REQUIREMENT ANALYSIS

Group formation: Students who made a group for the semester project will be working together as a group for this assignment.
Note: The outcome of this assignment can be used as part of your project

Question: Assume you are going to develop software for a customer, as asked in your project. For this assignment you will develop the **software specification**.
You will need to meet the customer (maybe several times) to understand their requirements. From the requirement analysis you have to produce the specification of the software.

Deliverables:

- Log/enlist the meeting schedule with the customers [.5 points]

- Present the software requirements you received from the customer. You may present them as a list with necessary description. Note that this part is an outcome of several meetings you will conduct with the customer. [1.5 points]

- Briefly write the purpose of the software you are going to develop [1 point]

- Produce the specification of the software. Show how the specifications will meet all the requirements of the customer. [2 point]

Group formation:

Section	Group Number	Group Members' Names	IDs
2	3	Razan Almahdi	S20106649
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I.   Project title & concept:

Title: Effat Alumni Website.

II.   Software Purpose: Our software project is a website for Effat alumni; it will help digitise the process for storing alumni information including the year of graduation, the major, the current status. Alumna will be able to log into the website and add their achievements. The website should provide a clear display of all this information. The website should have a simple yet attractive and dynamic design for the user to interact with.

III.   Software Requirements and Specification

System Requirements:

SR 1: System should be secured against breaches

specification:

1.1 The system allows the user to log in. If the user has no account, the system offers the option of registration.

1.2 The system should reject any false login attempts.

SR 2: System should be adaptable and reliable

specification:

2.1 The system accepts new features and adjustments the alumnus may need.

2.2 The system should be available and immune to shutdowns/DoS problems.

User Requirements:

Alumni requirements:

UR 1: Alumni should be able to register

1.1 The system should allow the user to register. It will prompt the user to create an account. Then the user is asked to provide information: name, email, a password, and previous ID.

UR 2: Alumni should be able to request a clearance

2.1 The system should allow the user to request a clearance. It will prompt the user fill the clearance request form with their name, ID, year of graduation, major, capstone title, capstone supervisors.

UR 3: Editing options are available for alumni profiles.

3.1 The system displays to the alumni their profiles with the options of viewing and editing.

3.2 The system should remind the user to edit their profile, if it has been more than a year since they have edit it.

UR 4: Editing options are available for alumni clearance.

4.1 The system displays to each alumni their clearance request to edit.

4.2 The system provides the alumni the option to save their edits.

3.3 The system prompts the user to submit their clearance to admin approval once finalised.

Admin requirements:

UR 5: Student profiles should be accessible to Admin.

5.1 The system should allow the admin to view alumni profiles, and edit them.

UR 6: Admins are able to track the status of alumni clearance requests.

6.1 The system should allow the admin to view alumni clearance requests.

6.2 The system should allow the admin to comment on alumni clearance requests.

UR 7: The student's clearance must be validated by the admin.

7.1 The system provides the admin approval over alumnus requests for their clearance.

UR 8: Admin views system statistics

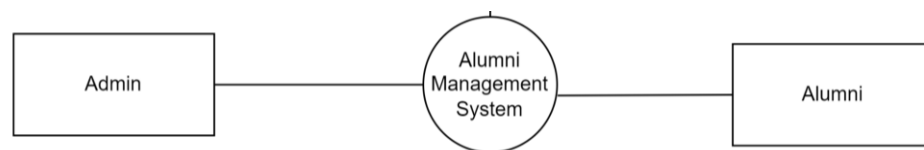   **8.1** The system provides the admin with statistics of the number of students and their majors.

