



SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE AND TECHNOLOGY

Final Year Project Report

ONLINE ERFA

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24th July'2022

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Submitted in the partial fulfillment of the requirements for the degree of
bachelor of Science in Computer Science in the
faculty of Computing and Engineering Sciences

Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology (SZABIST)
Karachi Campus

PLAGRISM FREE CERTIFICATE

This is to certify that Syed Mustafa Imam (1812134) S/o Syed Aalim Imam and Hirdesh Kumar (1812114) S/o Devraj had done their FYP Project "Online ERFA" at the Computer Science Department of SZABIST, Karachi. This final FYP document is checked by their FYP supervisor.

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Declaration of Authorship

We, Syed Mustafa Imam (1812134) and Hirdesh Kumar (1812114), declare that this report “Online ERFA” and the work presented is our own. We confirm that: This is solely for the purpose of the completion of our bachelor’s degree at Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology.

This report has not been submitted to any university before this and where use of external text exists, that has been clearly stated. The source of references has been given where applicable. With the exception of such quoted texts, this report contains text from our own work. Where the report is based on work done by us jointly with others, we have clearly stated who has contributed to what area of the report.

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Signed:_____

Hirdesh Kumar (1812114)

Signed:_____

Date: 24th July'2022

Project Description

The procedure of the entire scholarship process is still following the traditional file system. This can be challenging for both the ERFA (External Relationship & Financial Assistance) department and students as both encounter complex and tedious tasks.

In this project an automated PWA (Progressive Web Application) will be developed for SZABIST's ERFA Department in order to cater for the needs of the whole scholarship's process from announcements to the allotments of scholarships in a centralized manner. Hence, it would gradually save efforts and resources consumed during the student's scholarship file submission, interview, and grant allotment.

Acknowledgement

In the name of ALLAH, the most beneficent and merciful, who gave us the knowledge and courage to work on this project.

We are grateful for the outcome and success of this project over last year and are grateful towards the people who have provided us with the guidance and assistance to be able to complete this project in such a difficult time.

We would like to thank our supervisor “Asim Riaz” of the Computer Science faculty at Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology. He was an integral part in the project as he was always there when we would get stuck at a point in our project. He consistently guided us, motivated us and cooperated with us throughout the duration of this project.

We would like to thank the teachers at Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology, who guided us and taught us throughout our time in the university. We would also like to express our gratitude to our parents and family members who helped and encouraged us during this time. Furthermore, we would like to thank the staff at SZABIST for allowing us to use their labs and services to be able to complete the project.

Lastly, we would like to extend our gratitude to everyone at Shaheed Zulfiqar Ali Bhutto Institute of Science and Technology for creating an environment for students to thrive in. The quality of education, the cooperative faculty members and the motivation provided by them.

Table of Content

1. Project Proposal	1
1.1. Introduction	5
1.2. Objective	5
1.3. Problem Description	5
1.4. Methodology	6
1.5. Project Scope	7
1.6. Feasibility Study	7
1.7. Solution Application Areas	7
1.8. Tools/Technology	7
1.9. The Expertise of the Team Members	7
1.10. Milestones	8
FYP-1:	10
FYP-2:	11
1.11. Project Schedule	12
1.12. Work breakdown (Incremental Model).	13
2. Software Requirements Specification	14
2.1. Introduction	16
2.1.1. Purpose	16
2.1.2. Document Conventions	16
2.1.3. Intended Audience and Reading Suggestions	16
2.1.4. Product Scope	17
2.1.5. References	17
2.2. Overall Description	17
2.2.1. Product Perspective	17
2.2.1.1. System Context Diagram	18
2.2.2. Product Functions	19
2.2.2.1. Component Diagram	19
2.2.2.2. ERFA Department (Admin) Dashboard Functions	20
2.2.2.3. ERFA Department (Officer) Dashboard Functions	20
2.2.2.4. SZABIST's Student Portal Functions	20
2.2.2.5. Panellist Portal Functions	20
2.2.3. User Classes and Characteristics	21

2.2.4. Operating Environment	21
2.2.5. Design and Implementation Constraints	22
2.2.6. User Documentation	22
2.2.7. Assumptions and Dependencies	22
2.3. External Interface Requirements	22
2.3.1. User Interfaces	22
2.3.2. Hardware Interfaces	22
2.3.2.1. Server Interface	22
2.3.3. Software Interfaces	23
2.3.4. Communications Interfaces	23
2.4. System Features	24
2.4.1. ERFA PORTAL	24
2.4.1.1. Login	25
2.4.1.2. Add ERFA Officer	26
2.4.1.3. Update ERFA Officer	27
2.4.1.4. Delete ERFA Officer	28
2.4.1.5. Final Shortlisting Students for Interview	29
2.4.1.6. Final Scholarship List	30
2.4.1.7. Add Scholarship	31
2.4.1.8. Update Scholarship	32
2.4.1.9. Delete Scholarship	33
2.4.1.10. Document Verification and Shortlisting	34
2.4.1.11. Interview Scheduling	35
2.4.1.12. Change Credentials	36
2.4.2. PANELLIST PORTAL	37
2.4.2.1. Panellist Login	38
2.4.2.2. Retrieve Student Record	39
2.4.2.3. Post Interview Remarks	40
2.4.3. STUDENT PORTAL	41
2.4.3.1. Login	42
2.4.3.2. Sign Up	43
2.4.3.3. Apply for Scholarship	44
2.4.3.4. View for Scholarship	45
2.4.3.5. Status of Scholarship	46
2.5. Other Nonfunctional Requirements	47
2.5.1. Performance Requirements	47
2.5.2. Safety Requirements	47
2.5.3. Security Requirements	47
2.5.4. Software Quality Attributes	47
2.5.4.1. Robustness	47
2.5.4.2. Availability	47
2.5.4.3. Interoperability	47
2.5.4.4. Usability	48

2.5.4.5. Reusability	48
2.5.5 Business Rules	48
2.6. Other Requirements	48
2.6.1. Database Requirements	48
2.6.2. Software Reuse	48
Appendix B: Analysis Model	50
System Diagram (DFD Level 0)	50
Data flow diagram (DFD Level 1)	50
Class Diagram	52
Object Diagram	53
State Chart Diagram	54
Flow chart (Student Process)	55
Flow chart (ERFA Department Process)	56
Use Case Diagram	57
Component Diagram	58
Deployment Diagram	59
System Block Diagram	60
Domain Model	61
Activity Diagrams	62
Add Scholarship	62
Delete Scholarship	63
Update Scholarship	64
Document Verification and Shortlisting	65
Interview Scheduling	66
Add ERFA Officer	67
Update ERFA Officer	68
Delete ERFA Officer	69
Final Shortlisting Students for Interview & Final Scholarship List	70
Change Credentials	71
Panellist login	72
Retrieve Student Record	72
Post Interview Remarks	73
View scholarship and Apply for Scholarship	74
Status of Scholarship	75
Sequence Diagrams	76
Login (ERFA USER)	76
Add ERFA Officer	76
Update ERFA Officer	77
Delete ERFA Officer	77
Final Shortlist for Interview	78
Final Scholarship List	78
Add Scholarship	79
Update Scholarship	79

Delete Scholarship	80
Online Document Verification and Shortlisting	80
Interview Scheduling	81
Change Credentials	81
Login (Panelist)	82
Retrieve Student Record	82
Post Interview Remarks	82
Login (Student)	83
Sign Up (Student)	83
Apply for Scholarship	84
View Scholarship	84
Status of the Scholarship	85
Communication Diagrams	86
Login (ERFA USER)	86
Add ERFA Officer	86
Update ERFA Officer	87
Delete ERFA Officer	87
Final Shortlist for Interview	88
Final Scholarship List	88
Add Scholarship	89
Update Scholarship	89
Delete Scholarship	90
Online Document Verification and Shortlisting	90
Interview Scheduling	91
Change Credentials	91
Login (Panelist)	92
Retrieve Student Record	92
Post Interview Remarks	93
Login (Student)	93
Sign Up	93
Apply for Scholarship	94
View Scholarship	95
Status of the Scholarship	95
3. Software Design Specification	96
3.1. Introduction	98
3.1.1. Purpose	98
3.1.2. Scope of the development project	98
3.1.3. Definitions, acronyms, and abbreviations	98
3.1.4. References	99
3.1.5. Overview of document	99
3.2. System architecture description	99
3.2.1. Section Overview	99
3.2.2. General Constraints	100

3.2.3. Data Design	101
3.2.3.1. Database documents	102
3.2.3.1.1. ERFA Portal Users schema	102
3.2.3.1.2. Scholarship post details schema	102
3.2.3.1.3. Student details schema	103
3.2.3.1.4. Scholarship Form schema	103
3.2.3.1.5. Interview schema	104
3.2.3.1.6. Evaluation Scholarship Application Schema	104
3.2.4. Program Structure	105
3.2.4.1. ERFA Department (Admin) Dashboard Functions	105
3.2.4.2. ERFA Department (Officer) Dashboard Functions	105
3.4.4.3. SZABIST's Student Portal Functions	105
3.4.4.4. Panellist Portal Functions	106
3.5. Alternatives Considered	106
3.3. Detailed description of components	107
3.3.1. Section Overview	107
3.3.1.1. ERFA Users	107
3.3.1.2. Scholarship Post	109
3.3.1.3. Applicant	111
3.3.1.4. Scholarship Form	113
3.3.1.5. Interview	116
3.4. User Interface Design	118
3.4.1. Section Overview	118
3.4.2. Interface Design Rules	118
3.4.3. GUI Components	118
3.4.4. Detailed Description	120
3.4.4.1. Admin / Officers Portal	120
3.4.4.1.1. Login Page	120
3.4.4.1.2. Login to the ERFA Dashboard (admin)	121
3.4.4.1.3. Login to the ERFA Dashboard (Officer)	121
3.4.4.1.4. Add ERFA Officer (Admin)	122
3.4.4.1.5. View officers (Admin)	123
3.4.4.1.6. Update officer (Admin)	123
3.4.4.1.7. Confirmation for update (Admin)	124
3.4.4.1.8. Delete officer (Admin)	124
3.4.4.1.9. Scholarship posting (Admin / Officers)	125
3.4.4.1.10. List all scholarships (Admin / Officers)	126
3.4.4.1.11. Delete scholarship (Admin / Officers)	126
3.4.4.1.12. Edit specific scholarship (Admin / Officers)	127
3.4.4.1.13. View selected scholarships (Admin / Officers)	128
3.4.4.1.14. All Applications Page(Admin / Officers)	129
3.4.4.1.15. Scholarship form review by user (Admin / Officers)	130
3.4.4.1.16. Interview Scheduling (Admin / Officers)	130

3.4.4.1.17. All Interview Schedule Page (Admin / Officers)	131
3.4.4.1.18. Re-schedule Interview Page (Admin / Officers)	131
3.4.4.1.19. Send Email Page (Admin / Officers)	132
3.4.4.1.20. Final evaluation list (Admin / Officers)	133
3.4.4.1.21. Final evaluation list (Admin / Officers)	134
3.4.4.2. Student's Portal	134
3.4.4.2.1. Login (Student)	135
3.4.4.2.2. New student registration (Student)	136
3.4.4.2.3. Forget Password (Student)	137
3.4.4.2.4. Reset Password Email (Student)	138
3.4.4.2.5. Student's Portal (Student)	139
3.4.4.2.6. List all scholarships (Student)	140
3.4.4.2.7. List all scholarships (Student)	141
3.4.4.2.8. Viewing a specific scholarship (Student)	142
3.4.4.2.9. Viewing a specific scholarship (Student)	143
3.4.4.2.10. List all my application (Student)	143
3.4.4.2.11. Scholarship application submission (Student)	144
3.4.4.3. Panellist's Portal	144
3.4.4.3.1. Login (Panellist)	145
3.4.4.3.2. Student search (Panellist)	146
3.4.4.3.3. Student interview evaluation (Panellist)	146
3.5. Reuse and relationships to other products	147
3.5.1. Backend Server	147
3.5.2. Frontend Server	147
3.6. Design decisions and tradeoffs	148
3.7. Pseudocode for components	148
3.7.1. ERFA User	149
Add New ERFA Officer	149
Get ERFA Officer	149
Get ALL ERFA Officer	149
Update ERFA Officer	149
Delete ERFA Officer	149
3.7.2. Scholarship Post	149
Add Scholarship Post	150
Get All Scholarship Post	150
Get Scholarship Post	150
Update Scholarship Post	150
Delete Scholarship Post	150
Get Last Three Scholarship	150
3.7.3. Applicant Profile	150
Sign Up	151
Login	151
View Scholarship	151

Announcement	151
3.7.4. Scholarship Form	151
Add Scholarship Form	151
Get All Scholarship Form	151
Get Scholarship Form	152
Update Scholarship Form	152
Update Message Student	152
Update Message Officer	152
Update Status	152
Fetch Interview Student Scholarship Form	153
Sort Status	153
Sort Status and Title	153
Allocate Scholarship	153
3.7.5. Interview	153
Schedule	154
Get Interview Detail	154
Get All Interview Detail	154
Reschedule	154
3.8. Appendices	156
3.8.1. Class Diagram	156
3.8.2. Object Diagram	157
3.8.3. Statechart Diagram	157
3.8.4. Activity Diagram	158
Add Scholarship	158
Delete Scholarship	159
Update Scholarship	160
Document Verification and Shortlisting	161
Interview Scheduling	161
Add ERFA Officer	163
Update ERFA Officer	164
Delete ERFA Officer	165
Final Shortlisting Students for Interview & Final Scholarship List	166
Change Credentials	166
Panellist login	168
Retrieve Student Record	169
Post Interview Remarks	170
View scholarship and Apply for Scholarship	171
Status of Scholarship	171
3.8.5. Sequence Diagram	173
Login (ERFA USER)	173
Add ERFA Officer	173
Update ERFA Officer	174
Delete ERFA Officer	174
Final Shortlist for Interview	175

Final Scholarship List	175
Add Scholarship	176
Update Scholarship	176
Delete Scholarship	177
Online Document Verification and Shortlisting	177
Interview Scheduling	177
Change Credentials	178
Retrieve Student Record	178
Post Interview Remarks	179
Login (Student)	179
Sign Up (Student)	179
Apply for Scholarship	180
Status of the Scholarship	181
Login (Panelist)	181
3.8.6. Collaboration Diagram	182
Login (ERFA USER)	182
Add ERFA Officer	182
Update ERFA Officer	183
Delete ERFA Officer	183
Final Shortlist for Interview	184
Final Scholarship List	184
Add Scholarship	185
Update Scholarship	185
Delete Scholarship	186
Online Document Verification and Shortlisting	186
Interview Scheduling	186
Change Credentials	187
Retrieve Student Record	188
Post Interview Remarks	188
Login (Student)	189
Sign Up	189
Apply for Scholarship	190
View Scholarship	190
Login (Panelist)	191
Status of the Scholarship	191
3.8.7. Use-case Diagram	192
3.8.8. Component Diagram	193
3.8.9. Deployment Diagram	194
3.8.10. System Block Diagram	195
4. Software Testing Specification	196
4.1. Test Plan	198
4.1.1. Scope of Testing	198
4.1.2. Test Strategy	198

4.1.2.1. Unit Testing	198
4.1.2.2. Integration Testing	198
4.1.2.3. System Testing	198
4.1.2.3.1. Stress and Load Testing	199
4.1.2.3.2. Usability Testing	199
4.1.2.3.3. Security Testing	199
4.1.2.3.4. Regression Testing	200
4.1.3. Resource	200
4.1.3.1. Human	200
4.1.3.2. Hardware	200
4.1.3.2.1. Web System Testing	200
4.1.3.3. Software	200
4.2. Test Cases Design and Description	201
4.2.1. Login (Admin / Officer Portal / Panelist)	201
4.2.2. Add ERFA Officer	201
4.2.3. Update ERFA Officer	204
4.2.4. Delete ERFA Officer	205
4.2.5. Add Scholarship	205
4.2.6. Update Scholarship	206
4.2.7. Delete Scholarship	208
4.2.8. Sign Up (Student portal)	209
4.2.9. Login (Student portal)	211
4.2.10. Apply Scholarship (Student portal)	212
4.2.11. Document Verification and Shortlisting (Admin portal)	214
4.2.12. Interview Scheduling	216
4.2.13. Retrieve Student Record	217
4.2.14. Interview Marking	219
4.2.15. Application Acceptance	221
4.2.16. Scholarship Results Announcement	223
5. User Manual	224
5.1. Accessing the website	227
5.2.1. Admin / Officers Portal	227
5.2.1.1. Login	227
5.2.1.2. Login to the ERFA Dashboard (admin)	228
5.2.1.3. Login to the ERFA Dashboard (Officer)	228
5.2.1.4. Add ERFA Officer (Admin)	229
5.2.1.5. View officers (Admin)	229
5.2.1.6. Update officer (Admin)	231
5.2.1.7. Confirmation for update (Admin)	231
5.2.1.8. Delete officer (Admin)	231
5.2.1.9. Scholarship posting (Admin / Officers)	233
5.2.1.10. List all scholarships (Admin / Officers)	234
5.2.1.11. Delete scholarship (Admin / Officers)	234

5.2.1.12. Edit specific scholarship (Admin / Officers)	235
5.2.1.13. View selected scholarships (Admin / Officers)	236
5.2.1.14. All Applications Page(Admin / Officers)	237
5.2.1.15. Scholarship form review by user (Admin / Officers)	238
5.2.1.16. Interview Scheduling (Admin / Officers)	238
5.2.1.17. All Interview Schedule Page (Admin / Officers)	239
5.2.1.18. Re-schedule Interview Page (Admin / Officers)	239
5.2.1.19. Send Email Page (Admin / Officers)	240
5.2.1.20. Final evaluation list (Admin / Officers)	241
5.2.1.21. Final evaluation list (Admin / Officers)	242
5.2.2. Student's Portal	242
5.2.2.1. Login (Student)	243
5.2.2.2. New student registration (Student)	244
5.2.2.3. Forget Password (Student)	244
5.2.2.4. Reset Password Email (Student)	246
5.2.2.5. Student's Portal (Student)	247
5.2.2.6. List all scholarships (Student)	248
5.2.2.7. List all scholarships (Student)	249
5.2.2.8. Viewing a specific scholarship (Student)	250
5.2.2.9. Viewing a specific scholarship (Student)	251
5.2.2.10. List all my application (Student)	251
5.2.2.11. Scholarship application submission (Student)	252
5.2.3. Panellist's Portal	252
5.2.3.1. Login (Panellist)	253
5.2.3.2. Student search (Panellist)	253
5.2.3.3. Student interview evaluation (Panellist)	254
6. Student Log Form	255
7. Gantt Chart	259
8. Iteration Plan	261
9. Plagiarism Report	263

Project Proposal

for

Online ERFA

Version 1.0 approved

Supervisor:
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**Shaheed Zulfikar Ali Bhutto Institute of Science and
Technology**

15th June 2022

1.1. Introduction

The procedure of the entire scholarship process is still following the traditional file system. This can be challenging for both the ERFA (External Relationship & Financial Assistance) department and students as both encounter complex and tedious tasks.

1.2. Objective

To develop a fully automated PWA (Progressive Web Application) for SZABIST's ERFA Department in order to cater for the needs of the whole scholarship's process from announcements to the allotments of scholarships in a centralized manner. Hence, it would gradually save efforts and resources consumed during the student's scholarship file submission, interview, and grant allotment.

1.3. Problem Description

The following are problems faced by the staff and students during the scholarship process:

1. All students might not be aware of the scholarship available in SZABIST.
2. Students have to manually fill out a very large form, if there is a mistake on the form then they have to refill a new form.
3. The scholarship form and documents verification of each applicant is hectic for the scholarship department, as they need to verify whether the applicant has attached all the required documents or not, which takes an enormous amount of time.
4. Applicants are informed about the status of their application through a list posted on social media. Sharing such information on a social media platform is not a proper channel to communicate.
5. The data for the number of funds and scholarship grants, allocated for a particular scholarship program, is not readily present in the system. In order to manage and plan resources efficiently.
6. The scheduled interviews are long and cause students to wait up to extra four to five hours for their interview.
7. Interview panellists' evaluation sheets can be displaced and lost as there is a large volume of papers involved.

1.4. Methodology

The SDLC (Software Development Life Cycle) that the project would be following will be the Incremental Model because all the requirements are well-defined up front, and the features can be divided in order to support the rapid development process.

A Progressive Web Application would be made by using MERN Stack Framework. It will be able to provide a smooth and transparent process for scholarship allotment. UI/ UX design would be made by using the ReactJS and Material UI libraries. The server-side would be done by using NodeJS and ExpressJS, while MongoDB would act as the database for the application. Following is **how** the above-stated problems are going to be tackled in this project:

1. The students would be able to view the currently active scholarships as well apply to them based on their eligibility.
2. Students can fill out a scholarship form online, they have the option to recheck their application before submission. So, if they have made any mistake while entering their information, they can simply edit and save the form.
3. The documents will be checked and verified by the ERFA Department, if any documents are incomplete, the application will be paused by the EFRA administrator and the student will receive a notification to submit the incomplete document.
4. Each applicant will be informed about his or her application status at every moment through their student's dashboard.
5. The shortlisted interview students can apply for system-generated tokens on a first-come-first-serve basis.
6. The interview panellists would be able to post their evaluation feedback of the applicant on their dedicated panellist's view.
7. The previous record of the candidate will be archived in the database and the ERFA members can easily review it.

1.5. Project Scope

The scope of this project is to automate the entire process of scholarship for the students and the ERFA Department. Students would be able to apply, fill out the form and upload the relevant documents online. These documents could be verified by the ERFA Department. The shortlisted students would be selected by the ERFA Department. These applicants will be allotted an interview date, subsequently, they have to apply for a token which will schedule a time slot for their interview. This is necessary, in order to avoid large queues and extra waiting time for students. Interview panel members will be able to post their remarks on the candidate on the panellist portal. The status of each stage will be notified to every applicant through their personal dashboard.

1.6. Feasibility Study

i. Risks Involved:

1. Time management:
Work Breakdown structure and project schedule will be strictly followed.

ii. Resource Requirement:

1. Active Internet Connection.
2. Personal Computer.

1.7. Solution Application Areas

This application is applicable to all the institute's scholarship departments to make the scholarship awarding process hassle-free for both the administration and the students.

1.8. Tools/Technology

i. Hardware

- Laptop / Desktop
- Internet Connectivity

ii. Software

- NodeJS
- ReactJS
- ExpressJS
- MongoDB
- PWA (Progressive Web App)
- Microsoft Visual Studio Code

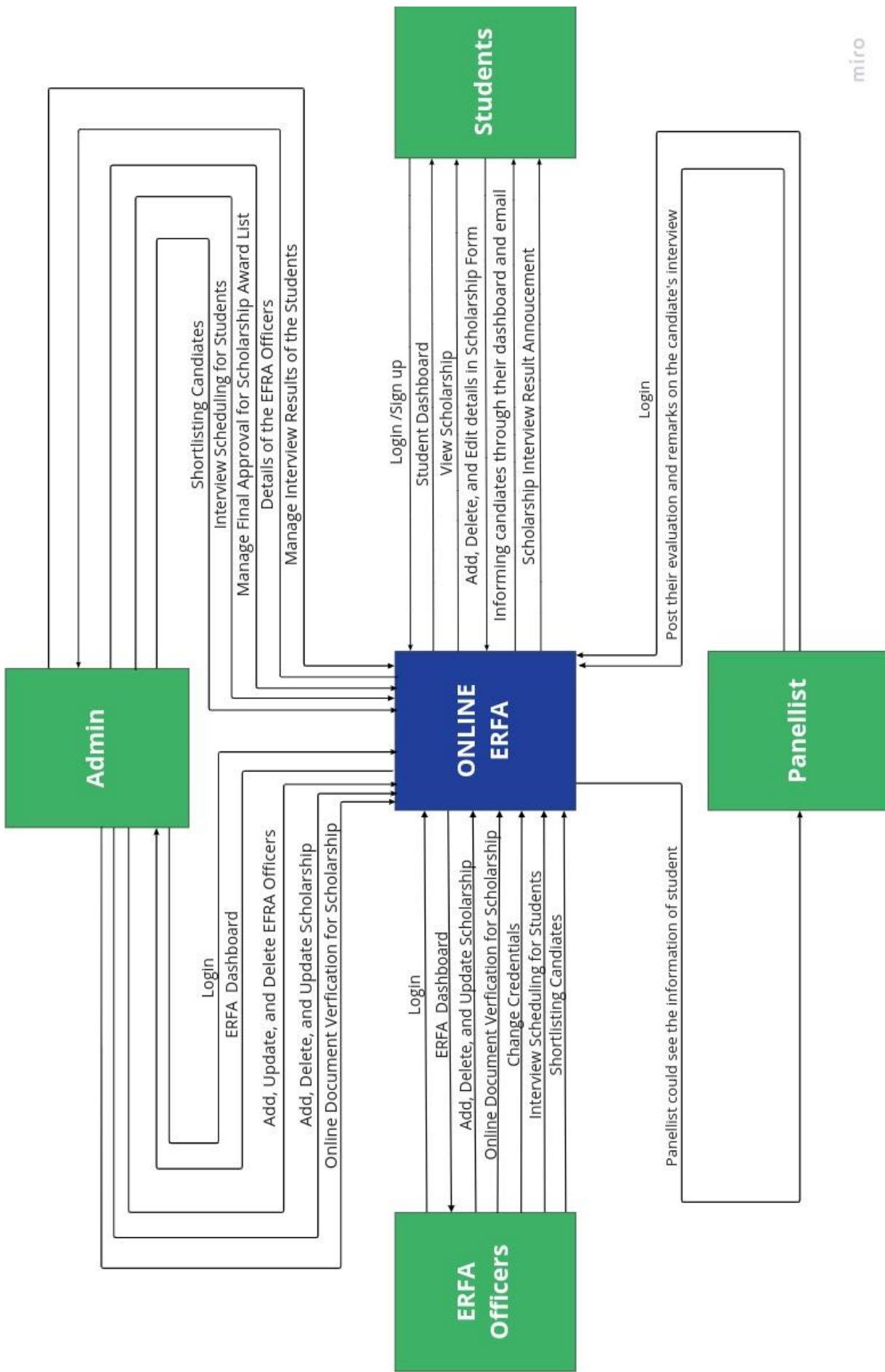
1.9. The Expertise of the Team Members

The project was selected on the basis of the expertise of both the team members. Both of the students have studied Software Engineering in Fall 2020 and Web Technologies in Spring 2021.

1.10. Milestones

1. Finalize requirements.
2. Design database structure.
3. Design Gantt Chart, Use Cases, SRS, SDS, and Test Cases.
4. Implementation of the SRS and the SDS by creating a Progressive Web Application for the scholarship department and the students.

5. Context diagram for the complete project:



6. Complete Project Milestones for:

FYP-1:

1. User Profile and Roles.

- New applicant and profile creation.
- User roles include administrators, officers and Faculty.

2. Scholarship Posting from ERFA Portal.

- ERFA administrators would be able to post new and upcoming scholarships, so the students can apply.
- Post can be re-edited and deleted by the administrator or officer.

3. Student Profile.

- Profile data would be taken through an online form.

4. Dashboard for Students.

- Each student will be having an announcement portal from where they will be updated after every stage of the process from the admin.

5. Scholarship Post on the Student Portal.

- Applicants would be able to view all scholarships created by the ERFA Department.
- Details and eligibility criteria for the particular scholarship program will be provided.

FYP-2:

1. Applying to Scholarships.

- Students will be able to apply to any scholarship at which they are eligible.

2. Online Document Verification.

- After applying for a scholarship the ERFA Department will check the submitted documents.
- If there are any incomplete documents, the administrator will be able to send a notification about submitting the necessary documents.

3. Interview Scheduling for Students.

- The interview day will be announced through the portal and emails.

4. Interview Marking.

- The applicants would be marked on the basis of the interview.
- The interviewer would be able to post their remarks on the candidate's response on the panellist evaluation page.

5. Application Acceptance.

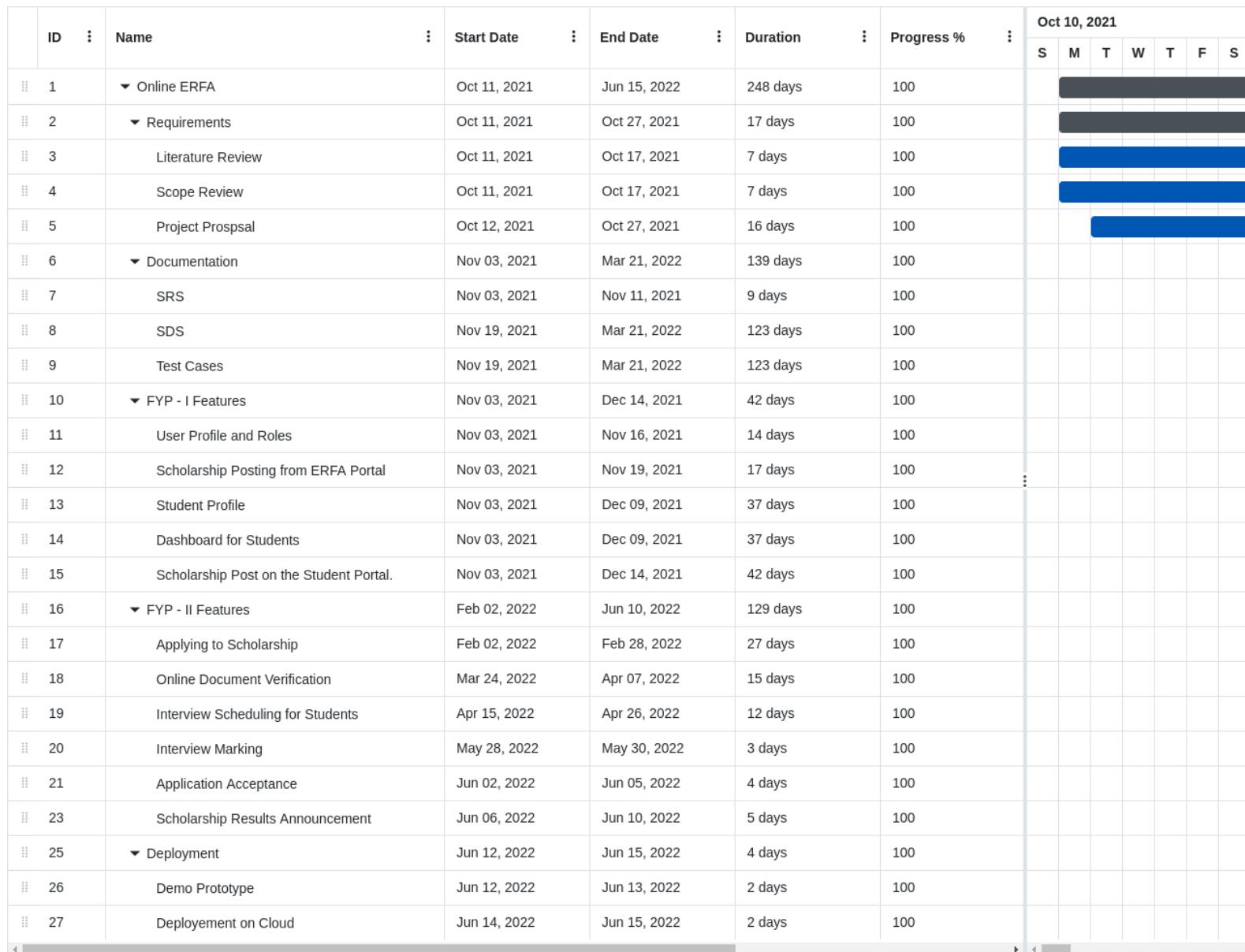
- The application would be finalized by the department.

6. Scholarship Results Announcement.

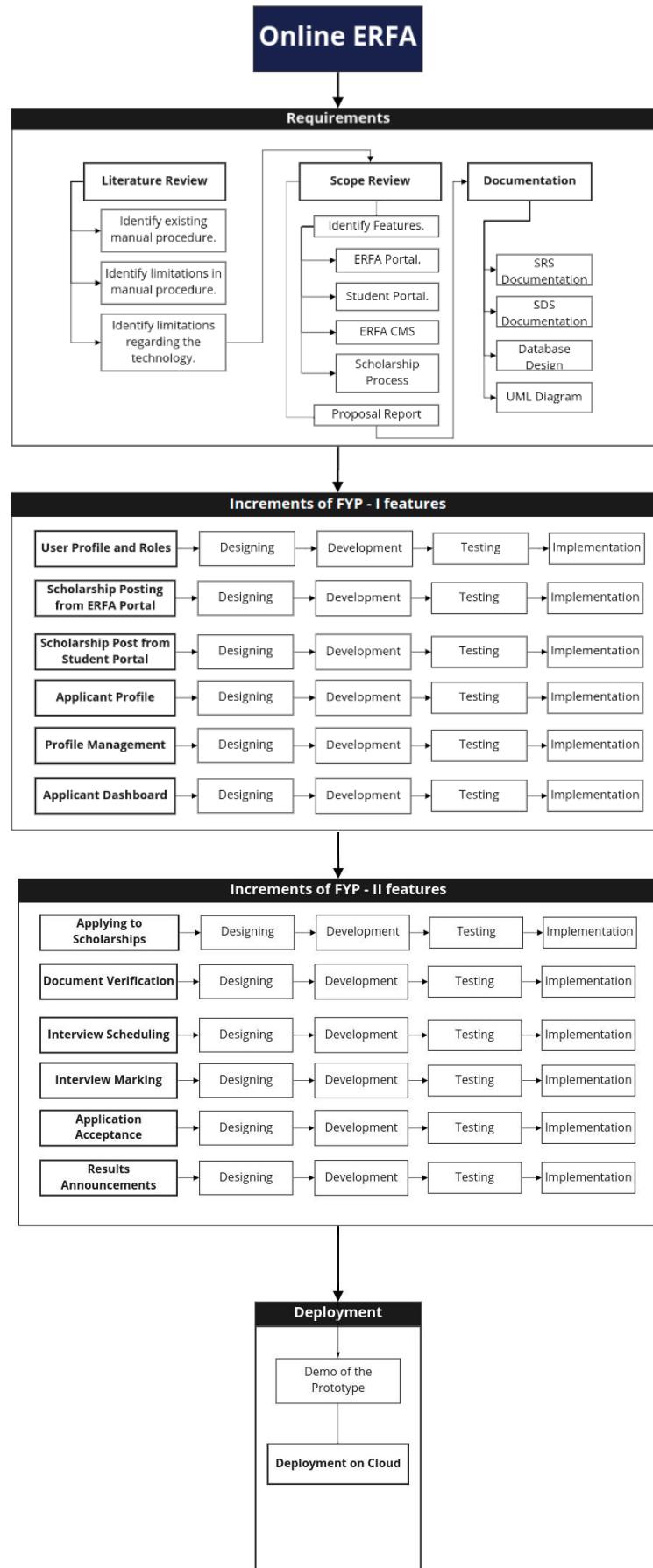
- The selected candidates will be informed about the final result of their application through their dashboard and email.

1.11. Project Schedule

Gantt chart for the project plan:



1.12. Work breakdown (Incremental Model).



Software Requirements Specification

for

Online ERFA

Version 1.3

**Supervisor:
Asim Riaz**

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Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

Revision History

Name	Date	Reason For Changes	Version
Syed Mustafa	19th Oct 2021	Initial draft	1.0
Syed Mustafa	26th Oct 2021	Erfa portal admin use cases	1.1
Hirdesh Kumar	27th Oct 2021	Revision of initial Draft	1.1.2
Syed Mustafa, Hirdesh Kumar	28th Oct 2021	Erfa portal officers use cases	1.1.3
Syed Mustafa, Hirdesh Kumar	29th Oct 2021	Panellist use cases, use case diagram	1.1.4
Syed Mustafa	2nd Nov 2021	Student Uses	1.1.5
Hirdesh Kumar	5th Nov 2021	UML Diagrams	1.1.6
Syed Mustafa	20th Nov 2021	Formating	1.1.7
Syed Mustafa, Hirdesh Kumar	2nd Feb 2022	Updating after panel suggestions.	1.2
Syed Mustafa, Hirdesh Kumar	15th June 2022	Finalizing the Documentation	1.3

2.1. Introduction

2.1.1. Purpose

The purpose of this project is to develop a fully automated PWA (Progressive Web Application) for SZABIST's ERFA Department in order to cater for the needs of the whole scholarship's process from announcements to the allotments of scholarships in a centralized manner. Hence, it would gradually save efforts and resources consumed during the student's scholarship file submission, interview, and grant allotment.

2.1.2. Document Conventions

This document is being created on the basis of the IEEE template for the System Requirement Specification Document.

- **Main Headings**

Font-style: Times New Roman

Font-size: 18

- **Sub Headings**

Font-style: Times New Roman

Font-size: 14

- **Sub-sub Headings**

Font-style: Times New Roman

Font-size: 12

- **Paragraphs**

Font-style: Arial

Font-size: 11

2.1.3. Intended Audience and Reading Suggestions

The intended audience for this project is the SZABIST's ERFA Department and students. The Head of the ERFA department would have all the admin rights. The administrator can manage ERFA officers' profiles, finalise the students for the interview stage, grant panellists the right to access their panellist portal and approve the final list of the students for the scholarship. ERFA officers would have the editorial rights to handle the scholarship portal and the student's application.

The second intended users for the project are SZABIST's students who can register themselves to the Online ERFA scholarship portal. Students will get regular updates about the scholarships currently available, they can apply to these scholarships, and they can regularly check the status of their scholarship application.

The other user would be the panellist who will be taking the interviews and evaluating the students based on their responses. They can view all the details about the students during the interview process, and they post their evaluations to the portal.

This document provides a broad view of the software application description and a technical outline for the requirements of Online ERFA. In the second section, the reader will be able to learn about the high-level description of the implementation of the system. The third section

would contain a detailed description of the specific requirements and the low-level implementation for the different components of the application which include various software interfaces, and functional requirements. The fourth section would be explaining all the features, whereas the fifth section contains the non-functional requirement of the application.

2.1.4. Product Scope

The scope of this project is to automate the entire process of scholarship for the students and the ERFA Department. Students would be able to apply, fill the form and upload the relevant documents online. These documents could be verified by the ERFA Department. The shortlisted students would be selected by the ERFA Department. These applicants will be allotted an interview slot. This is necessary, in order to avoid large queues and extra waiting time for students. Interview panel members will be able to post their remarks on the candidate on the panellist portal. Administrators will have an overview of the financial and scholarship resources available on their dashboards. The status of each stage will be notified to every applicant through their personal dashboard.

2.1.5. References

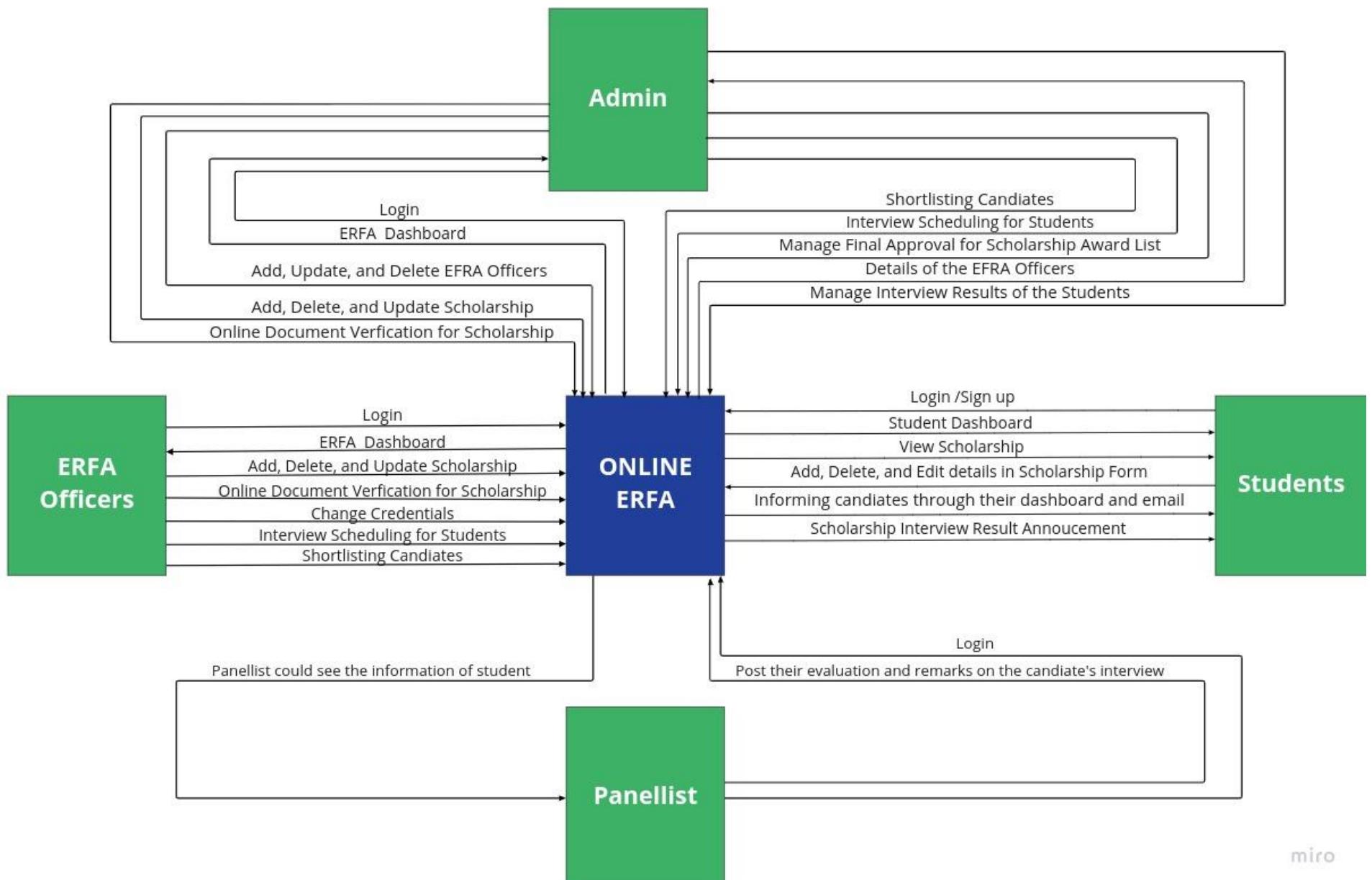
- "IEEE Guide for Developing System Requirements Specifications," in IEEE Std 1233-1996, vol., no., pp.1-30, 22 Dec. 1996, DOI: 10.1109/IEEEESTD.1996.81000.
- "Software Requirements Specification for Gephi", vol 1, version 0.92 Feb. 2017, https://gephi.org/users/gephi_srs_document.pdf

2.2. Overall Description

2.2.1. Product Perspective

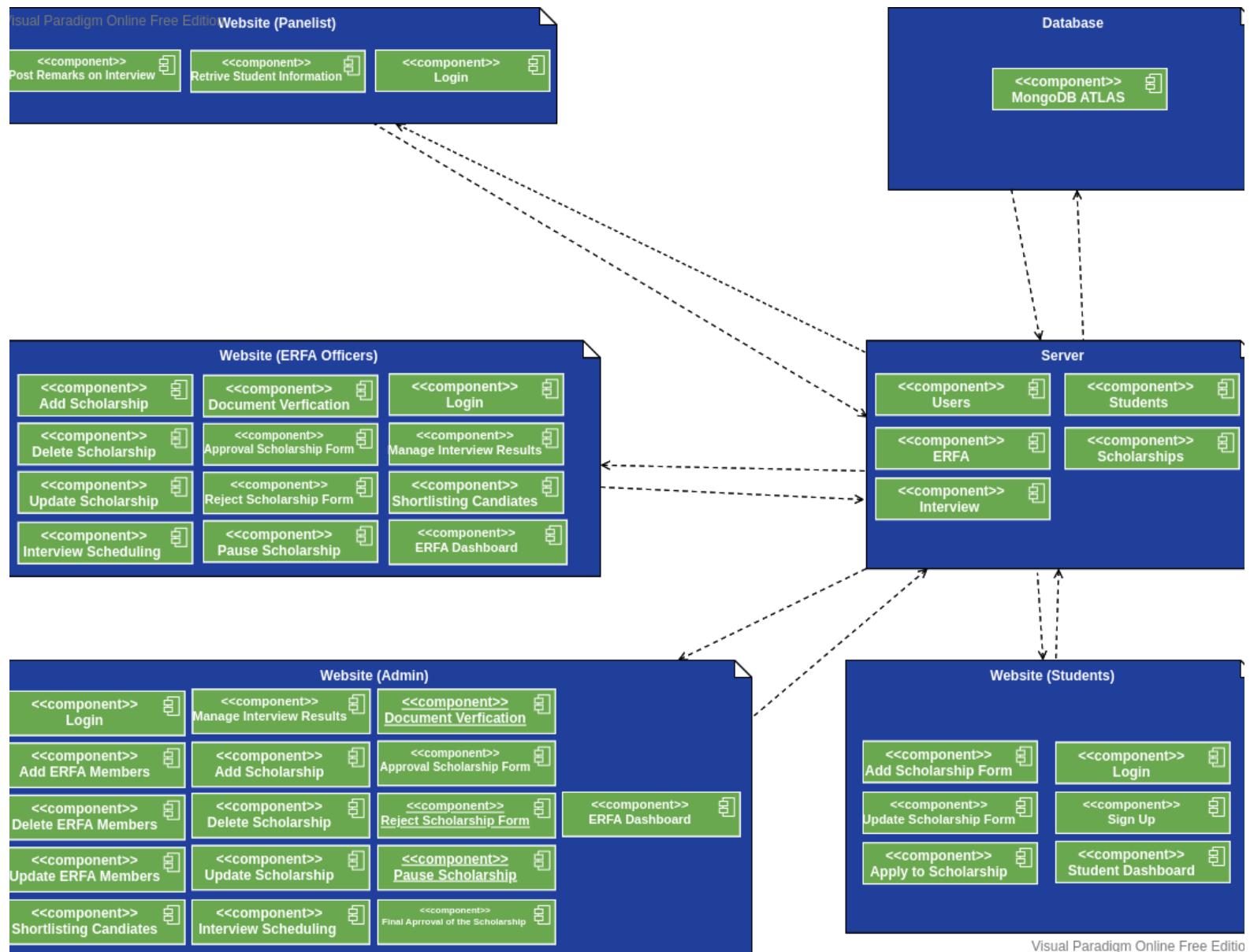
Online ERFA is a new self-contained product, which is going to cater for the needs of the SZABIST's ERFA Department, interview panellists, and students for smooth scholarship management. It will automate the whole scholarship process to save efforts and resources for all the stakeholders.

2.2.1.1. System Context Diagram



2.2.2. Product Functions

2.2.2.1. Component Diagram



The Online ERFA will be having the following features on the basis of their roles:

2.2.2.2. ERFA Department (Admin) Dashboard Functions

- Login with the admin credentials.
- Creating new users for ERFA department officers.
- Managing existing ERFA officers.
- Shortlisting the candidates.
- Online document verification.
- Interview scheduling.
- Add delete and update scholarships.
- Approval of scholarship results.
- Manage the scholarship results.

2.2.2.3. ERFA Department (Officer) Dashboard Functions

- Login to the officer's dashboard.
- Shortlisting the candidates.
- Online document verification.
- Holding/ accepting the scholarship application.
- Add, delete and update new scholarships.
- Interview scheduling.
- Manage the scholarship results.

2.2.2.4. SZABIST's Student Portal Functions

- Sign in/Sign up in the student portal.
- View all the scholarships.
- Apply for an eligible scholarship.
- Filling the scholarship form online.
- Updates about the status of the scholarship progress.
- Viewing the scholarship results.

2.2.2.5. Panellist Portal Functions

- Sign in/Sign up in the panellist portal.
- Retrieving the student's information.
- Posting their evaluation and remarks on the candidate's interview.

2.2.3. User Classes and Characteristics

The users of the Online ERFA will be:

- **SZABIST Staff**
 - ERFA department's employees
 - Finance department's employees
 - Academics department's employees
- **Interview Panelist**
 - Teachers
 - Professors
 - Board Members
 - Program Managers
- **Students**
 - Bachelors
 - Masters
 - PhD.

The users of the Online ERFA would be having an educational and technical background. Therefore, they all can easily use the Online ERFA application, without any proper training on how to use the application.

2.2.4. Operating Environment

The application would be built using the MERN Stack Framework. In which we will be using ReactJS for the front-end and NodeJS for the server-side. The user can use any web browser to access the online web application. For their ease, we will be creating a PWA (Progressive Web App) so they can also download the application on their desktop, laptop, smartphone, and tablet devices. To access the application, the user must have an active internet connection.

The minimum system requirements for the application will be:

- Windows Platform:
 - Windows 7, Windows 8, Windows 8.1, Windows 10 or later.
 - An Intel Pentium 4 processor or later that's SSE3 capable.
- Mac
 - OS X El Capitan 10.11 or later
- Android
 - Android Lollipop 5.0

The minimum hardware requirements for the application will be:

Processor	Pentium 4
Minimum RAM	128 MB
Recommended RAM	1 GB
Min Disk Space	100 MB

2.2.5. Design and Implementation Constraints

No constraints were enforced for the development of the Online ERFA. The team members have the freedom to select the framework and the other libraries and utilities.

2.2.6. User Documentation

The user manual and the other documents such as SDS and test cases are attached to this document to get the complete working to the application.

2.2.7. Assumptions and Dependencies

For this project, it is assumed that all the users are computer literate and would be having the basic knowledge of using online software applications. To access the Online ERFA the student must have a computer or smartphone with an active internet connection, along with a browser. Whereas the ERFA Department members should be having computer systems with a web browser and active internet connection. The online ERFA system will not support any online payments or money transactions.

2.3. External Interface Requirements

2.3.1. User Interfaces

Online ERFA will be a Progressive Web Application, so we have to adopt hybrid GUI(Graphical User Interface) standards. The hybrid GUI standards will be having the Microsoft, IOS and Android GUI standards.

2.3.2. Hardware Interfaces

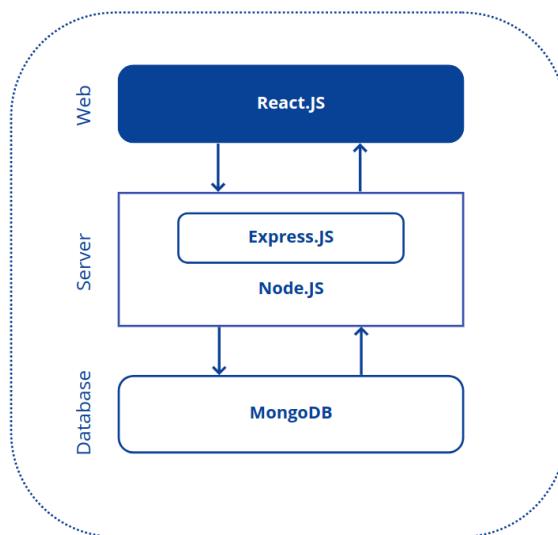
Users of the Online ERFA will be able to interact with the application through accessing the touch interface on their smartphones and also with the keyboard and mouse on their personal computers. On the user side, the minimum hardware requirements of Online ERFA are a 500 Megahertz CPU and 128 megabytes of RAM. The system with these requirements can easily load the website from the servers.

2.3.2.1. Server Interface

The server for the backend of the Online ERFA would be requiring the 2 CUPs @ 2.55GHZ processor, 8GB RAM, and 1TB Storage. With these system requirements, the back-end and client-side server could be able to handle a load of all the users without any hassle.

2.3.3. Software Interfaces

The Online ERFA system will mainly be using the MERN Stack as a framework. The reason for using the MERN Stack is that in the previous semester we took the course of Web Technologies in which we used the MERN Stack to develop modern web applications. After having a discussion with FYP Advisor it has been decided to have a Progressive Web Application for the Online ERFA, whereas the MERN Stack provides the best support for the PWA. Due to these reasons, MERN Stack is the primary choice of our framework.



MERN stands for MongoDB, Express, React, Node, after the four key technologies that make up the stack.

- **MongoDB** - is the NoSQL database, which is also known as the document-based database.
- **Express(.js)** - is the Javascript library for Node.js server.
- **React(.js)** - a client-side JavaScript library for the front-end of the application.
- **Node(.js)** - the event-driven I/O server-side Javascript environment.

Express and Node make up the middle (application) tier. Express.js is a server-side web framework and Node.js is the popular and powerful JavaScript server platform.

