Submit button.

#### 1.1.6 Student: Notifications

Figure 30 · This is the Notifications feature. Just like any apps that have notifications, it displays from newest to oldest. · The 4th notifies that the user has requested to join the club successfully. · The 3rd notifies that the user has become a club member. · The 2nd notifies joined club's posts · The 1st notifies 3 days prior that the event the user had already registered is coming.

#### ④ 1.1.7 Student: My Account

Figure 31 Figure 32 · This is the feature My Account. · There are 6 attributes for a student: 1) Profile Image

#### 2) Name

3) Student email

4) Student ID

5) Contacts

6) Programme · The user can edit some of the attributes which are contacts and programme as they may change course through time. · The user can cancel by pressing Back button, otherwise press Confirm button.

#### ⑥ 1.2.Club: Main Menu Slide

Figure 33 · This is the Main Menu Slide of Club account. · Features are: 1) Club Account

2) Notifications

3) Club Page

4) Club Community – contains uploaded posts and featured posts, QNA and Forums 5) Club Events – where the club creates a event proposal, and facility or room booking if needed

6) Analytics – where analytics on posts, and rating and feedback given by participants are

7) Calendar

1.2.1 Club: Analytics

Figure 34 Figure 35 Figure 36 · This is Analytics feature with Overall and Completed Events subpages. · Overall subpage shows an analytics graph where shows event posts with a set date range input by the user.

This is so that the club can analyse and determine the interests for participants. · Completed Events subpage in Figure 35 shows list of completed events. The user can click into one of them to view ratings and feedbacks given by all participants as shown in Figure 36. · With all the information in this Analytics feature, the club can understand students or participants better and use the information for decision making in event related matters.

#### ⑦ 1.2.2 Club: Club Community: Post

Figure 37 Figure 38 · This is Posts subpage in Club Community feature. · This is an event post, as there is number of people registered displayed below the post. · The club can press the 3-dot button to: 1) Set it to be featured 2) Edit post

3) Delete post · Pressing the plus button above will forward the user to create post as shown in Figure 38. · The club account user (club president/vice president) can set who can see the post (members only, or all students) · The user can optionally set it as an event post so that the post will have a Register button for participants to register. · Venue, datetime and agenda are optional to type in. · The user can cancel pressing Back button, otherwise press Submit button.

#### ⑦ 1.2.3 Club: Club Events

Figure 39 Figure 40 Figure 41 · This is feature Club Events as shown in Figure 39. It has two subpages, Organizing and Pending. Pending shows list of pending proposed event, waiting for the Admin to approve/disapprove. Organizing shows list of events that are approved and yet to be held. · If the user wants to add an event proposal, they can press the Plus button to do so. · The user will be forwarded to the Event Proposal Form page to input all the event details as shown in Figure 40. Next, the user presses Next button to move to next page as shown in Figure 41, that prompts the user if they need to book or request for a facility/room for the event. If they don't want to, they can choose "No, I don't need to book any" and straight away submit the proposal. If yes, they do, they need to press the "Yes, " button to fill in all the details, and the system will alert the user if not all are keyed in. · They can cancel the proposal by pressing Back button, otherwise press the Submit button.

Links of wireframes: Student Account: <https://balsamiq.cloud/sf57624/pez1o5r> Club Account (for better understanding, other wireframes of club account have been made): <https://balsamiq.cloud/sf57624/pe0va8n>

2. Usability Testing

#### ⑧ Usability Testing Questions: 1. Overall, I am satisfied with how easy it is to use this system.

2. I think that this system is well organized and simple.

3. The processes (event registration, club membership registration and others) are designed clearly.

4. The interface of this system is pleasant.

5. I feel very comfortable and confident using this system.

6. I think that I would like to use this system frequently.

7. The system is consistent.

8. The app visual design is pleasant to the eye.

9. The system has the functions and features that are important.

Usability testing questionnaire table:

2

⑧ Usability Testing Questionnaire

Strongly Agree

Strongly Disagree

12345

1Overall, I am satisfied with how easy it is to use this system. 2I think that this system is well organized and simple. 3The processes (event registration, club membership registration and others) are designed clearly. 4The interface of this system is pleasant. 5I feel very comfortable and confident using this system. 6I think that I would like to use this system frequently. 7The system is consistent. 8The app visual design is pleasant to the eye. 9The system has the functions and features that are important.

## Source Matches (34)

|  |   |
|--|---|
| ① Student paper 93%  |   |
| Student paper<br>4067CEM Software Design-APR 2022 INTI International College Penang School of Engineering and Technology 3+0 Bachelor of Science (Hons) in Computer Science, in collaboration with Coventry University, UK 3+0 Bachelor of Science (Hons) in Computing, in collaboration with Coventry University, UK Coursework cover sheet | Original source<br>INTI International College Penang School of Engineering and Technology 3+0 Bachelor of Science (Hons) in Computer Science, in collaboration with Coventry University, UK 3+0 Bachelor of Science (Hons) in Computing, in collaboration with Coventry University, UK Coursework cover sheet |
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