RQ no.	Size	Function	Description	Input	Output	Constraints	Subprograms
1	5	Login	Unified login system for all users (admins & alumni)	ID, password	System access	N/A	N/A
2	5	Alumni registration	Users can register in the system. they are prompted to provide their information for account creation	Name, ID, email, password	Account successfully created/account creation failure. try again	ID should be 8 numbers	N/A
3	2	Edit alumni profiles	Admins & alumni can view and edit alumni profiles	Depending on the subprograms	Alumni profile edited	ID should be 8 numbers	Edit: name, ID, email, password
4	2	Alumni profile update reminder	The system reminds the alumni to update their profile if it has been more than 365 days since its last edit	Name, ID, email, password	Updated alumni profile	ID should be 8 numbers	Register: name, ID, email, password
5	1	Statics view	Admins can view statistics & percentages of the number of students & their majors	N/A	Display student statistics	N/A	Calculate: number of students, number of majors. Find: percentage of students to majors
6	4	Clearance request	The system allows alumnus to request a clearance.	Name, ID, major, capstone details	Clearance request successfully initiated, Clearance request failed.	ID should be 8 numbers	N/A
7	2	Clearance editing	The system allows alumnus to view their clearance requests and edit them, then save their edits.	Clearance ID, clearance content	Clearance request updated	N/A	Edit: clearance name, clearance content
8	1	Clearance requests comment	Admins can view alumni clearance requests & comment on them	Comments	Comment added to clearance req	N/A	N/A
9	5	Clearance requests validation	Admins can view alumni clearance requests & approve them	N/A	Clearance request approved or denied	N/A	N/A
10	3	Clearance submission	Alumnus can submit their clearance requests for admins' approval	Clearance request ID	Clearance request approved/denied	Clearance ID must be correct	N/A

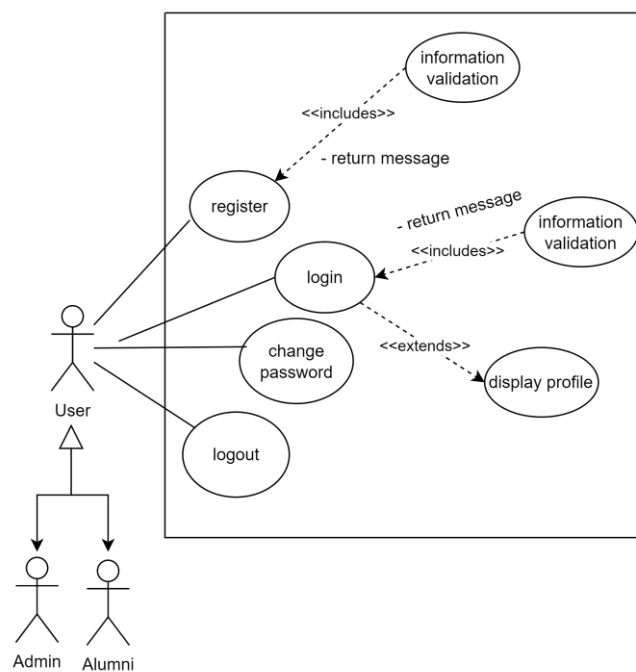Computer Science Department
Fall 22
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IV. Diagrams
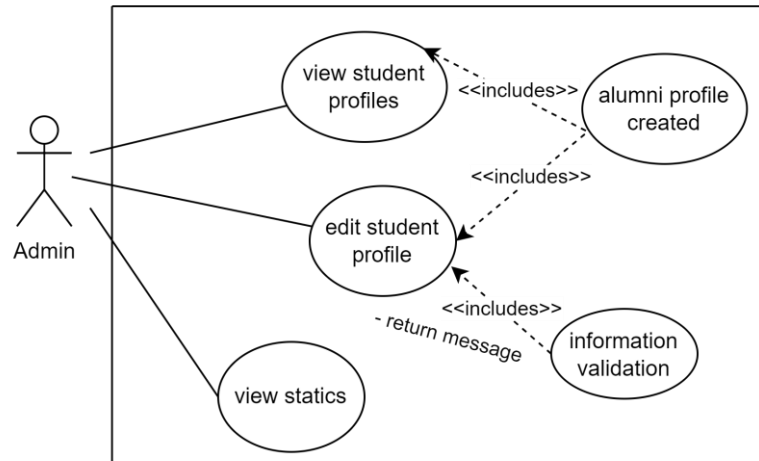
A. Context Diagram