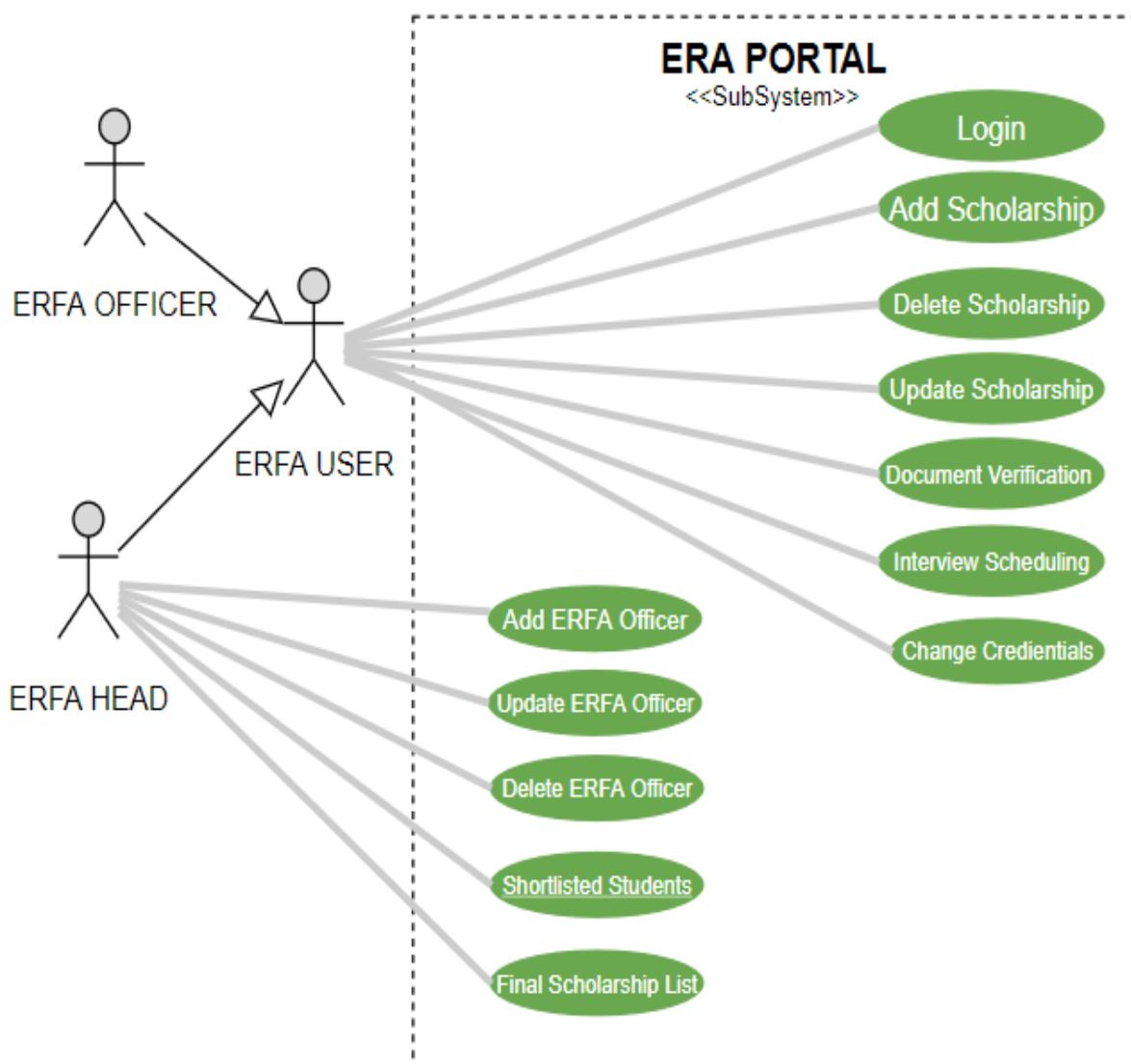
2.3.4. Communications Interfaces

The communication interface for the Online ERFA is the HTTP protocol through which the user can access the website from the servers. To access the website through the HTTP protocol the user must have an active internet connection and a web browser or they should have our application installed on their systems.

For Online ERFA HTTP/2 protocol will be specially used which is also known as the SPDY. It is the latest web protocol standard which is developed by the IETF HTTP workgroup. The reason for using the HTTP/2 protocol is that it consumes less bandwidth and it renders the web page from the server at a very high speed.

2.4. System Features

2.4.1. ERA PORTAL



2.4.1.1. Login

<Use case UC-01: Login>			
Use case Id:	UC-01		
Actors:	<ul style="list-style-type: none"> • ERFA Head • ERFA Officers 		
Summary:	The login feature will allow the admin and the officers to login into the ERFA Portal. To access the ERFA portal they only enter two inputs, email and password in order to get access.		
Precondition:	The user must have the designated username and password. Through which they can log in to the system.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the homepage of the website.	2.	The system will load the login page of the website.
3.	Insert the credentials.	4.	The system will check for the credentials from the database.
		5.	If the credentials match then the system will log them into the ERFA Portal.
Alternate Course			
<p>Alt-Step 1- Forget Password: If the user is unable to remember their password, he or she would send a security code to their email address. They have to enter the code, in order to reset their password.</p> <p>Alt-Step 4- The username and password are incorrect: The user has not provided correct details, the system will prompt the users to resubmit the credentials.</p> <p>Alt-Step 4- Incomplete complete fields are entered: If the user mistakenly missed any of the two fields of username and password while trying to log in, the system will prompt the user to provide the required information.</p> <p>Alt-Step 4- Multiple wrong password attempts would disable Login: If five wrong passwords are entered, the Login feature would be disabled for thirty seconds.</p>			
Conclusion	The user will be logged into the system and now access the management tools according to their roles.		
Post Conditions			
Setp No.	Description		
1.	The user will be granted access to the ERFA web portal, and they will be getting the access according to their roles.		

2.4.1.2. Add ERFA Officer

<Use case UC-02: Add ERFA Officer>			
Use case Id:	UC-02		
Actors:	ERFA Head		
Summary:	This is one of the key features to which the admin has rights, it will allow the admin to add a new ERFA officer and Faculty to the system and also the panellist will be registered from this portal only.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the admin panel on the left side of the screen.	3.	In response, the system will load the User Management page.
2.	Click on the User Management button.	5.	In response, the system will display the new user form and require all fields of the form to be filled.
4.	Click on the create new user button.	8.	The system will check if all fields are filled and validations are successfully applied. Then only, the system will store the information of the newly created user in the database.
6.	The user will be entering all the details of the new user and will submit	9.	The system will automatically send an email to users about their credentials.
Alternate Courses			
<p>Alt-Step -8 Missed mandatory fields: If the admin mistakenly missed any of the fields to fill while trying to add the user to the system then, the system will prompt the admin to provide all the required information.</p> <p>Alt-Step -8 User already present: It might be a case that the user may already be present in the system, then the system will alert that the admin is already present.</p>			
Conclusion	The new user will be created and will be notified by email about their username and password.		
Post Conditions			
Step No.	Description		
1.	After adding the new user the admin will be landed on the User management page.		

2.4.1.3. Update ERFA Officer

<Use case UC-03: Update ERFA Officer>			
Use case Id:	UC-03		
Actors:	ERFA Head		
Summary:	The user updates feature will allow the admin to update the details of the ERFA officer and Faculty.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the admin panel on the left side of the screen.	3.	In response, the system will load the User Management page.
2.	Click on the User Management button.	5.	In response, the system will display the information of that specific user.
4.	Click on the specific user to update.	8.	The system will check if all fields are filled and validations are successfully applied. Then only, the system will store the updated information of the user in the database.
6.	Insert the new user details.	9.	The system will automatically send an email to users about their updated data.
7.	Click on the submit button.		
Alternate Courses			
Conclusion	This use case will update the user's details.		
Post Conditions			
Step No.	Description		
1.	After updating the user the admin user will be landed on the User management page.		

2.4.1.4. Delete ERFA Officer

<Use case UC-04: Delete ERFA Officer>			
Use case Id:	UC-04		
Actors:	ERFA Head		
Summary:	The user deletes feature will allow the admin to delete the specific ERFA officer.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the admin panel on the left side of the screen.	3.	In response, the system will load the User Management page.
2.	Click on the User Management button.	5.	In response, the system will ask for the confirmation to make sure the admin is only deleting that user.
4.	Click on the specific user's delete button to delete.	7.	The system will search and find the user. If the user is found, the system will delete the user from the database.
6.	Click the confirm button..		
Alternate Courses			
Conclusion	This use case will successfully delete the ERFA officers from the database.		
Post Conditions			
Step No.	Description		
1.	After updating the user the admin user will be landed on the User management page.		

2.4.1.5. Final Shortlisting Students for Interview

<Use case UC-05: Final Shortlisting Students for Interview >			
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Click on the notification icon on the top right corner of the ERFA Portal.	2.	The system will show all the notifications.
3.	Click on the shortlisted student for the interview list by the ERFA user.	4.	The system will load the entire candidates for the interview list of the student.
5.	Clicks on the accept button.	6.	The system will ask the admin for his credentials, so two fields username and password would display.
7	Admin enters their credentials.	8	The system will perform validations, then only it saves the final list of interview students in the database.
Alternate Courses			
<p>Alt-Step 5- <u>The admin rejects the request:</u> If the admin rejects the interview shortlisted list, the ERFA User will be sent back the list with a message.</p> <p>Alt-Step 6- <u>Incomplete complete fields are entered:</u> If the admin mistakenly missed username or password while accessing, then the system will prompt the admin to provide the required information.</p> <p>Alt-Step 9- <u>Multiple wrong password attempts would disable Login:</u> If five wrong passwords are entered, the Login feature would be disabled for thirty seconds.</p>			
Conclusion	This use case will successfully approve the student list for the interview. Subsequently, the student will be informed about this stage on their dashboard, email, and the list will be posted on the student portal.		
Post Conditions			
Step No.	Description		
1.	After accepting the interview list, the admin user will be landed on the homepage of the dashboard.		

2.4.1.6. Final Scholarship List

<Use case UC-06: Final Scholarship List>			
Use case Id:	UC-06		
Actors:	ERFA Head		
Summary:	This use case will allow the admin to finalise the student list that is going to be awarded the scholarship.		
Precondition:	The admin should be logged into their dashboard. The ERFA User must have sent a scholarship list for approval.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Click on the notification icon on the top right corner of the ERFA Portal.	2.	The system will show all the notifications.
3.	Click on the scholarship list by the ERFA User.	4.	The system will load the entire list.
5.	Clicks on the accept button.	6.	The system will ask the admin for his credentials, so two fields username and password would display.
7	Admin enters his credentials.	8	The system will perform validations, then only it saves the final list of interview students in the database.
Alternate Courses			
<p>Alt-Step 5- The admin rejects the request: If the admin rejects the interview shortlisted list, the ERFA User will be sent back the list with a message.</p> <p>Alt-Step 6- Incomplete complete fields are entered: If the admin mistakenly missed username or password while accessing, then the system will prompt the admin to provide the required information.</p> <p>Alt-Step 9- Multiple wrong password attempts would disable Login: If five wrong passwords are entered, the Login feature would be disabled for thirty seconds.</p>			
Conclusion	This use case will successfully approve the student list for the interview. Subsequently, the student will be informed about this stage on their dashboard, email, and the list will be posted on the student portal.		
Post Conditions			
Step No.	Description		
1.	After accepting the final scholarship list, the admin user will be landed on the homepage of the dashboard.		

2.4.1.7. Add Scholarship

<Use case UC-07: Add Scholarship>			
Use case Id:	UC-07		
Actors:	<ul style="list-style-type: none"> • ERFA Head • ERFA Officer 		
Summary:	This is one of the key features of the ERFA User, this allows the user to post a new scholarship.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the scholarship option on the left side of the panel.	3.	The system will display the title field and the content text area. It will request the user to fill in the details.
2.	Click on the added scholarship.	6.	The system will perform validation, if successful then only it would save the details on the database
4.	The user will enter the mandatory details.		
5.	The user will have to press the submit button.		
Alternate Courses			
Conclusion	This use case will successfully add a new scholarship post to the system. It would be visible to students in order for them to apply.		
Post Conditions			
Step No.	Description		
1.	After adding a new scholarship post, the ERFA user will be directed to all scholarship pages.		

2.4.1.8. Update Scholarship

<Use case UC-08: Update Scholarship>			
Use case Id:	UC-08		
Actors:	<ul style="list-style-type: none"> • ERFA Head • ERFA Officer 		
Summary:	This is one of the key features of the ERFA User, this allows the user to update the details of the scholarship.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the scholarship option on the left side of the panel.	3.	The system will show all the scholarships posted.
2.	Click on the view all scholarships options.	5.	The system will show all the fields with their existing values database.
4.	The user will select the edit option next to their desired scholarship.	8.	The system will perform validation, if successful then only it would save the details on the database.
6.	The user can change the data on the fields.		
7.	The user will press the save button.		
Alternate Courses			
Conclusion	This use case will successfully update the scholarship post in the system. It would be visible to students.		
Post Conditions			
Step No.	Description		
1.	After updating a new scholarship post, the ERFA user will be directed to all scholarship pages.		

2.4.1.9. Delete Scholarship

<Use case UC-9: Delete Scholarship post>			
Use case Id:	UC-9		
Actors:	<ul style="list-style-type: none"> • ERFA Head • ERFA Officers 		
Summary:	In this use case, the ERFA officers and the admin will be having the access to delete the scholarship posts.		
Precondition:	The users should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the scholarship option on the left side of the panel.	3.	The system will display the list of all the scholarships posted.
2.	Click on all scholarships.	6.	The system will display the warning prompt “Are you sure?”.
4.	Select the scholarships to delete.	8.	The system will delete the scholarships that were selected.
5.	The user will click the delete button.		
7.	Press the confirm button.		
Alternate Courses			
Alt-Step 4- No scholarship post selected: If the user mistakenly clicks the deleted button without selecting the delete button then the user will be prompted to “select scholarship”.			
Conclusion	This use case will help the ERFA department to delete the old scholarships that are not valid anymore.		
Post Conditions			
Step No.	Description		
1.	After deleting the scholarship the scholarship list will be updated.		

2.4.1.10. Document Verification and Shortlisting

<Use case UC-10: Document Verification and Shortlisting>			
Use case Id:	UC-10		
Actors:		<ul style="list-style-type: none"> • ERFA Head • ERFA Officers 	
Summary:		<p>In this use case, the ERFA officers and the admin will be having the access to verify documents submitted by the students through their student portal. The students will automatically be shortlisted through this use case.</p>	
Precondition:		<p>The users should be logged into their dashboard. The students must have submitted their scholarship forms and files.</p>	
Typical Course of Event			
Setp No.		Actor Action	
1.		Go to the student's option on the left side of the panel.	3.
2.		Click on the application forms button.	5.
4.		Click on the student's application to view all the documents.	7.
6.		If all the documents are there then the user will accept the application by clicking on the accept button.	
Alternate Courses			
<p>Alt-Step 7- <u>Pause of the application</u>: If the ERFA User pauses the application, he or she would send a comment to the candidate to submit the required document.</p> <p>Alt-Step 7- <u>Reject the application</u>: If the ERFA rejects the application, the student's dashboard and an email will be sent to them about the rejection of their application.</p>			
Conclusion	This use case will help the ERFA department to review and verify the student's application form through their portal only.		
Post Conditions			
Setp No.		Description	
1.		After approving the application the admin user will be redirected to the list of all scholarship forms to verify the other documents too.	

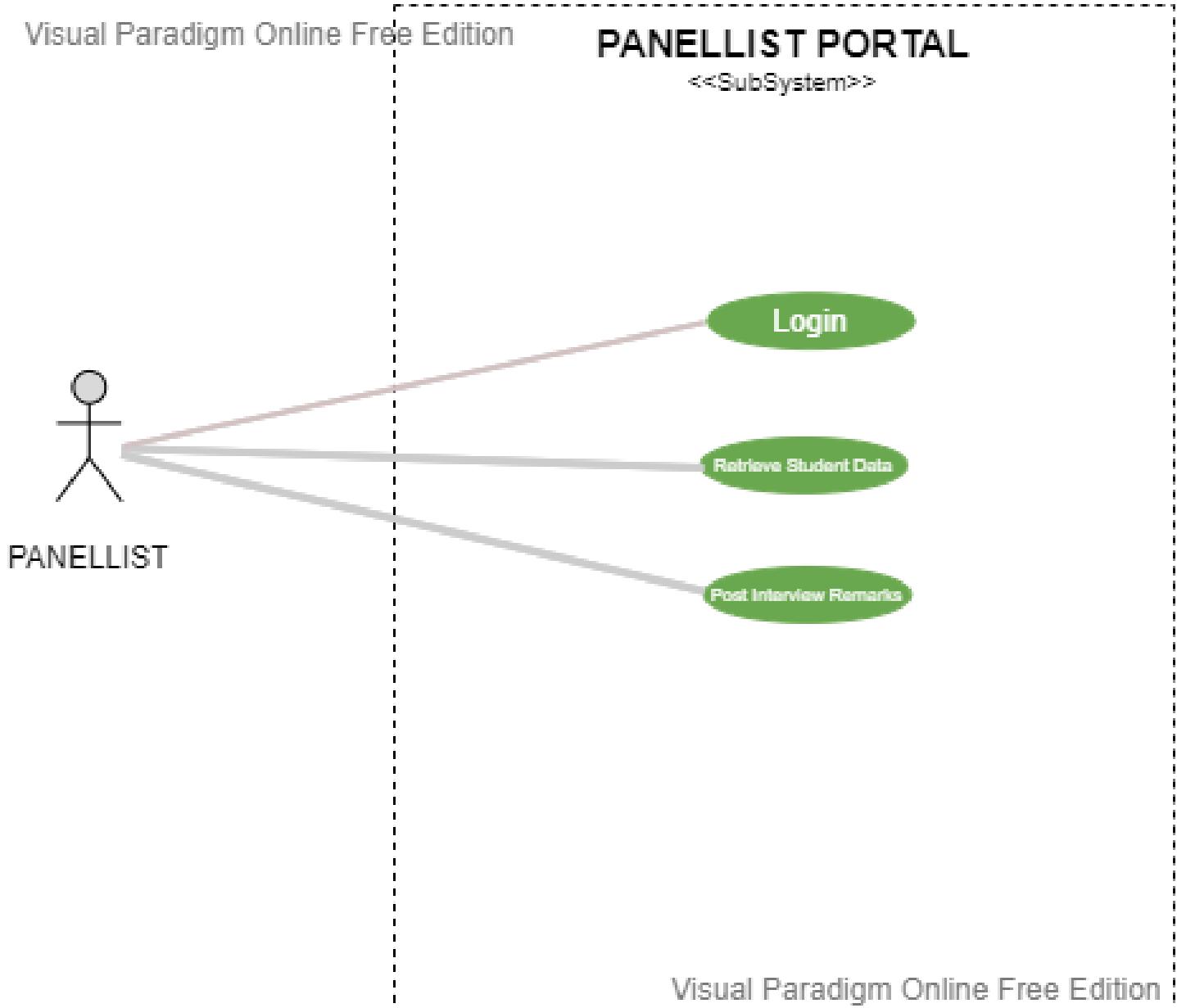
2.4.1.11. Interview Scheduling

<Use case UC-11: Interview Scheduling>			
Use case Id:	UC-11		
Actors:	<ul style="list-style-type: none"> • ERFA Head • ERFA Officer 		
Summary:	This feature is given to all EFRA users, where they have to schedule the interview for the candidates.		
Precondition:	The admin should be logged into their dashboard.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to scheduling.	3.	The system will load the scheduling form.
2.	Click on the interview schedule.	5.	The system will perform validation, if successful then only it would save the details on the database
4.	The user will be entering the interview list id, venue, date and time so the system can automatically schedule the interviews.	7.	The selected students will be notified through their mails and portal about the venue, date and time of the interview.
6.	After filling out the form then click submit		
Alternate Courses			
<p>Alt-Step 4- Incomplete complete fields are entered: If the user mistakenly missed any of the fields while filling out the form, then the system will prompt the user to provide the required information.</p>			
Conclusion	This use case will successfully add a new scholarship post in the system. It would be visible to students in order for them to apply.		
Post Conditions			
Step No.	Description		
1.	After scheduling the interview, the ERFA user will be directed to the list of the schedule page.		

2.4.1.12. Change Credentials

<Use case UC-12: Change Credentials>			
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the change credentials button on the navbar.	2.	The system will load the form.
3.	The user must enter the old password, type and re-type the new password.	4.	The system will perform validations and if successful then only the information will be saved in the database.
Alternate Course			
<p>Alt-Step 3- Old passwords the do not match: If the old password does not match the information from the database, the page will be reloaded with the message try again.</p> <p>Alt-Step 3- Type new password and re-type new password the do not match: If both fields do not match, the page will be reloaded with the message try again.</p> <p>Alt-Step 5-Validation does not approve: If the type password satisfies the validation to make a secure password, the page will be reloaded with the message to try again and tell them how to add security to their password.</p>			
Conclusion	This use case will help the user to change the account's password.		
Post Conditions			
Setup No.	Description		
1.	The user will be directed to their dashboard.		

2.4.2. PANELLIST PORTAL



2.4.2.1. Panellist Login

<Use case UC-13:Panellist Login>			
Use case Id:	UC-13		
Actors:	Panellist		
Summary:	Through this use case the panellist will be able to log in to their portal so they can evaluate the students.		
Precondition:	The panellist must be registered in the portal, the erfa admin officer will be creating the credentials of the users.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the panellist portal.	2.	The system will load the login page of the website.
3.	Insert the credentials.	4.	The system will check for the credentials from the database.
		5.	If the credentials match then the system will log them into the Panellist Portal.
Alternate Course			
<p>Alt-Step 4- The username and password are incorrect: The user has not provided correct details, the system will prompt the users to resubmit the credentials.</p> <p>Alt-Step 4- Incomplete complete fields are entered: If the user mistakenly missed any of the two fields of username and password while trying to log in, the system will prompt the user to provide the required information.</p> <p>Alt-Step 4- Multiple wrong password attempts would disable Login: If five wrong passwords are entered, the Login feature would be disabled for thirty seconds.</p>			
Conclusion	The user will be logged into the system and now access the privileges granted to them as a panellist.		
Post Conditions			
Setp No.	Description		
1.	The user will be granted access to the panellist Portal.		

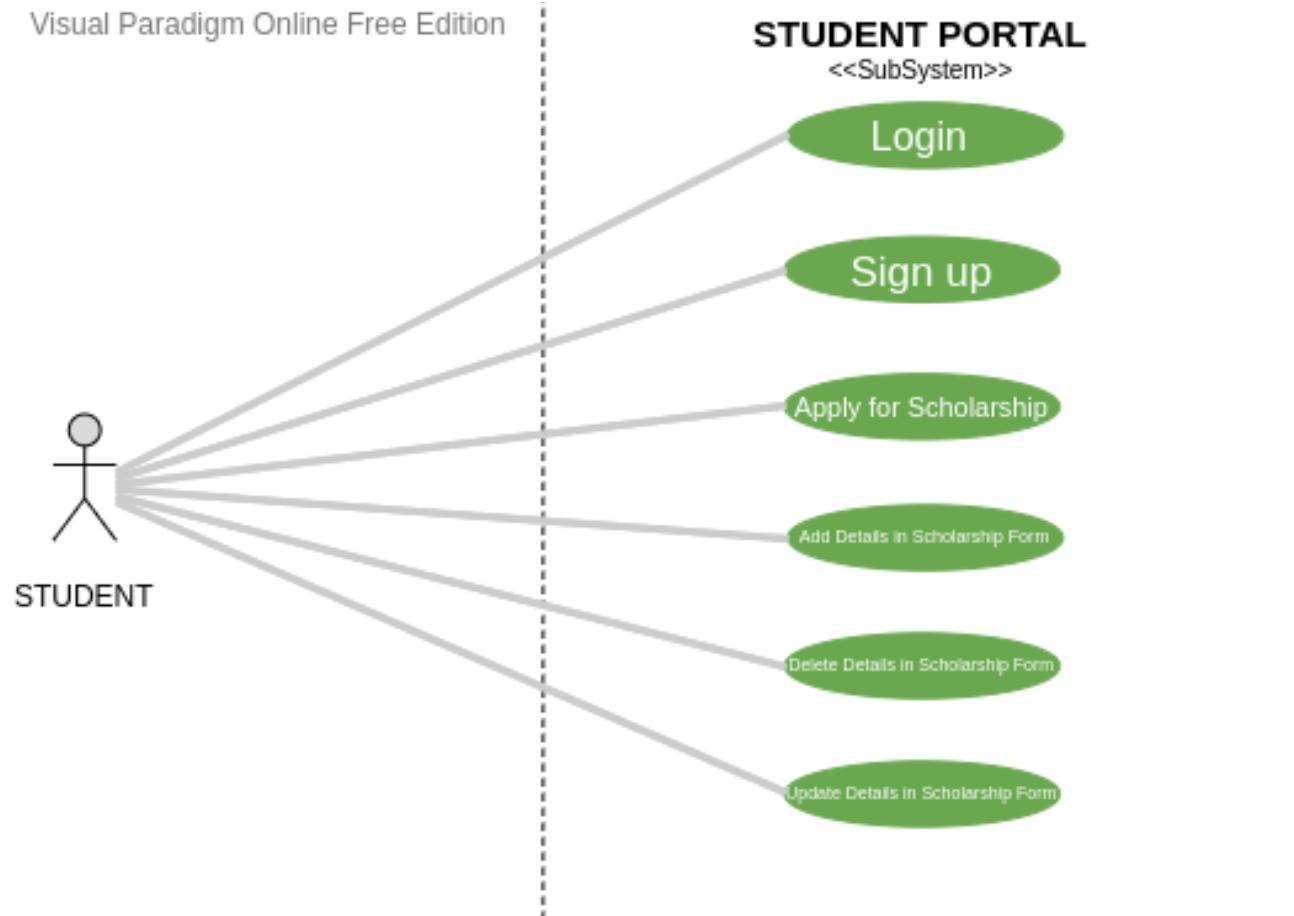
2.4.2.2. Retrieve Student Record

<Use case UC-14: Retrieve Student Record>			
Use case Id:	UC-14		
Actors:	Panellist		
Summary:	This feature will allow the panellist to retrieve the student record.		
Precondition:	The panellist must be registered in the application and they had to be logged in with their credentials.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the search bar.	3.	The system will load the student's details on the page.
2.	Enter the student registration number.		
Alternate Course			
Alt-Step 3- Student Details not Available: If the student registration is not found, a message like a student detail not found would appear on the screen.			
Conclusion	The panellist would be able to view the student details.		
Post Conditions			
Setp No.	Description		
1.	The user will see the records of the candidate.		

2.4.2.3. Post Interview Remarks

<Use case UC-15: Post Interview Remarks>			
Use case Id:	UC-15		
Actors:	Panellist		
Summary:	This feature will allow the panellist to post the remarks on the basis of the interview.		
Precondition:	The panellist must have fetched and reviewed the student profile.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the bottom of the web page.	4.	The confirmation prompt will be displayed on the screen.
2.	Enter the student remarks on the basis of the interview.	6.	The system will then save the results in the database.
3.	Click on the post button.		
5.	Click on the confirmation button.		
Alternate Course			
Conclusion	The user will be able to post his evaluation of the candidate.		
Post Conditions			
Setp No.	Description		
1.	The user will be directed to his home page.		

2.4.3. STUDENT PORTAL



2.4.3.1. Login

<Use case UC-16:Student Login>			
Use case Id:	UC-16		
Actors:	Student		
Summary:	The student login would give access to the student portal and rights allocated to this user.		
Precondition:	The user must have the designated registration number and password. Through which they can log in to the system.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the homepage of the website.	2.	The system will load the login page of the website.
3.	Insert the credentials.	4.	The system will check for the credentials from the database.
		5.	If the credentials match then the system will log them into the Student Portal.
Alternate Course			
<p>Alt-Step 4- The registration number and password are incorrect: The user has not provided correct details, the system will prompt the users to resubmit the credentials.</p> <p>Alt-Step 4- Incomplete complete fields are entered: If the user mistakenly missed any of the two fields of registration number and password while trying to log in, the system will prompt the user to provide the required information.</p> <p>Alt-Step 2- The user forgets his or her password: The user might have forgotten their password, they can click the forget button to change their password.</p> <p>Alt-Step 4- Multiple wrong password attempts would disable Login: If five wrong passwords are entered, the Login feature would be disabled for thirty seconds.</p>			
Conclusion	The user will be logged into the system and now access the privileges granted to them as a student.		
Post Conditions			
Setp No.	Description		
1.	The user will be granted access to the Student Portal.		

2.4.3.2. Sign Up

<Use case UC-17:Sign Up>			
Use case Id:	UC-17		
Actors:	Student		
Summary:	The student would be able to register himself or herself to the Student Portal.		
Precondition:	The user must enter a designated email address and registration number. The student must be enrolled on the program in SZABIST.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the homepage of the website.	3.	The system will load the signup page of the website.
2.	Click on registration.	5.	The system will check if no field is left and perform validations on it, then only it will save it in the database.
4.	Insert the credentials.		
Alternate Course			
Alt-Step 5- Incomplete complete fields are entered: If the user mistakenly missed any of the fields of registration, the system will prompt the user to provide the required information.			
Conclusion	The system will register the student, the credentials will be sent to their email address.		
Post Conditions			
Setp No.	Description		
1.	The user will be directed to the homepage.		

2.4.3.3. Apply for Scholarship

<Use case UC-18: Apply for Scholarship>			
Use case Id:	UC-18		
Actors:	Student		
Summary:	The student would be able to apply for the scholarship if they are eligible for the scholarship.		
Precondition:	The students should log in to the system. He must have already filled in his academic information.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the scholarships page and view the new scholarships announced.	3.	The system will load the specific scholarship details and the other eligibility criteria.
2.	Click on the latest scholarship.	5.	The system will check whether the student is eligible for that scholarship or not by his information stored in the database.
4.	Click on the apply now button.	6.	If the student will be eligible then the system will take him or her to the application form.
7.	The students have to fill out and attach the required documents.	9.	The system validates the data and then it will save the form in the database.
8.	Students can save the form to edit it another day.	11.	Now the system will send the form to the ERFA department for the verification of the document.
10.	After completing the form then the student will press the final submit button		
Alternate Course			
<p>Alt-Step 5- The student is not eligible: The system will prompt the student if they are not eligible for the scholarship.</p> <p>Alt-Step 10- Incomplete form: The system will prompt the user if the form they have submitted is incomplete or the required document is missing and they will be unable to submit the file.</p>			
Conclusion	This use case will help the user to complete and submit their application to the ERFA department for further verification.		
Post Conditions			
Step No.	Description		
1.	The student will be directed to the dashboard.		

2.4.3.4. View for Scholarship

<Use case UC-19: View for Scholarship>			
Use case Id:	UC-19		
Actors:	Student		
Summary:	The student would be able to view all the scholarships currently available.		
Precondition:	The students should log in to the system. He must have already filled in his academic information.		
Typical Course of Event			
Step No.	Actor Action	Step No.	System Response
1.	Go to the scholarships button on the navbar.	3.	The system will load all scholarships.
2.	Click on view scholarship.	5.	The system will load the details of the desired scholarship
4.	The user will press on a specific scholarship.		
Alternate Course			
Conclusion	This use case will help the user to view the details of the scholarship.		
Post Conditions			
Setp No.	Description		
1.	The student will be directed to the dashboard.		

2.4.3.5. Status of Scholarship

<Use case UC-20: Status of Scholarship>							
Typical Course of Event							
Step No.		Actor Action		Step No.		System Response	
1.		Go to the scholarship option on the navbar.		3.		They system will load all of his applications for scholarship	
2.		Student click on My Application		5		The system will load a particular application for scholarship along with its status	
4.		Click on his or her of desired scholarship application.					
Alternate Course							
Conclusion	This use case will help the user to know the status of his or her application.						
Post Conditions							
Setp No.	Description						
1.	The student will be directed to the dashboard.						

2.5. Other Nonfunctional Requirements

2.5.1. Performance Requirements

The performance of any application is a key factor, so the application will be using the SPA (Single Page Application) approach because it will take less time while loading the webpage content.

On the server side, caching and cookies will be used, so we can reduce the server calls which will increase the performance of the server calls. To reduce the server call we will be using the HTTP/2 protocol which is also known as the SPDY. It is the latest web protocol standard which is developed by the IETF HTTP workgroup. The reason for using the HTTP/2 protocol is that it consumes less bandwidth and it renders the web page from the server at a very high speed. Also in this project, Node.js clustering will also be done by using the PM2. PM2 is the process manager for the applications built with Node.js, it comes with a built-in load balancer. It also enables us to execute multiple processes simultaneously.

Hence in this way, we would be enabling the concurrency and overall performance of our MERN stack application.

2.5.2. Safety Requirements

The student's data will be stored on the cloud servers which will offer fully managed data backups. The cloud server will also provide us with the incremental recovery of the data and the snapshots of the clusters will be saved. These native snapshot capabilities of the cloud help us to protect our student's data.

2.5.3. Security Requirements

In our systems, there will be different users and their portals. Therefore, the users needed to be restricted to their interface.

The system will ensure the security of the Online ERFA by having strong and secure user authentication methods through which the user can fetch only their information. Any suspicious activity by the user will be logged and will be catered to by the administrator.

2.5.4. Software Quality Attributes

2.5.4.1. Robustness

The main software quality attribute of the Online ERFA is the robustness of the system. It can easily be installed on any OS, which ensures cross-platform operability.

2.5.4.2. Availability

Due to cloud databases, the application will be highly available.

2.5.4.3. Interoperability

The Online ERFA will be developed in such a way that it will enable interoperability so the other applications would be able to communicate with the APIs of the online ERFA.

2.5.4.4. Usability

The user interface will be developed keeping in mind that the users should have ease of use, it will also ensure that the design should be stress-free and easy to comprehend without any training.

2.5.4.5. Reusability

While developing the application the modular design approach will be followed which will support the code reusability.

2.5.5 Business Rules

- Admin is only allowed to make new users.
- Admin can only allow the panellist to get signed into the system.
- The students will be able to register for the application if they are enrolled in SZABIST.
- Panellists will only be able to access it if they are registered.

2.6. Other Requirements

2.6.1. Database Requirements

The database of the online ERFA will be distributed in two servers. The first storage server will be the information storing server which will have all the details of all the users. This information will be stored on the Atlas MongoDB cloud database. The second storage server which is required is the file storing server in which the application will be collecting all the files submitted by the student. For file storage, the Heroku cloud server will be used to store the files and images on the cloud.

2.6.2. Software Reuse

The Online ERFA will be developed in such a way that the application system will be reusable. For the Online ERFA, the application reusability will be the primary objective, so in future, the system will easily be adaptable in any educational environment. As this application will be following the modular approach therefore it will be easy to incorporate.

Appendix A: Glossary

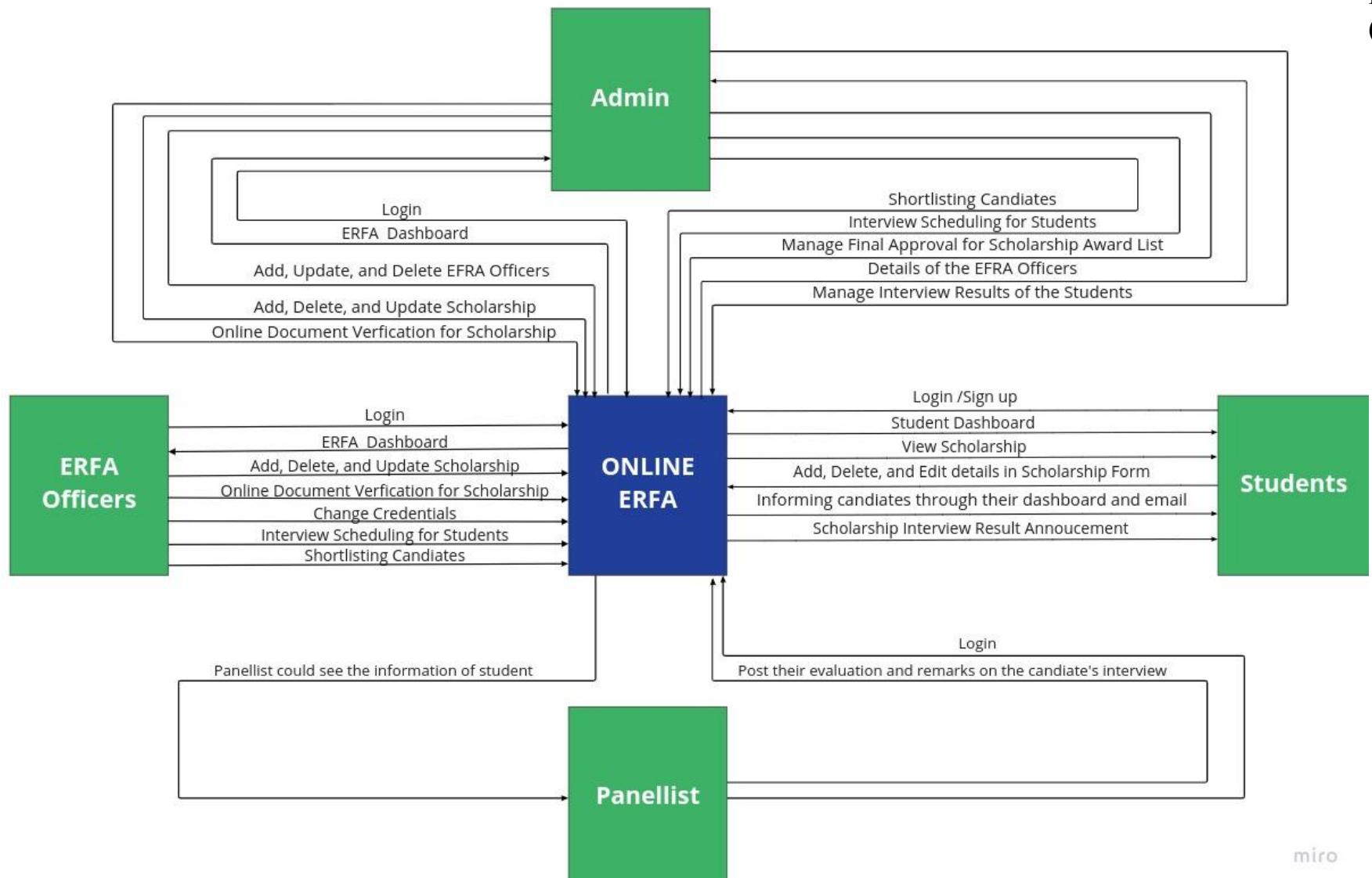
1. **ERFA:** (External Relationship & Financial Assistance) is a department within the SZABIST that provides students financial assistance to pursue their studies.
2. **PWA:** (Progressive Web Application) is a type of web application that is built using modern web technologies. The PWA is able to get installed on any platform that uses the standard web browser. This type of application can be able to work on desktop and mobile devices.
3. **MERN Stack:** It is a full-stack modern web application framework that is built on top of Javascript. It is an easier and faster way to develop full-stack web applications. MERN Stack consists of four key components to create a full-stack framework, which are MongoDB, Express, React, and Node.js.

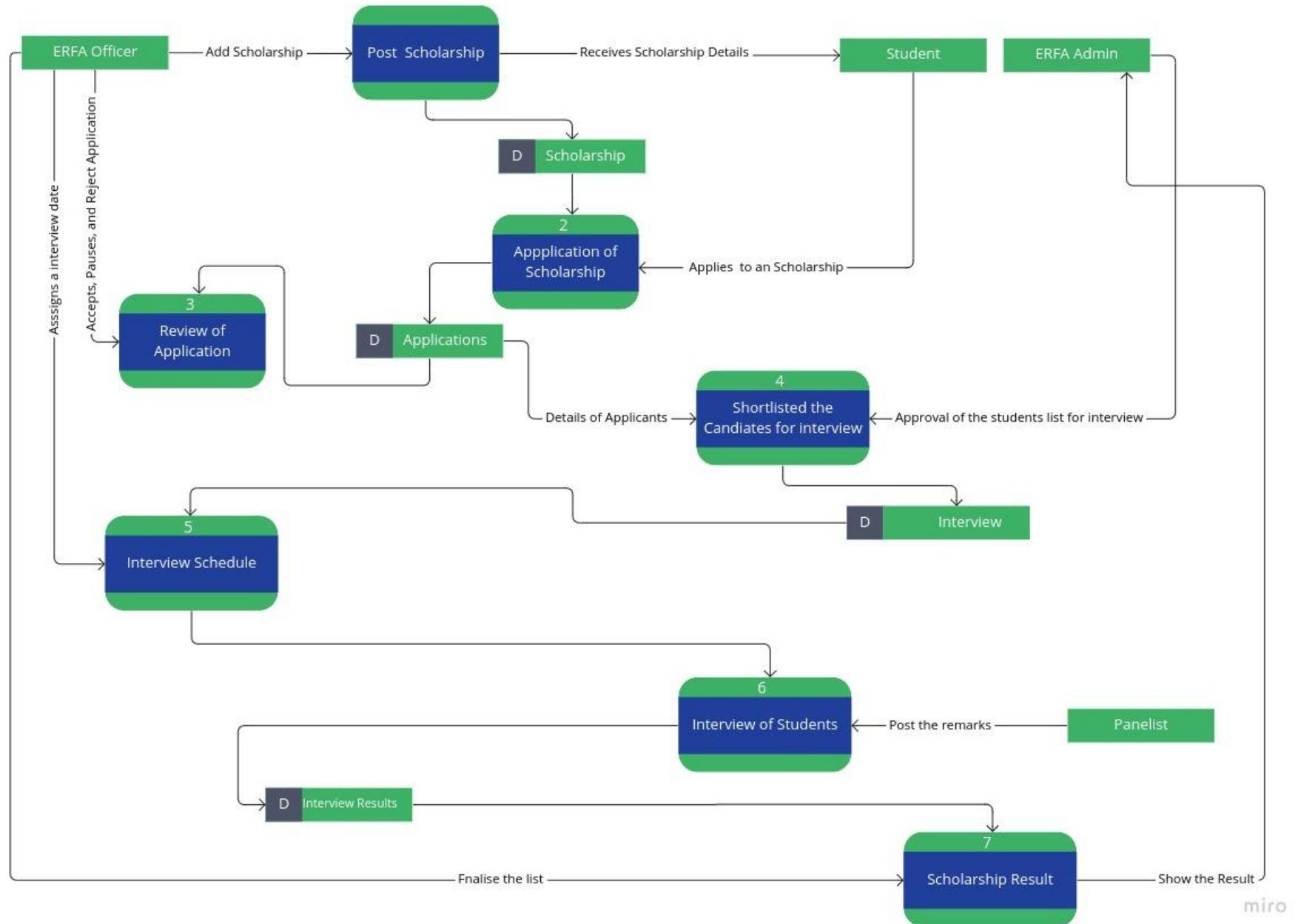
Appendix B: Analysis Model

System Diagram (DFD Level 0)

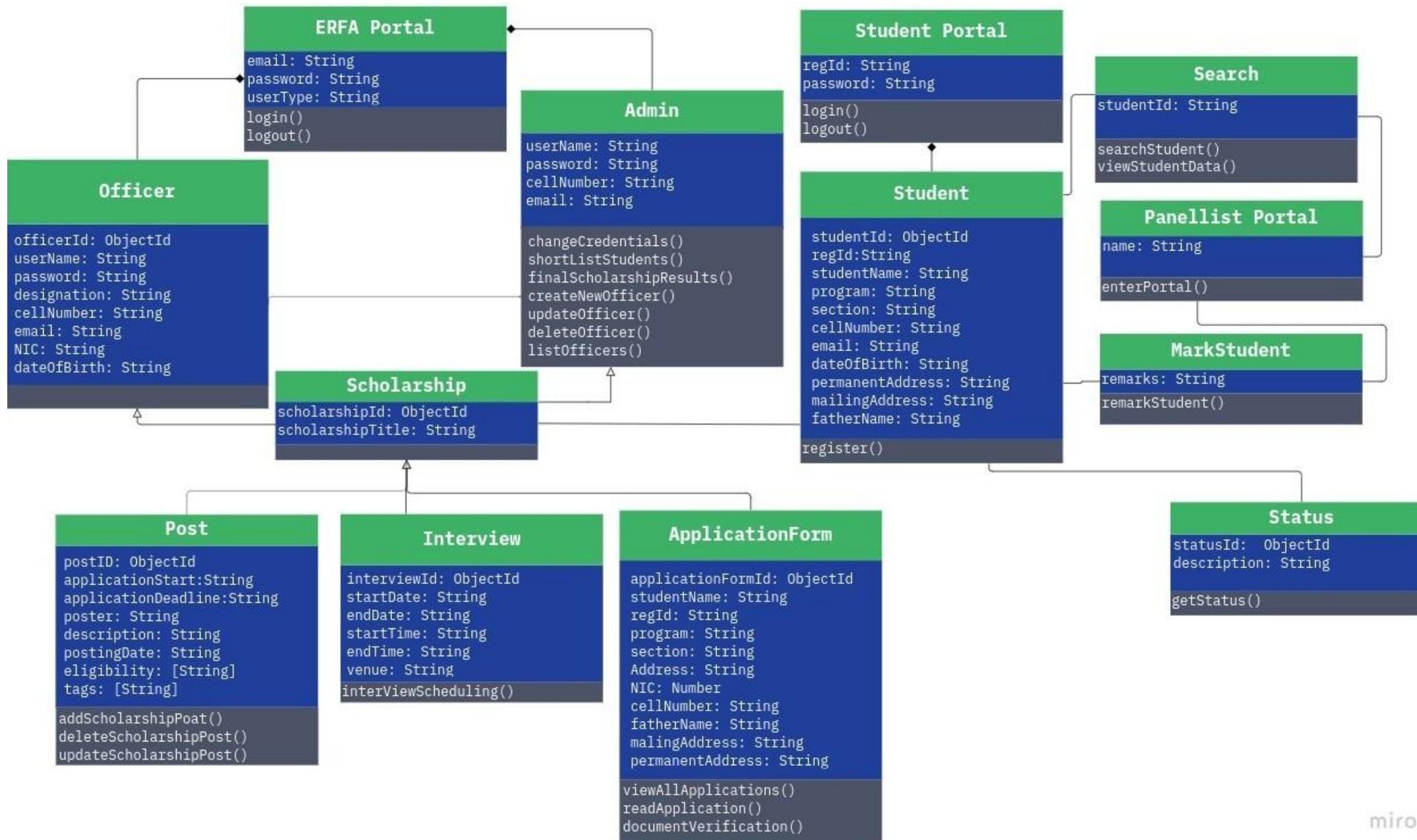
flow diagram
Level 1

Data
(DFD)

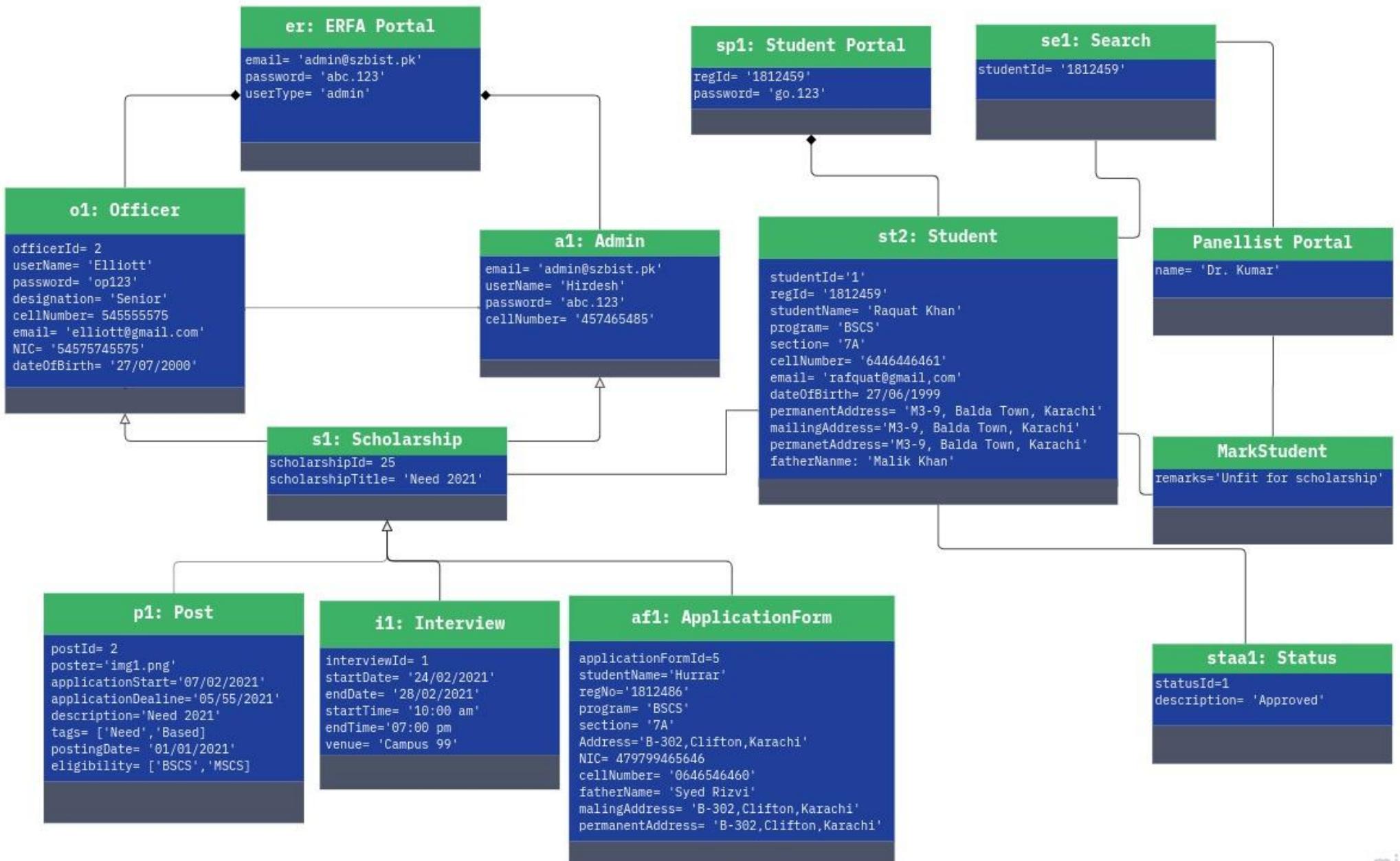




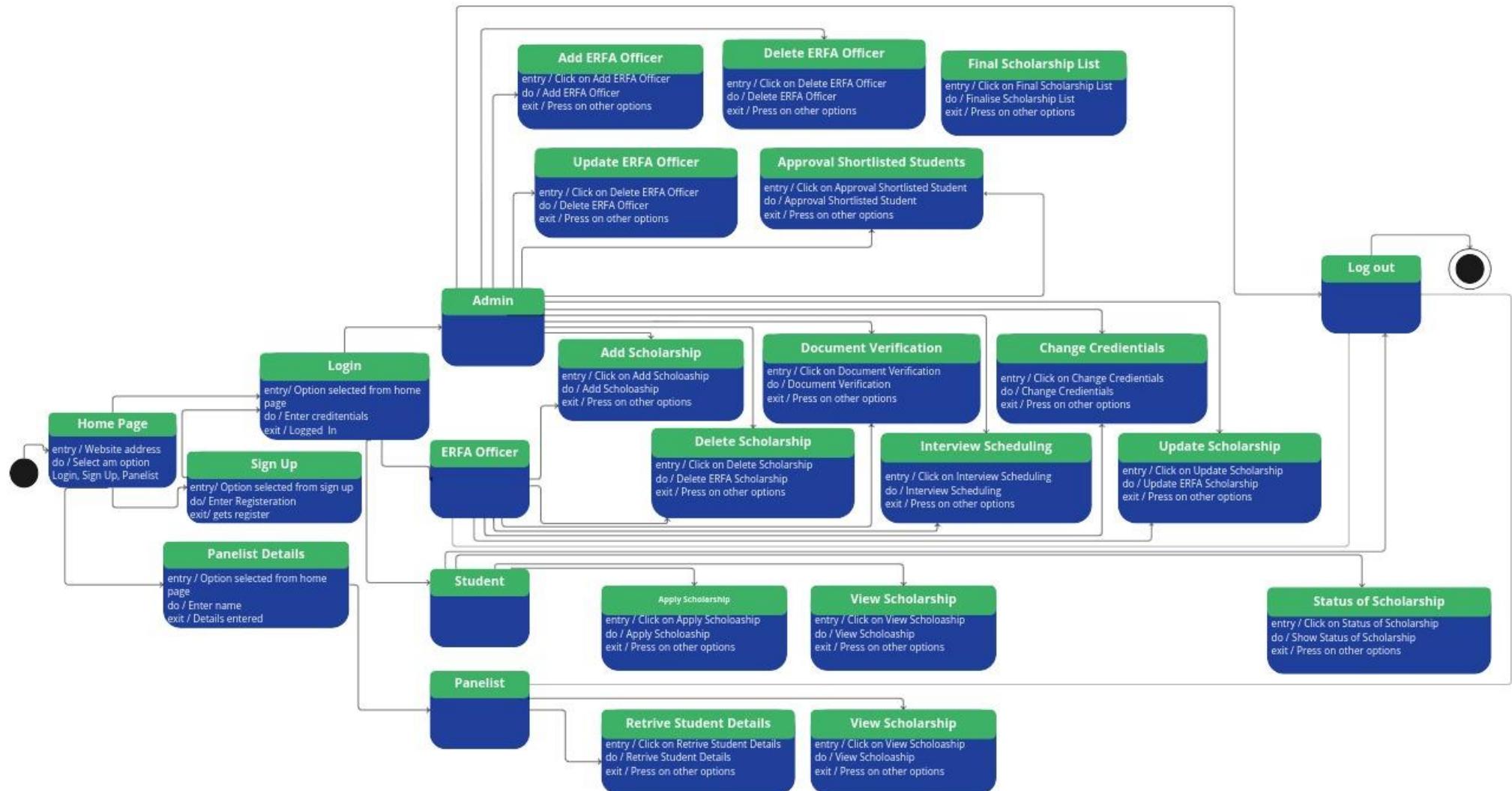
Class Diagram



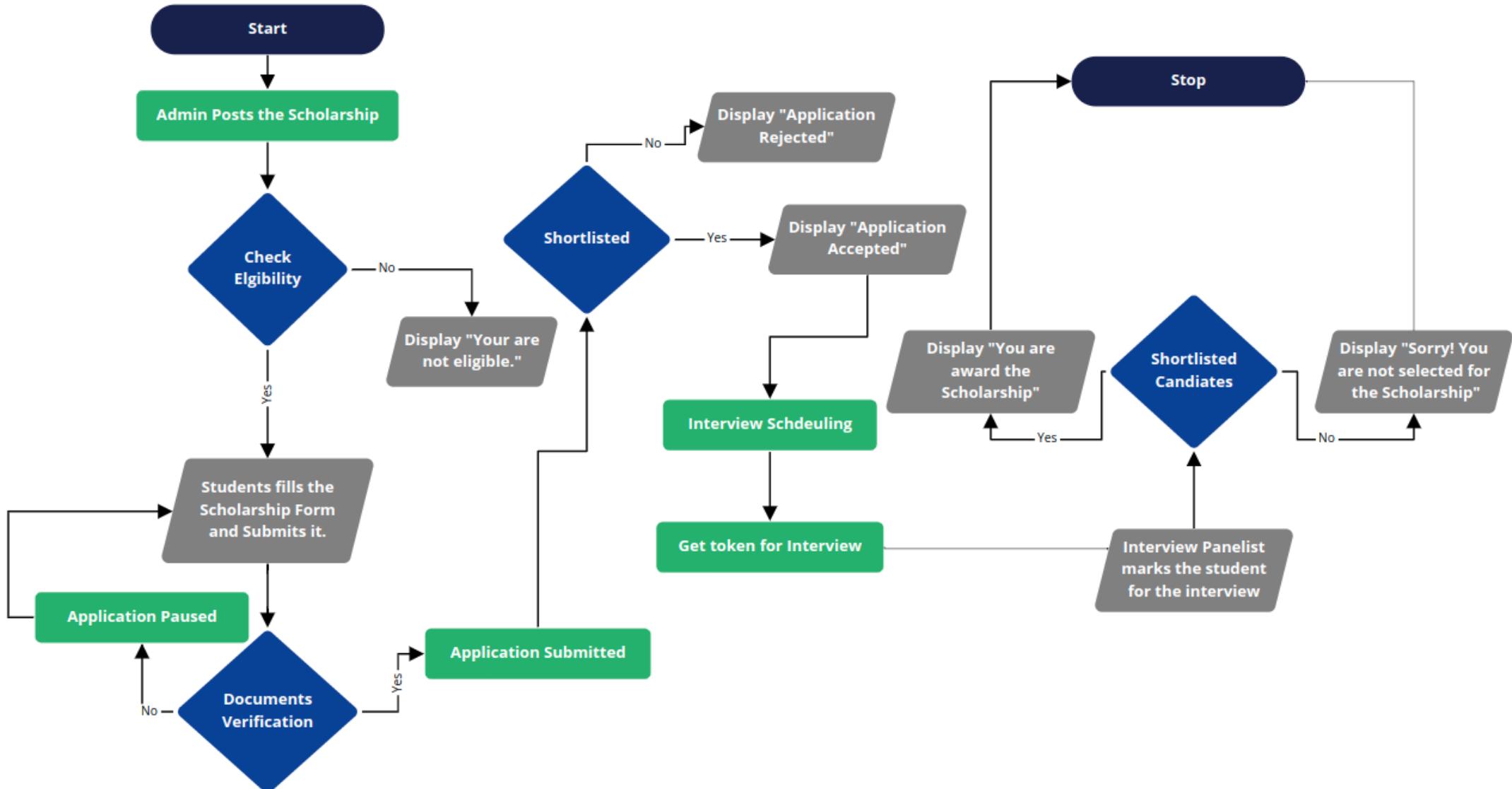
Object Diagram



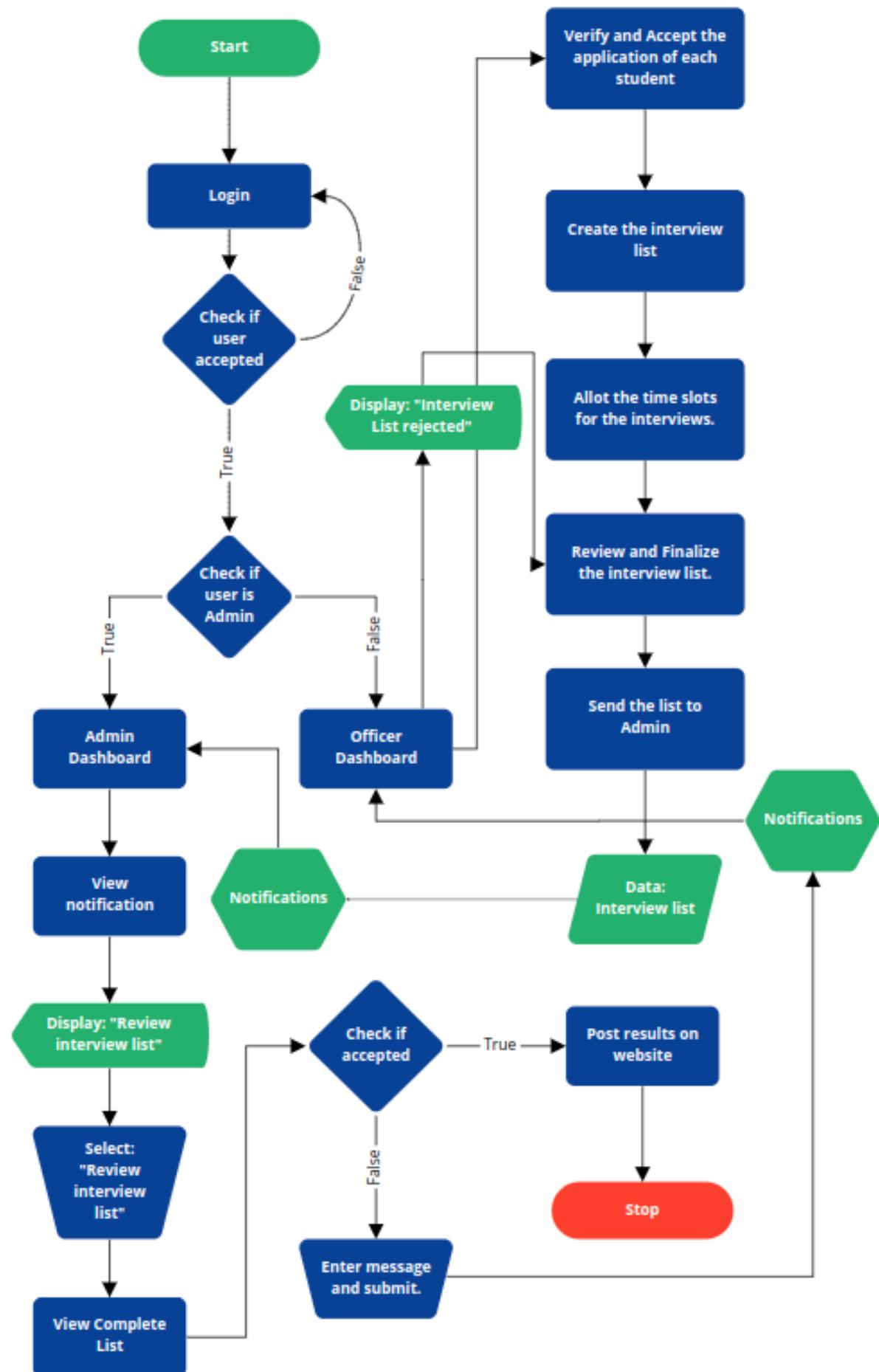
State Chart Diagram



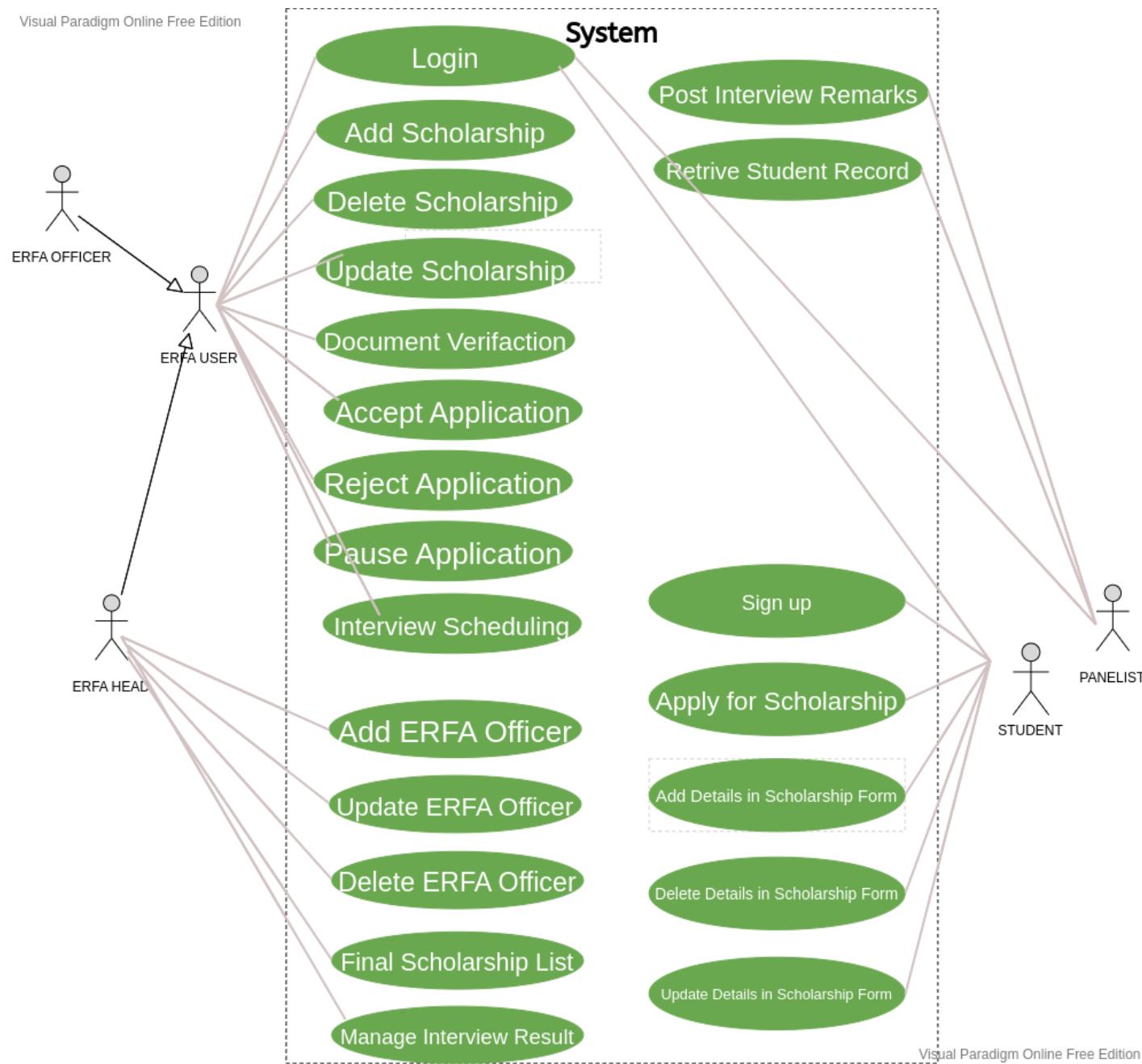
Flow chart (Student Process)



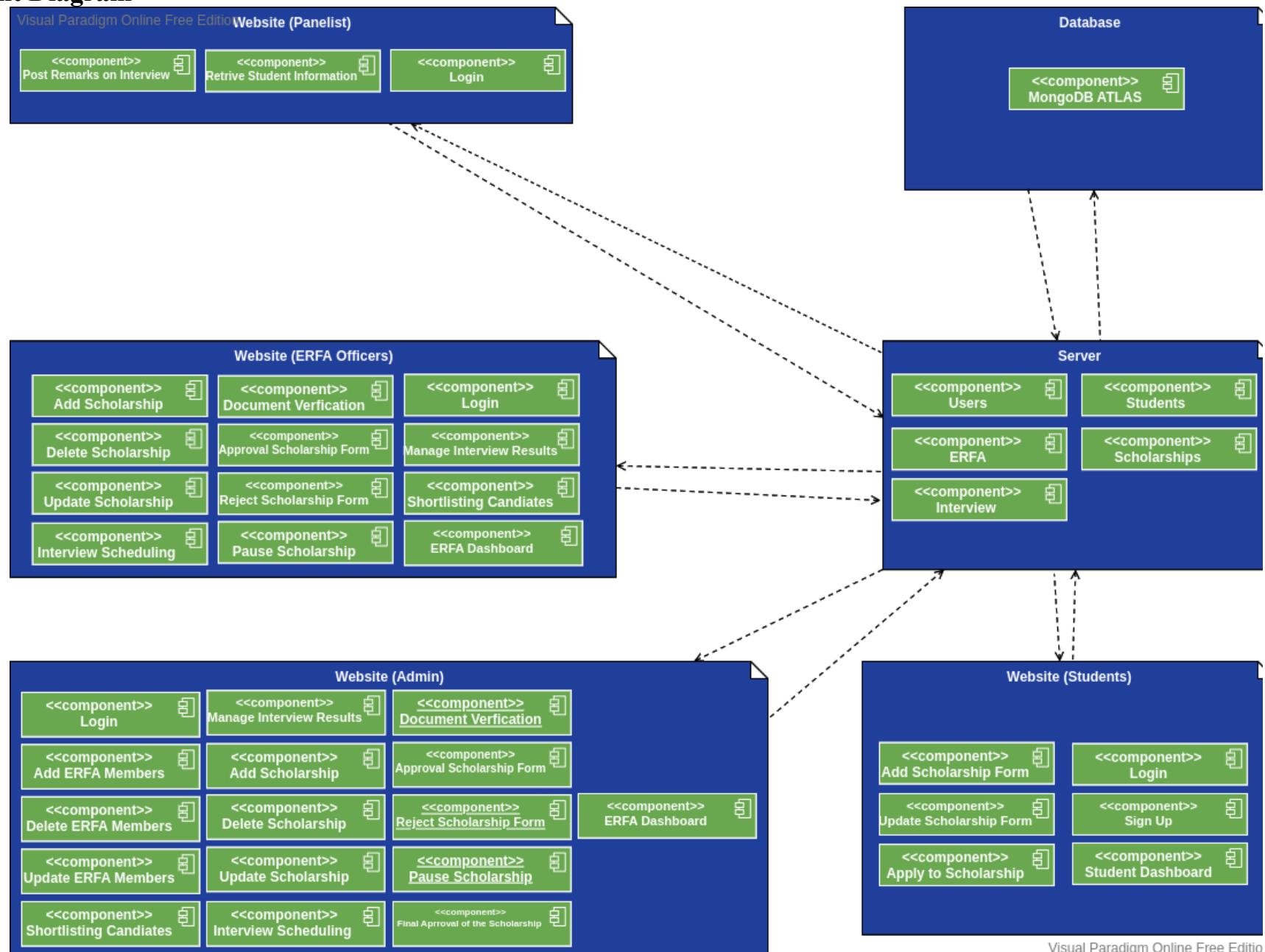
Flow chart (ERFA Department Process)