B. Use case

1. User

Use Case UC-1:		User
Related Requirements:		RQ1, RQ2
Initiating Actor:		Any of: Alumni or Admin
Actor's Goal:		To register for the website and provide a login id and password.
Participating Actors:		N/A
Preconditions:		Website is available, Database is available, Internet
Trigger		Clicking on login or register
Postconditions:		1. Personal details are entered into the user database table 2. New user is created 3. Message is sent back to the screen stating a new user has been created 4. User profile is displayed.
The flow of Events:		
→	**1.**	Alumni/Admin clicks the "register" button.
←	**2.**	Registration form is displayed.
→	**3.**	Alumni/Admin enters required data.
↵ ←	**4.**	**a.** If the user already exists then a "User Exists" message is displayed, and the system prompts the user for a username and password. **b.** Else If information is missing/invalid display the "Insufficient Information"/"Invalid Information" message. **c.** Else Alumni/Admin profile is created and Alumni/Admin is prompted to log in.
→	**5.**	Alumni/Admin enters username and password.
↵ ←	**6.**	**a.** If password is incorrect display "Change Password?". **b.** Else display Alumni/Admin profile.
↵ ←	**7.**	**a.** If Alumni/Admin changes its password re-prompt him for the new credentials. **b.** Else display "Invalid Information" message.

2. Admin

Use Case UC-2:		Admin
Related Requirements:		RQ2, RQ5
Initiating Actor:		Admin
Actor's Goal:		view student profiles and edit them, and view general system statistics related to a number of registered students, and their majors.
Participating Actors:		N/A
Preconditions:		Website is available, Database is available, Internet, alumni profile created
Trigger		Clicking on the student profile name, or edit, or statistics
Postconditions:		1. Alumni profile is displayed. 2. Alumni profile edited. 3. Alumni profile changes saved. Website statics displayed.
Flow of Events:		
←	**1.**	A list of alumni profile names is displayed for the Admin to choose from. Only alumni who created their profiles will be displayed.
→	**2.**	Admin clicks on the alumni profile name.
←	**3.**	Alumni profile is displayed to the Admin..
→	**4.**	Admin clicks on edit.
←	**5.**	Editing option displayed to the Admin.
→	**6.**	Admin clicks on save to save the changes
↵ ←	**7.**	**a.** If the data entered is invalid display an "Invalid Information" message. **b.** Else save changes and return to the list of alumni.
→	**8.**	Admin clicks on statistics.
←	**9.**	Website statistics are displayed to the Admin.
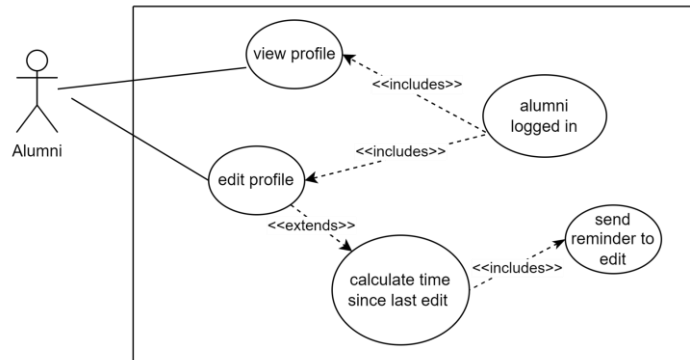
3. Alumni

Use Case UC-3:		Alumni
Related Requirements:		RQ2, RQ3
Initiating Actor:		Alumni
Actor's Goal:		view profiles and edit it.
Participating Actors:		N/A
Preconditions:		1. Website is available, Database is available, Internet, alumni are logged in. 2. More than 12 months have passed since the last edit to the profile
Trigger		Clicking on the profile name, or edit.
Postconditions:		1. Alumni profile is displayed. 2. Alumni profile edited. 3. Alumni profile changes saved.
Flow of Events:		
→	**1.**	Alumni logs in.
→	**2.**	Admin clicks on the profile name.
←	**3.**	Alumni profile is displayed.
→	**4.**	Alumni clicks on edit.
←	**5.**	Editing option displayed to the Alumni.
→	**6.**	Alumni clicks on save to save the changes
↵ ←	**7.**	**a.** If the data entered is invalid display an "Invalid Information" message. **b.** Else save changes.
←	**8.**	Calculate the time since the last profile edit was done if time > 12 send a reminder to edit the profile to alumni.
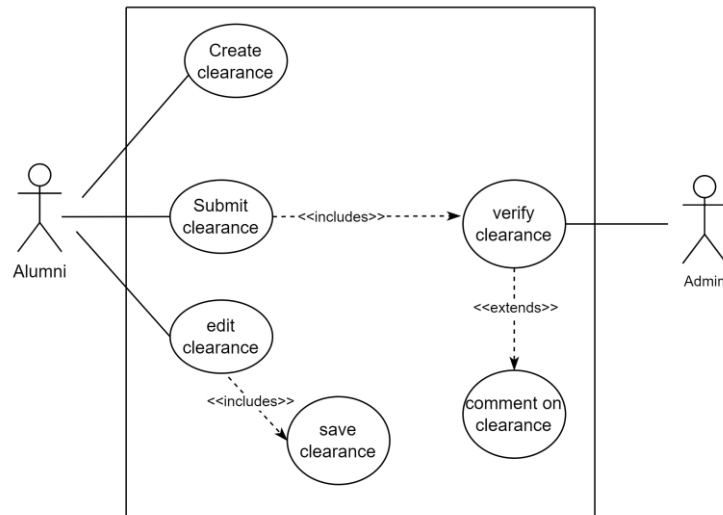
4. Clearance

Use Case UC-4:		Clearance
Related Requirements:		RQ4, RQ6, RQ7, RQ8, RQ9, RQ10
Initiating Actor:		Alumni
Actor's Goal:		Create and edit clearance and then submit it.
Participating Actors:		Admin
Preconditions:		1. Website is available, Database is available, Internet, alumni is logged in.
Trigger		Clicking on new clearance, edit, or submit.
Postconditions:		1. Alumni clearance is created. 2. Alumni clearance is edited. 3. Alumni clearance changes saved. 4. Alumni clearance submitted. 5. Alumni clearance verified by Admin.
The flow of Events:		
→	**1.**	Alumni logs in.
→	**2.**	Admin clicks on "request clearance".
←	**3.**	Clearance request form is displayed
→	**4.**	Alumni clicks on edit.
←	**5.**	Editing option for clearance is displayed to the Alumni.
→	**6.**	Alumni clicks on save to save the changes
↩ ←	**7.**	**a.** If the data entered is invalid display an "Invalid Information" message. **b.** Else save changes.
→	**8.**	Alumni clicks on submit, and clearance is submitted to Admin for verification.
→	**9.**	Admin views clearance and "comments" on it and requests editing if needed.
↩	**10.**	If Admin requests clearance edit, a notification is sent to Alumni to edit clearance.
→	**11.**	Admin clicks on "verify" to verify alumni clearance request.

C. Class Diagram

User

+Username : string
+Password : string
+Name :string
+EffarID :string
+Email : string
+DoB : Date
+Phone :string

+ signup() : bool
+ login() : bool
+logout() :bool
+changePassword() : string

Alumni

+Address : string
+Linkdin : string
+College : string
+graduationYear : Date
+Major : string
+GraduateDegree : string

+viewProfile() : bool
+createClearance(): bool
+viewClearance() : bool
+viewClearanceStatus() : bool
+editClearance() : bool
+submitClearance() : bool
+editProfile(): int

Admin

+Department : string

+viewStudentProfile() : bool
+editStudentProfile() : bool
+verifyClearnce() : bool
+viewStats() : bool
+commentOnClearance() : string

studentProfileAchivement

+workExperiance : string
+awards : string
+certifications : string
+communityService : string
+publications : string

Clearance

+clearnceID : string
+alumniNationalID : string
+thesisTitle : string
+supervisor : string
+countryOfResidance : string
+personalEmail : string
+receiveDocumentFormat : string
+clearanceInformationVerification : bool
+submittedResearch : bool
+status : string
+postgrad : bool
+communityService :bool
+publishingResearch : bool