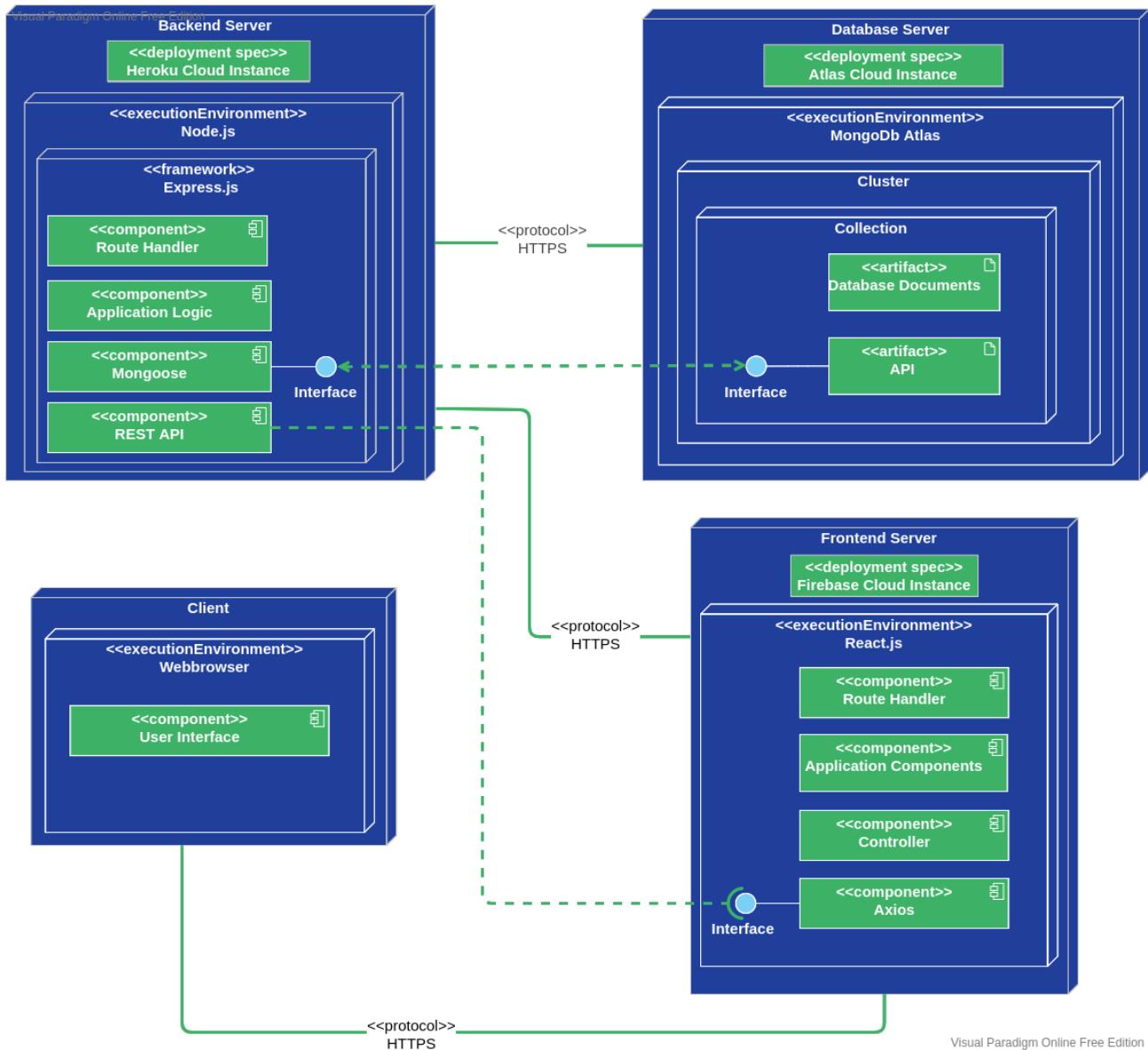
Use Case Diagram



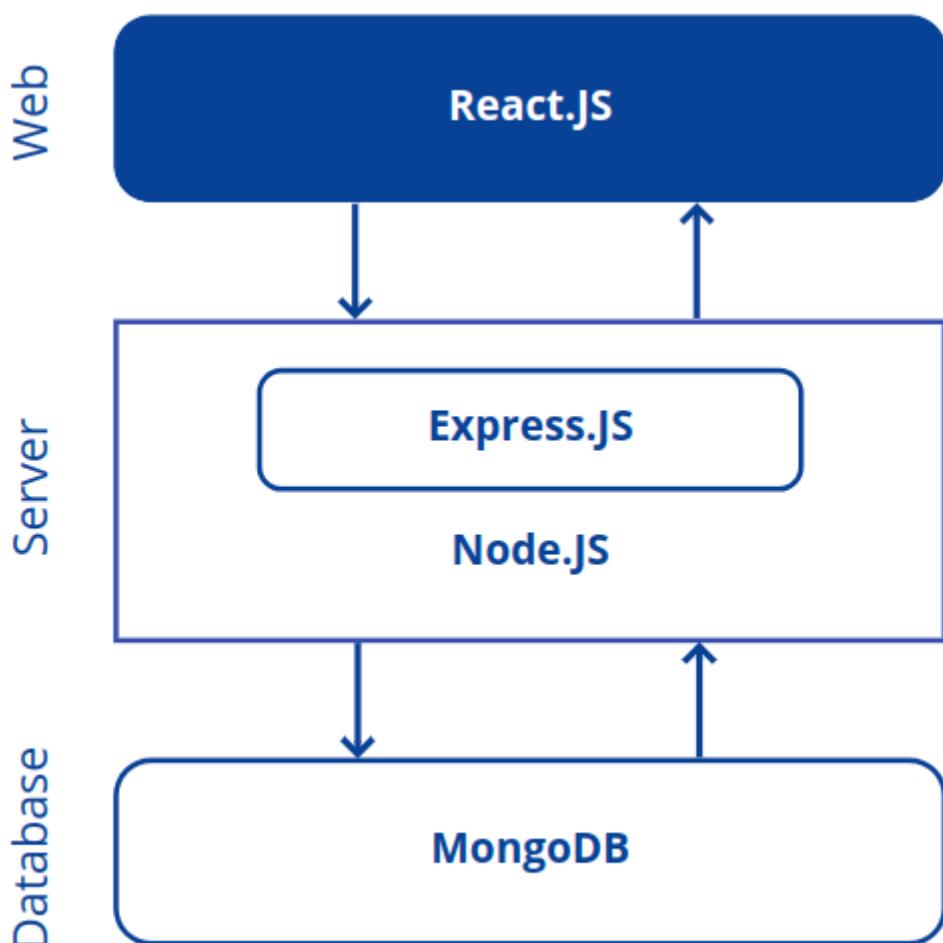
Component Diagram



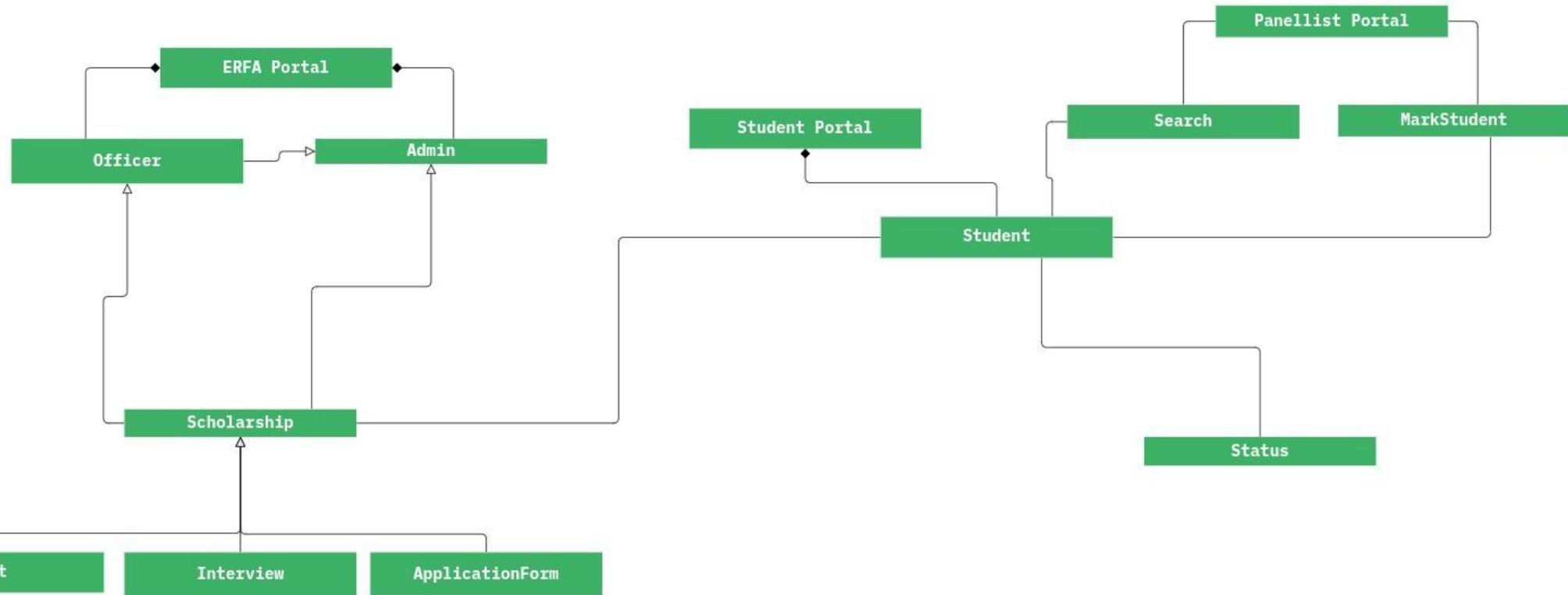
Deployment Diagram



System Block Diagram

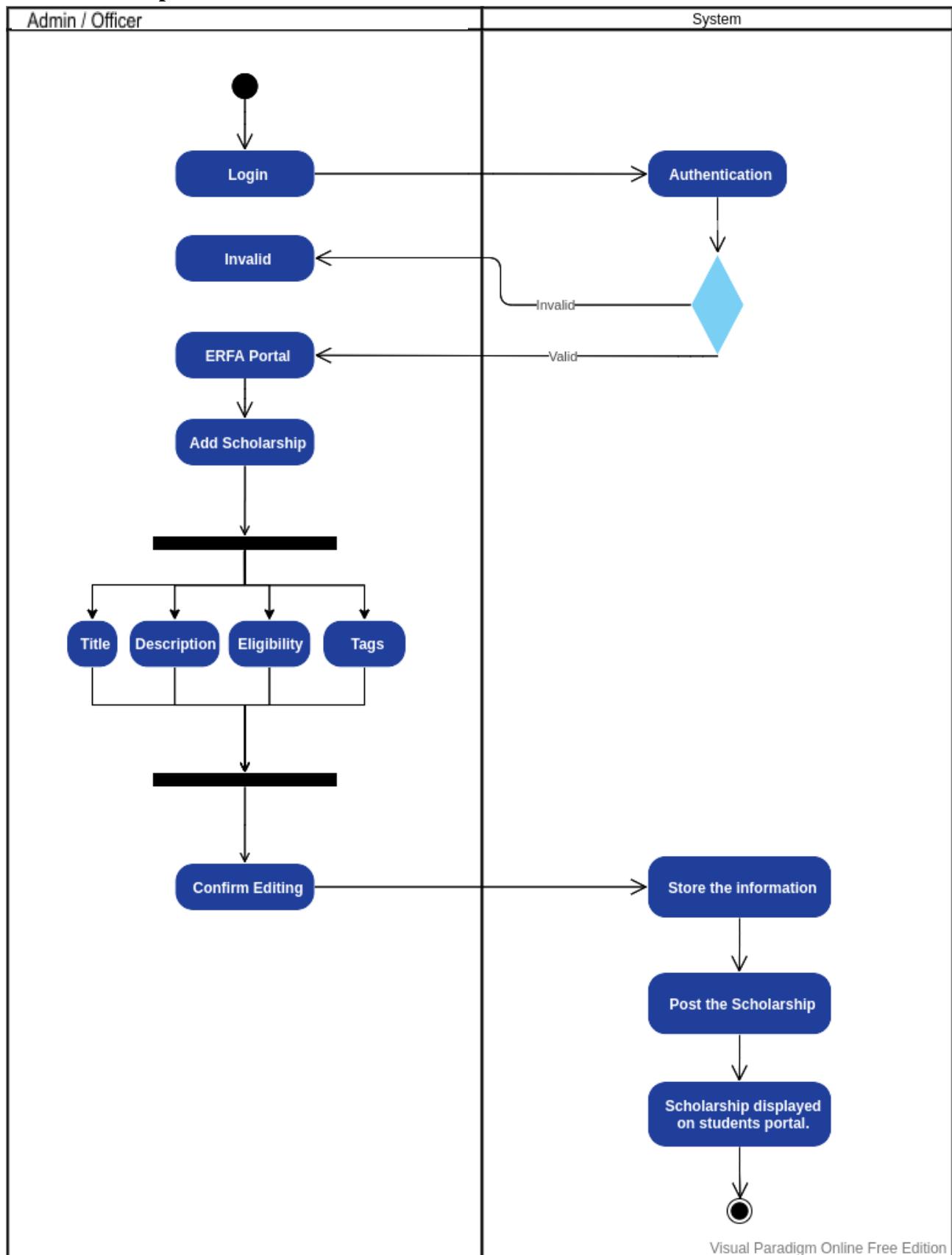


Domain Model

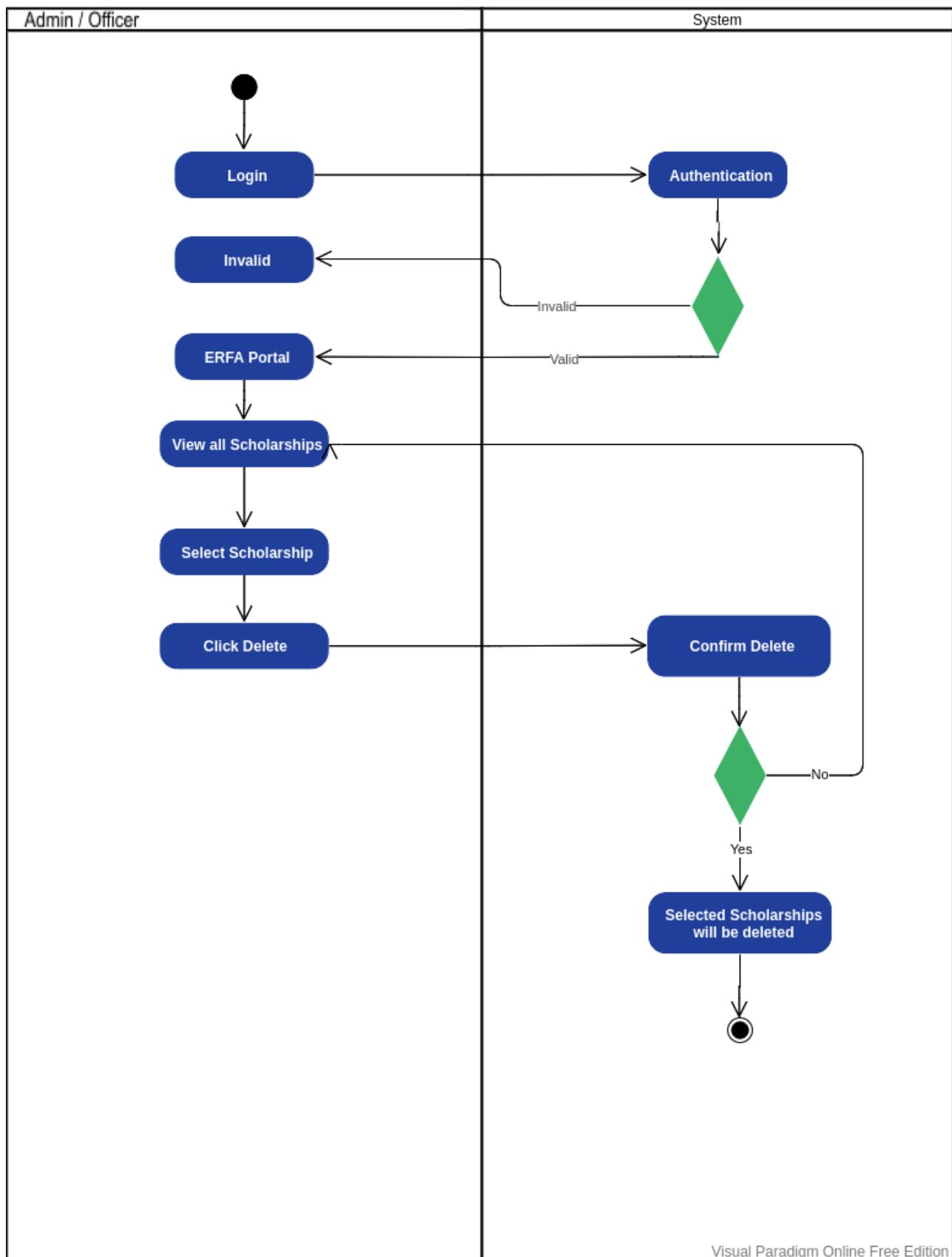


Activity Diagrams

Add Scholarship

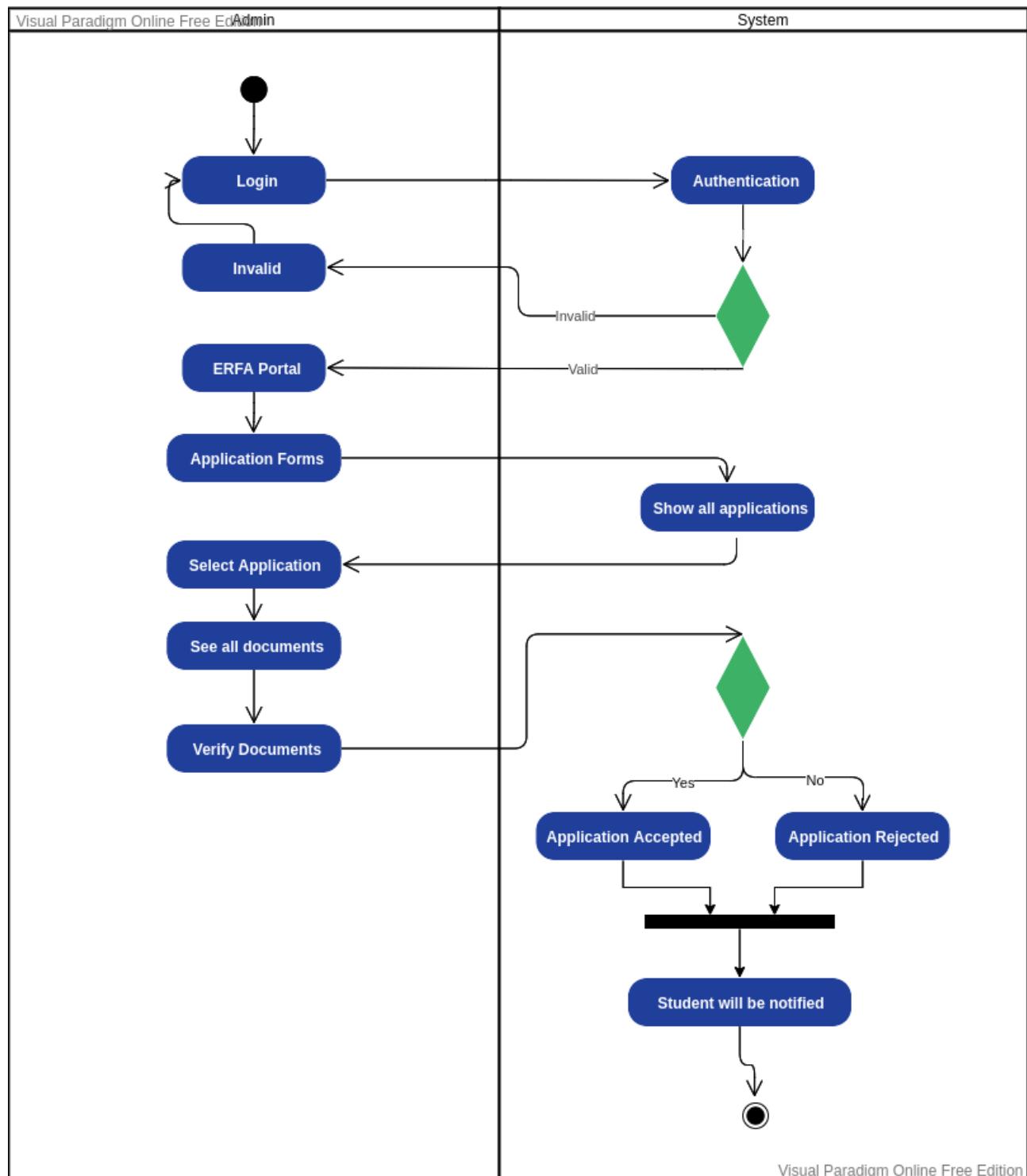


Delete Scholarship

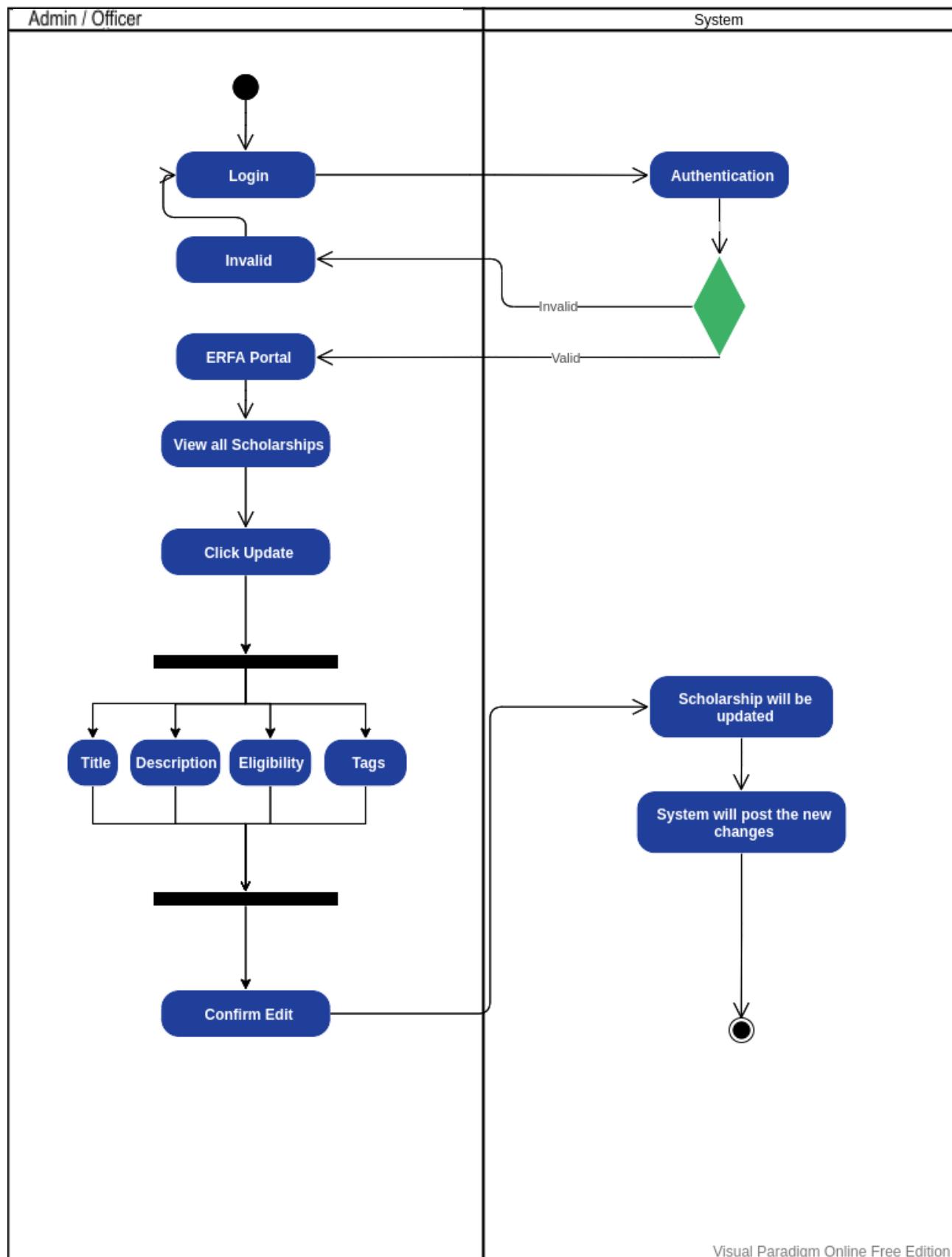


Update Scholarship

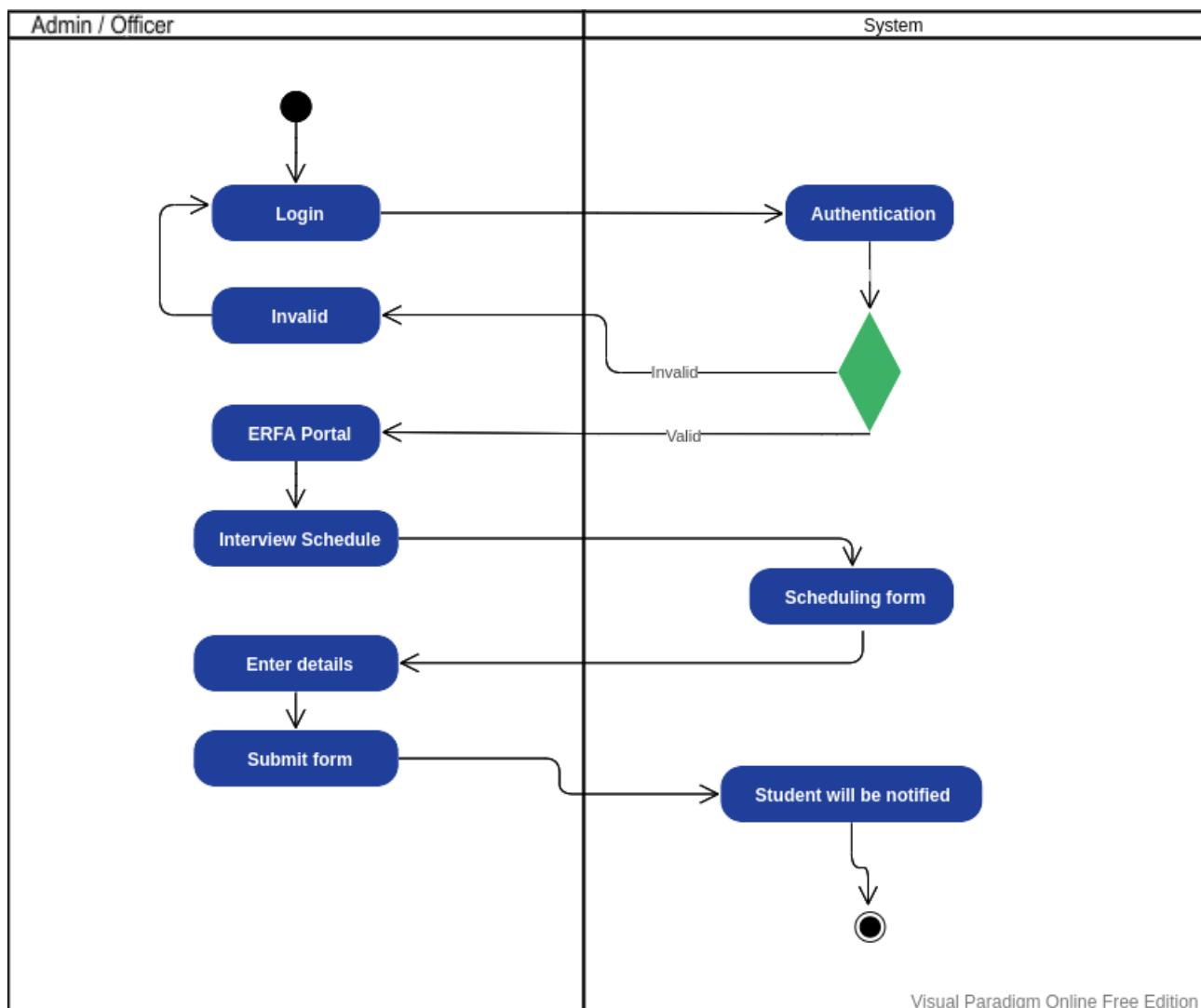
Admin / Officer



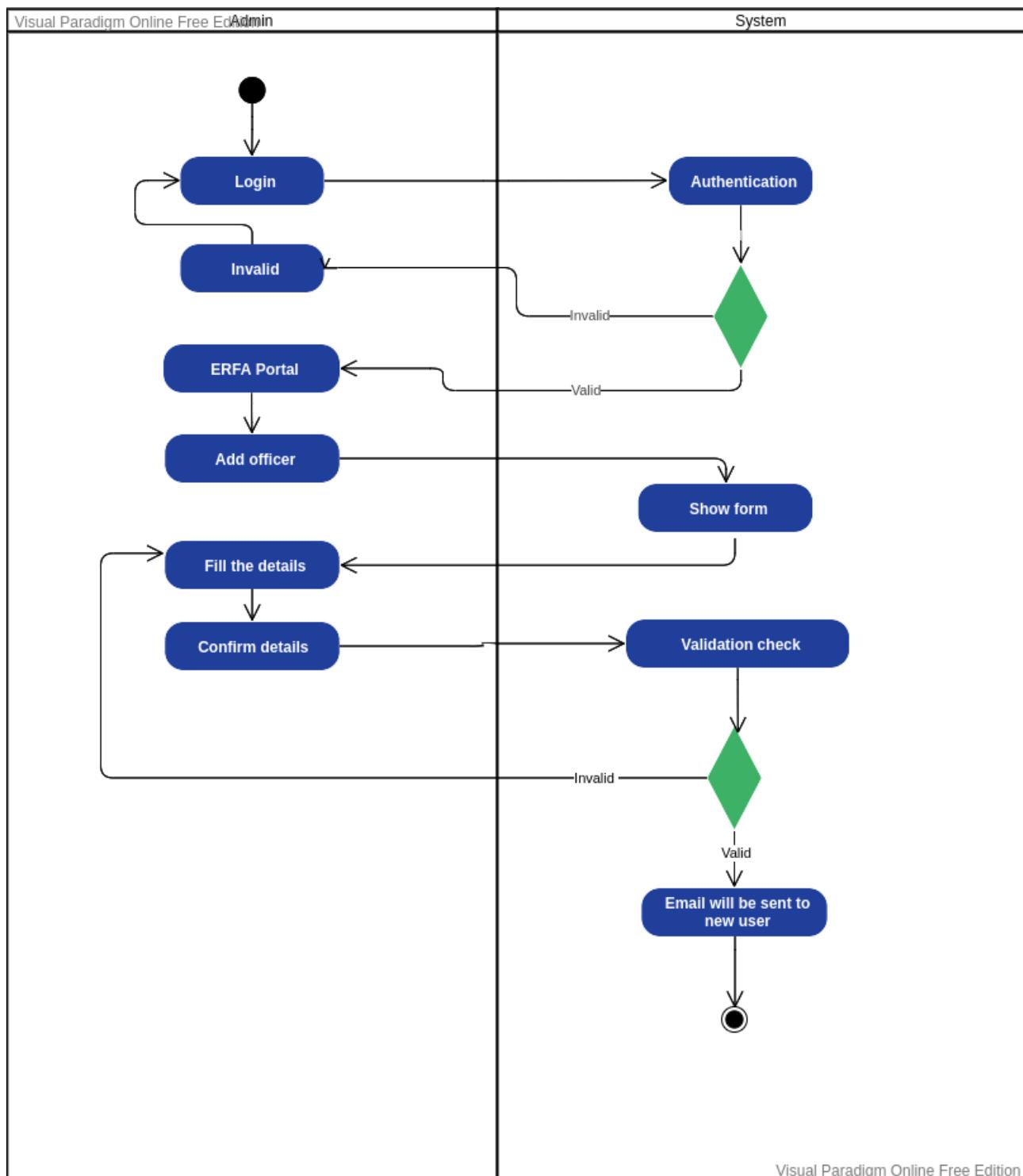
Document Verification and Shortlisting



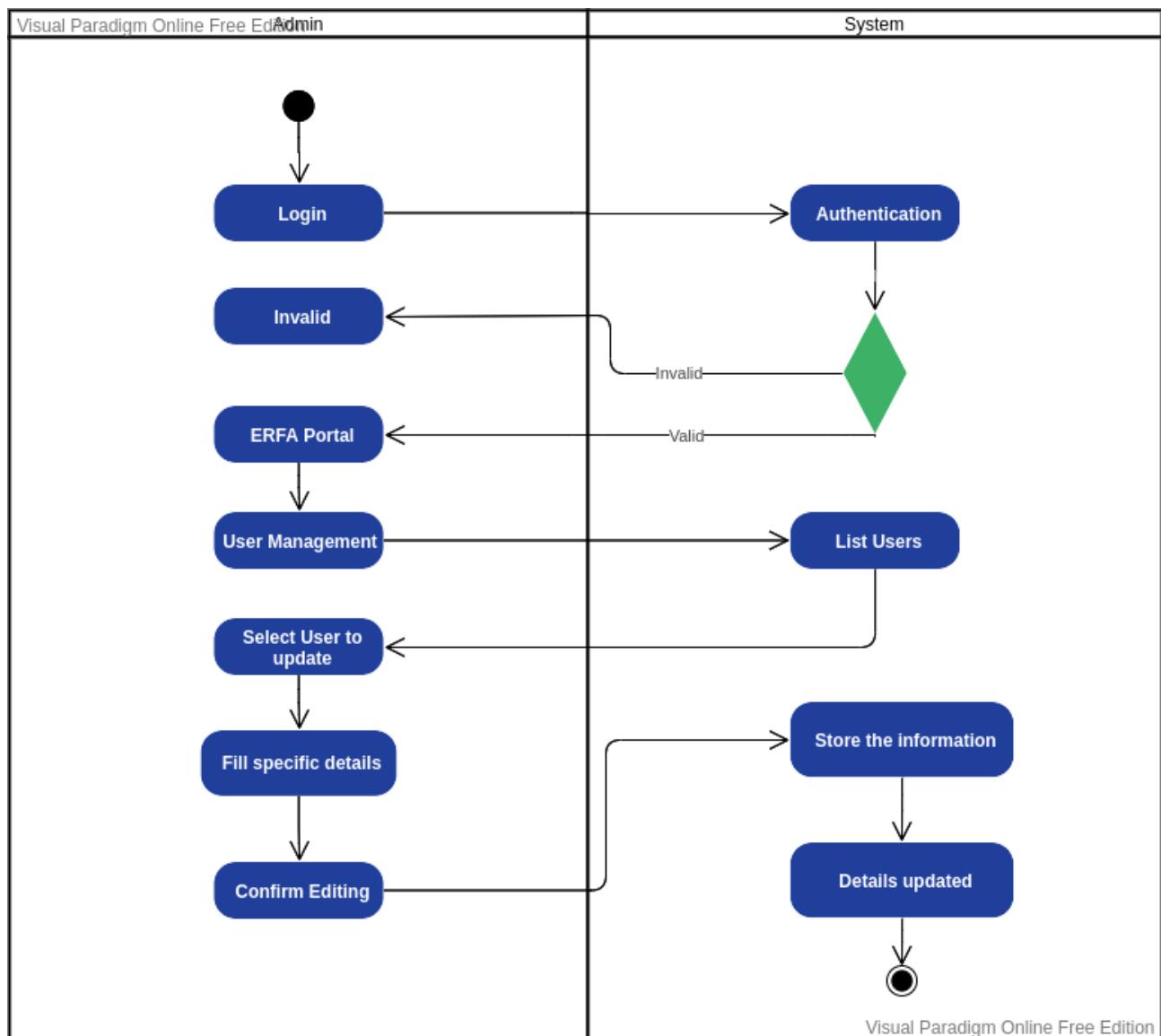
Interview Scheduling



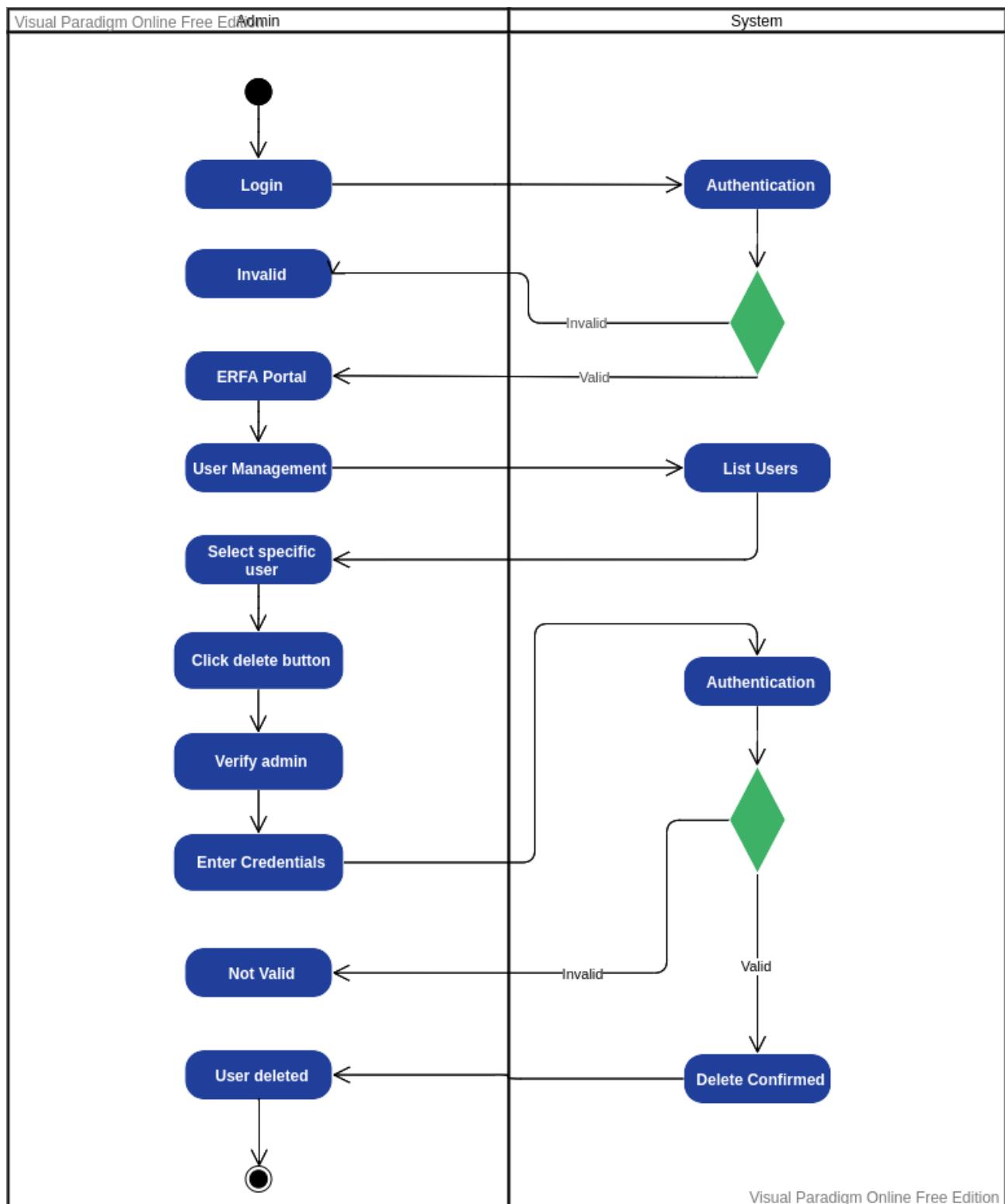
Add ERFA Officer



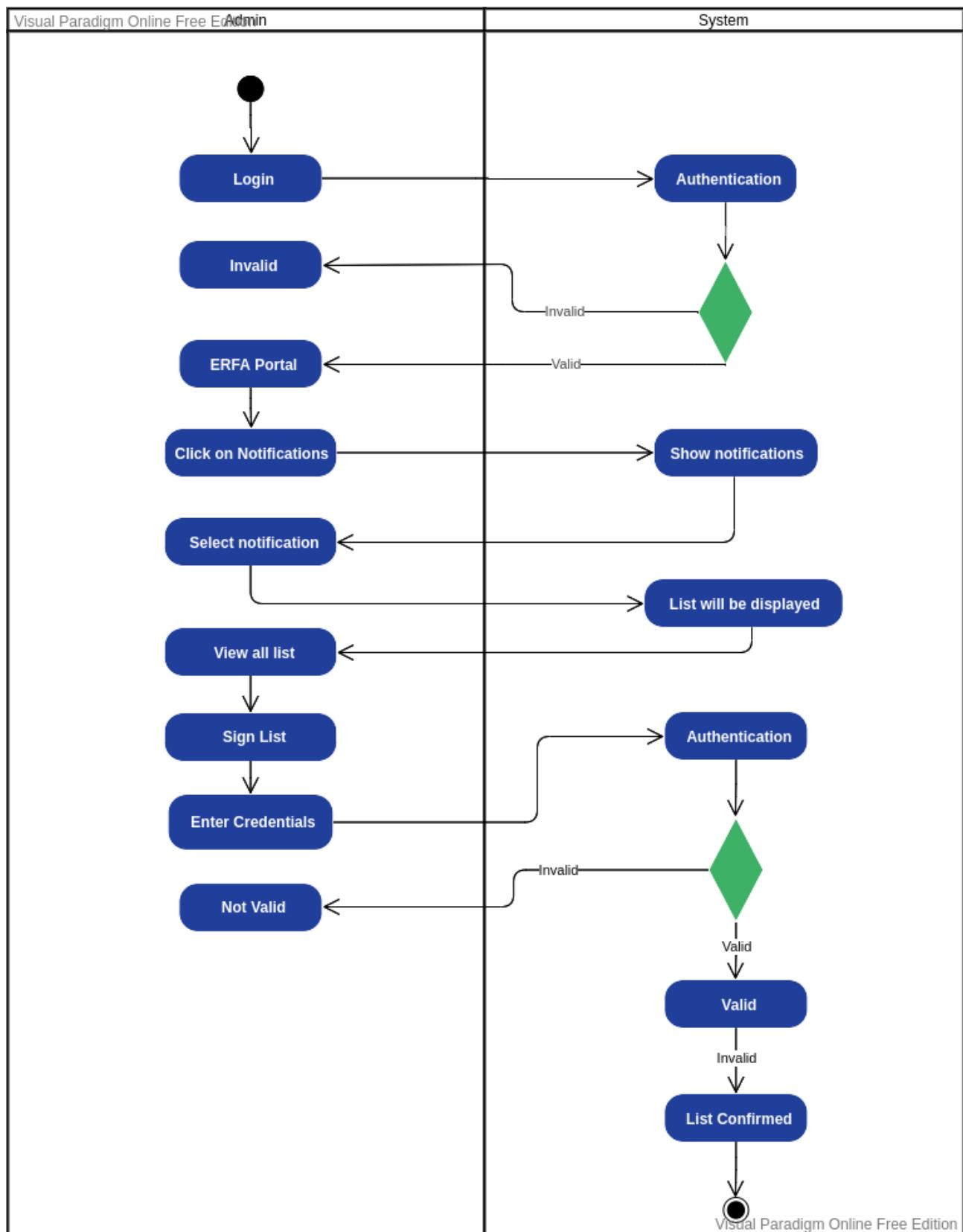
Update ERFA Officer



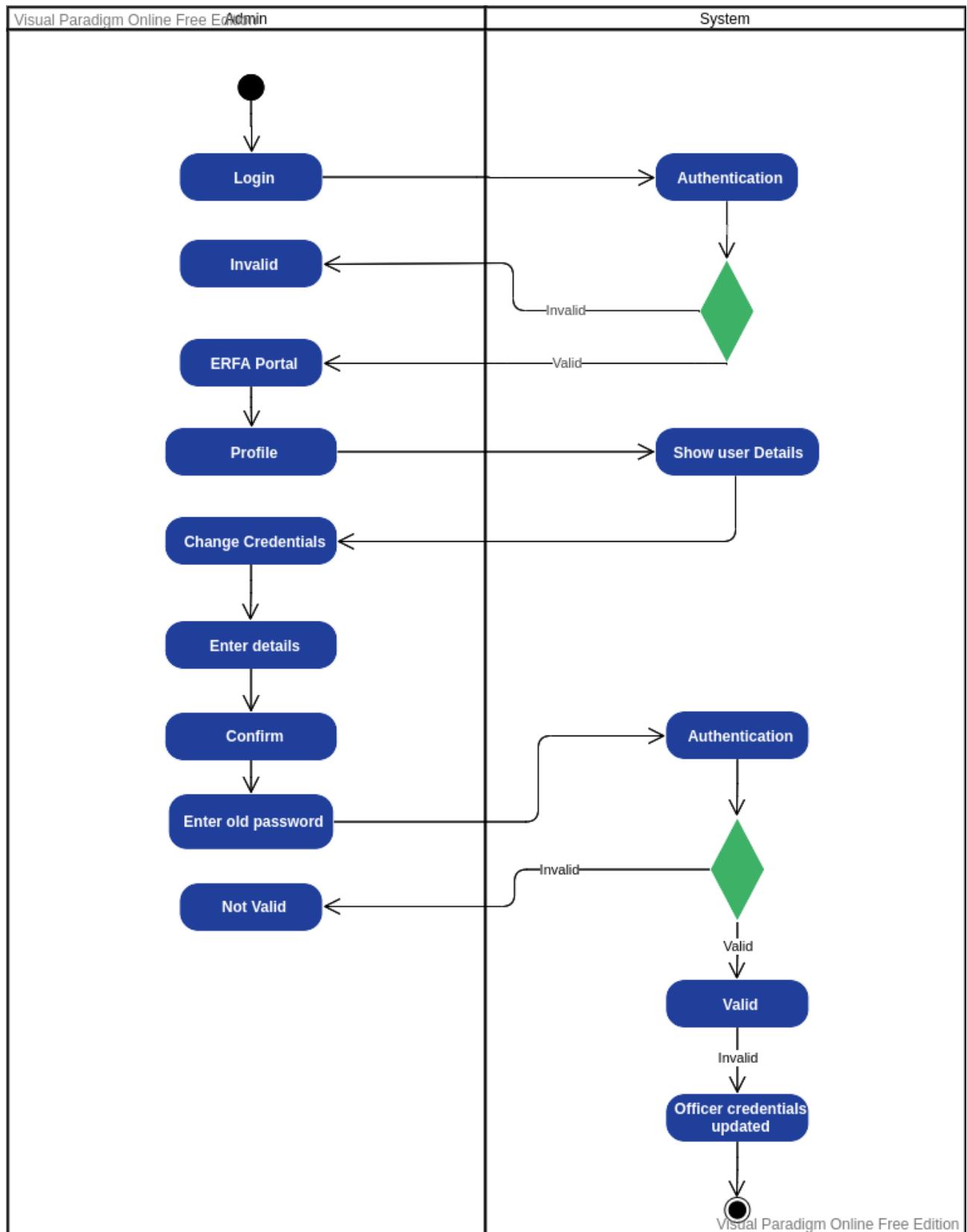
Delete ERFA Officer



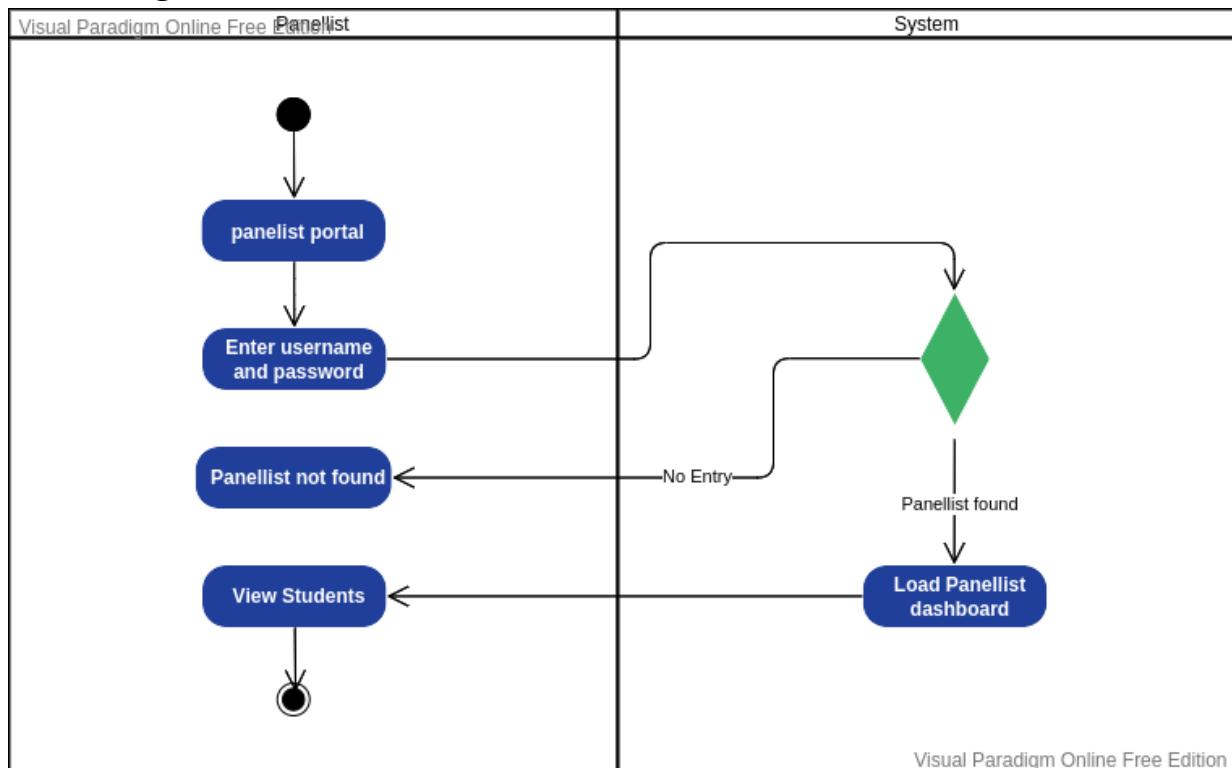
Final Shortlisting Students for Interview & Final Scholarship List



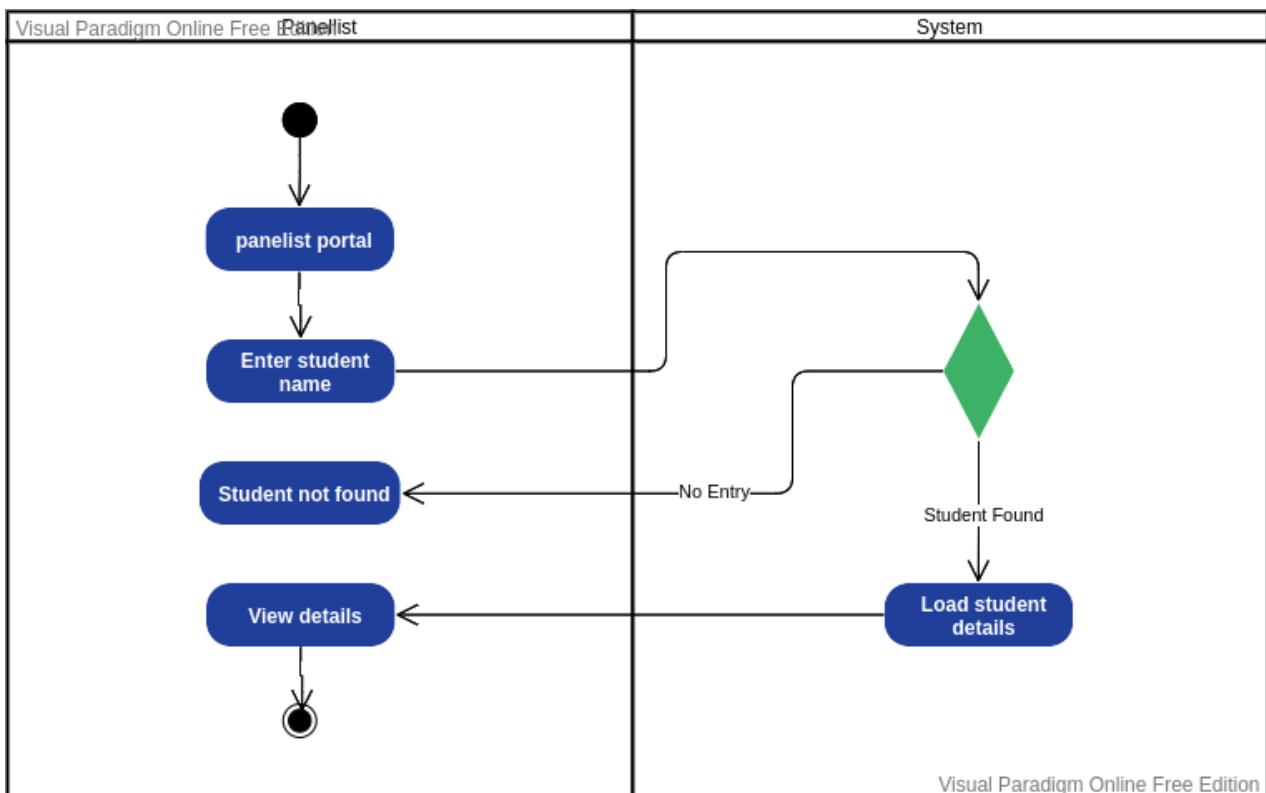
Change Credentials



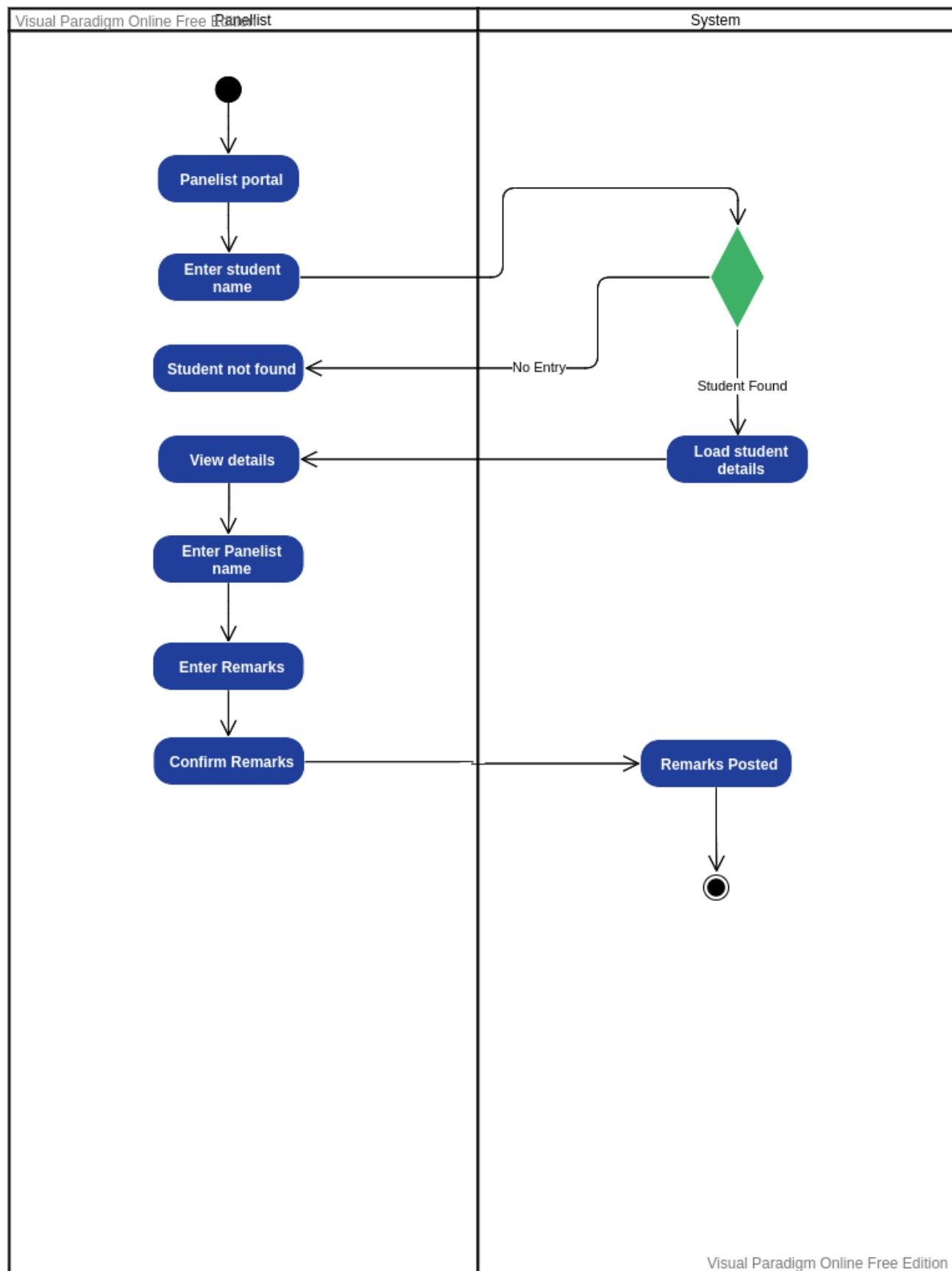
Panellist login



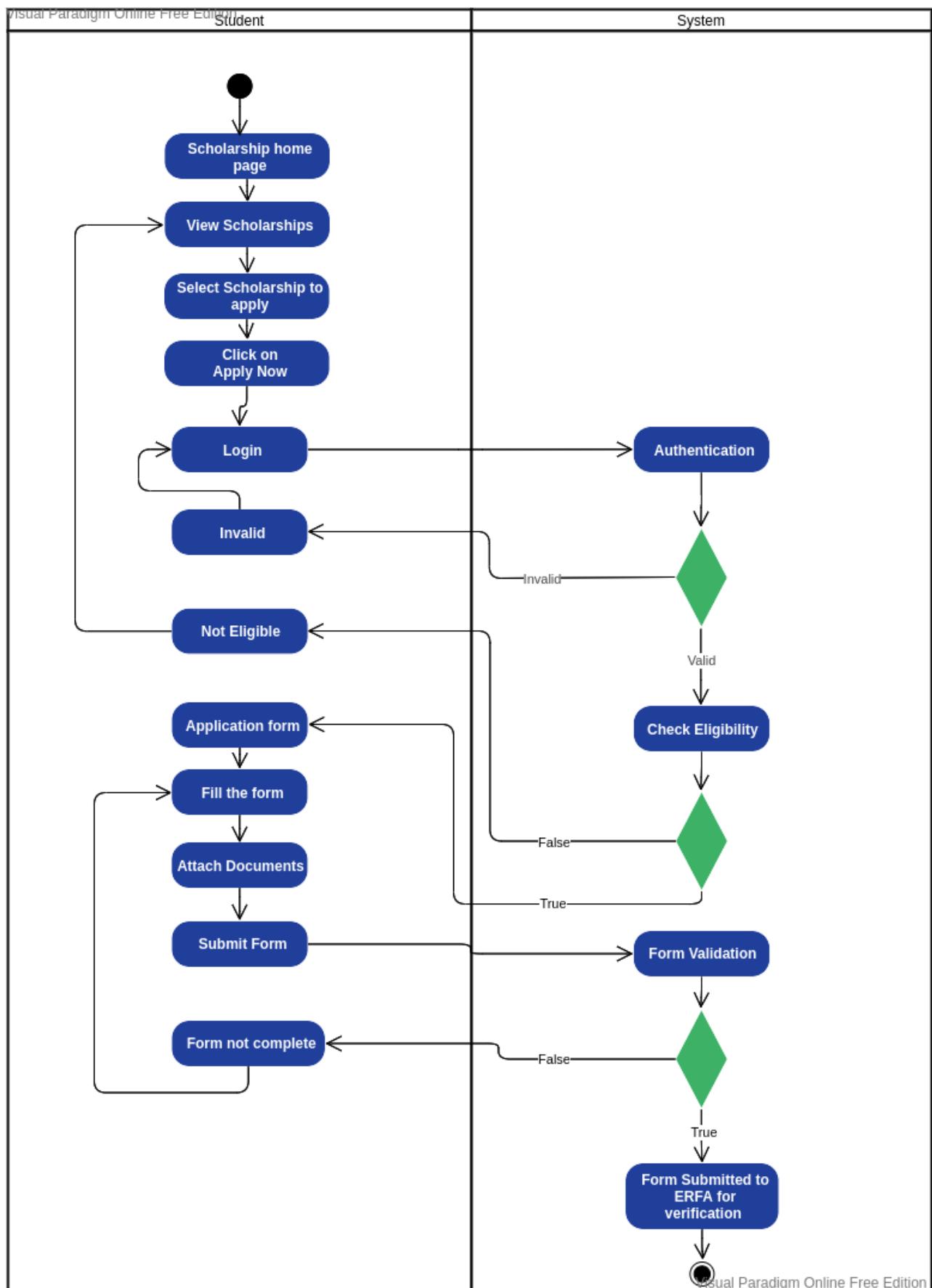
Retrieve Student Record



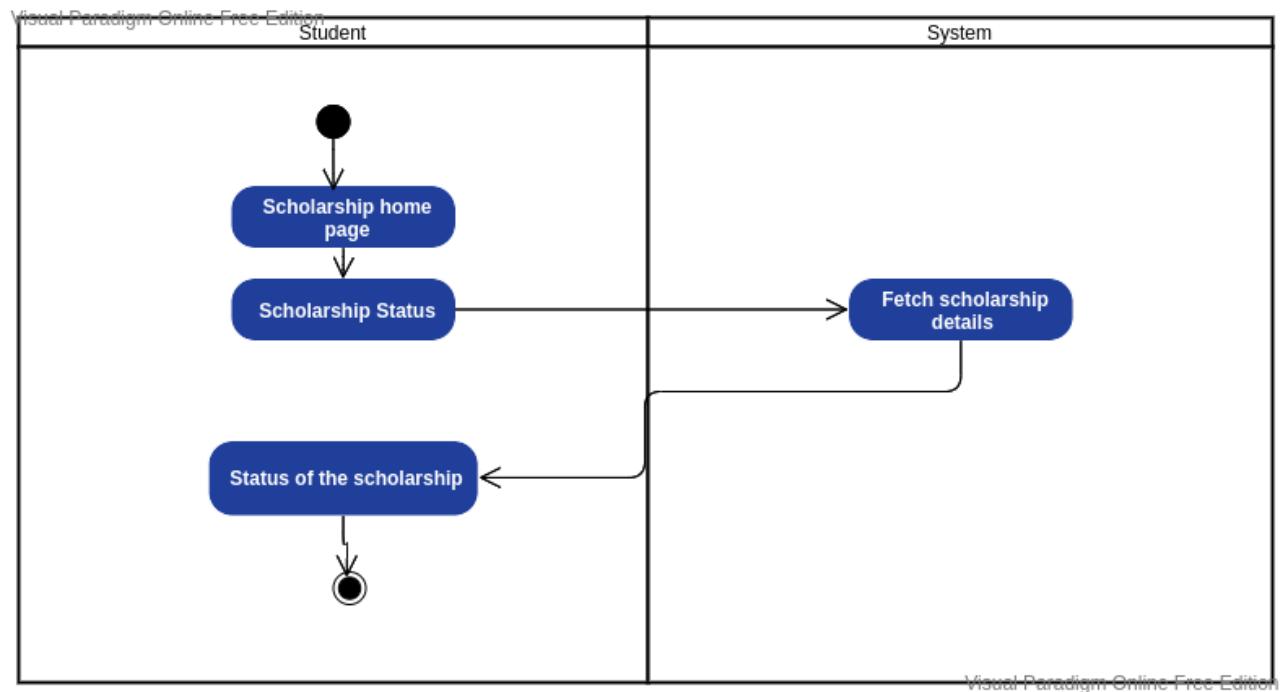
Post Interview Remarks



View scholarship and Apply for Scholarship

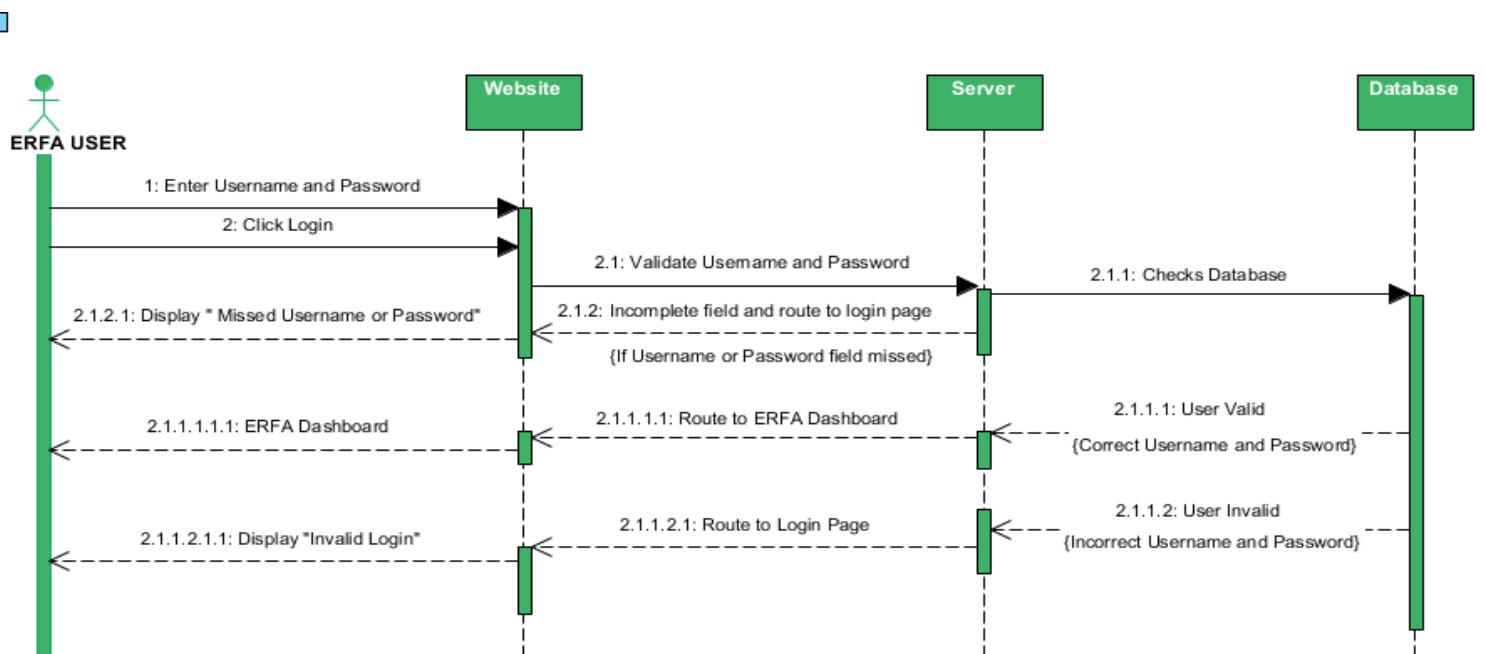


Status of Scholarship

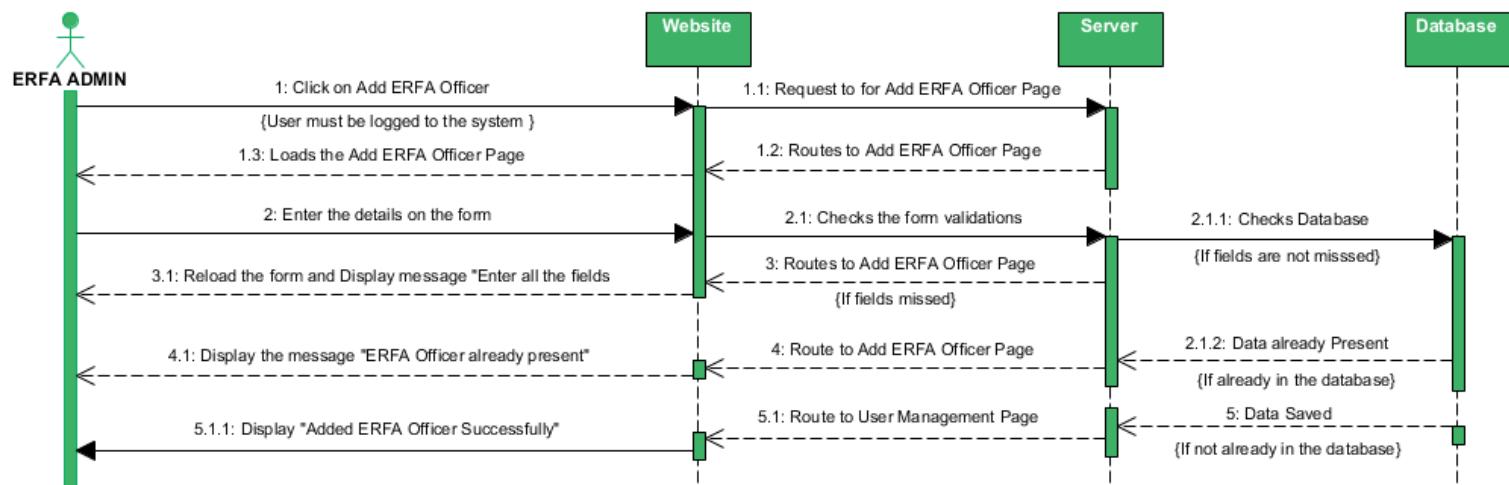


Sequence Diagrams

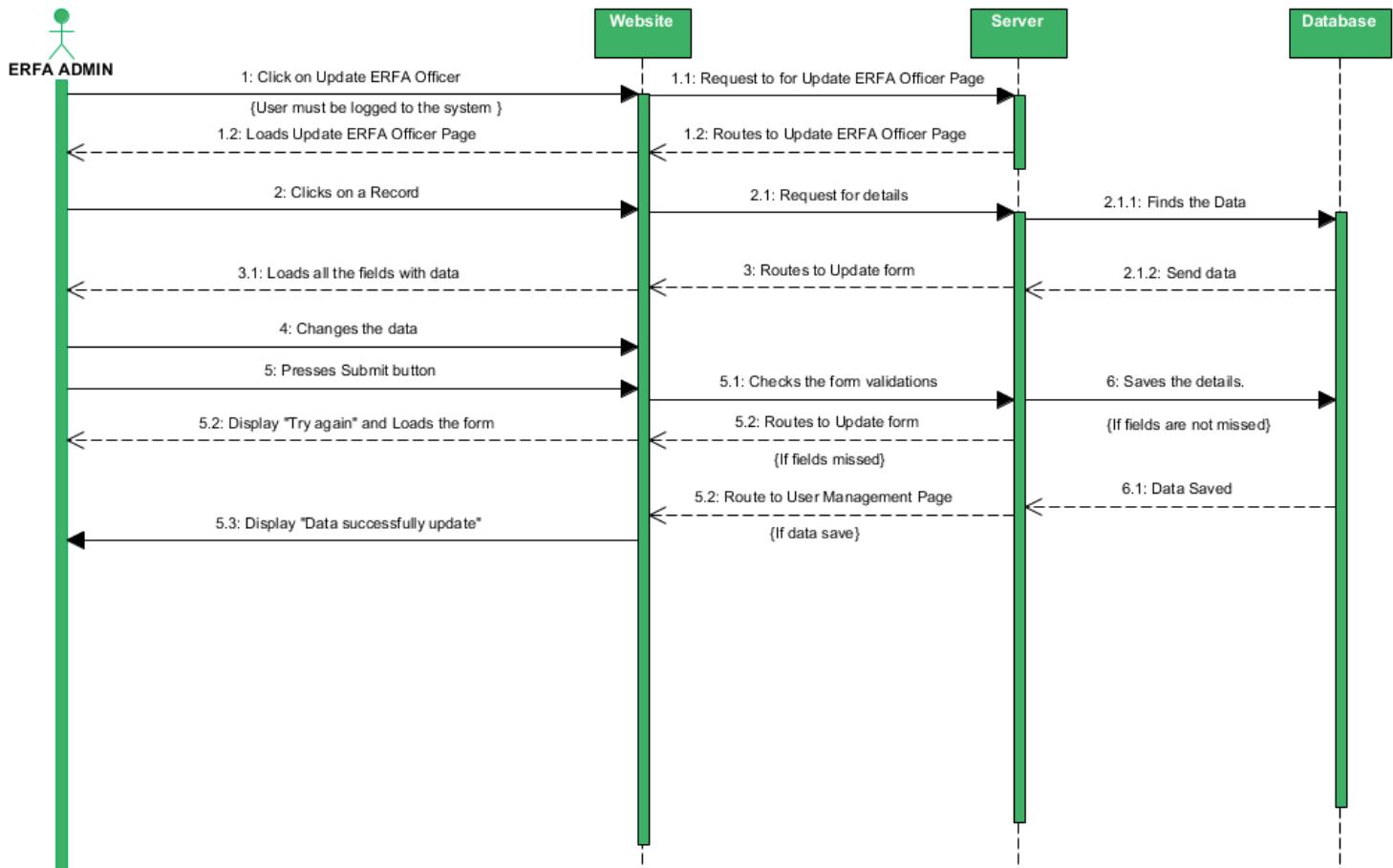
Login (ERFA USER)



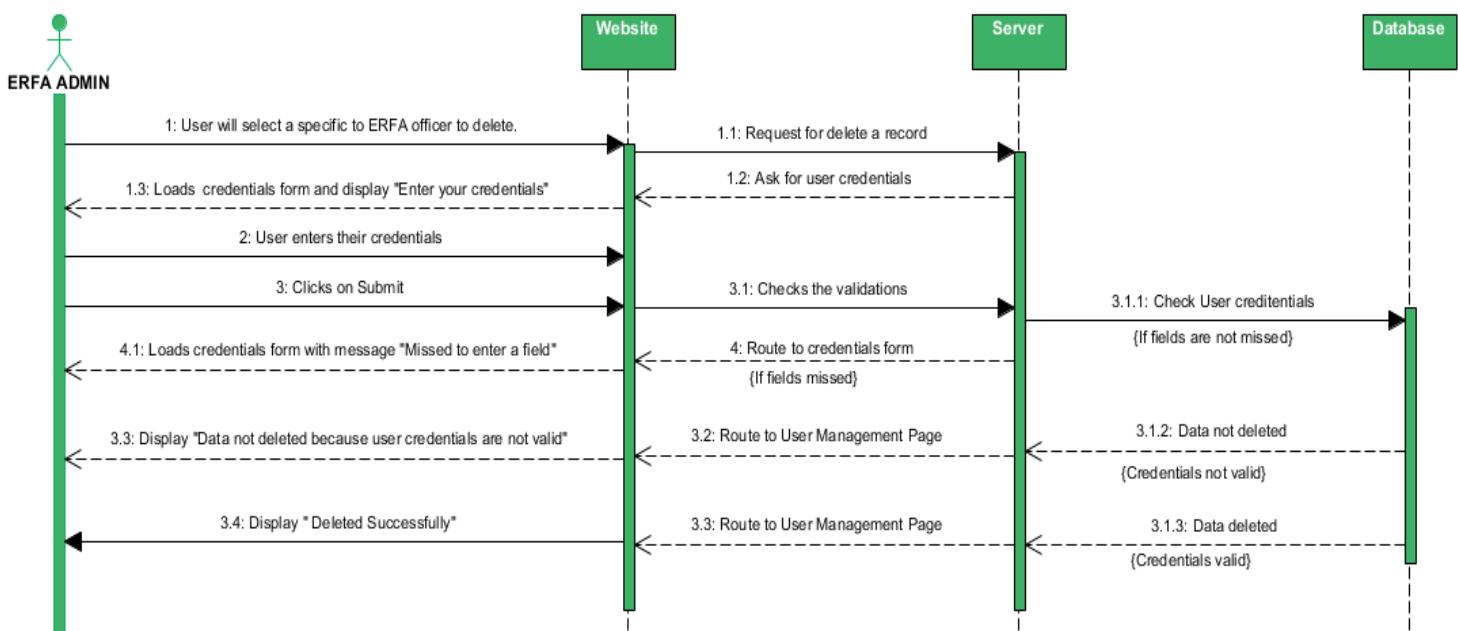
Add ERFA Officer



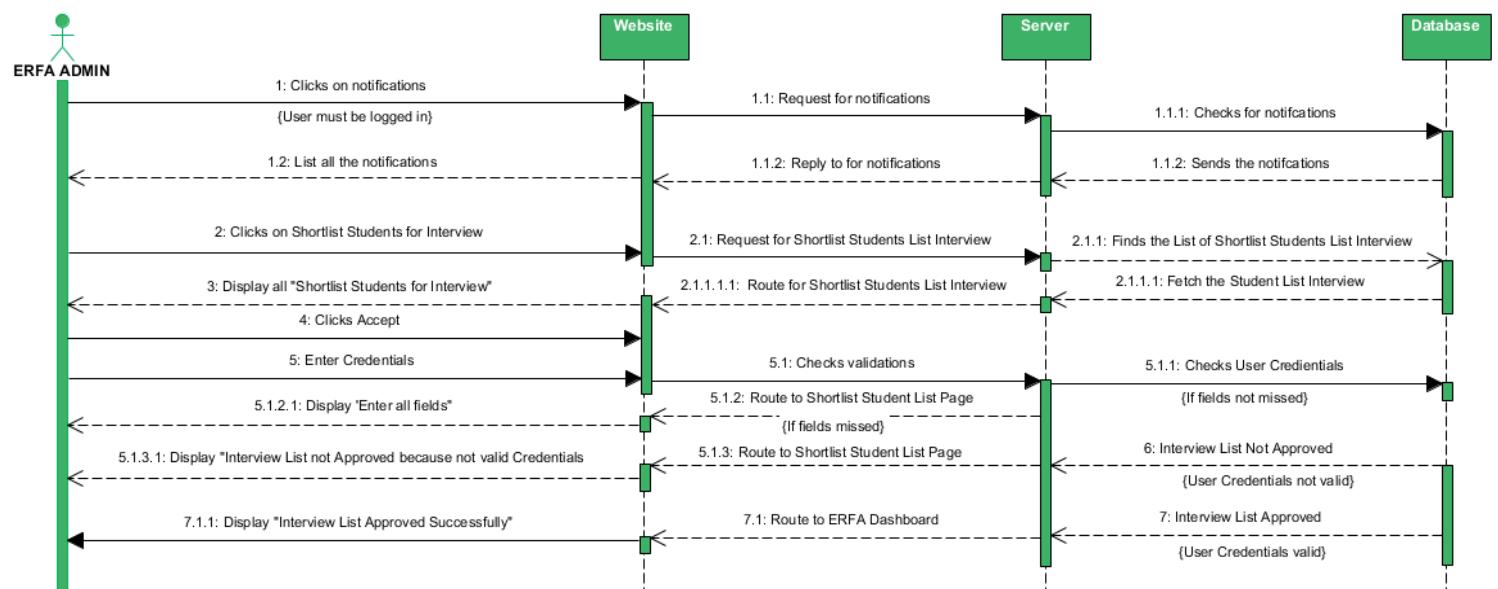
Update ERFA Officer



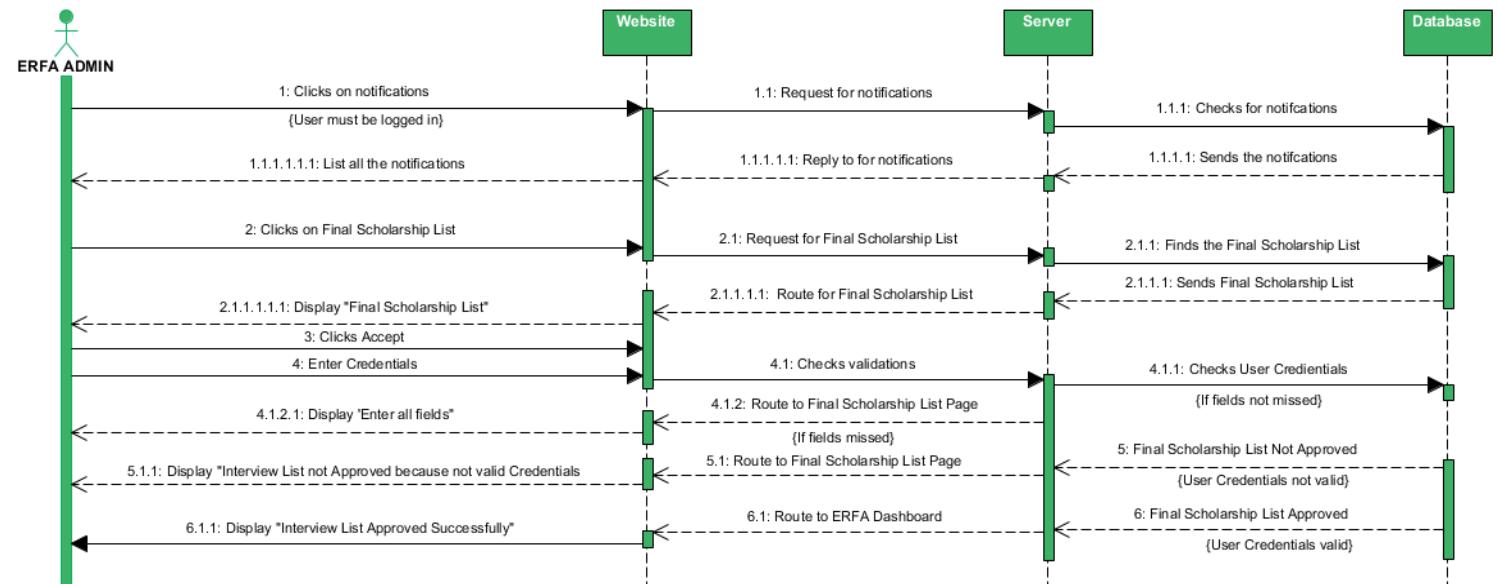
Delete ERFA Officer



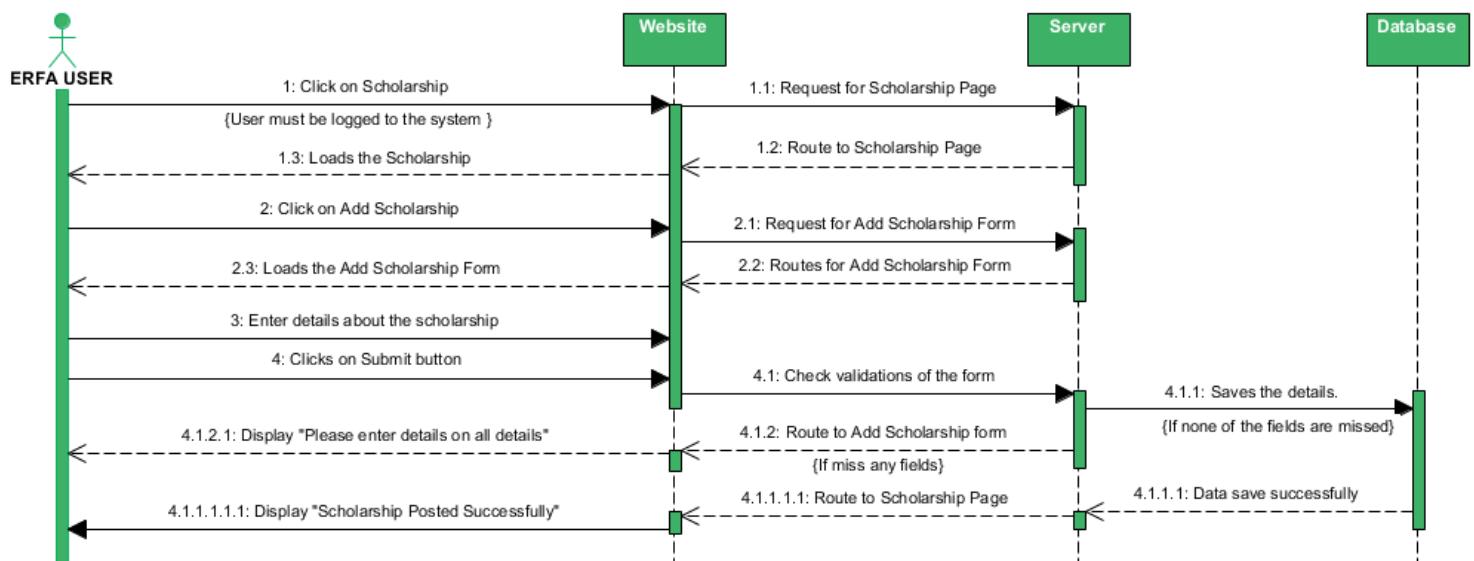
Final Shortlist for Interview



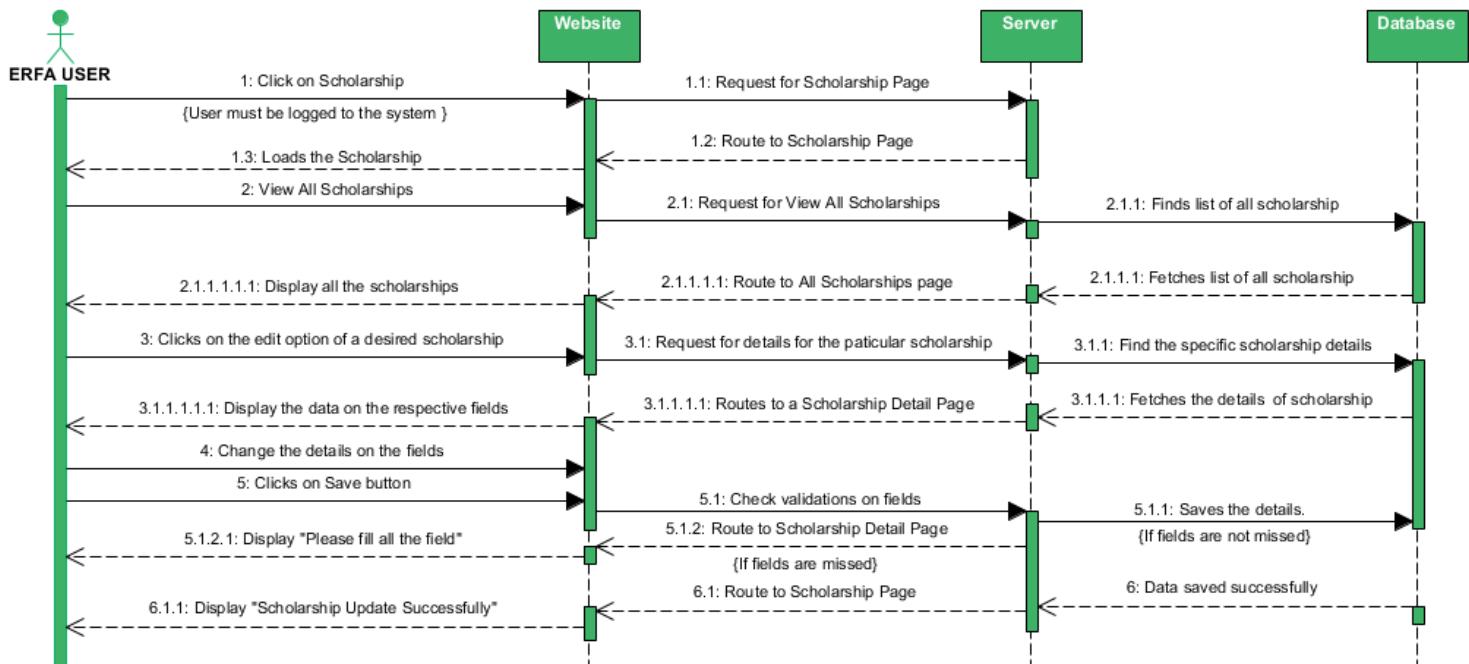
Final Scholarship List



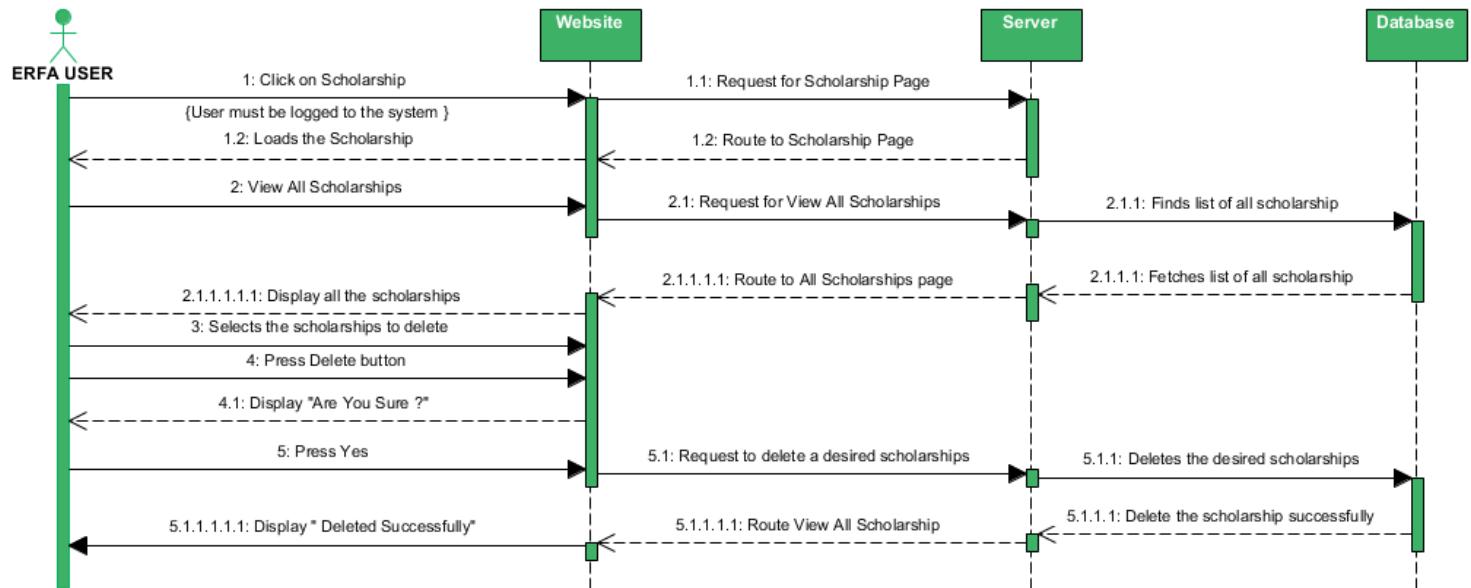
Add Scholarship



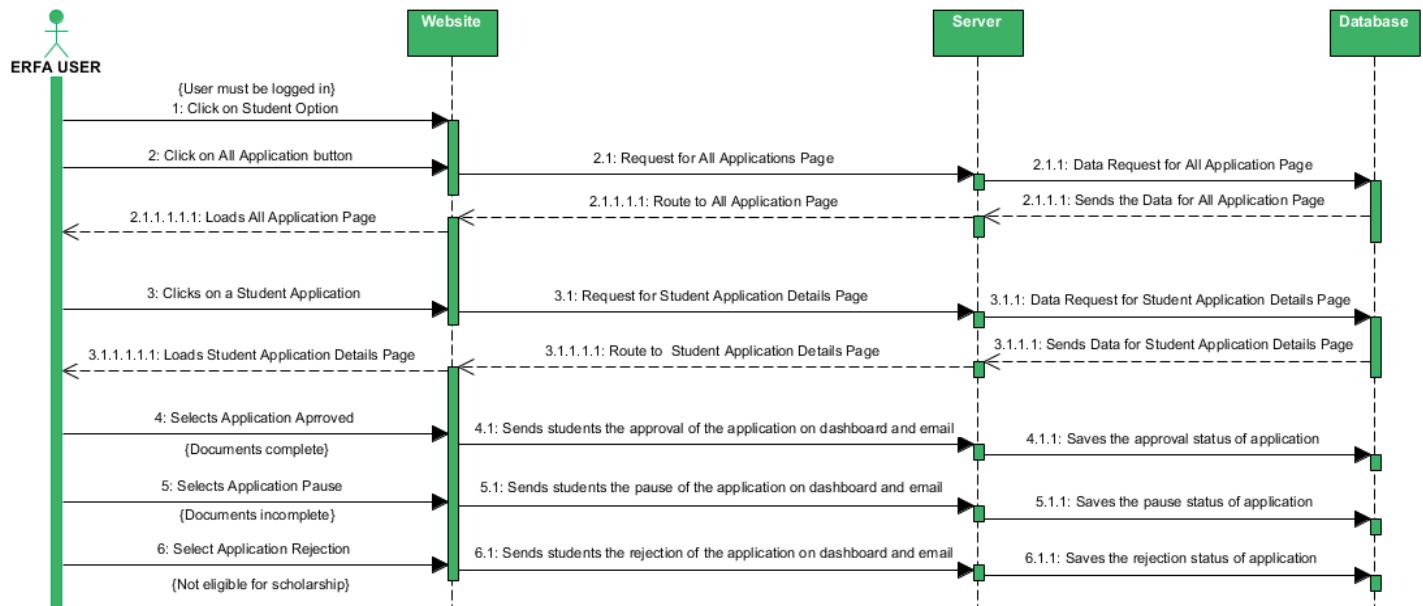
Update Scholarship



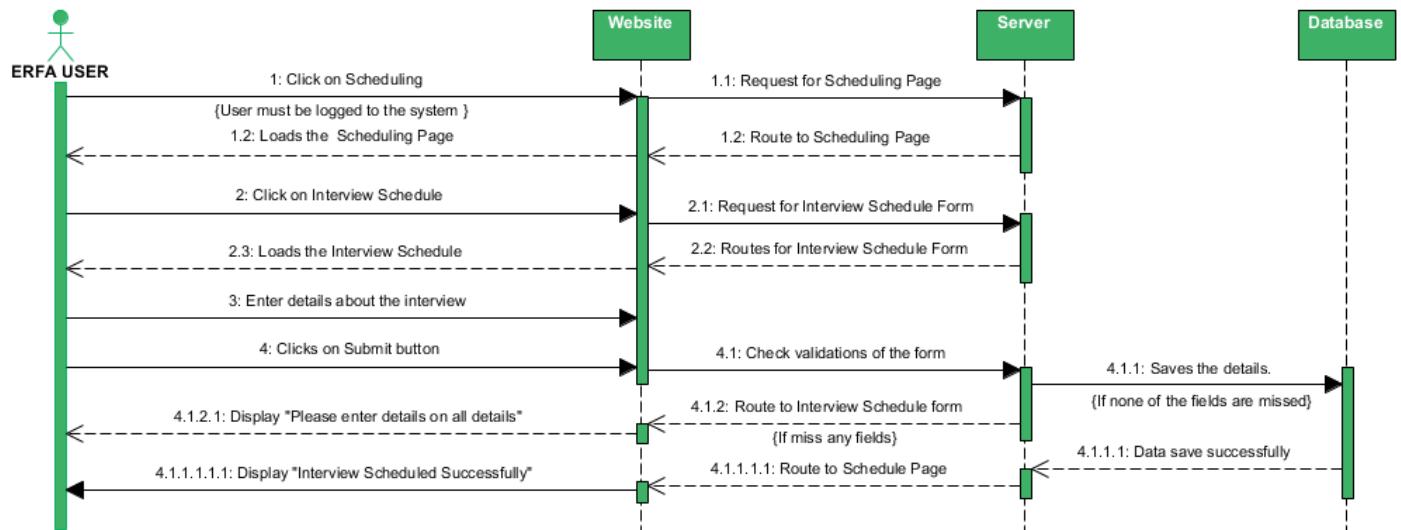
Delete Scholarship



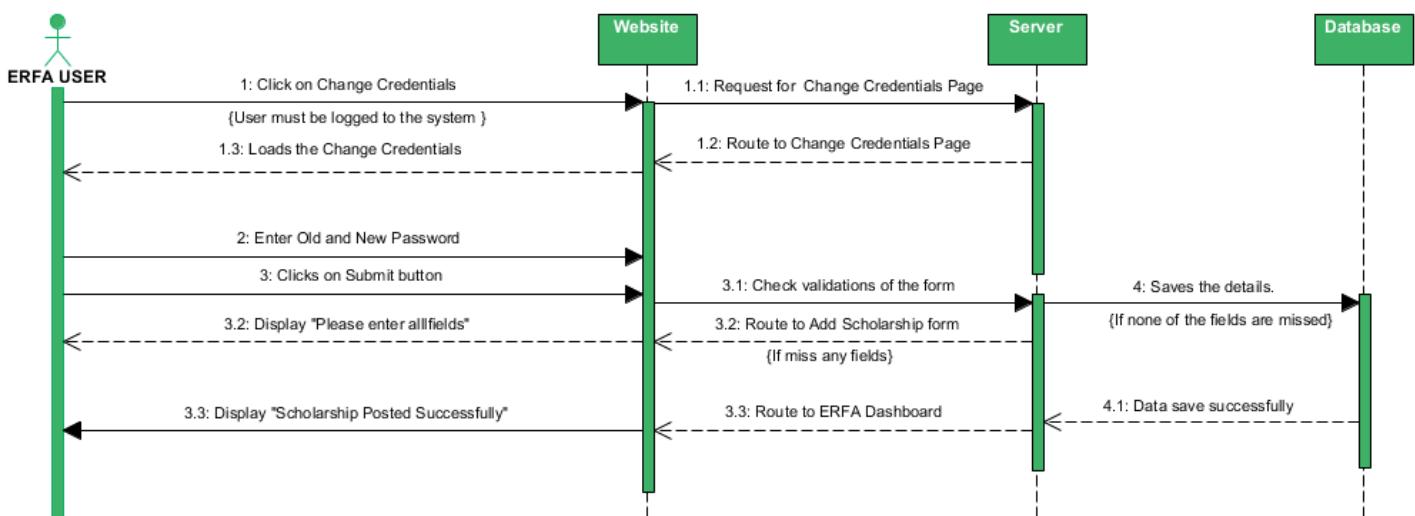
Online Document Verification and Shortlisting