+saveData() : bool

D. Sequence Diagram

Clearance
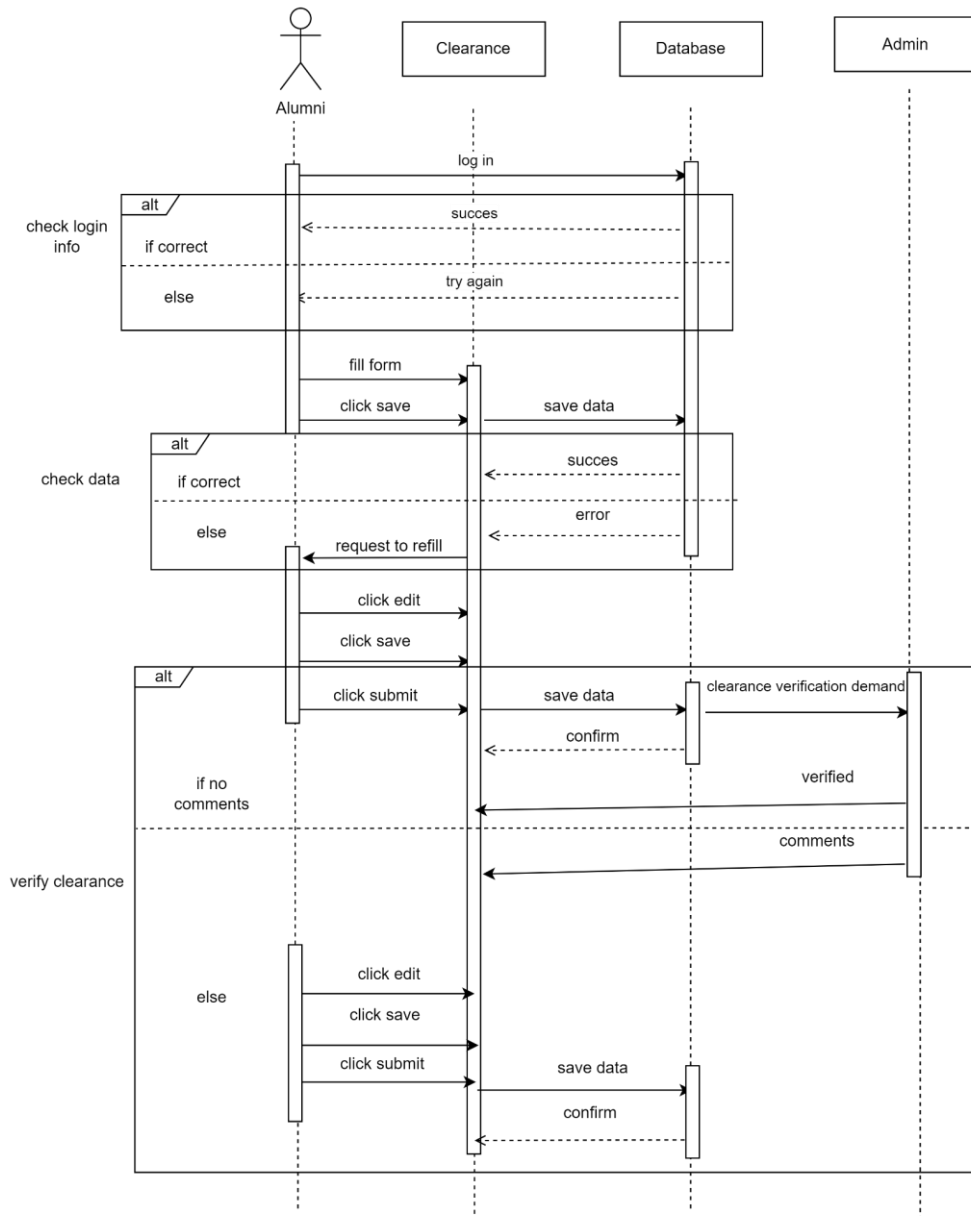
E. State Diagram

1. Profile
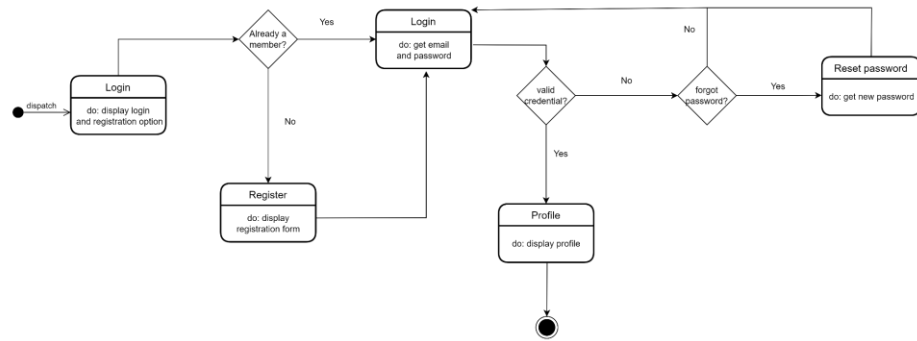
2. Clearance
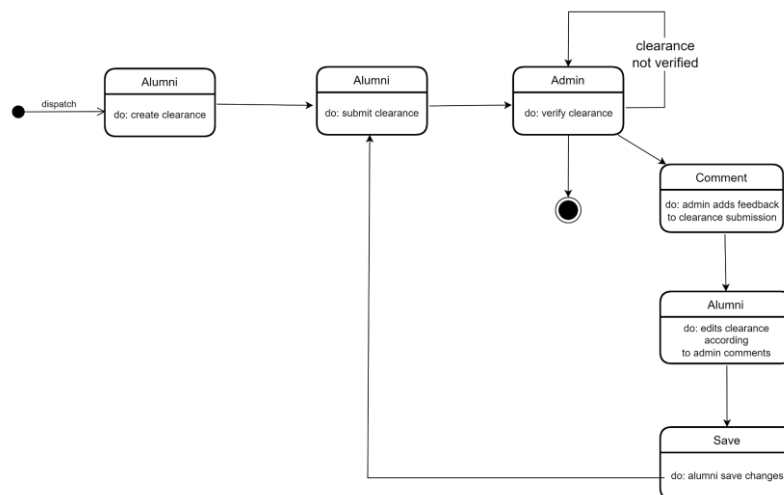
3. Edit profile