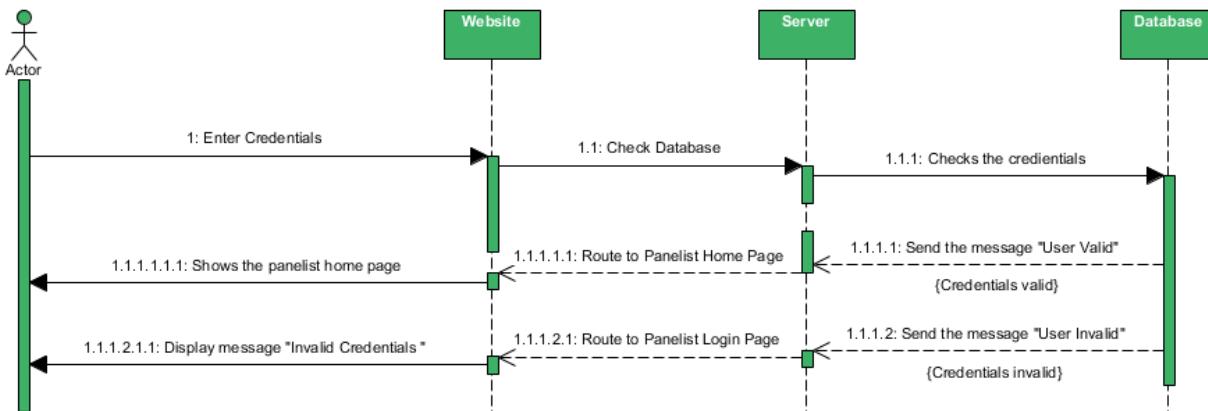
Interview Scheduling



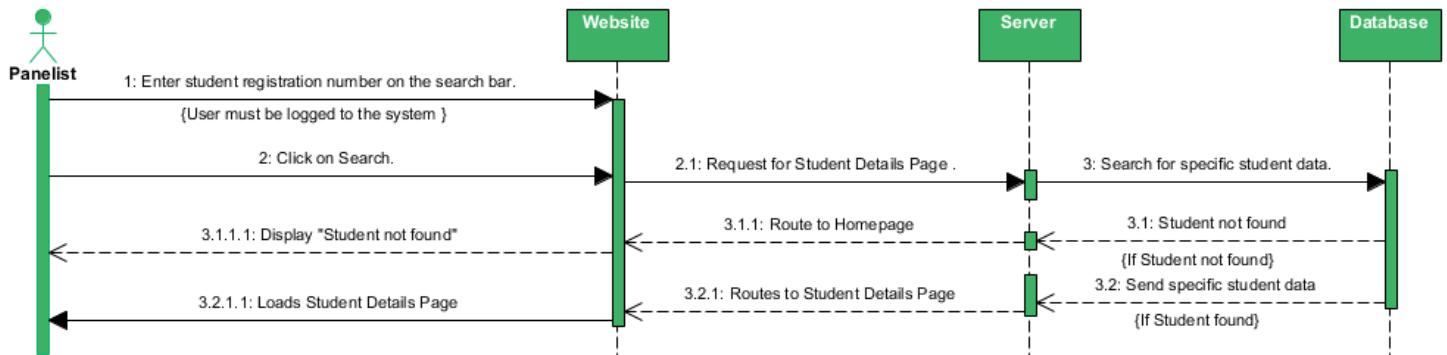
Change Credentials



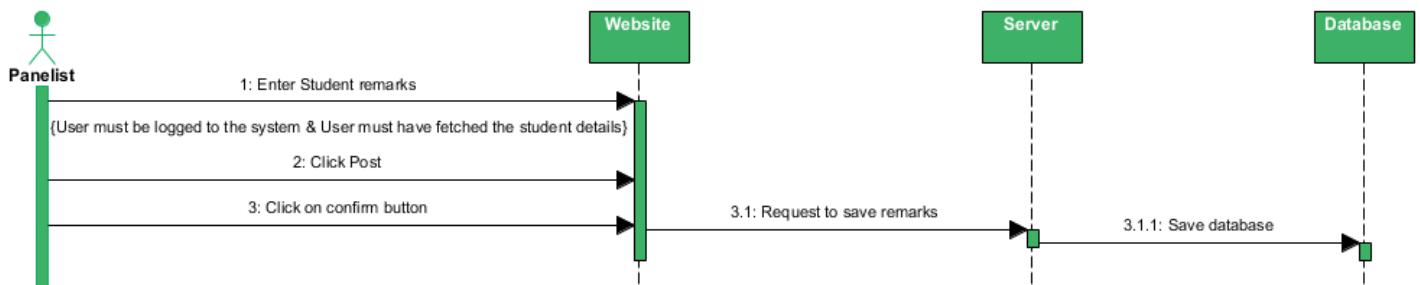
Login (Panelist)



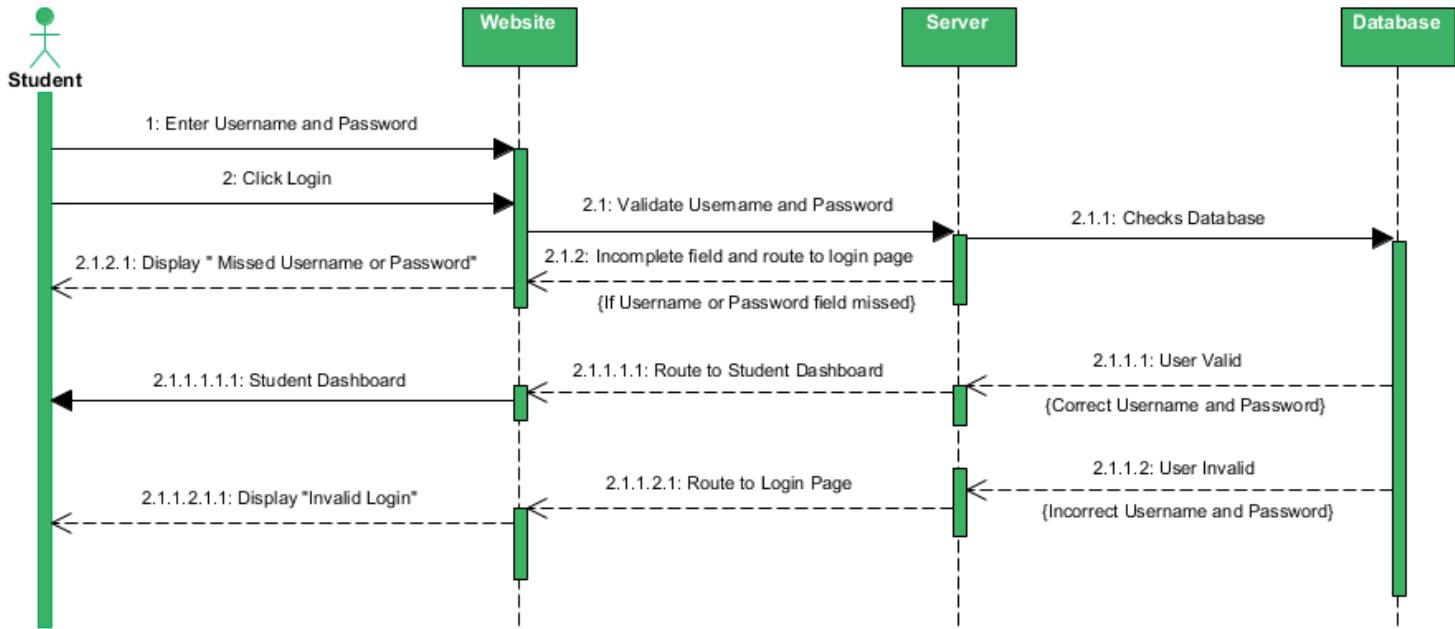
Retrieve Student Record



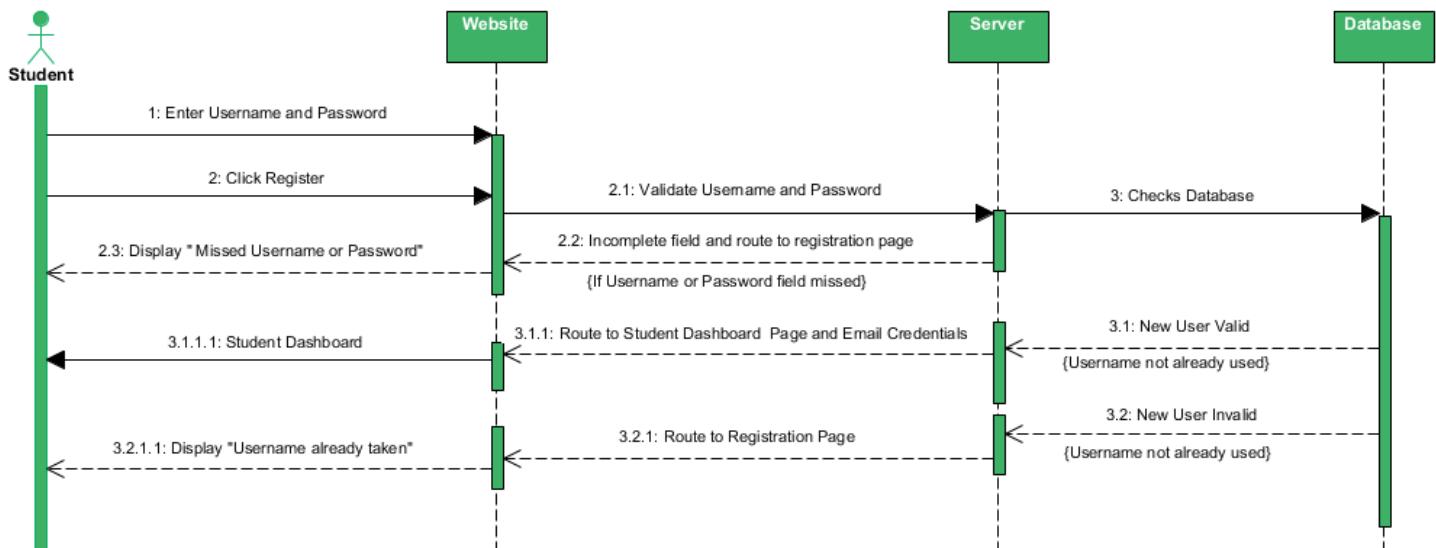
Post Interview Remarks



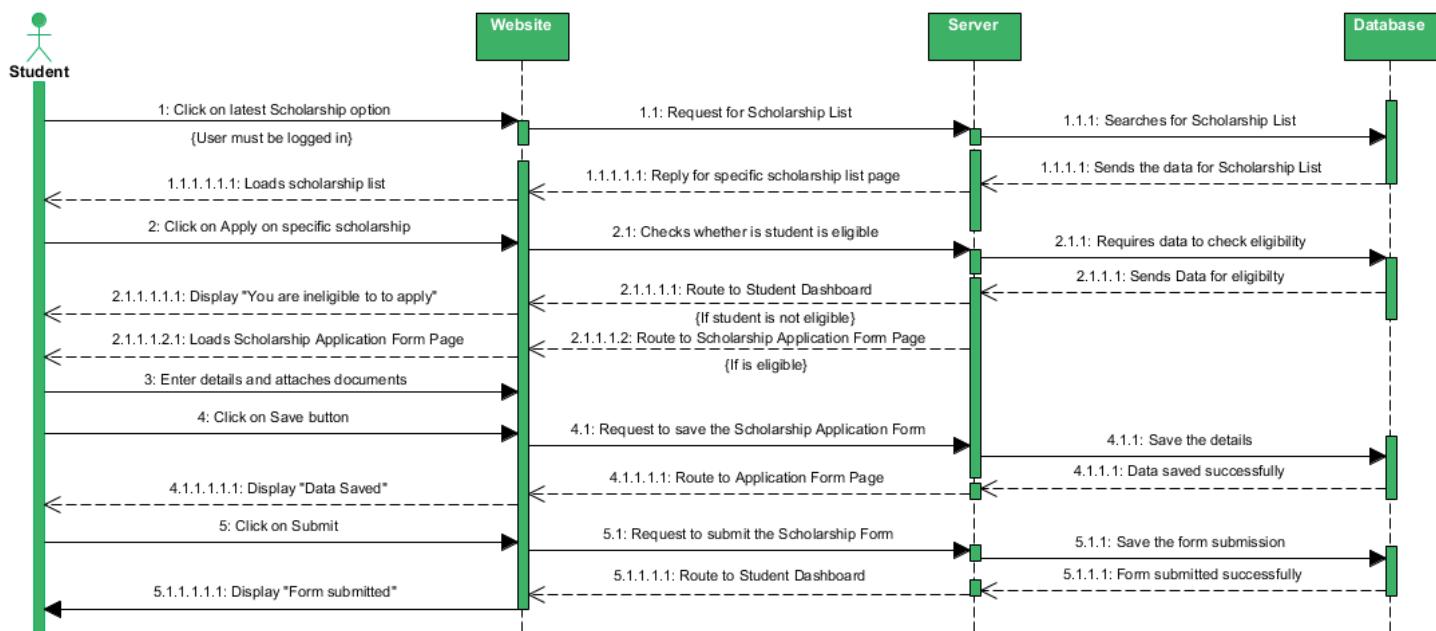
Login (Student)



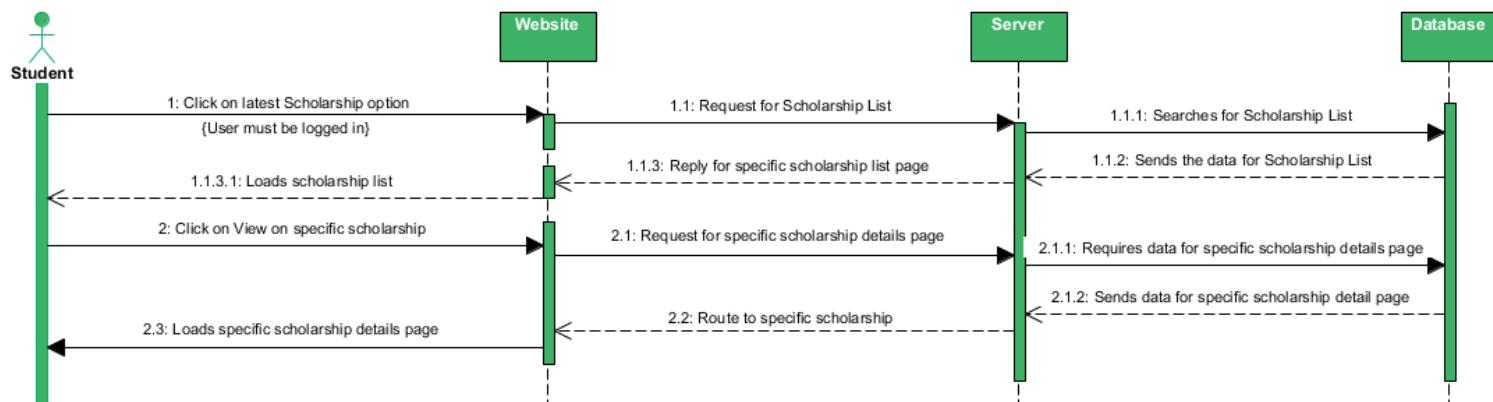
Sign Up (Student)



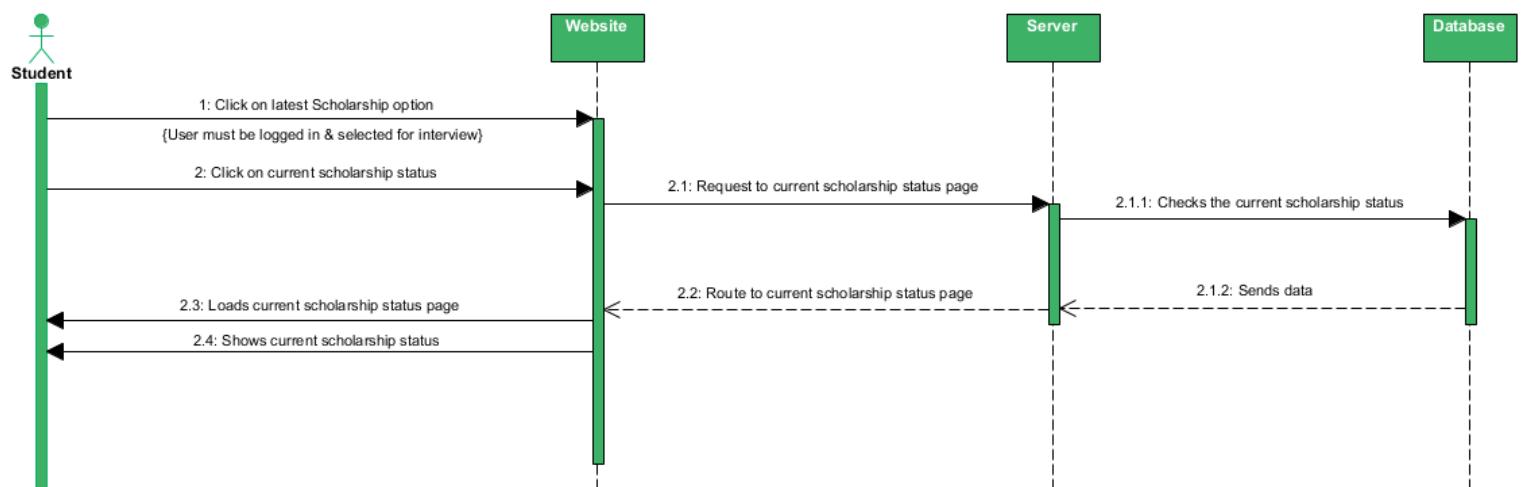
Apply for Scholarship



View Scholarship

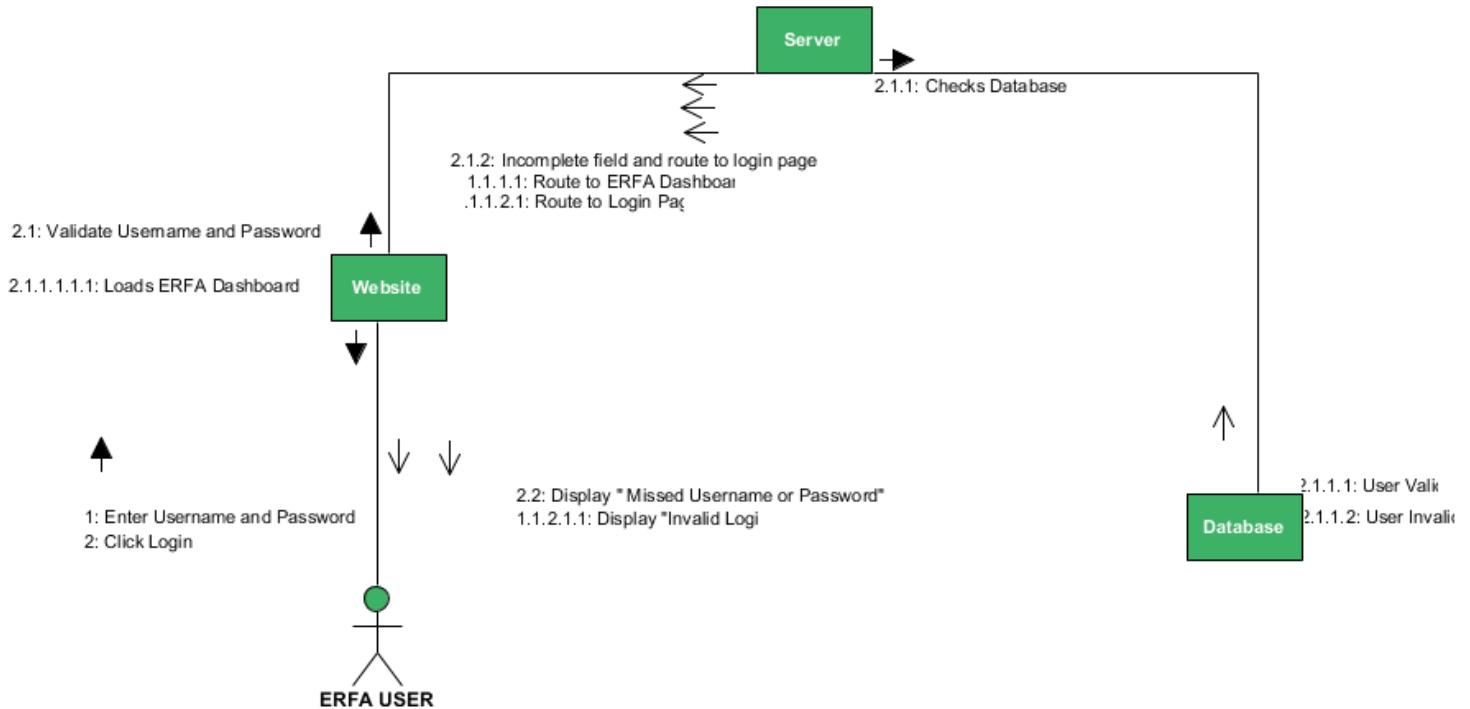


Status of the Scholarship

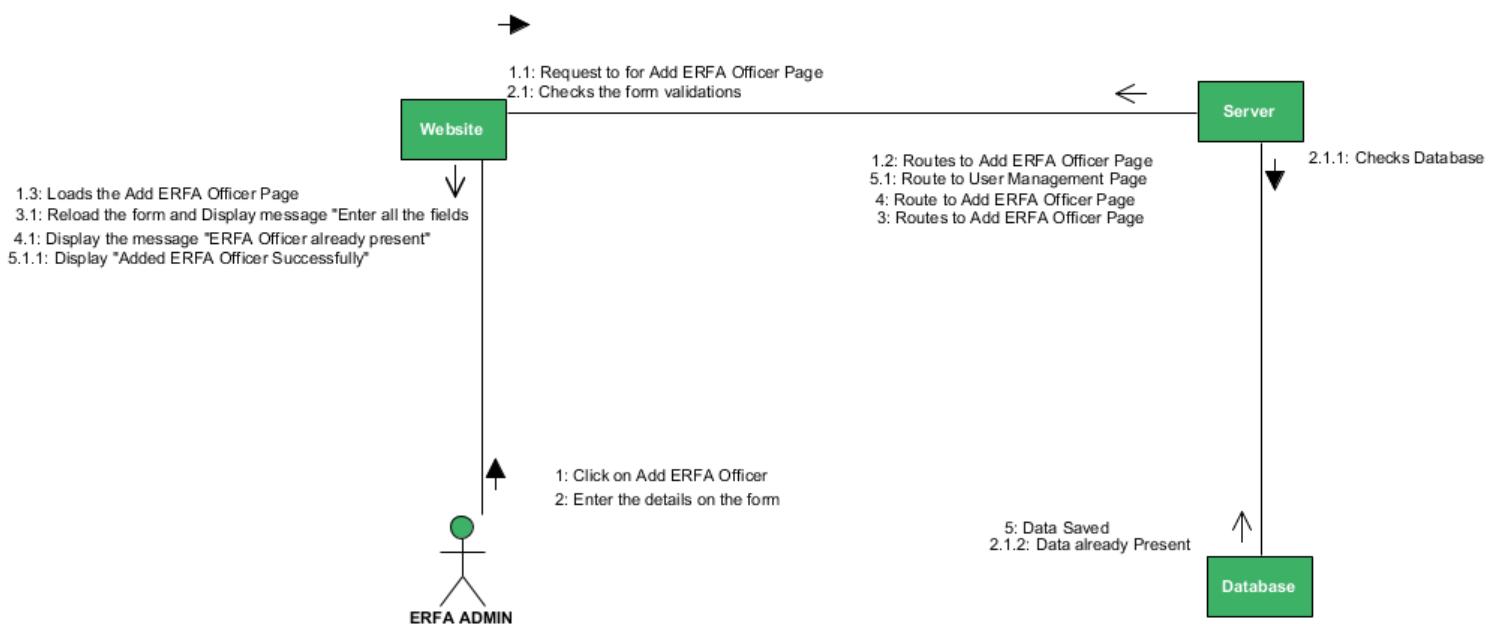


Communication Diagrams

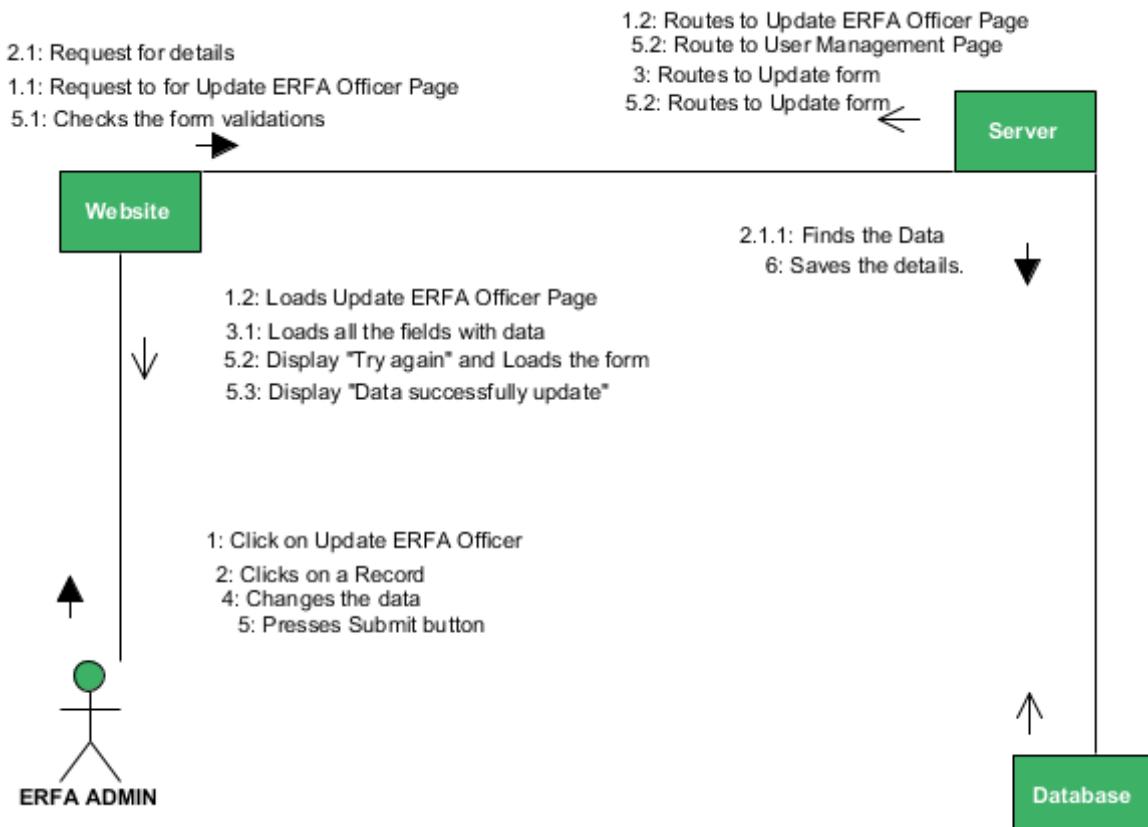
Login (ERFA USER)



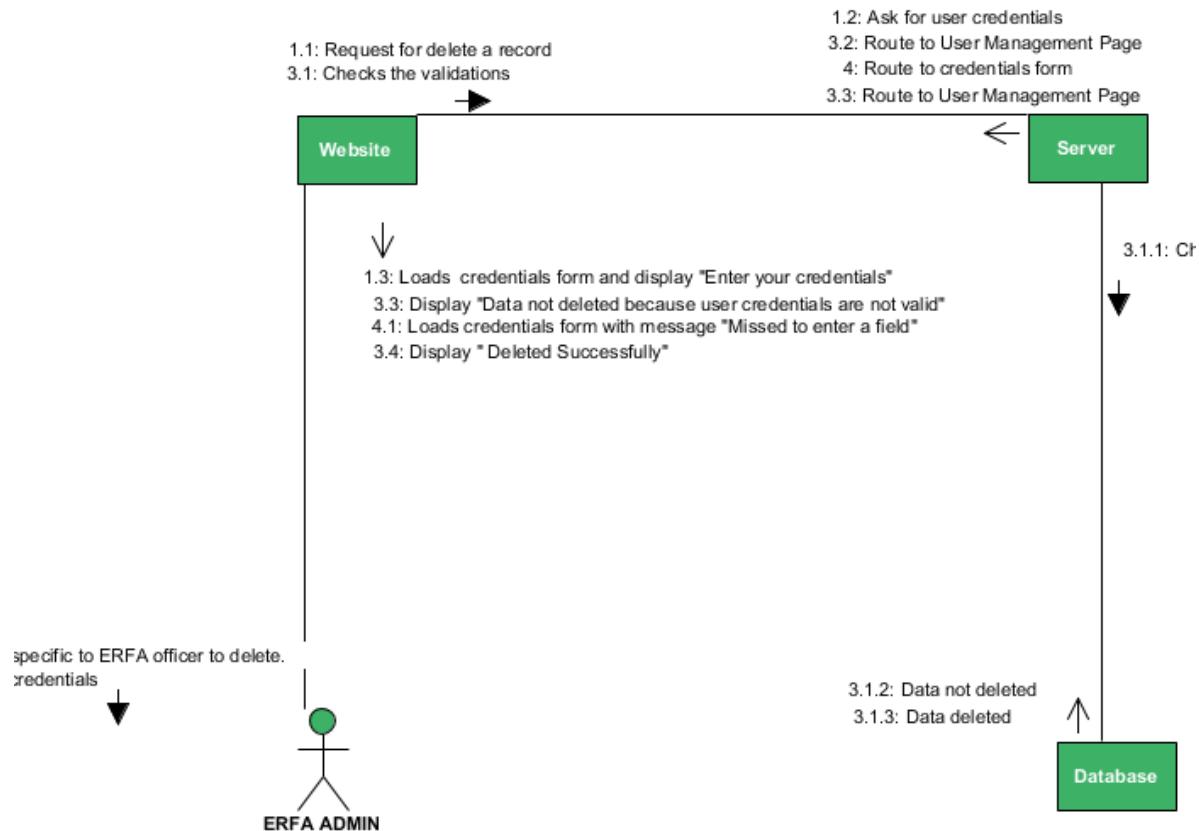
Add ERFA Officer



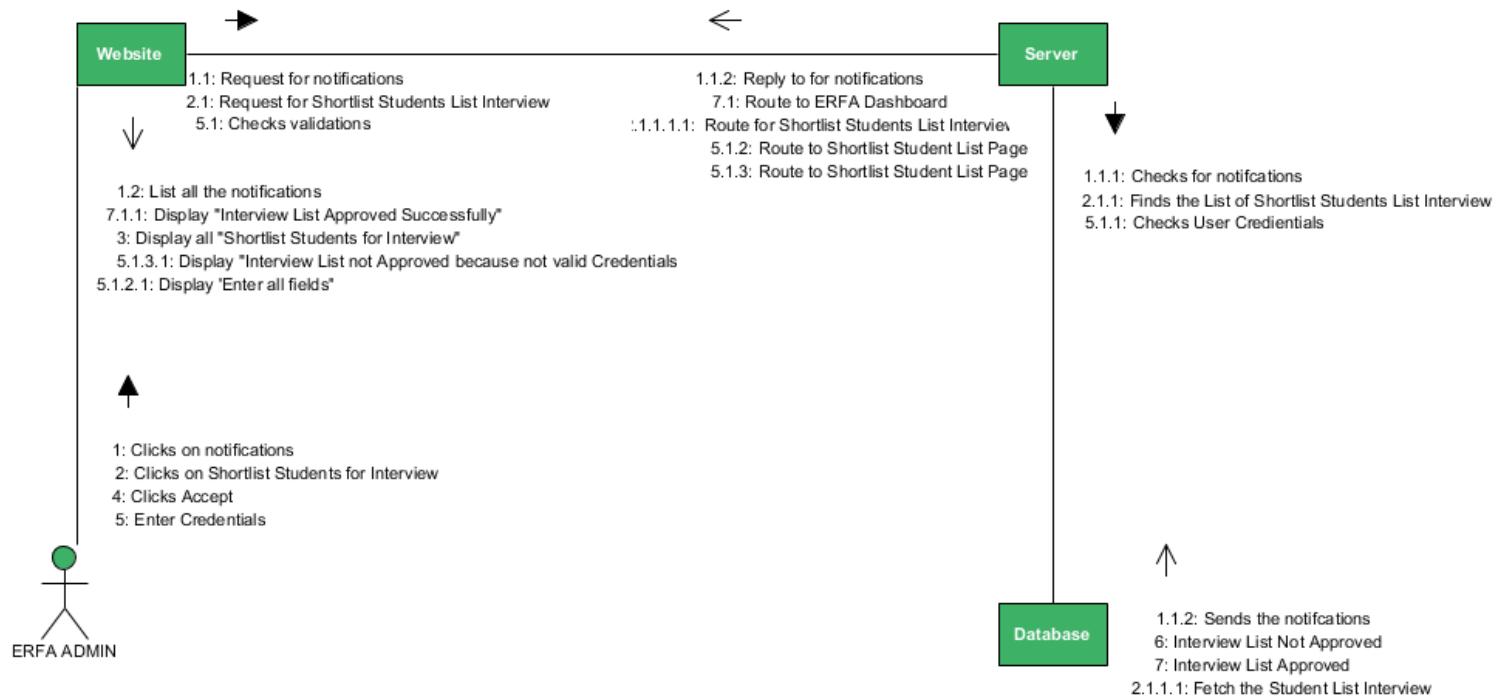
Update ERFA Officer



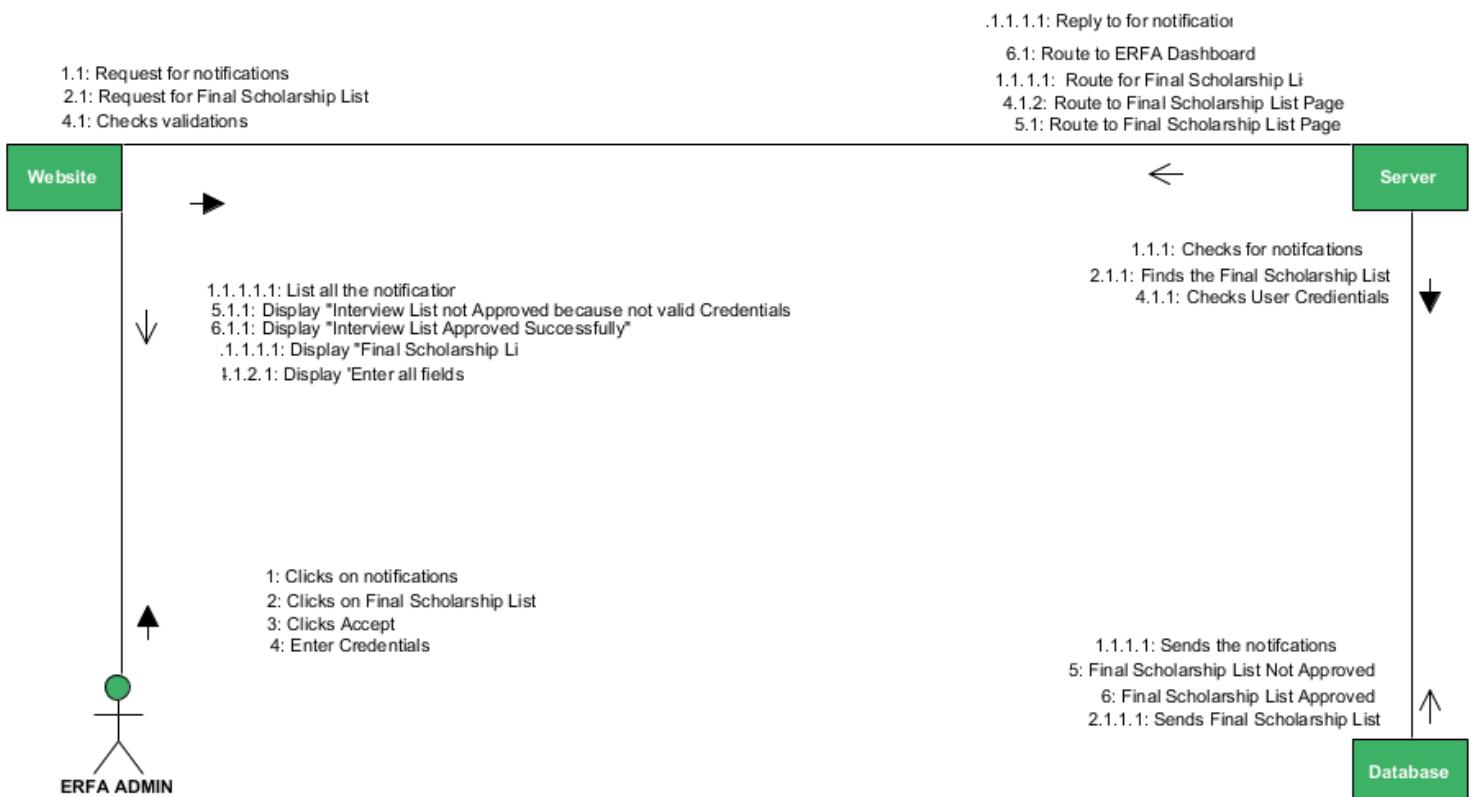
Delete ERFA Officer



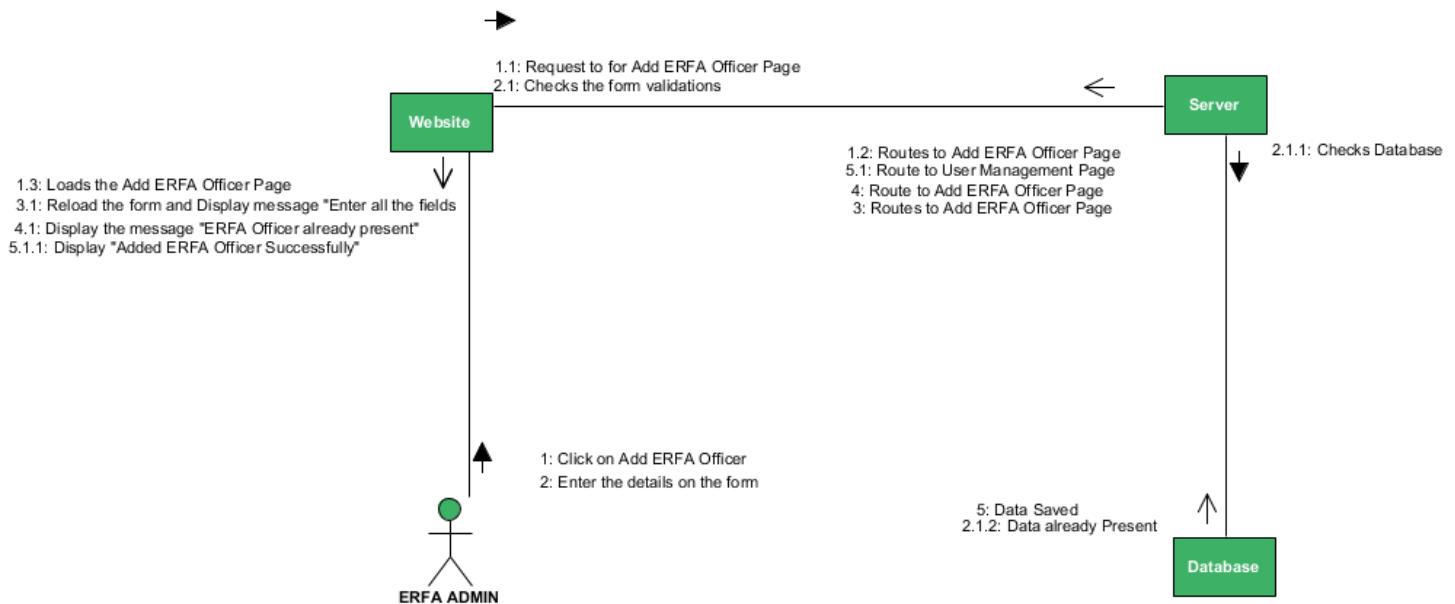
Final Shortlist for Interview



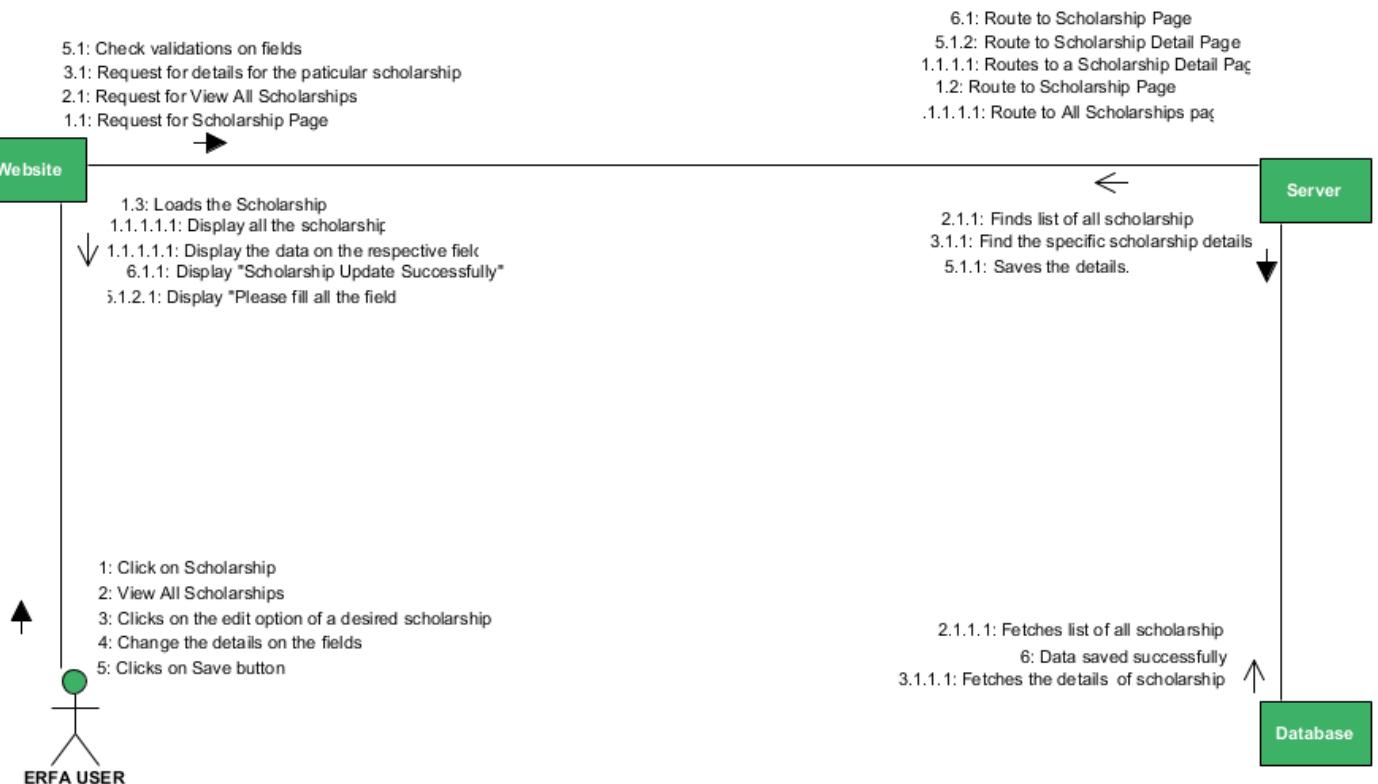
Final Scholarship List



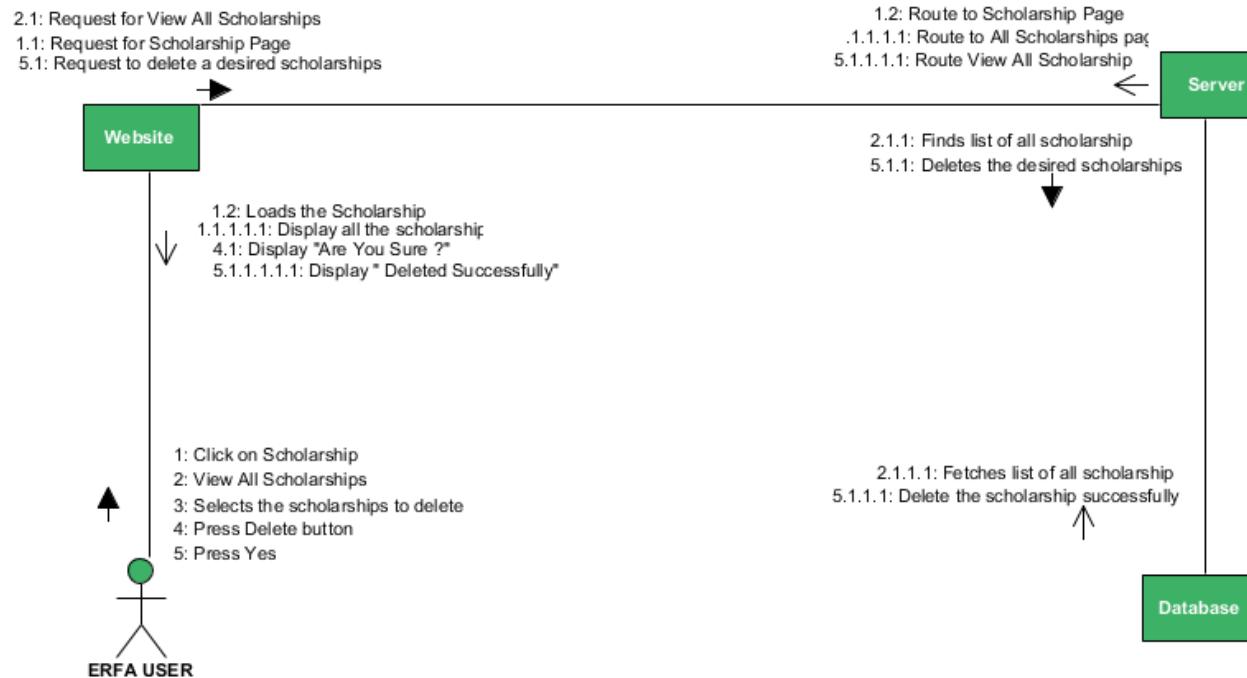
Add Scholarship



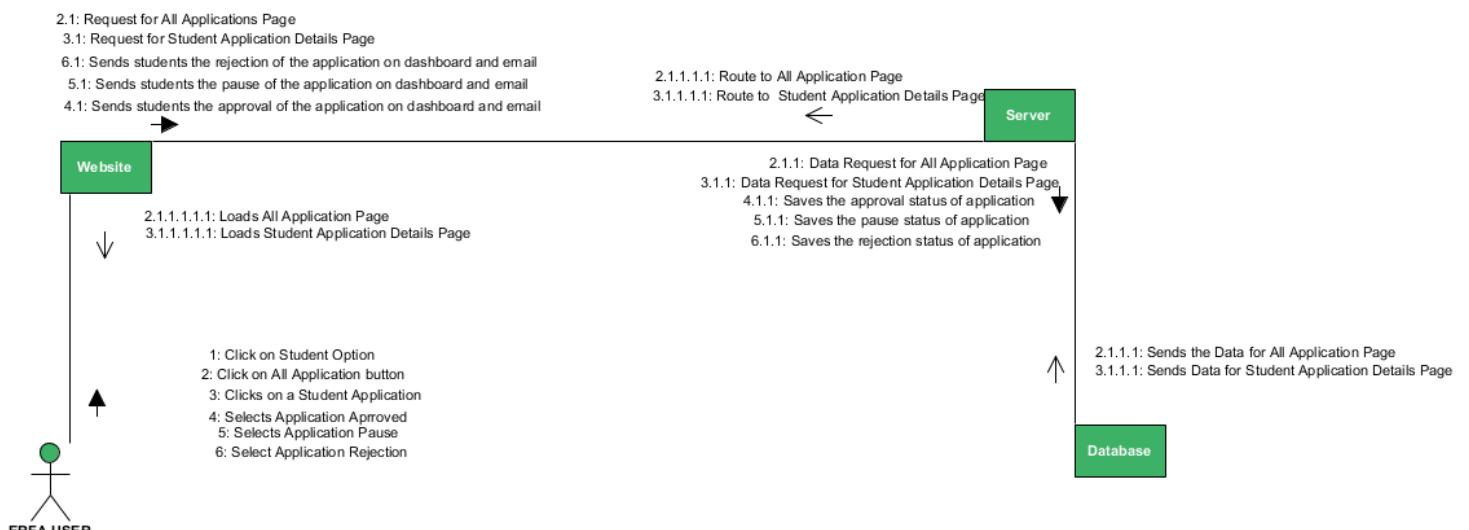
Update Scholarship



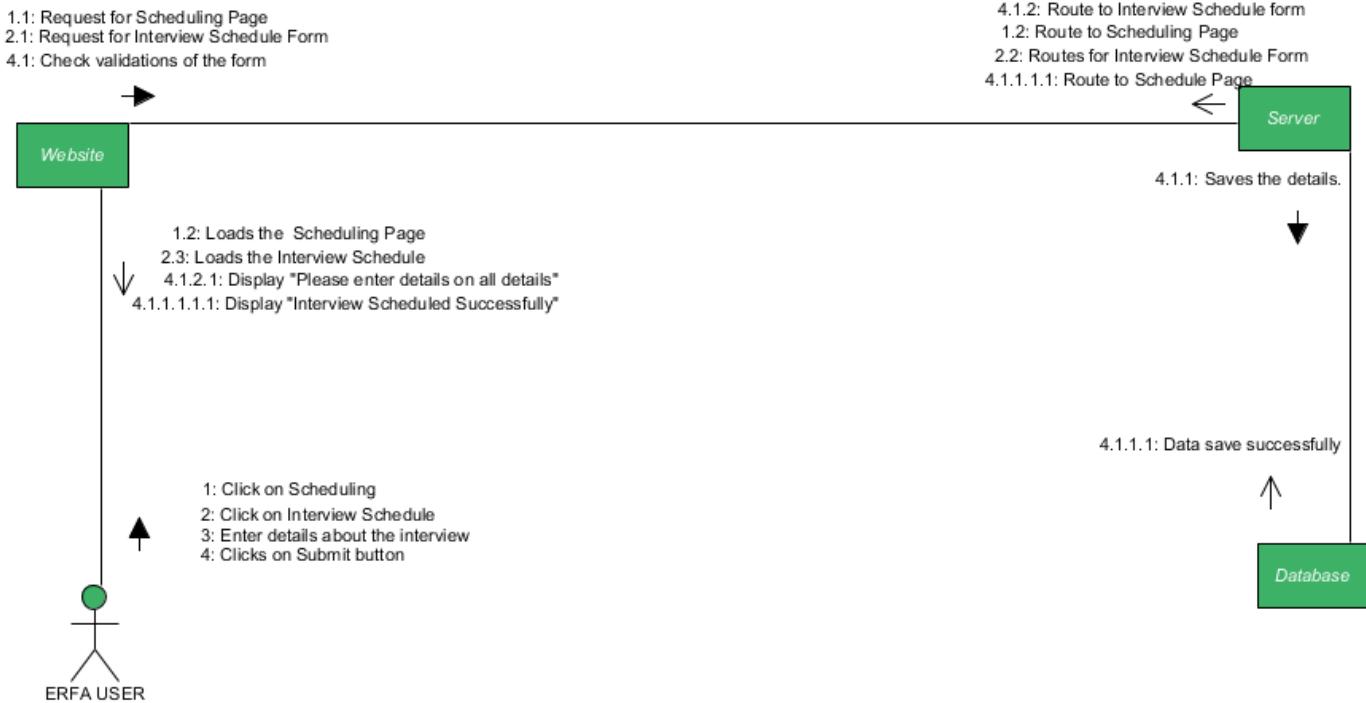
Delete Scholarship



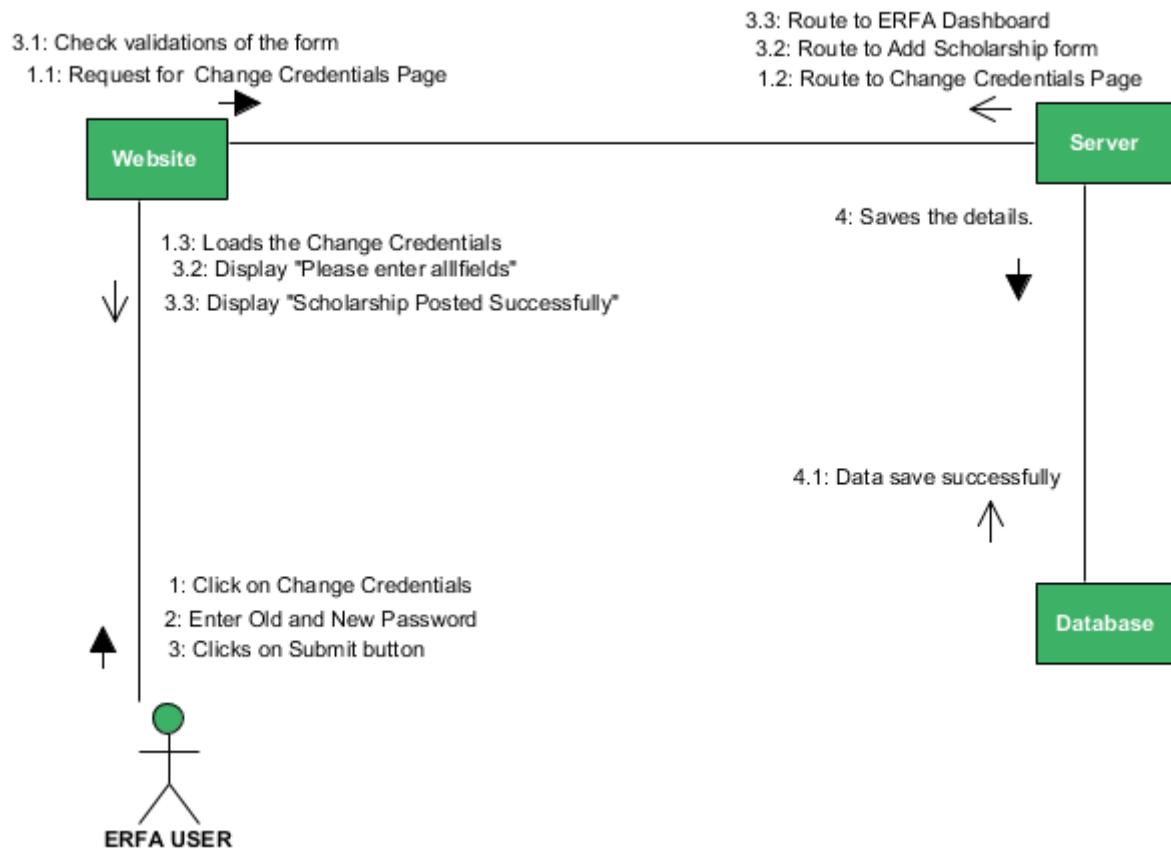
Online Document Verification and Shortlisting



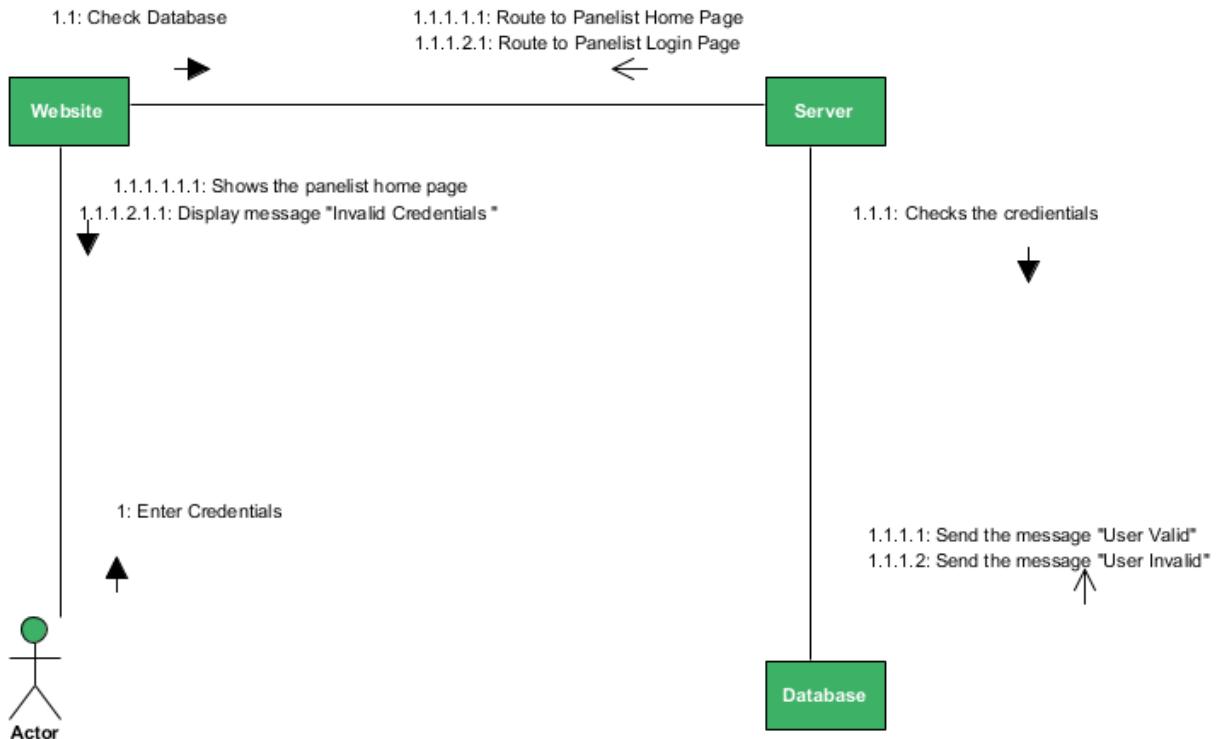
Interview Scheduling



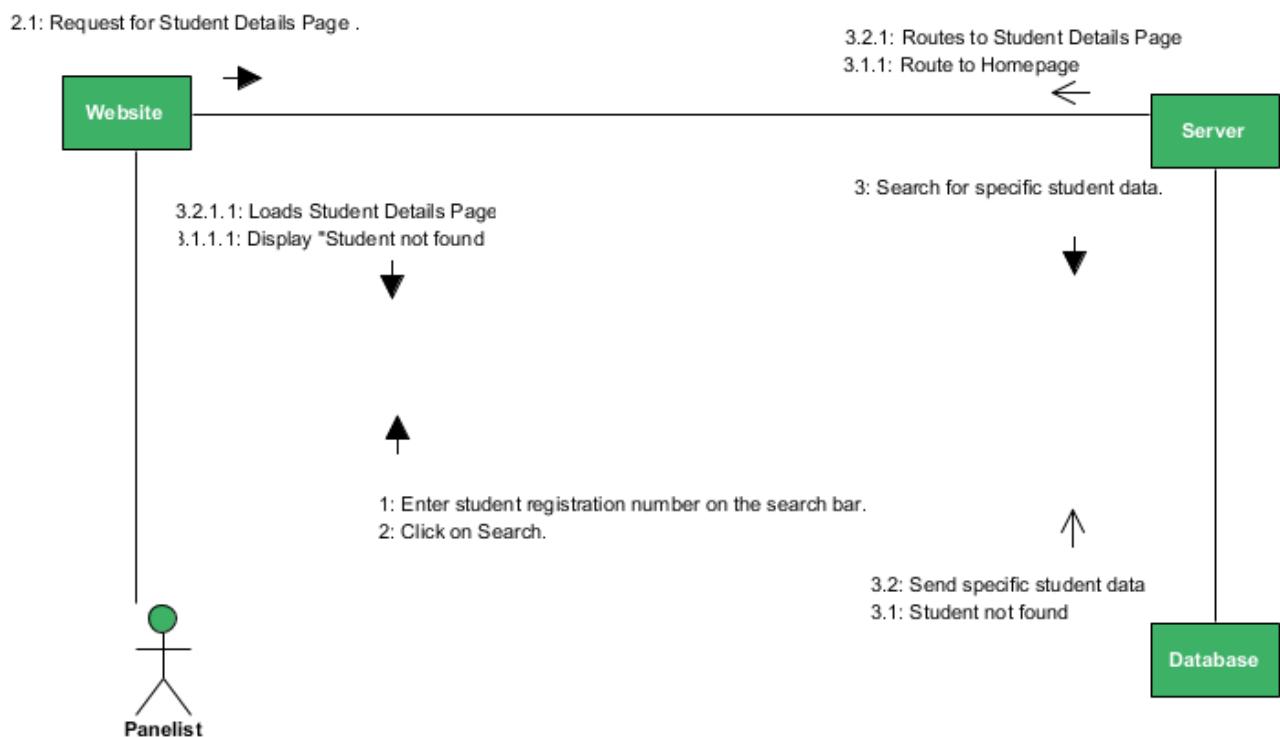
Change Credentials



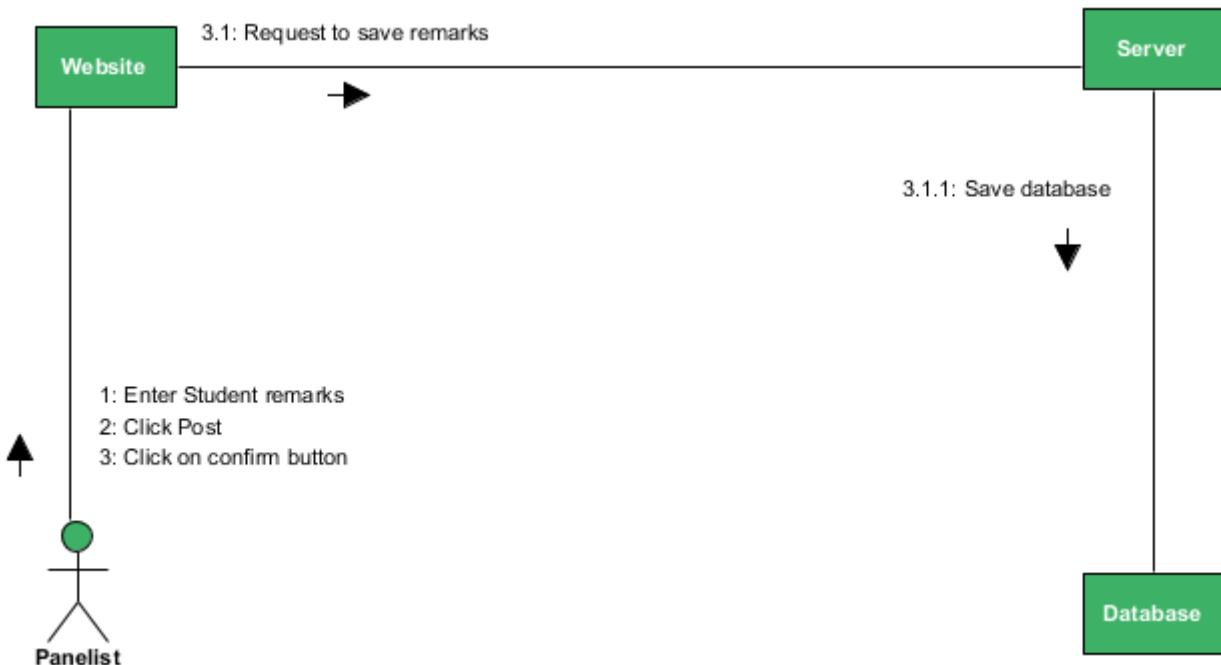
Login (Panelist)



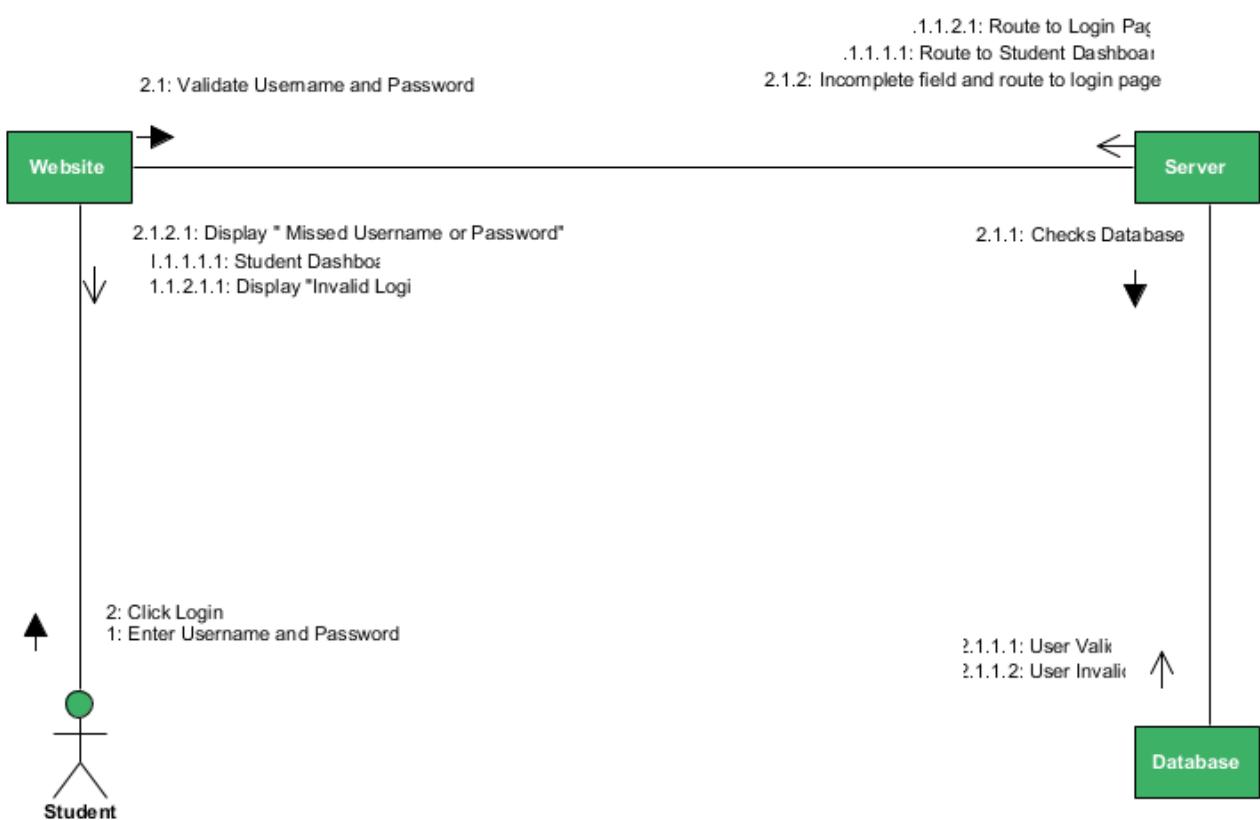
Retrieve Student Record



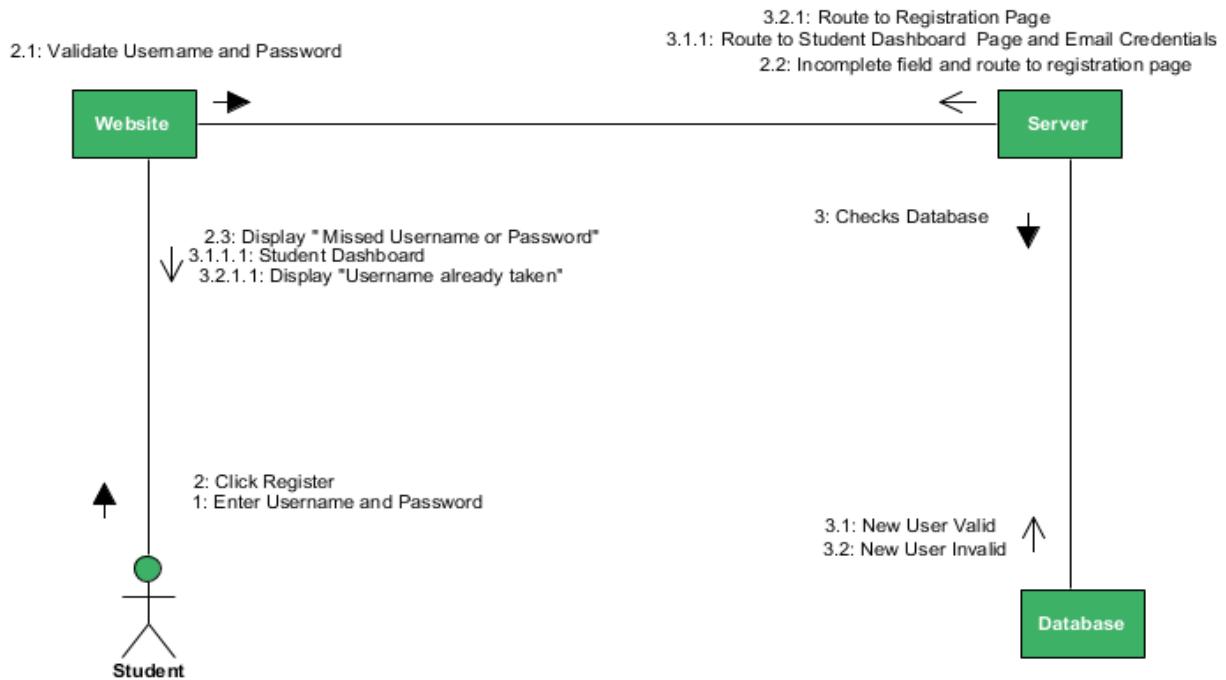
Post Interview Remarks



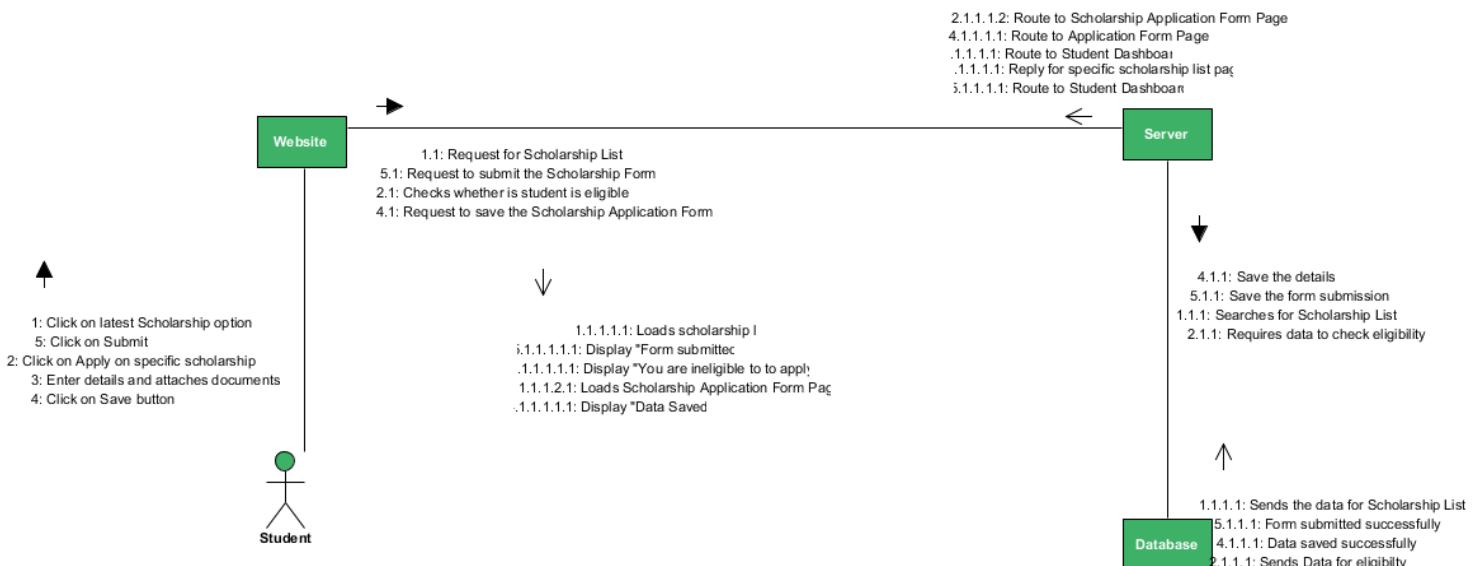
Login (Student)



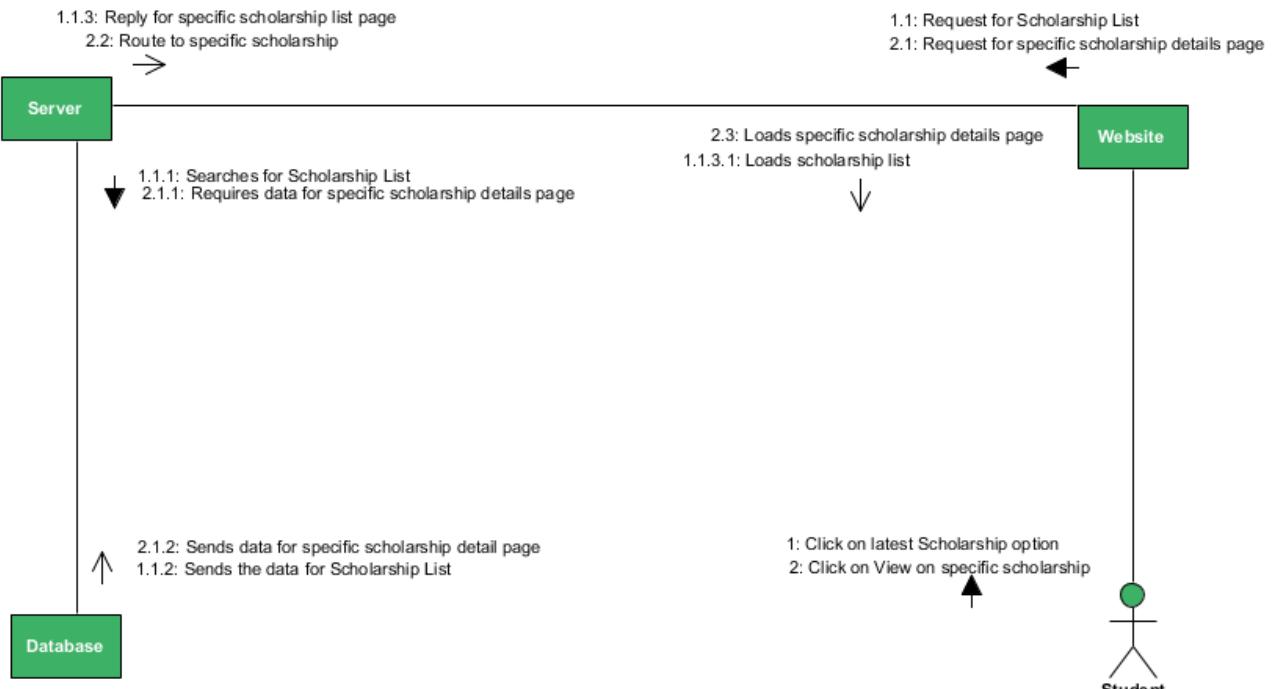
Sign Up



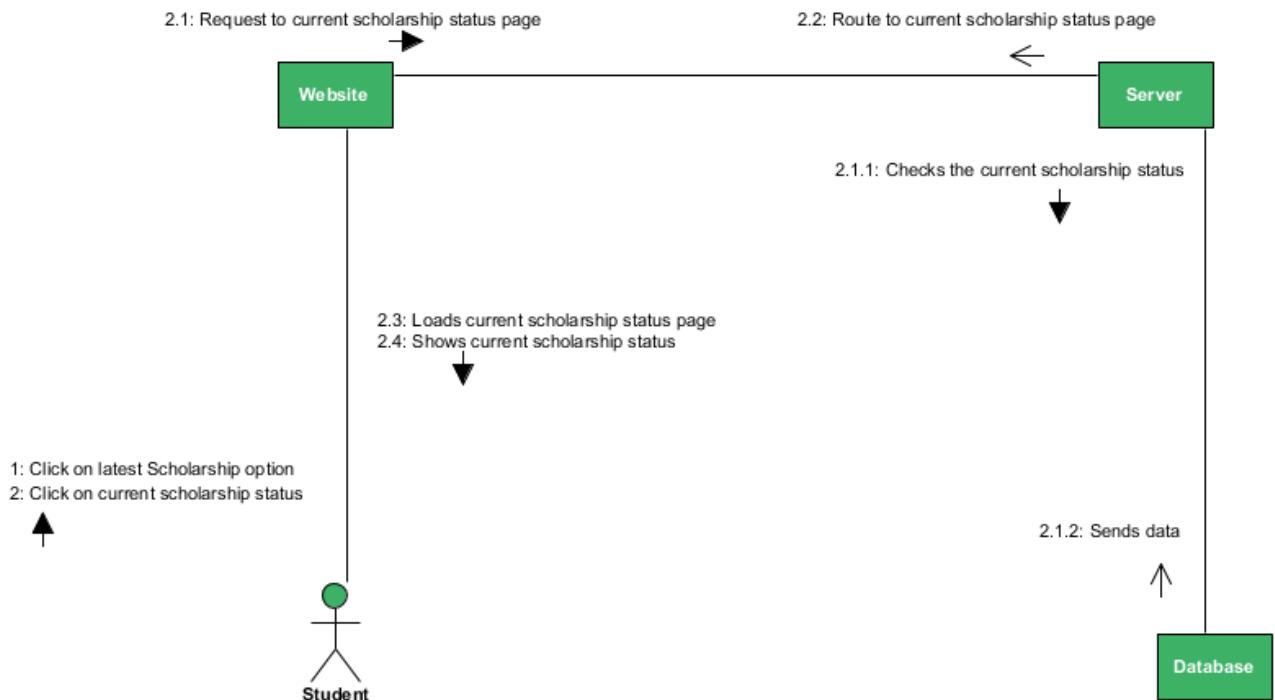
Apply for Scholarship



View Scholarship



Status of the Scholarship



Software Design Specification

for

Online ERFA

Version 1.4

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
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Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

Revision History

Name	Date	Reason For Changes	Version
Syed Mustafa	19th Oct 2021	Initial draft	1.0
Hirdesh Kumar, Syed Mustafa	24th Oct 2021	Components, PseudoCode, Diagrams and inclusion of Feature 1	1.1
Hirdesh Kumar, Syed Mustafa	23th Dec 2021	Components, and PseudoCode of Feature 2	1.1.1
Hirdesh Kumar, Syed Mustafa	30th Dec 2021	Components, and PseudoCode of Feature 3	1.1.2
Hirdesh Kumar, Syed Mustafa	2nd Feb 2022	Components, and PseudoCode of Feature 4	1.1.3
Hirdesh Kumar, Syed Mustafa	2nd Feb 2022	Components, and PseudoCode of Feature 5	1.2
Hirdesh Kumar, Syed Mustafa	15th Mar 2022	Components, and PseudoCode of Feature 6	1.2.1
Hirdesh Kumar, Syed Mustafa	7th April 2022	Components, and PseudoCode of Feature 7	1.2.2
Hirdesh Kumar, Syed Mustafa	1st May 2022	Components, and PseudoCode of Feature 8	1.3
Hirdesh Kumar, Syed Mustafa	16th May 2022	Components, and PseudoCode of Feature 9	1.3.1
Hirdesh Kumar, Syed Mustafa	2nd June 2022	Components, and PseudoCode of Feature 10	1.3.2
Hirdesh Kumar, Syed Mustafa	15th June 2022	Components, and PseudoCode of Feature 11	1.4

3.1. Introduction

3.1.1. Purpose

The purpose of this document is to provide a low-level description of the design and functional components of the Online ERFA. This document will play a vital role in the development of the application by providing an understanding of what is to be built and how it is expected to be built. This document will be associated with the design and functionalities for the FYP-I and FYP-II features of Online ERFA. In the Software Design Specification document, the high-level design architecture of the system will also be provided with the design of the database, and how the system will be interacting with the user.

3.1.2. Scope of the development project

The scope of this project is to automate the entire process of scholarship for the students and the ERFA Department. Students would be able to apply, fill the form and upload the relevant documents online. These documents could be verified by the ERFA Department. The shortlisted students would be selected by the ERFA Department. These applicants will be allotted an interview date, subsequently, they have to apply for a token which will schedule a time slot for their interview. This is necessary, in order to avoid large queues and extra waiting time for students. Interview panel members will be able to post their remarks on the candidate on the panellist portal. Administrators will have an overview of the financial and scholarship resources available on their dashboards. The status of each stage will be notified to every applicant through their personal dashboard.

3.1.3. Definitions, acronyms, and abbreviations

1. **ERFA:** (External Relationship & Financial Assistance) is a department within the SZABIST that provides students financial assistance to pursue their studies.
2. **MERN Stack:** It is a full-stack modern web application framework that is built on top of Javascript. It is an easier and faster way to develop full-stack web applications. MERN Stack consists of four key components to create a full-stack framework, which are MongoDB, Express JS, React JS, and Node.js.
 - a. **Express.JS:** is the Javascript library for the Node.js server.
 - b. **MongoDB:** is the NoSQL database, which is also known as the document-based database.
 - c. **Node.JS:** is the event-driven I/O server-side Javascript environment.
 - d. **React.JS:** a client-side JavaScript library for the.
3. **PWA:** (Progressive Web Application) is a type of web application that is built using modern web technologies. The PWA is able to get installed on any platform that uses the standard web browser. This type of application can be able to work on desktop and mobile devices.

3.1.4. References

- "IEEE Guide for Developing System Requirements Specifications," in IEEE Std 1233-1996, vol., no., pp.1-30, 22 Dec. 1996, DOI: 10.1109/IEEESTD.1996.81000.
- "Software Requirements Specification for Gephi", vol 1, version 0.92 Feb. 2017, https://gephi.org/users/gephi_srs_document.pdf

3.1.5. Overview of document

In the next section, the system architecture will be discussed in which there will be a detailed description of the limitations and constraints of the online ERFA. The data representation and other functional requirements will be covered. Along with the data design which will be the schema of our database and its models. Also, the next section will be having a pictorial representation of the application.

After this, in the third section, the components will be discussed in detail which will provide the purpose of the component, how that component will function, what are the dependencies, its interface, the resources of the component and how that component will process the data.

Once all the components are being discussed then in the fourth section the user interface design will be covered, in which the interface design and its rules will be discussed. The components of the GUI and its API that are used for the design architecture will be explained.

The fifth section will be discussing the reusability of the project and its limitations for enhancements. In this section the reason for reusing the material that is available for the development of the software.

After this the sixth section will be a motivation for the reader to understand the design that is being used, also it will be discussing the good ideas that were abandoned and that were the reason for leaving them out of the design.

In the seventh section, the pseudocode for the components will be provided. Whereas the eighth section will be having all the UML diagrams, so the readers can easily grasp the internal and the external working of the whole system.

3.2. System architecture description

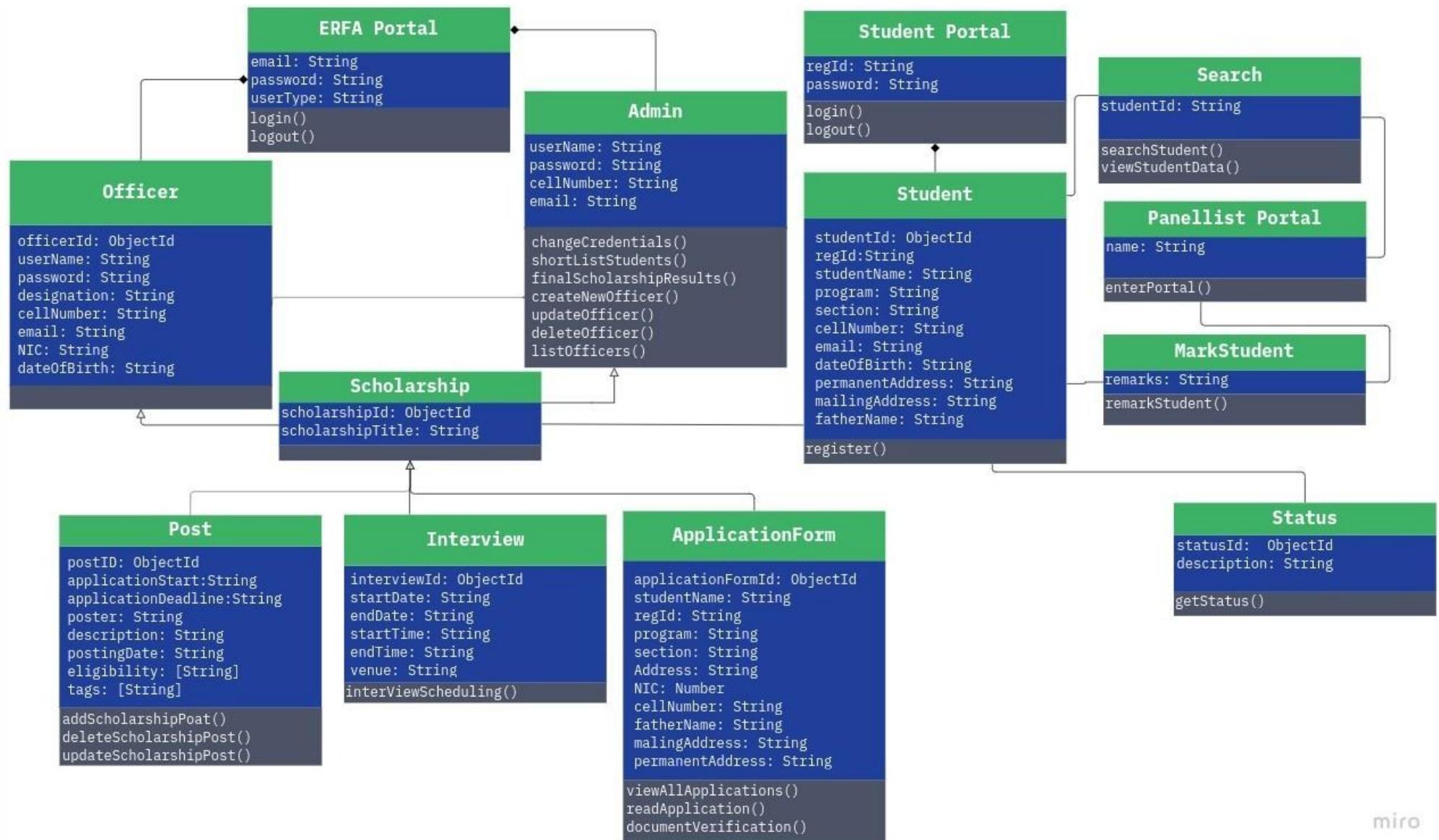
3.2.1. Section Overview

In this section, the discussion will be on the constraints of Online ERFA like on which framework the system would be developed. The system architecture will also be discussed in which there will be a detailed description of the limitations of the online ERFA. The data representation and other functional requirements will be covered, and what are the hardware and software requirements. The discussion will also be around our database design and our database cluster. Also, the discussion will be on the whole structure of the software, and how all the features are working, and everything about the flow of the code.

3.2.2. General Constraints

The global limitation of the online ERFA is that the application will require good internet access as the application is developed on a three-tier architecture basis. In which our database, frontend and backend servers will be separately hosted on different cloud instances. Therefore to perform any action a user must be having an internet connection. The next limitation would be having the latest version of the browser to access the web application or to download the Progressive web app. Once the user is having these requirements then they will be able to easily access the application through any device and they can also download it on their devices. For the Online ERFA, there is no minimum requirement for the hardware.

3.2.3. Data Design



For the Online ERFA NoSQL database structure is used which is MongoDB. For the database, the models are created for the application through the Nodejs server. For the database design please refer to the object diagram in the appendix.

The database is deployed on the cloud server of the Atlas cluster in which the database will be distributed over three nodes to minimize the chances of data corruption and data loss.

3.2.3.1. Database documents

In MongoDB, the data is being stored in documents. Where the object id which is created by MongoDB itself is the primary key for the specific collection. Now each collection will be shown from the database.

3.2.3.1.1. ERFA Portal Users schema

This is the sample object document for the ERFA portal users where all the entries are in a string with encoded passwords.

Data Dictionary			
User Schema			
Field Name	Data Type	Required	Defination
ID	ObjectId	Yes	Manual
First Name	String	Yes	Manual
Last Name	String	Yes	Manual
Password	String	Yes	Manual
Designation	String	Yes	Manual
Email	String	Yes	Manual
NIC	String	Yes	Manual
DOB	String	Yes	Manual

3.2.3.1.2. Scholarship post details schema

This is the document for the scholarship posting in which the data for the scholarship post will be stored with the title of the post then the eligibility criteria points and tags will be stored in the form of an array, and the other details will be in the form of string except for the posting date as it will be the time stamp for the document creation, this will behave like the original date format. This document will also be storing the path of the poster or the graphics used in the post.

Data Dictionary			
Scholarship Post Schema			
Field Name	Data Type	Required	Defination
ID	ObjectId	Yes	Manual
Title	String	Yes	Manual
Application Start Date	String	Yes	Manual
Application Deadline	String	Yes	Manual
Poster	String	Yes	Manual
Description	String	Yes	Manual
Post Date	String	Yes	Manual
Eligibility	String	Yes	Manual
Tags	Array	Yes	Manual

3.2.3.1.3. Student details schema

This is the object document of the students when they will go to register for our application.

Data Dictionary			
Student Schema			
Field Name	Data Type	Required	Defination
ID	ObjectId	Yes	Manual
RegID	String	Yes	Manual
Password	String	Yes	Manual
First Name	String	Yes	Manual
Last Name	String	Yes	Manual
Program	String	Yes	Manual
Section	String	Yes	Manual
Cell Number	String	Yes	Manual
Email	String	Yes	Manual
DOB	String	Yes	Manual
Permanent Address	String	Yes	Manual
Mailing Address	String	Yes	Manual
Father Name	String	Yes	Manual

3.2.3.1.4. Scholarship Form schema

This is the object document of the scholarship application that a particular student applies to a scholarship program. After submitting the application, the ERFA administrator will assess the application and the result will be shown to the student.

Scholarship Fom Schema			
Field Name	Data Type	Required	Defination
ID	ObjectId	No	Manual
Student	ObjectId	No	Manual
Scholarship	ObjectId	No	Manual
Form	String	No	Manual
Status	String	No	Manual
Message Student	String	No	Manual
Message Officer	String	No	Manual
Application Complete	String	No	Manual
Scholarship Percentage	String	No	Manual
Accepted Scholarship	Boolean	No	Manual
Interview	ObjectId	No	Manual

3.2.3.1.5. Interview schema

This is the object document of the would be schedule the interview of the students that have had their scholarship form approved.

Data Dictionary			
Interview Schema			
Field Name	Data Type	Required	Defination
ID	ObjectId	Yes	Manual
Start Date	String	Yes	Manual
End Date	String	Yes	Manual
Start Time	String	Yes	Manual
End Time	String	Yes	Manual
Venue	String	Yes	Manual
Scholarship	ObjectId	Yes	Manual

3.2.3.1.6. Evaluation Scholarship Application Schema

This is the object document of the interview panelist to evaluate the student's application.

Data Dictionary			
Evaluation Scholarship Applications Schema			
Field Name	Data Type	Required	Definition
ID	ObjectId	Yes	Manual
Score	String	Yes	Manual
Remark	String	Yes	Manual
Application	ObjectId	Yes	Manual
Panelist	ObjectId	Yes	Manual

3.2.4. Program Structure

Now the structure and the functionality of the application will be discussed and what are the functional components of Online ERFA along with their actors in order to understand the structure of the application.

3.2.4.1. ERFA Department (Admin) Dashboard Functions

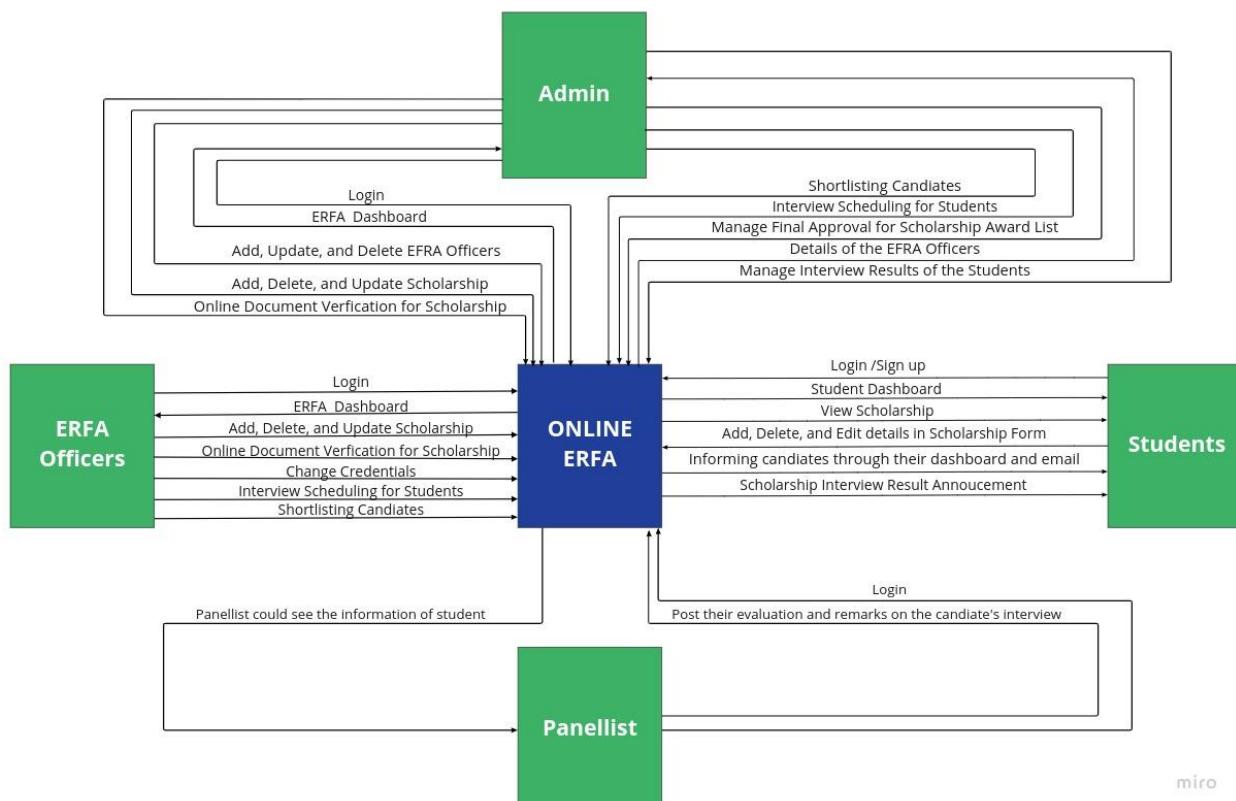
- Login with the admin credentials.
- Creating new users for ERFA department officers.
- Managing existing ERFA officers.
- Shortlisting the candidates.
- Online document verification.
- Interview scheduling.
- Add delete and update scholarships.
- Approval of scholarship results.
- Manage the scholarship results.
- Manage the scholarship's funds.

3.2.4.2. ERFA Department (Officer) Dashboard Functions

- Login to the officer's dashboard.
- Shortlisting the candidates.
- Online document verification.
- Holding/ accepting the scholarship application.
- Add, delete and update new scholarships.
- Interview scheduling.
- Manage the scholarship results.

3.4.4.3. SZABIST's Student Portal Functions

- Sign in / Sign up in the student portal.
- View all the scholarships.
- Apply for an eligible scholarship.



- Filling the scholarship form online.
- Updates the status of the current stage of the scholarship process.
- Applying for the interview token.
- Viewing the scholarship results.

3.4.4.4. Panellist Portal Functions

- Sign in / Sign up in the panellist portal.
- Retrieving the student's information.
- Posting their evaluation and remarks on the candidate's interview.

3.5. Alternatives Considered

For the Online ERFA MVC model, view the controller framework for the application architecture. MERN stack framework is used for the development of the application. In which it will be using ReactJS for the front-end and NodeJS for the server side.

The reason for using the MERN Stack is that in the previous semester we took the course of Webtech in which we used the MERN Stack to develop modern web applications. After having a discussion with FYP Advisor it has been decided to have a Progressive Web Application for the Online ERFA, whereas the MERN Stack provides the best support for the PWA. Due to these reasons, MERN Stack is the primary choice of our framework.

3.3. Detailed description of components

3.3.1. Section Overview

In this section, the components will be discussed in detail which will provide the purpose of the component, how that component will function, what are the dependencies, its interface, the resources of the component and how that component will process the data.

3.3.1.1. ERFA Users

<Component 1: ERFA Users>	
Identification	ERFA Users
Location	~/dashboard/officers/
Type	Module
Purpose	The purpose of this module is to manage all the tasks related to ERFA officers, which would be performed by the ERFA Head/Admin.
Function	Through this module, the admin can create, delete, edit, and view ERFA officers' profiles.
Subordinates	<p>Add Users: Through the add user, the admin would be able to register new users to the application so they can manage the scholarship posting and related tasks.</p> <p>View Users: In this option, the admin would be able to retrieve the list of all ERFA Officers presently working in the department.</p> <p>Update Users: If the details of any user get updated and they want to get it changed they can ask the admin to update the database with the new details.</p> <p>Delete Users: If the user is no longer an employee of the ERFA department then the admin can delete that user so they would not have access to the portal.</p>
Dependencies	The ERFA Head/Admin should be logged in the system for certain functions like adding new ERFA Officers, deleting the people that are not associated with the department, editing the information, and viewing all the employees presently working
Interfaces	<p>The user would be interacting with the client-side where they can perform their desired operations. These operations would go through checks and validation from the client side. If there are no issues from this exercise, the request would be made to the server. The server would perform its own check and validations and if there is no issue the database would ask to manipulate the data according to the client's action. After the transaction is complete the database would reply to the server and then would reply to the client. The client gets its desired output. This communication from the client side to the server would be done through HTTP protocol.</p> <p>Client error responses: 400: Bad request 404: Not found</p>

	Successful responses: 200: OK 201: Created
Resources	In order to access this module, the user must have an active internet connection so that they can log into the system. And they also must have the application installed or the latest browser to run the application.
Processing	For this module, the major processing will take place at the backend by using the mongoose module so the officers' data can be viewed, fetched, created and updated at the backend, and then updated to the MongoDB Atlas Cloud.
Data	This module will be working with the ERFA officer's data. The schema design of the ERFA officers is as follows: <code>_id: ObjectId userName: String password: String designation: String cellNumber: String email: String nic: String dob: String</code>

3.3.1.2. Scholarship Post

<Component 2: Scholarship Post>	
Identification	Scholarship Post
Location	~/dashboard/scholarshippost/
Type	Module
Purpose	The purpose of this module is to manage all the tasks related to Scholarship Post, it would be performed by the ERFA Head/Admin and ERFA Officer.
Function	Through this module, the ERFA User can create, delete, edit, and view Scholarship Post..
Subordinates	<p>Add Scholarship: Through the added scholarship, the user would be able to add scholarship posts to the system.</p> <p>View All Scholarship: In this option, the ERFA User would be able to retrieve the list of all the scholarships in the system.</p> <p>Update Scholarship: If the details of any scholarship are required to be changed this feature would accommodate such changes.</p> <p>Delete Scholarship: If the scholarship post completed its duration, the ERFA User can completely remove it from the system.</p> <p>View Scholarship: If the user wants to view a specific scholarship, this method would be able to retrieve details for the user desired scholarship post.</p> <p>Last Three Scholarship: This method is used to fetch details of the latest three scholarships that were posted in the portal.</p>
Dependencies	The ERFA Heading or ERFA User should be logged in the system for certain functions like adding new Scholarship Post, deleting the Posts that have passed their deadline, editing the information of the post, and viewing all the scholarship posts present in the system.
Interfaces	<p>The user would be interacting with the client-side where they can perform their desired operations. These operations would go through checks and validation from the client-side. If there are no issues from this exercise, the request would be made to the server. The server would perform its own check and validations and if there is no issue the database would ask to manipulate the data according to the client's action. After the transaction is complete the database would reply to the server and then would reply to the client. The client gets its desired output. This communication from the client-side to the server would be done through HTTP protocol.</p> <p>Client error responses: 400: Bad request 404: Not found 500: Internal Server Error</p>

	Successful responses: 200: OK 201: Created
Resources	In order to access this module, the user must have an active internet connection so that they can log into the system. They also must have the application installed or the latest browser to run the application.
Processing	For this module, the major processing will take place at the backend by using the mongoose module so the officers' data can be viewed, fetched, created and updated at the backend, and then updated to the MongoDB Atlas Cloud.
Data	This module will be working with the Scholarship Post data. The schema design of the Schema is as follows: <code>_id: ObjectId title: String applicationstart: String applicationend: String poster: String description: String postingdate: Date eligibility: String tags: [String]</code>

3.3.1.3. Applicant

<Component 3: Applicant>	
Identification	Applicant
Location	~/annoucement/student/
Type	Module
Purpose	The purpose of this module is to manage all the tasks related to the applicants of the scholarship.
Function	Through this module, the student can register, log in, view scholarships and look at the announcements page for the latest update.
Subordinates	<p><u>Sign Up:</u> Through this facility, the student can himself or herself register to the scholarship portal in order to track and avail of the scholarship being offered to them.</p> <p><u>Login:</u> This functionality allows the user to access and apply for the scholarships currently active for them.</p> <p><u>Announcements:</u> This method is used to fetch details of the latest three scholarships that were posted in the portal.</p> <p><u>View Scholarship:</u> If the user wants to view a specific scholarship, this method would be able to retrieve details for the user desired scholarship post.</p>
Dependencies	The applicant should be logged in the system for certain functions like view announcements and view scholarship.
Interfaces	<p>The user would be interacting with the client-side where they can perform their desired operations. These operations would go through checks and validation from the client-side. If there are no issues from this exercise, the request would be made to the server. The server would perform its own check and validations and if there is no issue the database would ask to manipulate the data according to the client's action. After the transaction is complete the database would reply to the server and the server would reply to the client. The client gets its desired output. This communication from the client-side to the server would be done through HTTP protocol.</p> <p><u>Client error responses:</u> 400: Bad request 404: Not found</p> <p><u>Successful responses:</u> 200: OK 201: Created</p>
Resources	In order to access this module, the user must have an active internet connection so that they can log into the system. And they also must have the application installed or the latest browser to run the application.
Processing	For this module, the major processing will take place at the backend by using the mongoose module so the officers' data can be viewed, fetched, created and updated at the backend, and then updated to the MongoDB Atlas Cloud.