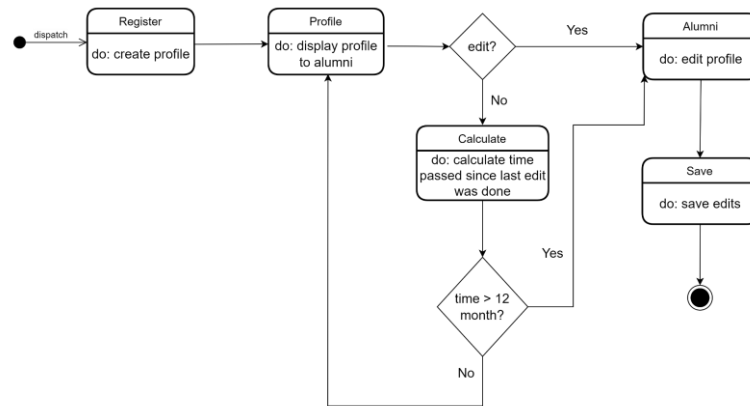
V. Traceability Matrix

RQ	PW	UC1	UC2	UC3	UC4	
1	5	X				
2	5	X	X	X		
3	2			X		
4	2				X	
5	1		X			
6	4				X	
7	2				X	
8	1				X	
9	5				X	
10	3				X	
Total PW		**10**	**6**	**7**	**15**	**38**