Data	<p>This module will be working with the ERFA officers data. The schema design of the ERFA officers is as follows:</p> <pre>_id: ObjectId firstname: String lastname: String password: String designation: String cellNumber: String email: String nic: String dob: String</pre>
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3.3.1.4. Scholarship Form

<Component 4: Scholarship Form>	
Identification	Scholarship Form
Location	~/dasboardt/scholarship-form/
Type	Module
Purpose	The purpose of this module is to manage all the tasks related to the student's scholarship.
Function	Through this module, the student can add a scholarship form, update a scholarship form, send a message to the ERFA Officer, retrieve all scholarships, and retrieve a particular scholarship. While, the ERFA Officer can send a message to the student, update the status of scholarship application, sort the scholarship application based on status. ERFA Head can allocate the scholarship to applicants, as well as send email on scholarship acceptance. They can sort the applicants that have successfully qualified scholarship, view all accepted scholarship by registration id.
Subordinates	<p>Add Scholarship Form: Through this function, a new document of a particular student's scholarship application is created.</p> <p>Get All Scholarship Forms: This functionality fetches all scholarships from documents saved in the system.</p> <p>Get a Scholarship Form: This method is used to fetch details of a particular scholarship form that were submitted in the portal.</p> <p>Update Scholarship Form: It updates the details of an existing record of a particular scholarship form.</p> <p>Update Message Student: It updates the details of a Message Student field of a particular student's scholarship form document.</p> <p>Update Message Officer: It updates the details of a Message Officer field of a particular student's scholarship form document.</p> <p>Update Status: It updates the details of an Update Status field of a particular student's scholarship form document.</p> <p>Fetch Interview Student Scholarship Form: It fetches the details of the interview related to the student's scholarship form if the scholarship form is accepted.</p> <p>Sort Status: It sorts scholarship forms based on whether they are accepted, rejected or paused.</p> <p>Sort Status and Title: It sorts scholarship forms based on whether they are accepted, rejected or paused with a scholarship title.</p> <p>Allocate Scholarship:</p>

	<p>It assigns the student's scholarship percentage and acceptance to the document.</p> <p>Fetch All Accepted By Scholarship Title: It fetches all the accepted based on their Scholarship Title and interview evaluation conducted.</p> <p>Fetch All Accepted by RegId: It fetches all the scholarships that students had successfully received and was unsuccessful based on the student's registration id.</p> <p>Send Scholarship Acceptance Email: It sends email to applicants regarding their scholarship award if they are accepted for the scholarship.</p>
Dependencies	The applicant should be logged in the system for certain functions like view announcements and view scholarship. ERFA Officer and
Interfaces	<p>The user would be interacting with the client-side where they can perform their desired operations. These operations would go through checks and validation from the client-side. If there are no issues from this exercise, the request would be made to the server. The server would perform its own check and validations and if there is no issue the database would ask to manipulate the data according to the client's action. After the transaction is complete the database would reply to the server and the server would reply to the client. The client gets its desired output. This communication from the client-side to the server would be done through HTTP protocol.</p> <p>Client error responses: 400: Bad request 404: Not found</p> <p>Successful responses: 200: OK 201: Created</p>
Resources	In order to access this module, the user must have an active internet connection so that they can log into the system. And they also must have the application installed or the latest browser to run the application.
Processing	For this module, the major processing will take place at the backend by using the mongoose module so the officers' data can be viewed, fetched, created and updated at the backend, and then updated to the MongoDB Atlas Cloud.
Data	<p>This module will be working with the Student's Scholarship Form data. The schema design of the Scholarship Form as follows:</p> <pre> _id: ObjectId student: ObjectId scholarship: ObjectId form: String status: String messageStudent: String messageOfficer: String applicationComplete: String interview: ObjectId scholarshipPercentage: String acceptedForScholarship: Boolean emailSented: String </pre> <p>This module will be working with the Panelist's Scholarship Form data. The schema</p>

design of the Scholarship Form as follows:

_id:ObjectId
score:String
remark: String
application:ObjectId
panelist:ObjectId

3.3.1.5.Interview

<Component 5: Interview>	
Identification	Interview
Location	~/annoucement/interview/
Type	Module
Purpose	The purpose of this module is to manage all the tasks related to the applicant selected for the interview of the scholarship program.
Function	Through this module, the ERFA officer can schedule interviews, reschedule interviews, fetch interview details of a particular interview, fetch all interviews, and send email to selected students.
Subordinates	<p><u>Schedule:</u> This function schedules an interview slot for a scholarship program.</p> <p><u>Get Interview Detail:</u> It fetches the complete details of a scheduled interview based on id.</p> <p><u>Get All Interview Detail:</u> It fetches the complete details of all scheduled interviews.</p> <p><u>Reschedule:</u> It updates the details of a paticular scheduled interview document based on id.</p> <p><u>Remove Schedule:</u> It deletes the details of a paticular scheduled interview document based on id.</p> <p><u>Send Email Interview:</u> It sends email to students for an interview, to those that have their scholarship form accepted.</p> <p><u>Fetch Student Records on Student:</u> It fetches the student record based the registration id.</p> <p><u>Evaluate Student:</u> It attaches remarks and scorces to application form.</p> <p><u>Get All Remark on Application:</u> It fetches all remarks given to a application form panelist.</p>
Dependencies	The Applicant, Panelist, ERFA Officers should be logged in the system.
Interfaces	<p>The user would be interacting with the client-side where they can perform their desired operations. These operations would go through checks and validation from the client-side. If there are no issues from this exercise, the request would be made to the server. The server would perform its own check and validations and if there is no issue the database would ask to manipulate the data according to the client's action. After the transaction is complete the database would reply to the server and then would reply to the client. The client gets its desired output. This communication from the client-side to the server would be done through HTTP protocol.</p> <p><u>Client error responses:</u> 400: Bad request 404: Not found</p>

	<p>Successful responses: 200: OK 201: Created</p>
Resources	In order to access this module, the user must have an active internet connection so that they can log into the system. And they also must have the application installed or the latest browser to run the application.
Processing	For this module, the major processing will take place at the backend by using the mongoose module so the officers' data can be viewed, fetched, created and updated at the backend, and then updated to the MongoDB Atlas Cloud.
Data	<p>This module will be working with the Interview Form data. The schema design of the Interview as follows:</p> <pre>_id: ObjectId startDate: String, endDate: String, startTime: String, endTime: String, venue: String, scholarship: ObjectId</pre> <p>This module will be working with the Interview Panelist data. The schema design of the Interview as follows:</p> <pre>_id: ObjectId date: String startTime: String endTime: String venue: String, scholarshipTitle: String panelistId: ObjectId</pre>

3.4. User Interface Design

3.4.1. Section Overview

Now all the components are being discussed then in this section the user interface design will be covered, in which the interface design and its rules will be discussed. The components of the GUI and its API that are used for the design architecture will be explained.

3.4.2. Interface Design Rules

Online ERFA will be a Progressive Web Application, so we have to adopt hybrid GUI(Graphical User Interface) standards. The hybrid GUI standards will be having the Microsoft, IOS and Android GUI standards. The user interface will be developed keeping in mind that the users should have ease of use, it will also ensure that the design should be stress-free and easy to comprehend without any training.

3.4.3. GUI Components

Admin / Officers Portal

- Login Page
- Login to the ERFA Dashboard (admin)
- Login to the ERFA Dashboard (Officer)
- Add ERFA Officer (Admin)
- View officers (Admin)
- Update officer (Admin)
- Confirmation for update (Admin)
- Delete officer (Admin)
- Scholarship posting (Admin / Officers)
- List all scholarships (Admin / Officers)
- Delete scholarship (Admin / Officers)
- Edit specific scholarship (Admin / Officers)
- View selected scholarships (Admin / Officers)
- All Applications Page(Admin / Officers)
- Scholarship form review by user (Admin / Officers)
- Interview Scheduling (Admin / Officers)
- All Interview Schedule Page (Admin / Officers)
- Re-schedule Interview Page (Admin / Officers)
- Send Email Page (Admin / Officers)
- Final evaluation list (Admin / Officers)
- Final evaluation list (Admin / Officers)

Student's Portal

- Login (Student)
- New student registration (Student)
- Forget Password (Student)
- Reset Password Email (Student)
- Student's Portal (Student)
- List all scholarships (Student)
- List all scholarships (Student)
- Viewing a specific scholarship (Student)
- Viewing a specific scholarship (Student)

- List all my application (Student)
- Scholarship application submission (Student)

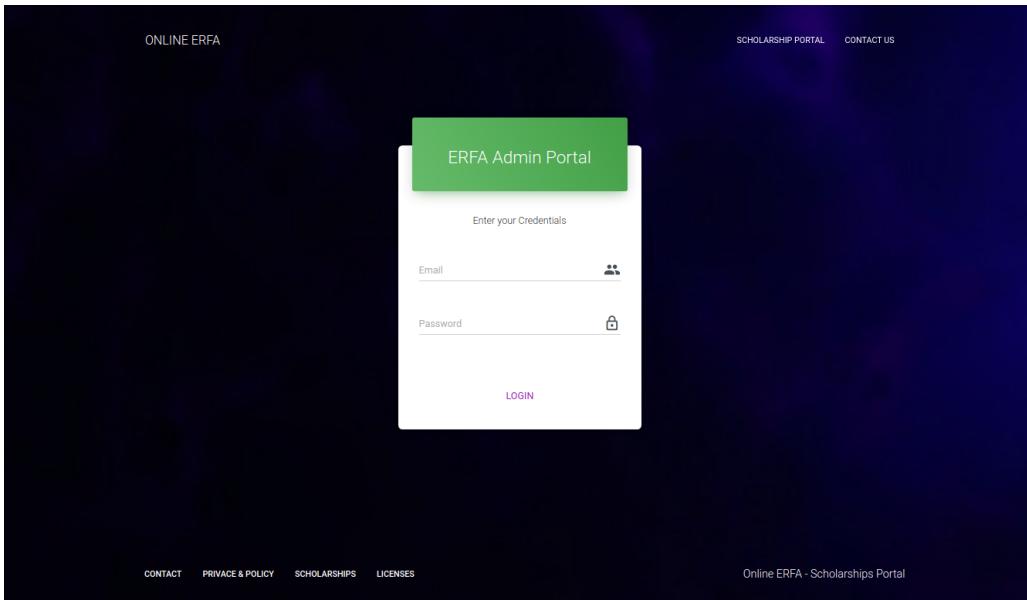
Panellist's Portal

- Login (Panellist)
- Student search (Panellist)
- Student interview evaluation (Panellist)

3.4.4. Detailed Description

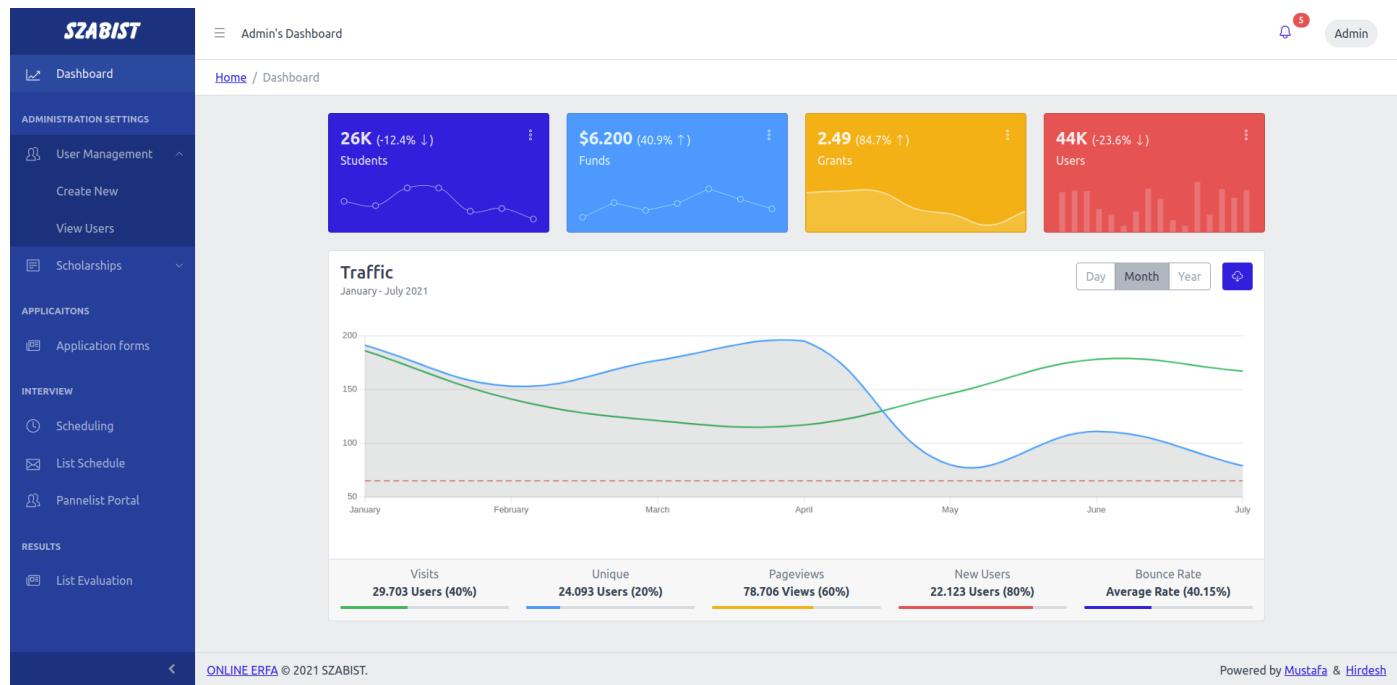
3.4.4.1. Admin / Officers Portal

3.4.4.1.1. Login Page

**Description:**

Through this screen, the ERFA admin and ERFA officer will be able to get logged in to the ERFA dashboard.

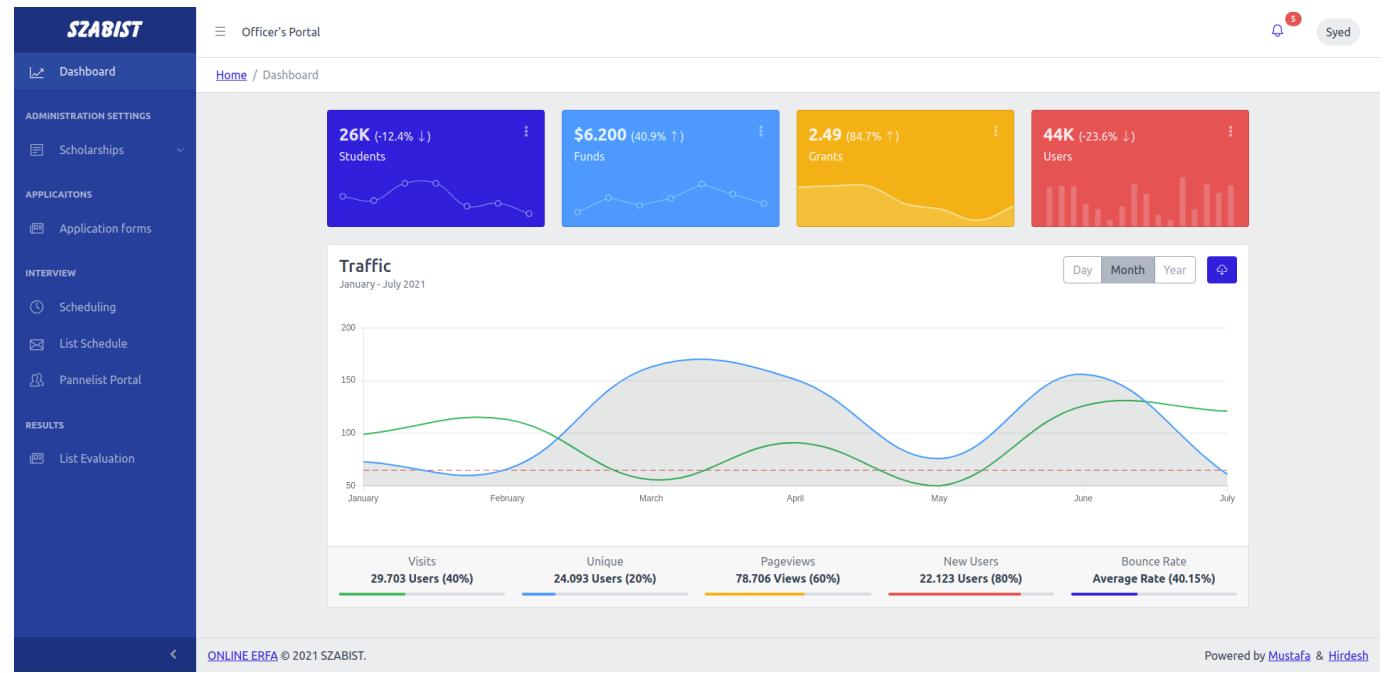
3.4.4.1.2. Login to the ERFA Dashboard (admin)



Description:

This is the dashboard page for the ERFA Admin/ Head.

3.4.4.1.3. Login to the ERFA Dashboard (Officer)



Description:

This is the dashboard for ERFA users, where the ERFA officers do not have access to user management.

3.4.4.1.4. Add ERFA Officer (Admin)

The screenshot shows the SZABIST Admin's Dashboard with the User Management section selected. A 'New User Form' is displayed, showing fields for First Name, Last Name, Designation, Cell Number, Email, NIC Number, Password, Retype Password, and Date of Birth. An error message 'ERROR - Password not matched!' is displayed above the password fields. The 'Add User' button is at the bottom.

New User Email Confirmation ➔ Inbox



Online ERFA cs1812114@szabist.pk ... Fri,
to contact ▾



Hello Mustafa,

We have registered you to the ERFA Admin Portal,

First Name	Last Name	Designation	Email	Password
Mustafa	Imam	Faculty	contact@syedmustafaimam.com	Abc.1234

Please refer to the following link: <https://online-erfa-admin.web.app/#/login>

Regards,
ERFA Department

Description:

From this page, the admin will be able to add new users. And after adding a new user the user will receive an email for their onboarding, in which they will be having their credentials.

3.4.4.1.5. View officers (Admin)

The screenshot shows the Admin's Dashboard with the 'User Management' section selected. The 'View Users' page is displayed, showing a table titled 'All Users'. The table has columns for 'User's Name', 'Designation', 'Email', and 'Action' (Edit, Delete). The data in the table is as follows:

User's Name	Designation	Email	Action
Mustafa Imam	Faculty	ali@szabist.pk	Edit Delete
Peter Parker	Head	admin22@szabist22.pk	Edit Delete
Harry Kumar	Faculty	hirdeshkumar2407@gmail.com	Edit Delete
Harry Kumar	Officer	kherdesh@gmail.com	Edit Delete
Syed Mustafa	Officer	cs1812134@szabist.pk	Edit Delete
Hirdesh Kumar	Faculty	cs1812114@szabist.pk	Edit Delete
Dr Stephen Strange	Officer	smustafa086@gmail.com	Edit Delete
Ali Riaz	Faculty	2sm2@gmail.com	Edit Delete
Lee Bravo	Faculty	hirdesh20@gmail.com	Edit Delete

Description:

From this page, the admin will be able to view all the users.

3.4.4.1.6. Update officer (Admin)

The screenshot shows the Admin's Dashboard with the 'User Management' section selected. The 'Update User' page is displayed, showing a form titled 'Update User Form'. The form has fields for Name, Email, NIC Number, Date of Birth, Designation, and Cell Number. The data in the form is as follows:

Name	Email
Syed Mustafa	cs1812134@szabist.pk
NIC Number	Date of Birth
4210125973775	02/10/2022
Designation	Cell Number
Officer	03039122434
Designation	New Cell Number
Faculty	03039122434

Update User

Description:

From this page, the admin will be able to update selected users.

3.4.4.1.7. Confirmation for update (Admin)

The screenshot shows the Admin's Dashboard with the User Management section selected. An 'Update User' modal is displayed, asking for a password to confirm the update. The modal includes fields for Username (admin@szabist.pk) and Password (*****), along with 'Close' and 'Confirm' buttons.

User's Name	Designation	Email	Action
Syed Mustafa	Officer	cs1812134@szabist.pk	<button>Edit</button> <button>Delete</button>

Description:

This is the re-validation when the admin wants to update any specific user.

3.4.4.1.8. Delete officer (Admin)

The screenshot shows the Admin's Dashboard with the User Management section selected. A 'Delete User' modal is displayed, asking for a password to confirm the deletion. The modal includes fields for Username (admin@szabist.pk) and Password (*****), along with 'Close' and 'Confirm' buttons.

User's Name	Designation	Email	Action
Mustafa Imam	Faculty	ali@szabist.pk	<button>Edit</button> <button>Delete</button>
Peter Parker	Faculty		<button>Edit</button> <button>Delete</button>
Harry Kumar	Faculty		<button>Edit</button> <button>Delete</button>
Harry Kumar	Faculty		<button>Edit</button> <button>Delete</button>
Syed Mustafa	Officer	cs1812134@szabist.pk	<button>Edit</button> <button>Delete</button>
Hirdesh Kumar	Faculty		<button>Edit</button> <button>Delete</button>
Dr Stephen Strange	Faculty		<button>Edit</button> <button>Delete</button>
Ali Riaz	Faculty	2sm2@gmail.com	<button>Edit</button> <button>Delete</button>
Lee Bravo	Faculty	hirdesh20@gmail.com	<button>Edit</button> <button>Delete</button>

Description:

This is the re-validation when the admin wants to delete any specific user.

3.4.4.1.9. Scholarship posting (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard with the 'Scholarships' section selected. The main content area is titled 'Scholarship Posting'. It contains the following fields:

- Title:** An input field for the scholarship title.
- Application starting date:** A date input field with a calendar icon.
- Application ending date:** A date input field with a calendar icon.
- Description:** A large text area for describing the scholarship.
- Eligibility:** A text area for listing eligible programs, with a note: "Check only those programs which are eligible for this scholarship". Below this are checkboxes for various programs: BBA, BEME, BABS, BS-BIO, BS-BIOTECH, BS-ENTRE, BSAF, BSCS, BSAI, BSMS, BSSS, MA-EDU, MBA-EVE-36, MBA-EVE-72, MSMD, MSPM, PhD-BIO, MS-Mecha, MSCS, MSMS, PhDMs, MSPH, MSSS, and PhDSS.
- Tags:** An input field for tags.
- Load Poster Image:** A placeholder area with a cloud icon for uploading a poster image. It includes the text "Drag and drop an image here or click".

A blue button at the bottom right of the form area says "Post Scholarship".

At the bottom left, there is a footer link: "ONLINE ERFA © 2021 SZABIST". At the bottom right, it says "Powered by Mustafa & Hirdesh".

Description:

Through this, the admin or the officers will be having the right of posting new scholarships on the portal which will be visible to the students on their portal.

3.4.4.1.10. List all scholarships (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'Scholarships' section selected. The 'List Posts' option under 'Scholarships' is highlighted. The main content area is titled 'All Posts' and lists various scholarships with their details and action buttons.

Title	Tags	Start Date	End Date	Action
Need based Scholarship	tag1 tag2 tag3 tag4 tag5	2022-02-10	2022-03-12	Edit Delete
Merit Scholarship	asdad	2022-02-12	2022-02-21	Edit Delete
Balochistan Scholarship	November Covid-19 2021	2022-03-30	2022-04-30	Edit Delete
Sindh Endowment Fund	SZABIST 2018 needbased	2022-03-31	2022-04-13	Edit Delete
Need Based For New Students 2022	October November	2022-04-01	2022-04-15	Edit Delete
Balochistan Education Endowment Fully Funded Scholarship	BalochistanEducationEndowmentFund FullyFund	2022-04-01	2022-05-08	Edit Delete
Orange Tree Foundation Scholarship	OrangeTreeFoundationOTF dsa	2022-03-29	2022-05-07	Edit Delete
Stipendium Hungaricum	Pakistan Hungaricum	2022-04-07	2022-05-08	Edit Delete
Nottingham Developing Solutions Scholarships	Nottingham Commonwealth	2022-05-18	2022-06-01	Edit Delete

Description:

Now from this List posts page the user will be able to view all the posted scholarships and they will also be able to view, delete and update scholarships from this portal.

3.4.4.1.11. Delete scholarship (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'Scholarships' section selected. The 'List Posts' option under 'Scholarships' is highlighted. A modal dialog box titled 'Delete Post' is open, asking for a password confirmation to delete a scholarship post. The dialog includes fields for 'Username' (admin@szabist.pk) and 'Password' (*****), along with 'Close' and 'Confirm' buttons.

Title	Tags	Start Date	End Date	Action
Need based Scholarship	tag1 tag2 tag3 tag4 tag5	2022-02-10	2022-03-12	Edit Delete
Merit Scholarship		2022-02-12	2022-02-21	Edit Delete
Balochistan Scholarship		2022-03-30	2022-04-30	Edit Delete
Sindh Endowment Fund		2022-03-31	2022-04-13	Edit Delete
Need Based For New Students		2022-04-01	2022-04-15	Edit Delete
Balochistan Education Endowment Fund	FullyFund	2022-04-01	2022-05-08	Edit Delete
Orange Tree Foundation Scholarship		2022-03-29	2022-05-07	Edit Delete
Stipendium Hungaricum	Pakistan Hungaricum	2022-04-07	2022-05-08	Edit Delete
Nottingham Developing Solutions Scholarships	Nottingham Commonwealth	2022-05-18	2022-06-01	Edit Delete

Description:

Through the delete button, the user can delete the respective scholarship, by re-entering their credential for validation.

3.4.4.1.12. Edit specific scholarship (Admin / Officers)

The screenshot shows the SZABIST Admin Dashboard with the following details:

- Left Sidebar (ADMINISTRATION SETTINGS):** Includes links for Dashboard, User Management, Scholarships (selected), New Post, List Posts, Application forms, Scheduling, List Schedule, Pannelist Portal, List Evaluation.
- Top Header:** Admin's Dashboard, Home / Scholarships / Update Post, Admin.
- Main Content:**
 - Title:** Need based Scholarship
 - Application Starts:** 2022-02-10 | **Application Deadline:** 2022-03-12
 - Description:** Mauris blandit aliquet elit, eget tincidunt nibh pulvinar a. Nulla quis lorem ut libero malesuada feugiat. Pellentesque in ipsum id orci porta dapibus. Curabitur non nulla sit amet nisl tempus convallis quis ac lectus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec sollicitudin molestie malesuada. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Praesent sapien massa, convallis a pellentesque nec, egestas non nisi. Cras ultricies ligula sed magna dictum porta.
 - Eligibility:** Vivamus suscipit tortor eget felis porttitor volutpat. Nulla quis lorem ut libero malesuada feugiat. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula.
 - Tags:** tag1,tag2,tag3,tag4,tag5
 - Existing Poster:** SZABIST NEED-BASED SCHOLARSHIPS 2020 poster.
 - Load Poster Image:** A placeholder area with a cloud icon for uploading an image.
 - Update image:** A green button to update the poster image.
 - Update Scholarship:** A large green button at the bottom to save changes.

ONLINE ERFA © 2021 SZABIST. Powered by Mustafa & Hirdesh.

Description:

The admin and officer can update any existing scholarship through this page, where they can make changes to anything.

3.4.4.1.13. View selected scholarships (Admin / Officers)

The screenshot shows the SZABIST Admin Dashboard with the following details:

- Left Sidebar (ADMINISTRATION SETTINGS):**
 - Dashboard
 - User Management
 - Scholarships
 - New Post
 - List Posts
 - APPLICATIONS
 - Application Forms
 - INTERVIEW
 - Scheduling
 - List Schedule
 - Pannelist Portal
 - RESULTS
 - List Evaluation
- Header:** Admin's Dashboard, Home / Scholarships / View Post, Admin (with notifications).
- Content Area:**

Need based Scholarship
Application Starts: 2022-02-10 | Application Deadline: 2022-03-12

SZABIST NEED-BASED SCHOLARSHIPS 2020

To streamline the process of SZABIST Need Based Scholarship during COVID-19, we will have online form submission and online scholarship interviews please click on the link for further details:
<http://szabist.edu.pk/scholarships.html>

ELIGIBILITY CRITERIA:

 - Annual family income should not be more than Rs. 900,000/-
 - Previous Qualification
 - For Fall 2020 entrants meeting admission criteria
 - For current students CGPA 2.5 and above

Application Forms are available on <http://szabist.edu.pk/scholarships.html>

LAST DATE TO APPLY:
17TH JULY, 2020

External Relations & Financial Assistance Department,
90 Campus, Tel: (021)35830447 (Ext:104)
Email: erfa@szabist.edu.pk

Karachi Campus | Shaheed Zulfikar Ali Bhutto Institute of Science & Technology

Eligibility

 - Curabitur arcu erat, accumsan id imperdiet et, porttitor at sem.
 - Vivamus magna justo, lacinia eget consectetur sed, convallis at tellus.
 - Vivamus suscipit tortor eget felis porttitor volutpat.
 - Nulla quis lorem ut libero malesuada feugiat.
 - Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula.

Timeline

Start Date: 2022-02-10
End Date: 2022-03-12

Tags

tag1 tag2 tag3 tag4 tag5

Buttons: Edit, Delete

Description:

By clicking the name on the list page of the scholarship the user will be landing on to this page. From where the user would be able to view the scholarship and also they can update or delete that specific scholarship.

3.4.4.1.14. All Applications Page(Admin / Officers)

The screenshot shows the Admin's Dashboard with the following navigation path: Home / All Applications. The main content area is titled "All applications". It features a table with the following columns: Application title, Start date, End date, Student Id, Status, Message from Student, and Action. The table contains ten rows of application data. The "Status" column uses color-coded buttons: green for Accepted, blue for To be evaluated, and yellow for Pending.

Application title	Start date	End date	Student Id	Status	Message from Student	Action
Need based Scholarship	2022-02-10	2022-03-12	1112155	Accepted	done	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112155	Accepted	Resubmitted	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112101	Accepted	done	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112155	Accepted	Han bahi check kar lo	<button>View</button>
Balochistan Scholarship	2022-03-30	2022-04-30	1112155	Accepted	bahi rukh kar raha hu upload ma	<button>View</button>
Stipendium Hungaricum	2022-04-07	2022-05-08	1112109	Accepted	Done	<button>View</button>
Orange Tree Foundation Scholarship	2022-03-29	2022-05-07	1112155	To be evaluated	undefined	<button>View</button>
Nottingham Developing Solutions Scholarships	2022-05-18	2022-06-01	1112155	To be evaluated	Whats the issuse	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112144	Accepted	undefined	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112144	Accepted	Done	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112145	Pending	I have uploaded the form please check! Thankyou.	<button>View</button>

Description:

Through this page, the user will be able to filter the scholarship on the basis of the status of the scholarship.

3.4.4.1.15. Scholarship form review by user (Admin / Officers)

The screenshot shows the Admin's Dashboard with the following details:

- Scholarship Form Details:** Student Name: Omaid Zunnoor Farooq, Registration Id: 1112155, Status: Pending.
- Messages:**
 - Message From student: "Whats the issue"
 - Message from officer: "Submit the latest electricity bill"
- Update Status:** Pending Application
- Buttons:** Update Evaluation Form

Description:

Through this page, the user will be able to review the scholarship form submitted by the student through their portal. After reviewing the scholarship form the user can update the status of the form, which could be accepted, pending or rejected, and then the student will be notified about the status of the scholarship form.

3.4.4.1.16. Interview Scheduling (Admin / Officers)

The screenshot shows the Admin's Dashboard with the following details:

- Interview Scheduling Form:**
 - Scholarship Title: Need based Scholarship
 - Interviews Start Date: 06/20/2022
 - Interviews End Date: 06/22/2022
 - Start Time: 08:31 AM
 - End Time: 05:30 PM
 - Venue: 100 Campus, room 106 and 107
- Buttons:** Schedule Interviews

Description:

Through this page, the user will be able to schedule an interview slot for a scholarship program.

3.4.4.1.17. All Interview Schedule Page (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'List Schedule' page selected. The table data is as follows:

Application title	Start date	End date	Start Time	End Time	End Venue	Action
Need based Scholarship	2022-03-31	2022-04-08	01:23	04:23	99	<button>Re-schedule</button> <button>Send Emails</button>
Merit Scholarship	2022-04-27	2022-04-29	02:04	08:58	Campus 90	<button>Re-schedule</button> <button>Send Emails</button>
Need based Scholarship	2022-03-29	2022-04-08	03:01	06:01	Campus 154	<button>Re-schedule</button> <button>Send Emails</button>
Need based Scholarship	2022-04-09	2022-04-30	01:41	06:46	Nathiya Gali	<button>Re-schedule</button> <button>Send Emails</button>
Need Based For New Students 2022	2022-04-01	2022-04-07	08:14	09:14	135 campus	<button>Re-schedule</button> <button>Send Emails</button>
Stipendium Hungaricum	2022-04-02	2022-04-29	13:28	23:33	100 Campus, Room 404	<button>Re-schedule</button> <button>Send Emails</button>
Orange Tree Foundation Scholarship	2022-05-07	2022-05-12	07:50	14:51	Campus 100, Room 420	<button>Re-schedule</button> <button>Send Emails</button>
Balochistan Scholarship	2022-06-05	2022-05-27	06:08	02:14	knn	<button>Re-schedule</button> <button>Send Emails</button>

Description:

Through this page, the user will be able to see all scheduled interviews.

3.4.4.1.18. Re-schedule Interview Page (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'Re-scheduling' page selected. The form fields are as follows:

- Scholarship Title: Need based Scholarship
- Interviews Start Date: 03/31/2022
- Interviews End Date: 04/08/2022
- Start Time: 01:23 AM
- End Time: 04:23 AM
- Venue: 99

Description:

Through this page, the user will be able to see to reschedule an interview slot.

3.4.4.1.19. Send Email Page (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'Send Emails' section for 'Need based Scholarship'. The table displays the following data:

Student Name	Student Id	Student Section	Status	Email Sent
Omaid Zunnoon Farooqu	1112155	7B	Accepted	Yes
Abdul Majeed Memon	1112101	7A	Accepted	Yes
Hammad Hassan	1112144	8A	Accepted	No

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Powered by Mustafa & Hirdesh

Interview Details 1112144

External
Inbox

onlineerfa1998@gmail.com

to me ▾

Hello Hammad ,

Your interview is scheduled on 07:47 2022-06-02 at Campus 99, Room 500. Please be on time.

King Regards,

EERFA Department

Description:

Through this page, the user will be able to send emails to candidates that have their application forms accepted.

3.4.4.1.20. Final evaluation list (Admin / Officers)

The screenshot shows the SZABIST Admin Dashboard. The left sidebar contains navigation links for Dashboard, User Management, Scholarships, New Post, List Posts, Application forms, Scheduling, List Schedule, Pannelist Portal, and List Evaluation. The main content area displays a table titled "All Evaluations" under the heading "Merit Scholarship". The table has columns for Name, Student Id, Status, and Action. The data is as follows:

Name	Student Id	Status	Action
Omaid Zunnoon Farooqu	1112155	Evaluation Done!	<button>View</button>
Abdul Majeed Memon	1112101	Evaluation Done!	<button>View</button>
Hammad Hassan	1112144	To be evaluated	<button>View</button>

At the bottom of the page, it says "ONLINE ERFA © 2021 SZABIST." and "Powered by Mustafa & Hirdesh".

Description:

Through this page, the user can view the evaluations done by the panellist after the interview, from this page the user will be viewing the specific student's interview results.

3.4.4.1.21. Final evaluation list (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard. On the left sidebar, there are several sections: ADMINISTRATION SETTINGS (User Management, Scholarships), APPLICATIONS (Application forms), INTERVIEW (Scheduling, List Schedule, Pannelist Portal), and RESULTS (List Evaluation). The main content area is titled "Need Based For New Students 2022 - Form". It shows a student record for "Hammad Hassan" with Registration ID: 1112144. Below this, a table lists panelists with their names, designations, percentages, and comments. The table has four columns: Panelist Name, Designation, Percentage, and Comments. Two rows are shown: one for "Peter Parker" (Head, 60%, Good) and one for "Ali Riaz" (Faculty, 75%, He is deserving). There is also a dropdown menu for "Final scholarship %:" with the placeholder "Select percentage" and a "Finalize Evaluation Results" button.

Panelist Name	Designation	Percentage	Comments
Peter Parker	Head	60	Good
Ali Riaz	Faculty	75	He is deserving

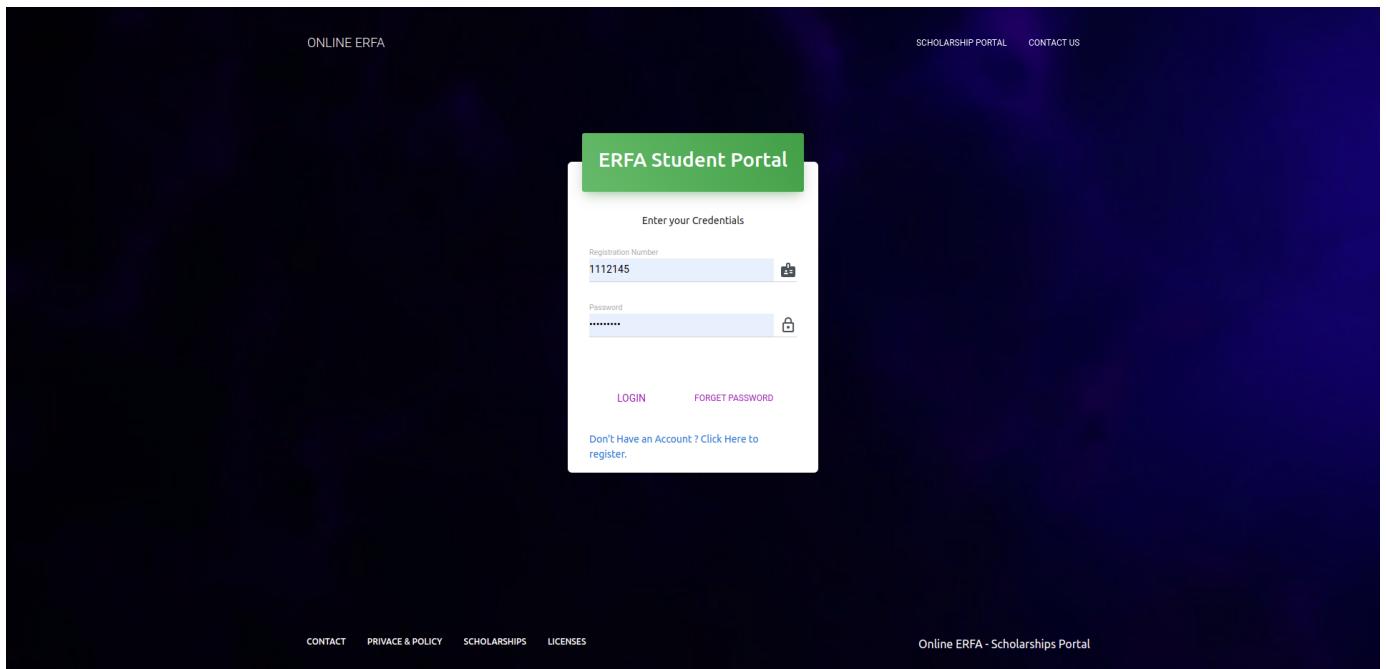
ONLINE ERFA © 2021 SZABIST. Powered by Mustafa & Hirdesh

Description:

Through this page, the user can view the comment and percentages allocated by the panel after evaluating the students after the interview, after which they can decide to award the scholarship percentage from the drop-down. Then the student will be notified through their notice board.

3.4.4.2. Student's Portal

3.4.4.2.1. Login (Student)

**Description:**

Through this page, the student will be able to get registered into their portal they will be required to be registered to get into the portal.

3.4.4.2.2. New student registration (Student)

ONLINE ERFA

SCHOLARSHIP PORTAL CONTACT US

ERFA Student Registration

Enter the following details

Registration Number	<input type="text"/>		
Password	<input type="password"/>	Confirm Password	<input type="password"/>
First Name	<input type="text"/>	Last Name	<input type="text"/>
Program	<input type="text"/>	Section	<input type="text"/>
Cell Number	<input type="text"/>	Email	<input type="text"/>
DOB	<input type="text"/>	Father Name	<input type="text"/>
Mailing Address	<input type="text"/>	Permanent Address	<input type="text"/>

REGISTER

CONTACT PRIVATE & POLICY SCHOLARSHIPS LICENSES

Online ERFA - Scholarships Portal

Online ERFA

to me ▾



Hello 1112144,

You are registered with ERFA Student Portal:

Registration Number	Email	Password
1112144	cs1812134@szabist.pk	Abc.1234

Please refer to the following link: <https://online-erfa.web.app/#/login>

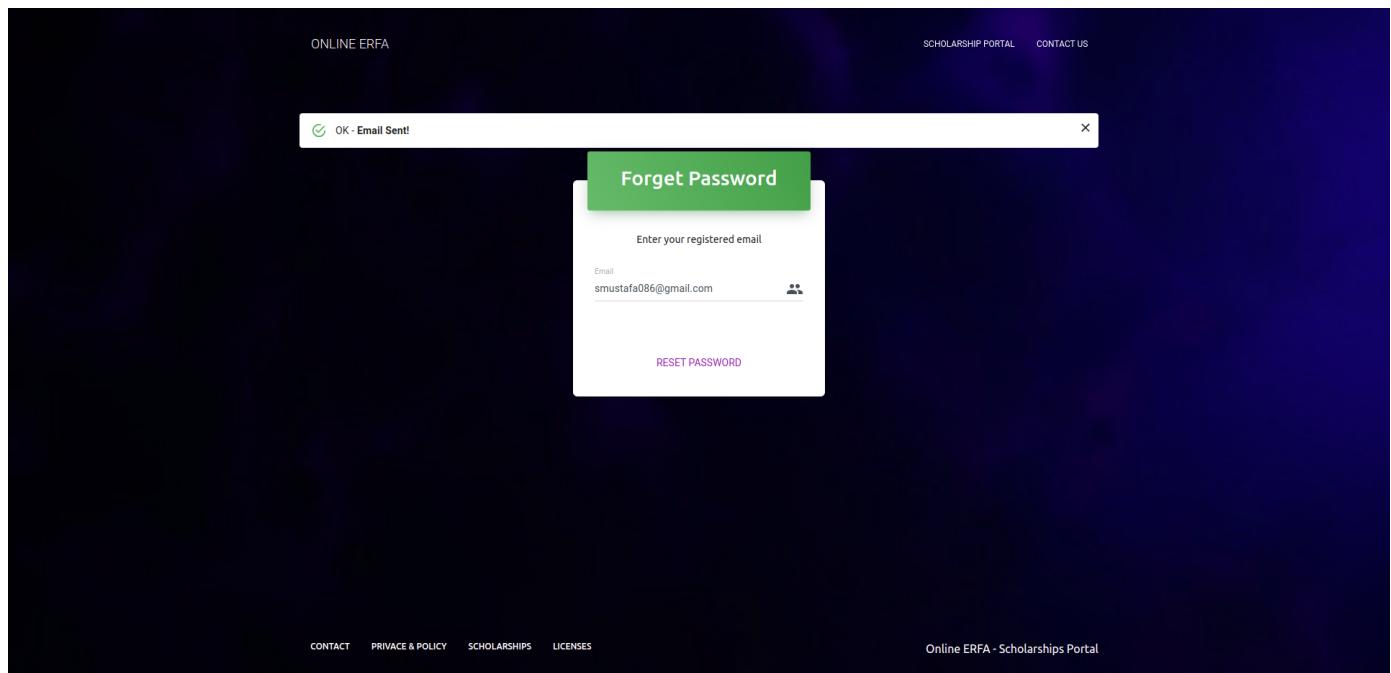
Regards,

ERFA Department

Description:

By clicking on the signup page the student will be able to get register, and then he will be receiving the email for his registration and signup.

3.4.4.2.3. Forget Password (Student)

**Description:**

Enter the registered email to reset the password then the student will be receiving an email for their password reset link.

3.4.4.2.4. Reset Password Email (Student)

Student New Password Confirmation | smustafa086@gmail.com ➤ Inbox ×

Hiradesh Kumar

to me ▾

Hello smustafa086@gmail.com,

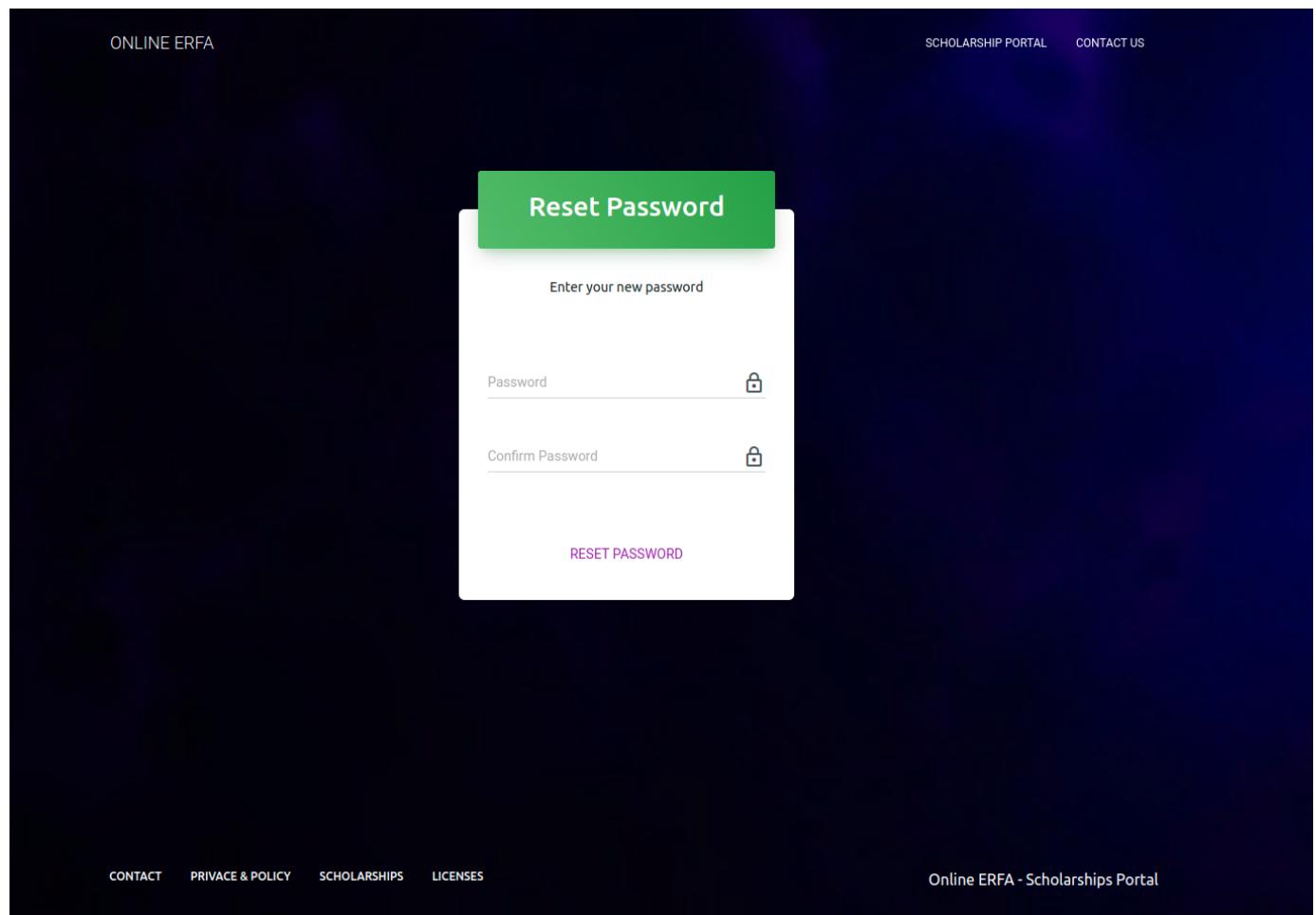
Your Student Password is requested to be changed, so click on the link given below:

<https://online-erfa.web.app/#/reset-password/627aba4c04b12f043c14b672>

Regards,

ERFA Department

Email sent via [EmailJS.com](#)



Description:

The student will receive this email from where they can reset their password through this portal.

3.4.4.2.5. Student's Portal (Student)

Your notice board

- Scholarship Result
Need based Scholarship
Congratulations you have been successful awarded **25** scholarship For your academic year 2022 - 2023.
- Scholarship Result
Merit Scholarship
Congratulations you have been successful awarded **100** scholarship For your academic year 2022 - 2023.
- Scholarship Result
Balochistan Scholarship
We regret to inform you that you did not qualify for this scholarship For your academic year 2022 - 2023.

Latest Scholarships

- Nottingham Developing Solutions Scholarships**
The Developing Solutions Scholarship Programme is designed for international students from Africa, India or one of the selected Commonwealth countries who want to pursue a Master's Degree in the Univ... [read more.](#)
- Stipendium Hungaricum**
The Higher Education Commission (HEC) invites applications from Pakistani/A&J&K nationals for the Stipendium Hungaricum Scholarship Programme (2021-22), launched by the Hungarian Government for Bachelor... [read more.](#)
- Orange Tree Foundation Scholarship**
Orange Tree Foundation OTF creates equal opportunities for financially challenged household in Karachi by providing mainstream education, quality healthcare and financial assistance to deserving stude... [read more.](#)

[View All Scholarships](#)

Description:

This is the announcements page where all the latest announcements will be posted and the results of the scholarships.

3.4.4.2.6. List all scholarships (Student)

The screenshot shows the SZABIST online portal interface. On the left is a dark blue sidebar with navigation links: Announcements, Scholarships (with a dropdown arrow), and List Posts. At the top right are icons for notifications (with a red '5' badge) and a user profile labeled 'Changez'. The main content area displays four scholarship listings in cards:

- Need Based Scholarship 2021**
Start Date: 2021-12-01 | End Date: 2021-02-02
tag1 tag2 tag3 tag4 tag5
- Need-Based Scholarship 2020**
Start Date: 2020-01-03 | End Date: 2021-02-01
Needbased 2020 SZABIST
- Balochistan Education Endowment Fully Funded Scholarship**
Start Date: 2022-02-01 | End Date: 2022-02-23
Balochistan 2022 SZABIST
- USAID Funded Merit and Need-Based Scholarship Programs**
Start Date: 2022-02-11 | End Date: 2022-04-06
usaid usa szabist scholarship

Each card includes a thumbnail image of the scholarship brochure or announcement.

Description:

This page is where all the scholarships that are posted by the ERFA portal will be listed here.

3.4.4.2.7. List all scholarships (Student)

The screenshot shows the SZABIST online portal interface. On the left, there is a dark blue sidebar with the SZABIST logo at the top. Below it are three menu items: "Announcements", "Scholarships" (which is currently selected and has a dropdown arrow), and "List Posts". At the top right, there is a notification icon with a red circle containing the number "5" and a "Changez" button. The main content area has a light gray background. It displays four scholarship listings in separate boxes:

- Need Based Scholarship 2021**
Start Date: 2021-12-01 | End Date: 2021-02-02
tag1 tag2 tag3 tag4 tag5
- Need-Based Scholarship 2020**
Start Date: 2020-01-03 | End Date: 2021-02-01
Needbased 2020 SZABIST
- Balochistan Education Endowment Fully Funded Scholarship**
Start Date: 2022-02-01 | End Date: 2022-02-23
Balochistan 2022 SZABIST
- USAID Funded Merit and Need-Based Scholarship Programs**
Start Date: 2022-02-11 | End Date: 2022-04-06
usaid usa szabist scholarship

Description:

This page is where all the scholarships that are posted by the ERFA portal will be listed here.

3.4.4.2.8. Viewing a specific scholarship (Student)

The screenshot shows a web page from the SZABIST website. The left sidebar has a dark blue background with the SZABIST logo at the top, followed by 'Announcements', 'Scholarships' (with a dropdown arrow), and 'List Posts'. The main content area has a light gray background. At the top, it says 'Home / Scholarships / View Posts'. Below this, the title 'Balochistan Education Endowment Fully Funded Scholarship' is displayed, along with the text 'Application Starts: 2022-02-01 | Application Deadline: 2022-02-23'. A large graphic for 'SZABIST NEED-BASED SCHOLARSHIPS 2020' features a graduation cap and the text 'LAST DATE TO APPLY: 10th AUGUST, 2020'. Two buttons below the graphic are 'How to Apply' and 'Eligibility Criteria'. The 'How to Apply' section contains three numbered steps: 1. Download Form from the link: <https://szabist-isb.edu.pk/student-resources/#ERFA>, 2. Submit your complete form along with documents at: snbsp2020@szabist-isb.edu.pk, 3. For any query, please contact at: 0345-5997650. The 'Eligibility Criteria' section lists two points: 1. Annual family income should not be more than Rs.900,000/-, 2. Only Undergraduate and MBA program. Below the graphic, a note states: 'The Balochistan Education Endowment Fund fully funded scholarship is provided to SZABIST students meeting the Merit and Need criteria. This scholarship covers the tuition fee, living expense, food expense, stationery, books expense and travel expense.' Below this are sections for 'Eligibility' (with a bulleted list), 'Timeline' (with 'Start Date: 2022-02-01' and 'End Date: 2022-02-23'), and 'Tags' (with 'Balochistan', '2022', and 'SZABIST'). At the bottom right is a green button labeled 'Apply to this Scholarship'. The footer of the page includes the text 'ONLINE ERFA © 2021 SZABIST.' and 'Powered by Mustafa & Hirdesh'.