VI. Testing

1. Interface Testing

Ref	Activity	Status	Expected result	Actual result	Comment
			Home page		
1	All navigation bar links tested	pass	all links open		
2	All images on Home page displayed.	fail	all images displayed	not all images are displayed	pictures need to be stored in the database
3	Check login button opens the log in form	pass	login form open		
4	Check Sign up button opens the registration form	pass	registration page open		
5	Check Contact us form	pass	user able to fill the form		
			Alumni list page		
1	All navigation bar links tested	pass	all links open		
2	All images on Alumni list page displayed.	fail	all images displayed	not all images are displayed	pictures need to be stored in the database
3	Check the more button opens the profile for each alumna/alumnus	pass	profile page open		
4	Check Contact us form	pass	user able to fill the form		
			About us		
1	All navigation bar links tested	pass	all links open		
2	All images on About us displayed.	fail	all images displayed	not all images are displayed	pictures need to be stored in the database
3	Check Contact us form	pass	user able to fill the form		
			Registration page		
1	All navigation bar links tested	pass	all links open		
2	Check Contact us form	pass	user able to fill the form		
3	test the input data are valid	fail	check if the input is valid or not	accepting data without checking	javascript code problems need to be resolved
4	Registration stores information in the back-end database	pass	data stored in the database		
			Log in form		
1	All navigation bar links tested	pass	all links open		
2	Check Contact us form	pass	user able to fill the form		
3	test the input data are valid	fail	check if the input is valid or not	accepting data without checking	javascript code problems need to be resolved
4	test the forget password button	fail	user able to change password	not implemented	
5	test the sign up option	pass	open registration page		
6	the log in form opens the profile page	pass	open profile page if the login data are correct		
			Profile page		
1	All navigation bar links tested	pass	all links open		
2	Check Contact us form	pass	user able to fill the form		
3	test the Update profile button	pass	user able to edit profile		
			Clearance form		
1	All navigation bar links tested	pass	all links open		
2	Check Contact us form	pass	user able to fill the form		
3	test the input data are valid	fail	check if the input is valid or not	accepting data without checking	javascript code problems need to be resolved
4	Clearance stores information in the back-end database	pass	data stored in the database		
5	test edit clearance option	pass	user able to edit clearance data		
6	check the verification option for the admin	pass	admin able to confirm the submitted clearance		

Computer Science Department
Fall 22
Software Engineering

2. Detailed Test Cases

a. Use Case 1

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
UC-1	Register	Enter valid information	Website is available, Database is available, Internet	1. Enter User ID	<Valid User ID>	Successful registration	1. Personal details are entered into the user database table 2. New user is created 3. Message is sent back to the screen stating a new user has been created 4. New user is created	Successful registration	Pass
				2. Enter user name	<Valid user name>				
				3. Enter Password	<Valid Password>				
UC-1	Register	Enter preexisting information	Website is available, Database is available, Internet	1. Enter User ID	<Valid User ID>	A message "User exists" is shown	1. Personal details are entered into the user database table 2. New user is created 3. Message is sent back to the screen stating a new user has been created	A message "User exists" is shown	Pass
				2. Enter user name	<Valid user name>				
				3. Enter Password	<Valid Password>				
UC-1	Register	Enter insuffecient/wrong information	Website is available, Database is available, Internet	1. Enter User ID	<Invalid/missing User Name>	A message "Insufficient Information" is shown	1. Personal details are entered into the user database table 2. New user is created 3. Message is sent back to the screen stating a new user has been created	A message "Insufficient Information" is not shown	Fail
				2. Enter user name	<Invalid/missing user name>				
				3. Enter Password	<Invalid/missing Password>				
UC-1	Login	Enter valid User Name and valid Password	Website is available, Database is available, Internet	1. Enter User ID	<Valid User Name>	Successful login	1. Personal details are entered into the user database table 2. Message displayed on the screen of success/failure of login 3. Message is sent back to the screen stating a new user has been created	Successful login	Pass
				2. Enter Password	<Valid Password>				
				3. Click "Login" button	<n/a>				

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
UC-1	Login	Enter valid User Name and invalid Password	Website is available, Database is available, Internet	1. Enter User ID	<Valid User Name>	A message "Incorrect password" is shown	1. Personal details are entered into a user database table 2. Message displayed on the screen of success/failure of login 3. User profile displayed/not displayed	A message "Incorrect password" is shown	Pass
				2. Enter Password	<Invalid Password>				
				3. Click "Login" button	<n/a>				
UC-1	Login	Enter invalid User Name and valid Password	Website is available, Database is available, Internet	1. Enter User ID	<Invalid User Name>	A message "Incorrect username" is shown	1. Personal details are entered into a user database table 2. Message displayed on the screen of success/failure of login 3. User profile displayed/not displayed	A message "Incorrect username" is not shown	Fail
				2. Enter Password	<Valid Password>				
				3. Click "Login" button	<n/a>				
UC-1	Login	Enter invalid User Name and invalid Password	Website is available, Database is available, Internet	1. Enter User ID	<Invalid User Name>	A message "The login information you entered is incorrect" is shown	1. Personal details are entered into the user database table 2. Message displayed on the screen of success/failure of login 3. Message is sent back to the screen stating a new user has been created	A message "The login information you entered is incorrect" is not shown	Fail
				2. Enter Password	<Invalid Password>				
				3. Click "Login" button	<n/a>				

b. Use case 2

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
UC-2	view student profiles and edit them (admin)	Find a student profile with info, enter invalid edit info	Website is available, Database is available, Internet, alumni profile created	1. Click profile name	<profile details exists>	changes saved. Return to alumni list.	1. Alumni profile is displayed. 2. Alumni profile edited. 3. Alumni profile changes saved.	A message "Changes saved" is shown	Pass
				2. click edit info	<valid edits>				
				3. click save button	<n/a>				
UC-2	view student statistics	enter student statistics page	Website is available, Database is available, Internet, alumni profile created	click on statistics title	<n/a>	Display statistics information to admin	1. Alumni profile is displayed. 2. Alumni profile edited. 3. Website statics displayed.	Not Implemented	Pass

c. Use case 3

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
UC-3	view profiles and edit it (alumni)	access profile, enter valid edit info	1. Website is available, Database is available, Internet, alumni are logged in. 2. More than 12 months have passed since the last edit to the profile	1. click on profile	\<profile details exists\>	changes saved	1. Alumni profile is displayed	changes saved	Pass
				2. click edit info	\<valid edits\>		2. Alumni profile edited		
				3. click "save" button	\<n/a\>		3. Alumni profile changes saved.		
UC-3	view profiles and edit it (alumni)	access profile, enter invalid edit info	1. Website is available, Database is available, Internet, alumni are logged in. 2. More than 12 months have passed since the last edit to the profile	1. click on profile	\<profile details exists\>	changes not saved	1. Alumni profile is displayed	changes saved	Fail
				2. click edit info	\<invalid edits\>		2. Alumni profile edited		
				3. click "save" button	\<n/a\>		3. Alumni profile changes saved.		

d. Use case 4

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/FAIL)
UC-4	Create and edit clearance and then submit it.	access clearance request form, enter valid edit information	Website is available, Database is available, Internet, alumni is logged in	1. click on "request clearance"	\<n/a\>	changes saved	1. Alumni clearance is created.	changes saved	Pass
				2. clearance form displayed	\<n/a\>		2. Alumni clearance is edited.		
				3. enter editing info	\<valid edits\>		3. Alumni clearance changes saved.		
				4. click "save" button	\<n/a\>		4. Alumni clearance submitted.		
							5. Alumni clearance verified by Admin.		
UC-4	Create and edit clearance and then submit it.	access clearance request form, enter invalid edit information	Website is available, Database is available, Internet, alumni is logged in	1. click on "request clearance"	\<n/a\>	changes not saved	1. Alumni clearance is created.	changes saved	Fail
				2. clearance form displayed	\<n/a\>		2. Alumni clearance is edited.		
				3. enter editing info	\<invalid edits\>		3. Alumni clearance changes saved.		
				4. click "save" button	\<n/a\>		4. Alumni clearance submitted.		
							5. Alumni clearance verified by Admin.		