Description:

After clicking on the specific scholarship the students will be able to view the complete details of the specific scholarship, then after clicking on the "Apply to this scholarship" button student will be checked for the eligibility for the scholarship to which the student is applying.

3.4.4.2.9. Viewing a specific scholarship (Student)

Need Based For New Students 2022 Form

Student Name	Father Name
Adeel	Aalim
Registration Number	Email
1112145	smustafa086@gmail.com
Date of Birth	Program
05/26/2022	BSCS
Section	Cell Number
A	03039122434
Mailing Address	Permanent Address
xyz	sdf

Confirm that all the details are updated!

[Download Application Form](#)

Description:

Now once the student is eligible to apply for the scholarship then they can download the form for the scholarship. Now they can fill out the form and can upload it from my application tab.

3.4.4.2.10. List all my application (Student)

Need Based For New Students 2022

Start Date: 2022-04-01 | End Date: 2022-04-15

[October](#) [November](#)

Description:

After clicking on my application, the student will be shown all of their applications for different scholarships.

3.4.4.2.11. Scholarship application submission (Student)

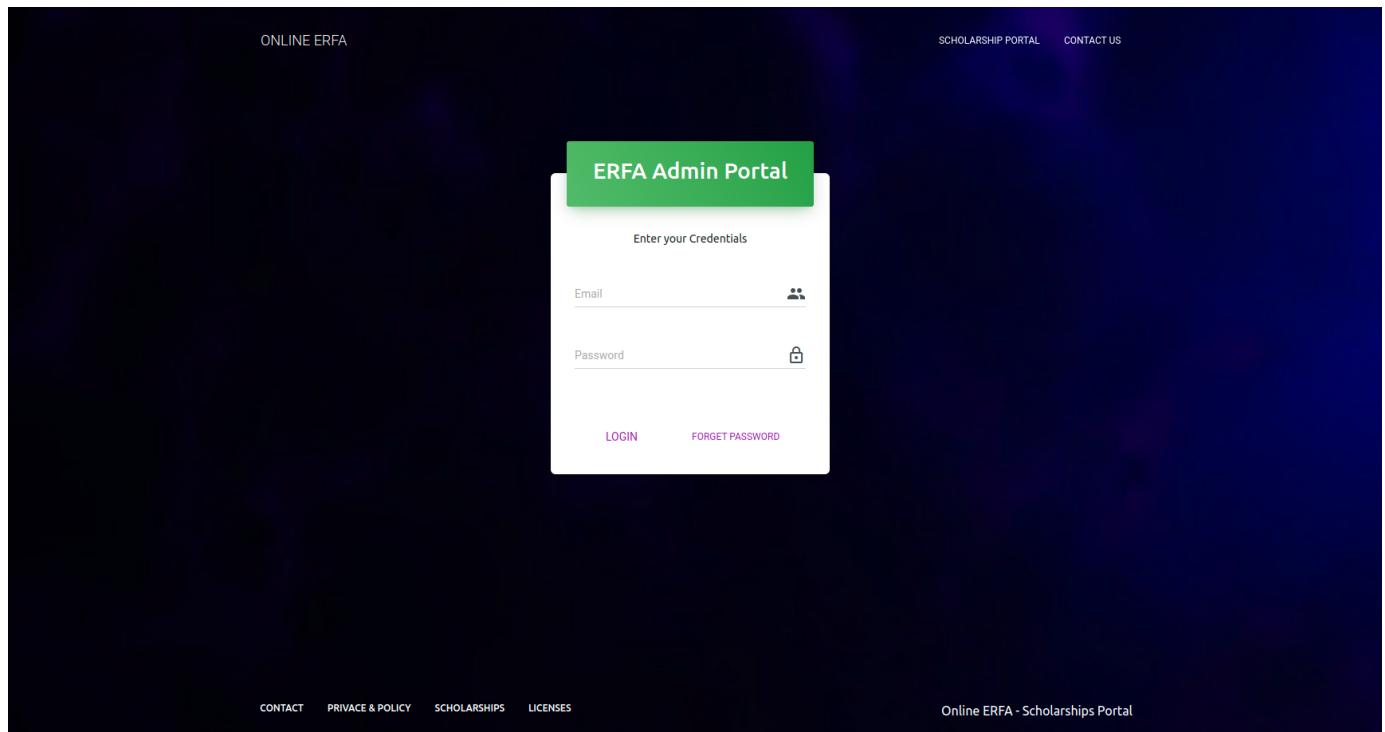
The screenshot shows a web application interface for SZABIST's Online ERFA system. On the left, there is a sidebar with a dark blue background containing the SZABIST logo and navigation links: Announcements, Scholarships (selected), List Posts, and My Applications. The main content area has a white background. At the top, it displays the breadcrumb navigation: Home / Scholarships / Selected Application. Below this, the title "Need Based For New Students 2022 - Form submission" is centered. Underneath the title, it says "Status of the Application: Pending". The "Form:" field contains the value "form_1652210555404.pdf". A "Message for officer:" text area contains the message: "I have uploaded the form please check! Thankyou.". A "Message from officer:" text area contains the message: "Please attach your Electricity and Gass Bill.". Below these, there is a dashed rectangular area labeled "Upload Completed Document" with the instruction "Drag and drop an pdf here or click" and a cloud icon with an upward arrow. At the bottom right of the page, there is a blue button labeled "Submit application". At the very bottom of the page, there is a footer bar with the text "ONLINE ERFA © 2021 SZABIST." and "Powered by Mustafa & Hirdesh".

Description:

After clicking on a specific application form, the student will upload his or her scholarship form, communicate with an official from the ERFA department, and the student will be notified of the status of his or her application to be evaluated, accepted, pending, or rejected.

3.4.4.3. Panellist's Portal

3.4.4.3.1. Login (Panellist)

**Description:**

The panellist will also be using the same admin login portal same as the admin.

3.4.4.3.2. Student search (Panellist)

Panellist's Portal

Search Student

Registration No.

Scholarship title Select scholarship

Search

ONLINE ERFA © 2021 SZABIST.

Powered by Mustafa & Hirdesh

Description:

The panellist will now search the student by registration number and the scholarship title for the interview.

3.4.4.3.3. Student interview evaluation (Panellist)

Panellist's Portal

Student Evaluation

Name **Omaid Zunnoon Farooq**
Reg. No. **1112155**
Program **BBA**
Section **7B**

Comments

Select Percentage

Post Results **Go back**

Application form

SZABIST Need-Based Scholarship Application Form

Instructions:

1. Please fill in BLOCK LETTERS
2. In case of non-applicable field, please write "NA".
3. Provide the required documents, mentioned on Pg. 12 & 13, for application process.
4. Student must fill Online Portion of the Form as well on <https://forms.gle/AxuJL4gpxpDVTLe5>

Fresh / Renewal, please specify % of fee waived off in case of renewal: _____

1. **CANDIDATE'S INFORMATION:**

Name: _____ (First) _____ (Middle) _____ (Last)
Father's Name: _____ Alive/Deceased: _____
Guardian's Name (if different): _____ Relationship with Guardian: _____
Father/ Guardian Cell Number: _____ Father/ Guardian Email: _____
DOB: _____ Age: _____ CNIC Number: _____

ONLINE ERFA © 2021 SZABIST.

Powered by Mustafa & Hirdesh

Description:

The panellist will now interview the student and will allocate the percentage of the scholarship and write their comments about the student.

3.5. Reuse and relationships to other products

This project is not enhancement work, it is being developed from scratch. The backend is being created from scratch by using some fundamental libraries. The front is being built as component-based so to save some time on styling the team is using the front end react js libraries. For this project, the components are developed in such a way that they can be reused. The libraries that are being used for the development are listed below:

3.5.1. Backend Server

- node.js
- express.js
- mongoose
- cors
- joi
- bcrypt
- jsonwebtoken
- multer
- helmet
- cookie-parser
- nodemailer

3.5.2. Frontend Server

- react.js
- react-router-dom
- react-redux
- react-dom
- react-cookie
- coreui
- materialui
- axios
- bootstrap
- history
- revel-js

3.6. Design decisions and tradeoffs

The functional-based component approach is being followed for the development of the front end. For the Online ERFA MVC model, view the controller framework for the application architecture. MERN stack framework is used for the development of the application. In which it will be using ReactJS for the front-end and NodeJS for the server side.

The communication interface for the Online ERFA is the HTTP protocol through which the user can access the website from the servers. To access the website through the HTTP protocol the user must have an active internet connection and a web browser or they should have our application installed on their systems.

For Online ERFA HTTP/2 protocol will be specially used which is also known as the SPDY. It is the latest web protocol standard which is developed by the IETF HTTP workgroup. The reason for using the HTTP/2 protocol is that it consumes less bandwidth and it renders the web page from the server at a very high speed.

3.7. Pseudocode for components

3.7.1. ERFA User

Add New ERFA Officer

Begin

Input form details about the user

Click on the save

If user already exists then display, "User already in the system"

Else user details would be saved and message would display, "New User Created"

End

Get ERFA Officer

Begin

The user click to view details of an ERFA officer

If the user is found, then all details of the officer would be on screen

Else the message would display, "Not Found"

End

Get ALL ERFA Officer

Begin

The user click to view all ERFA officers

If the user is found, then all ERFA officer list would be on screen

Else the message would display, "Not Found"

End

Update ERFA Officer

Begin

The user click on update of a Officer

Input the details that they would like to change

If the operation was successful, then display, "Details saved"

Else would display, "Error"

End

Delete ERFA Officer

Begin

The user click one delete of a Officer

If the operation was successful, then display "Deleted"

Else would display, "Error"

End

3.7.2. Scholarship Post

Add Scholarship Post

Begin

User inputs the details of Scholarship

User clicks on save

If the title of scholarship is not unique then, it would display the message, "already existed"

Else it would display message, "Scholarship Posted"

End

Get All Scholarship Post

Begin

The user click to view All Scholarship Post

If the content is found, then All Scholarship Post list would be on screen

Else the message would display, "Not Found"

End

Get Scholarship Post

Begin

The user click to view details of a Scholarship Post

If the Scholarship Post is found, then all details of the post would appear on screen

Else the message would display, "Not Found"

End

Update Scholarship Post

Begin

The user click on update a Scholarship Post

Input the details that need to be changed

If the task is done, it would display "Scholarship Details Updated"

Else it would display "Error in Saving the details!"

End

Delete Scholarship Post

Begin

The user clicks on delete of a Scholarship Post

If the operation was successful, then display "Deleted Successfully!"

Else it would display, "Failed to delete."

End

Get Last Three Scholarship

Begin

The user clicks List Post

If the Last Three Scholarship Posted are found, it would display their details

Else it would display, "Failed to fetch."

End

3.7.3. Applicant Profile

Sign Up

Begin

The user fills out the form

The clicks on register

If all the fields are entered and valid then the student will be redirected to the login page.

Else the message would display, "ERROR — Registration record is already present or the registration id is not valid"

End

Login

Begin

The user clicks to view details of a Scholarship Post

If the Scholarship Post is found, then all details of the post would appear on screen

Else the message would display, "Not Found"

End

View Scholarship

Begin

The user click to view details of a Scholarship Post

If the Scholarship Post is found, then all details of the post would appear on screen

Else, the message would display, "Not Found"

End

Announcement

Begin

The user click List Post or will be redirected to this page after login successfully

If the Last Three Scholarship Posted are found, it would display their details

Else it would display, "Failed to fetch."

End

3.7.4. Scholarship Form

Add Scholarship Form

Begin

User inputs the details and uploads the Scholarship Form

User clicks on saving

If the scholarship id and student id are not unique then, it would display the message, "already existed"

Else it would be display message, "Scholarship Form Uploaded"

End

Get All Scholarship Form

Begin

The user click to view All Scholarship Form

If the content is found, then All Scholarship Form list would be on screen

Else, the message would display, "Not Found"

End

Get Scholarship Form

Begin

The user click to view details of a Scholarship Form

If the Scholarship Formt is found, then all details of the post would appear on screen

Else, the message would display, "Not Found"

End

Update Scholarship Form

Begin

The user click on update a Scholarship Form

Input the details that need to be changed

If the task is done, it would display, "Updated Successfully Details and Form"

Else it would display, "Trouble in saving changes in details"

End

Update Message Student

Begin

The student click on Scholarship Form

Input the message for ERFA Officer

If the task is done, it would display, "Student sent message success!"

Else it would display,"No message from Student."

End

Update Message Officer

Begin

The Officer click on Scholarship Form

Input the message for the student

If the task is done, it will display, " ERFA Officer sent message success!"

Else it would display,"No message from ERFA Officer."

End

Update Status

Begin

The ERFA Officer click on Scholarship Form

Select a status for the application

If the task is done, it will display, "Update State Changed"

Else it would display,"No changes were made.!"

End

Fetch Interview Student Scholarship Form

Begin

It takes to input of the scholarship title and student id

If the task is done, it will display the details

Else it would display, "Not Found!"

End

Sort Status

Begin

Selects a status

If the task is done, it will display the details accordingly to the status

Else it would display, "Not Found!"

End

Sort Status and Title

Begin

Selects a status and scholarship title

If the task is done, it will display the details accordingly to the status and scholarship title

Else it would display, "Not Found!"

End

Allocate Scholarship

Begin

Enter applicationId to fetch the applicant's document

After fetching the document, enter scholarship percentage, and enter accepted for scholarship

If the task is done, it will display, "Successfully in saving changes!"

Else it would display, "Unsuccessfully in saving changes!"

End

Fetch All Accepted by Scholarship Title

Begin

Enter Scholarship Title

It would find the Scholarship Id from Scholarship Title

If finds Scholarship Id, it would be displaying all the candidates that have had an interview

Else it would display, "Unable to find Scholarship Id"

End

Fetch All Accepted by RegId

Begin

Enter Reg id

It would find the Reg id from Scholarship Title

If finds Rigid Id, it would be displaying all scholarships that are granted and not given to a candidate

Else it would display, "Unable to locate scholarship of this rigid"

End

3.7.5. Interview

Schedule

Begin

Input form details about interview

Click on the save

If the interview is saved then display, "Interview Scheduled!"

Else the message would display, "Error in saving the data"

End

Get Interview Detail

Begin

The user clicks to view details of an interview document

If the interview is found, then all details of the post would appear on the screen

Else, the message would display, "Not Found"

End

Get All Interview Detail

Begin

The user click to view All Interview Detail

If the content is found, then All Interview Detail list would be on screen

Else, the message would display, "Not Found"

End

Reschedule

Begin

The user click on update a Reschedule

Input the details that need to be changed

If the task is done, it will display, "Update!"

Else it would display, "Not Update!"

End

Remove Schedule

Begin

The user clicks one delete of a schedule

If the operation was successful, then display, "Successfully Delete!"

Else would display, "Error"

End

Send Email Interview

Begin

The user clicks one send an email and all selected students are sent emails.

If the operation was successful, then display "Successfully Email Sented!"

Else would display, "Error"

End

Fetch Student Records on Student

Begin

Enter studentId. and scholarshipTitle

Click on the Search button

If the task is done, then all student's scholarships will be on the screen

Else it will display, "Not Found"

End

Evaluate Student

Begin

Enter the score and comments

Click on Evaluate

If the student has not received an evaluation, display "Student Evaluated!"

Else display "Interview panellist has evaluated this candidate."

End

Get All Remark on Application

Begin

Enter Application Id

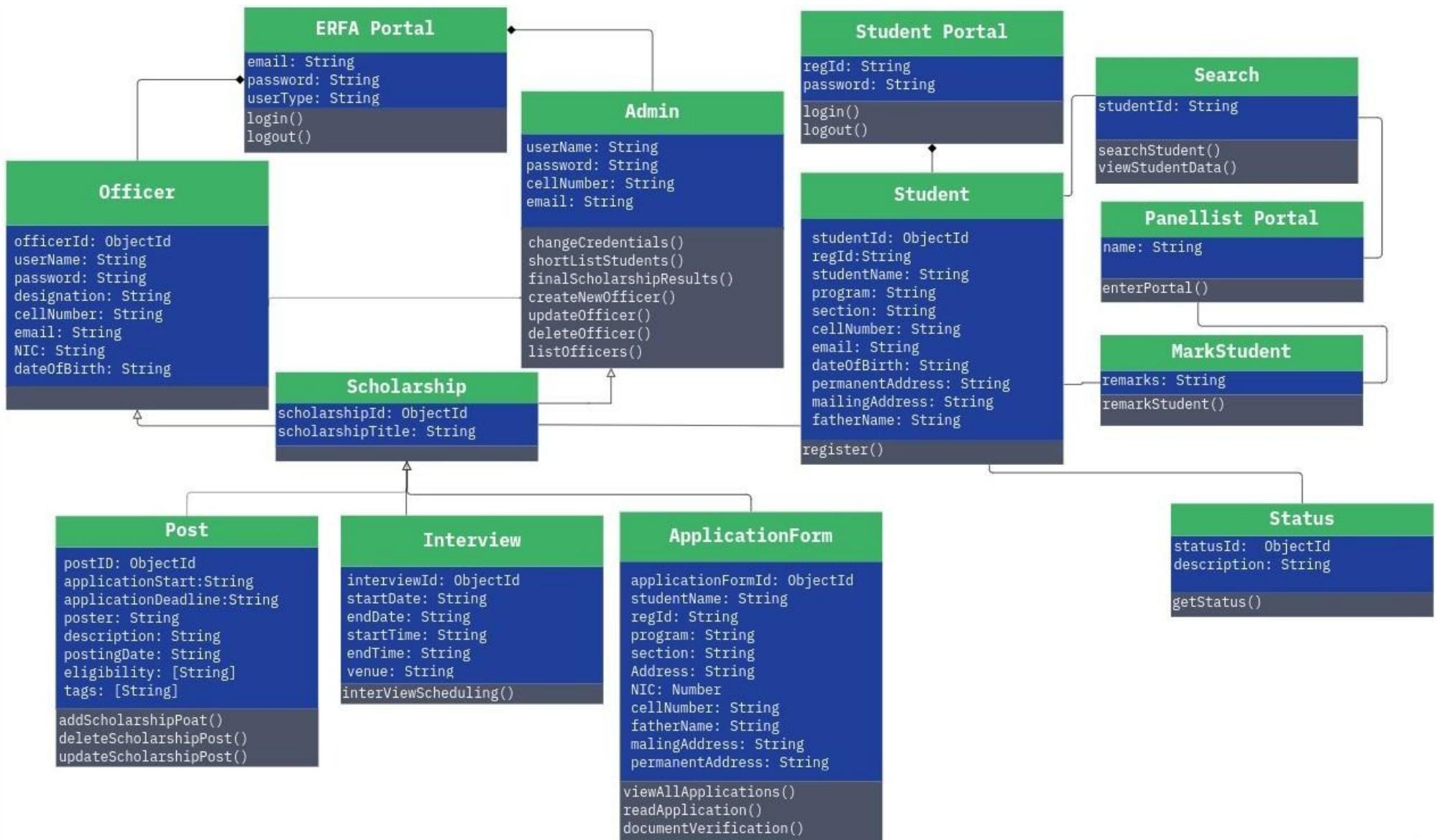
If found, all the remarks the student have received from all the panellist will be on screen.

Else display, "Not Found"

End

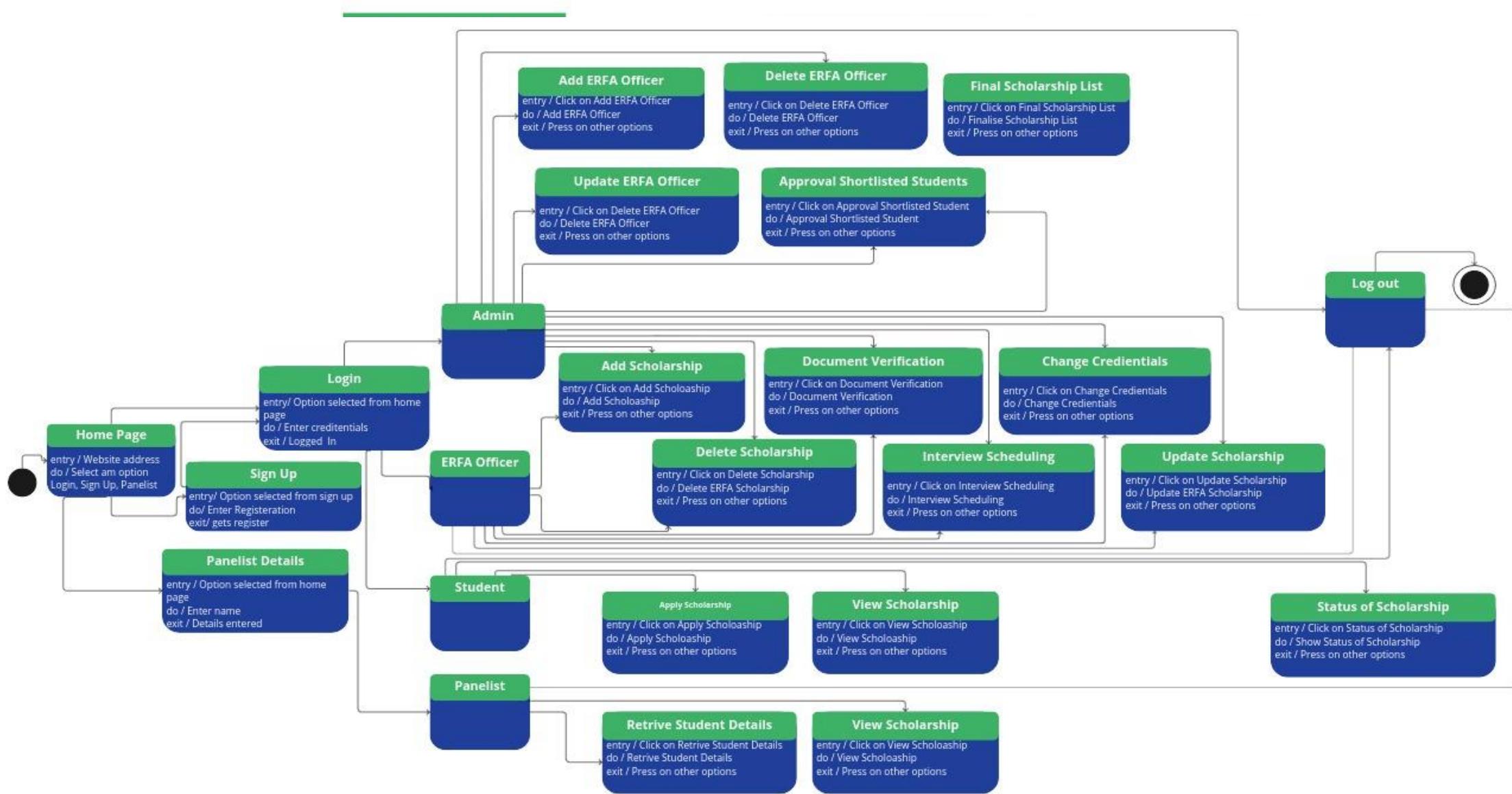
3.8. Appendices

3.8.1. Class Diagram



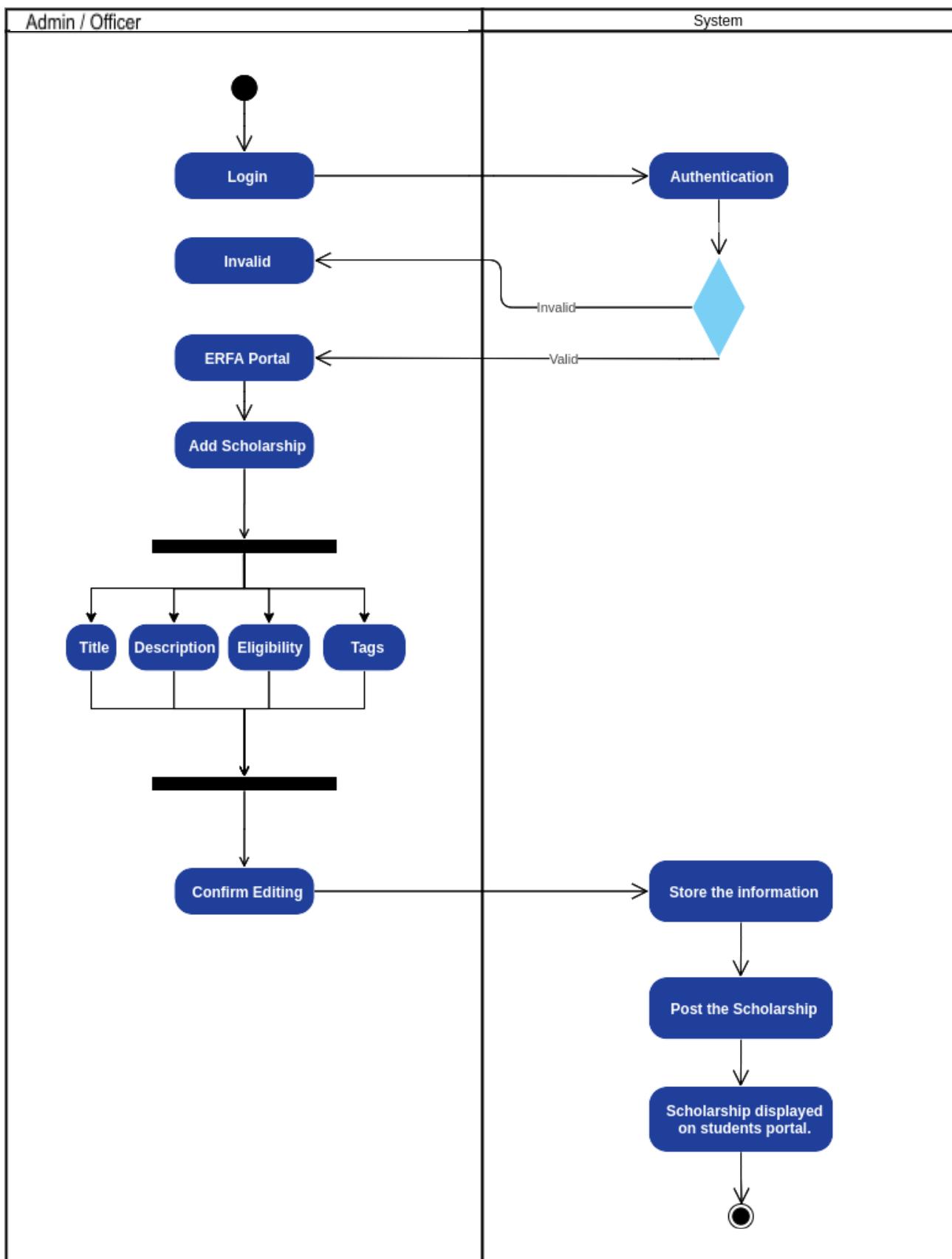
3.8.2. Object Diagram

3.8.3. Statechart Diagram

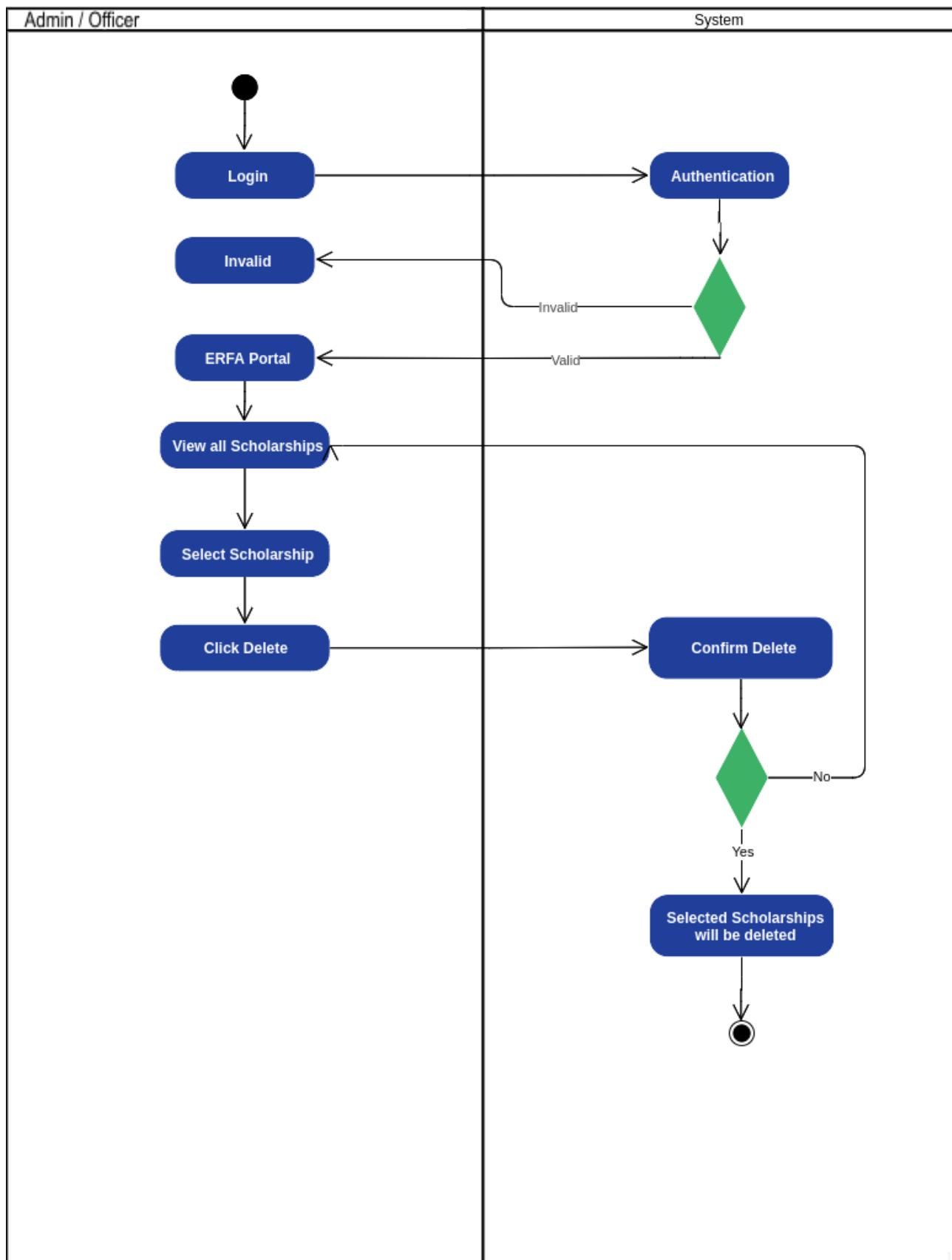


3.8.4. Activity Diagram

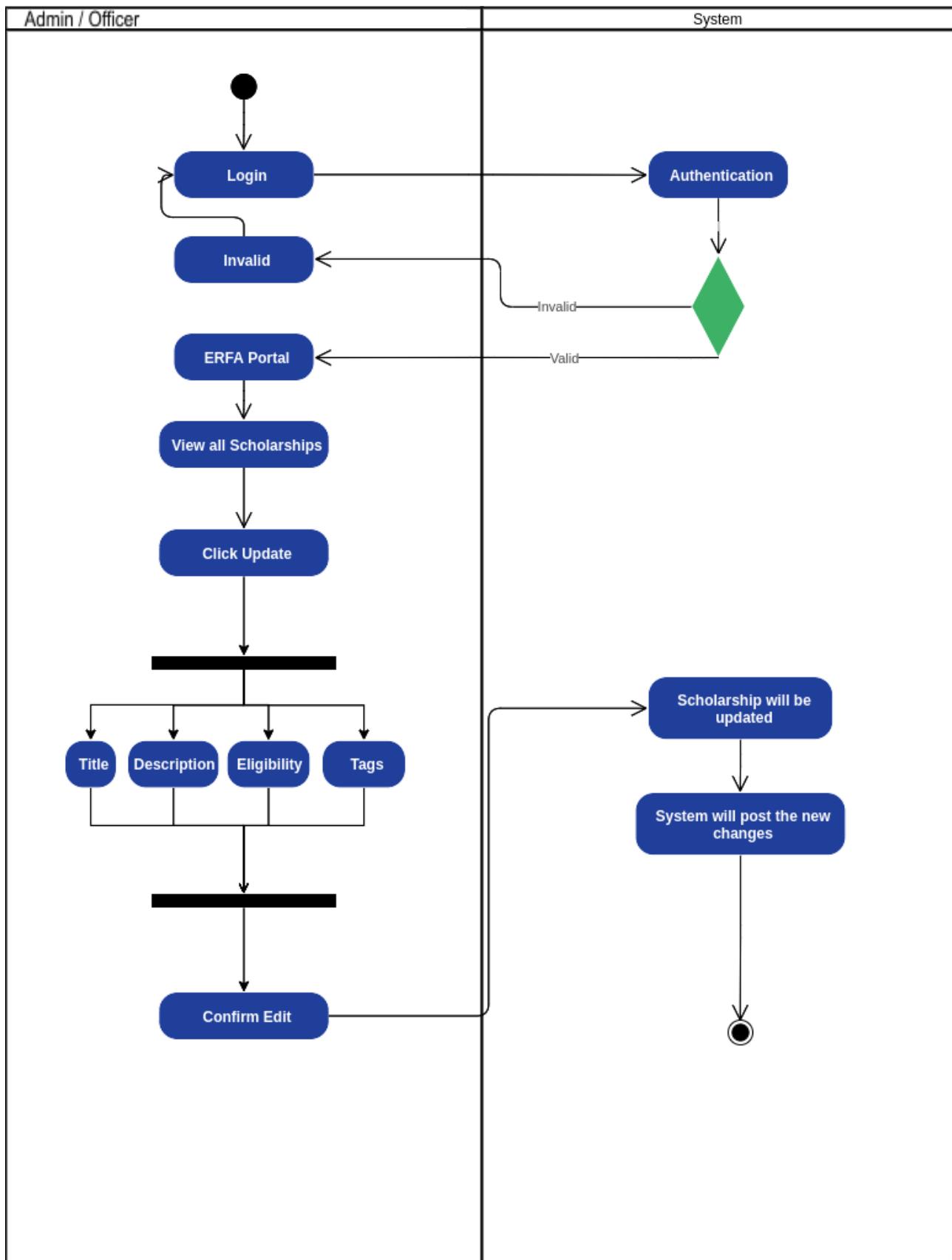
Add Scholarship



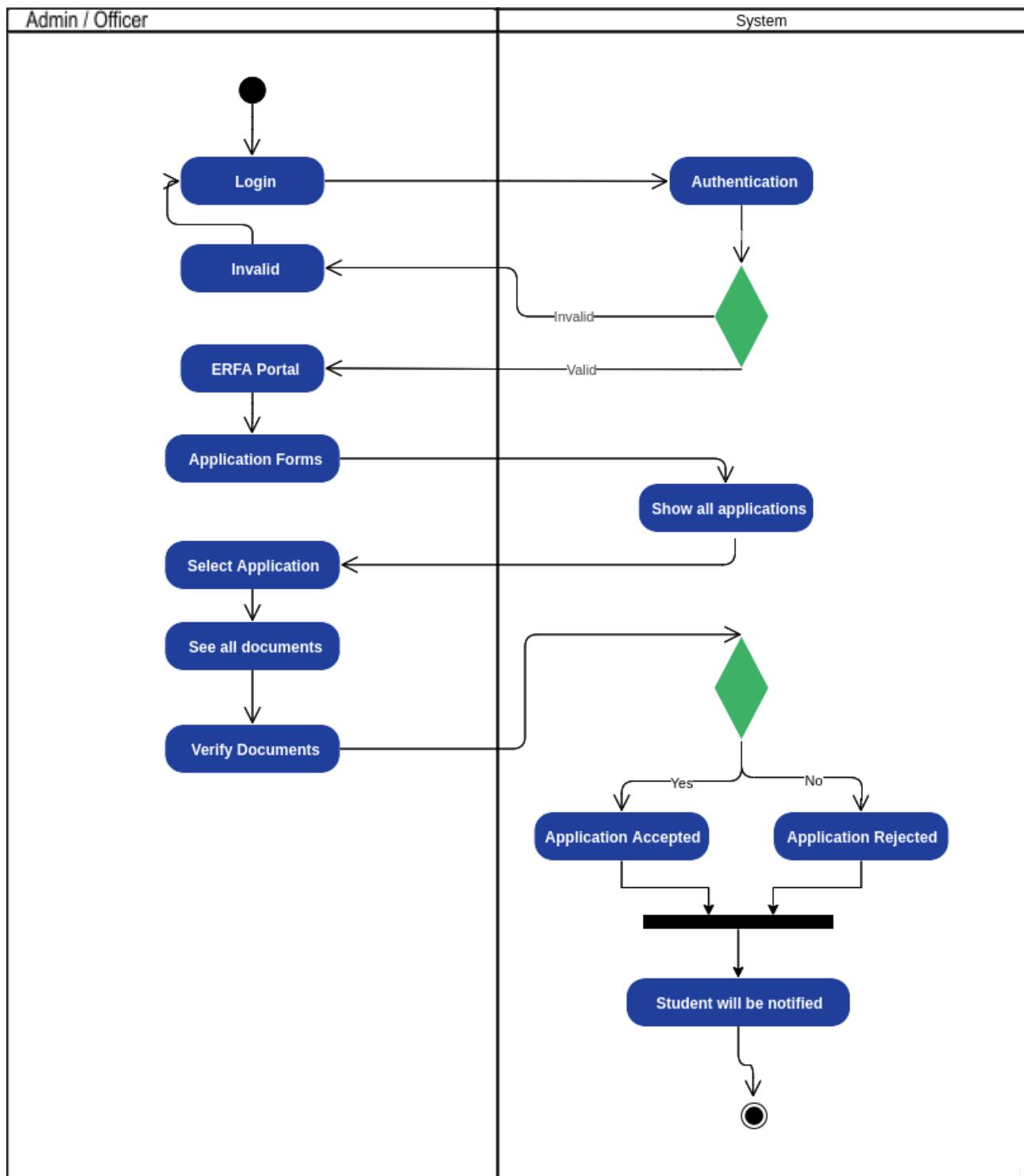
Delete Scholarship



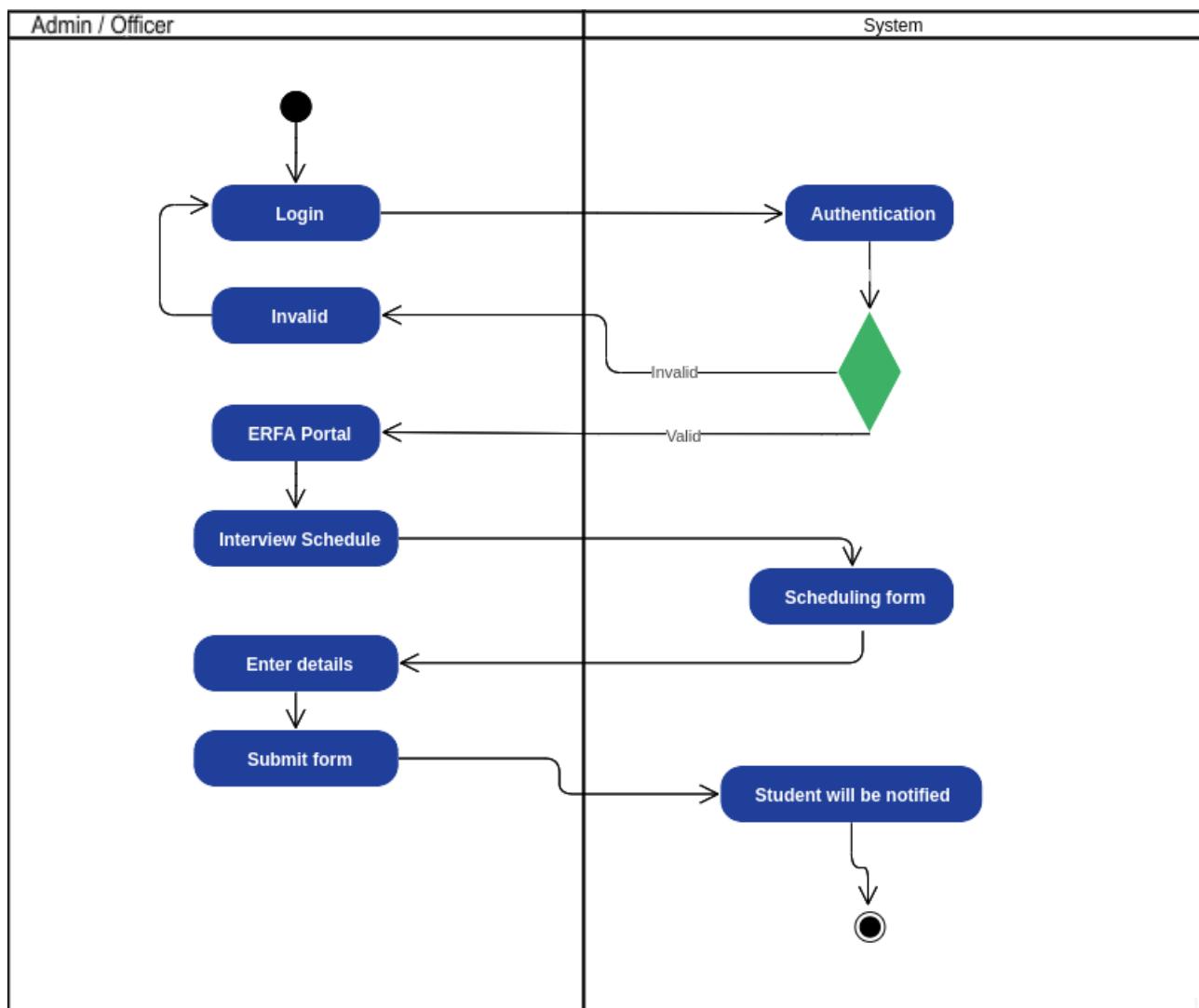
Update Scholarship



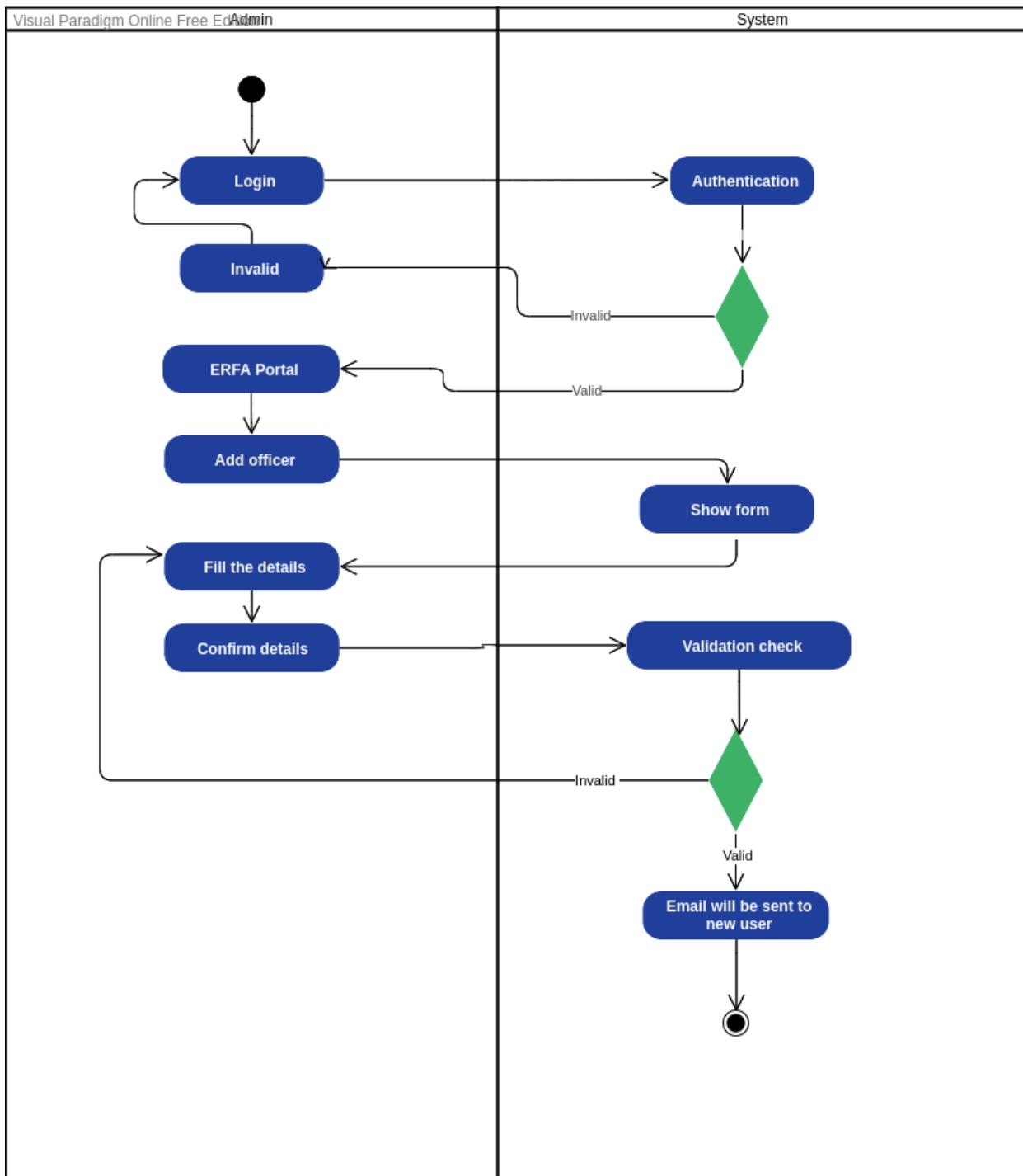
Document Verification and Shortlisting



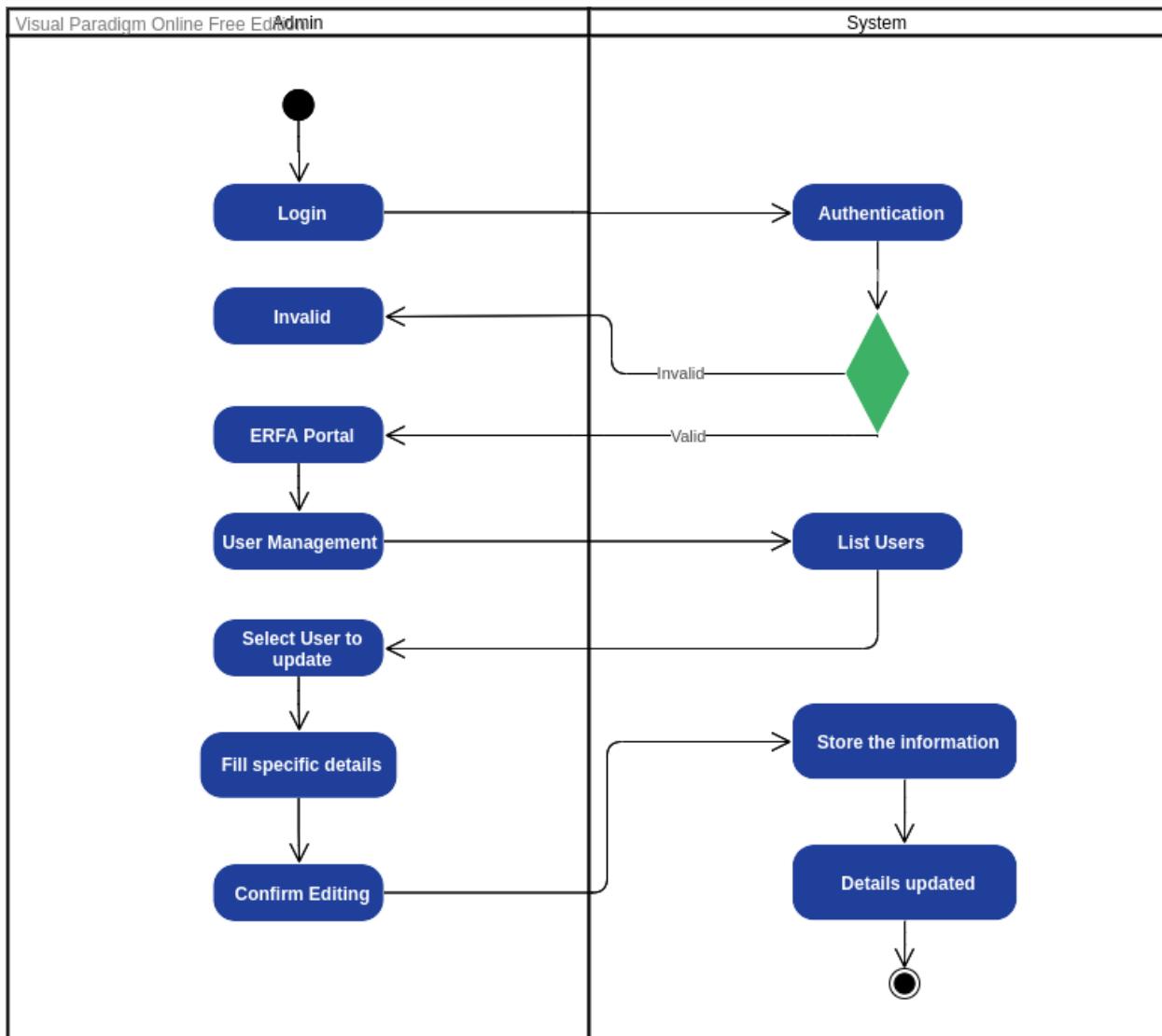
Interview Scheduling



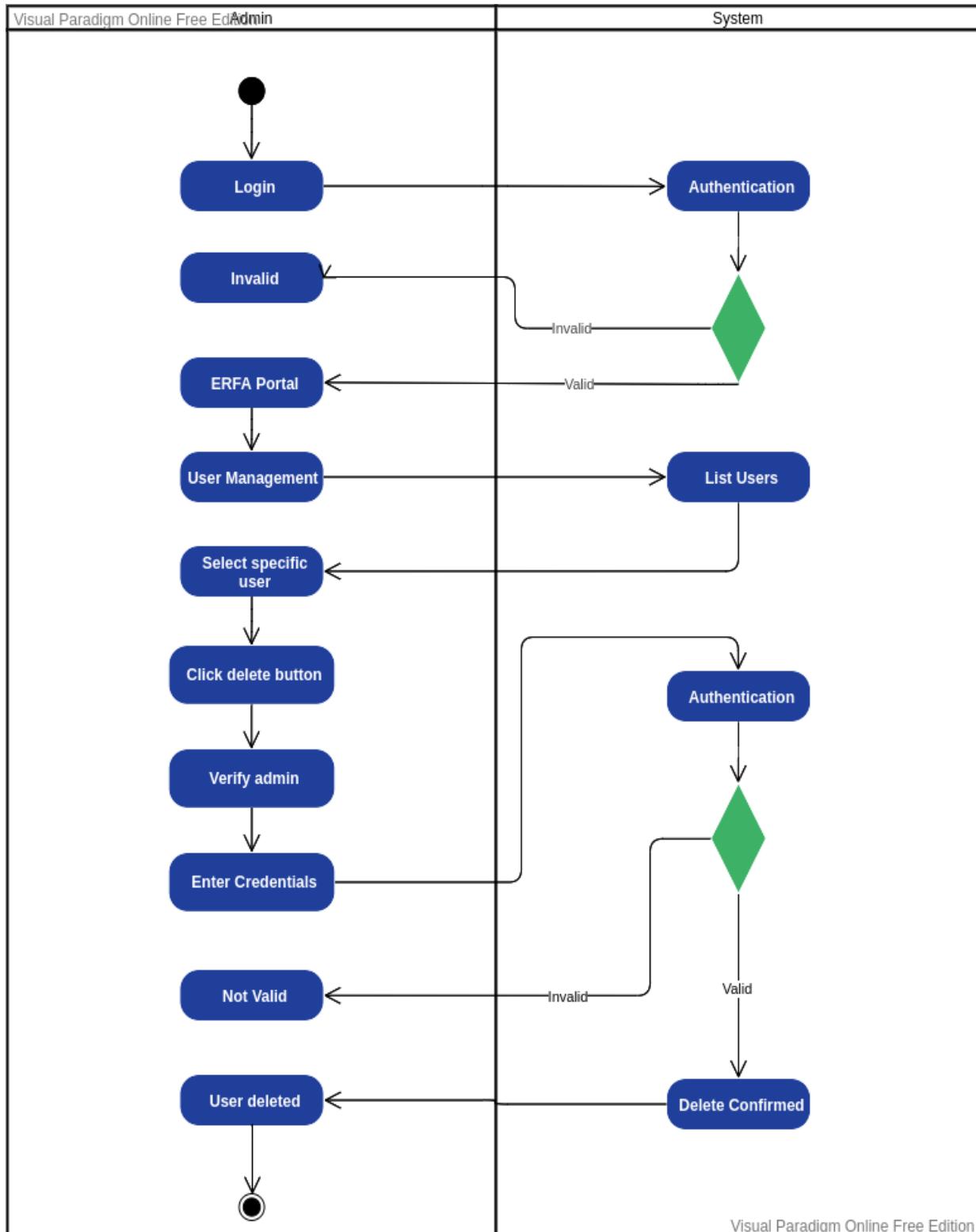
Add ERFA Officer



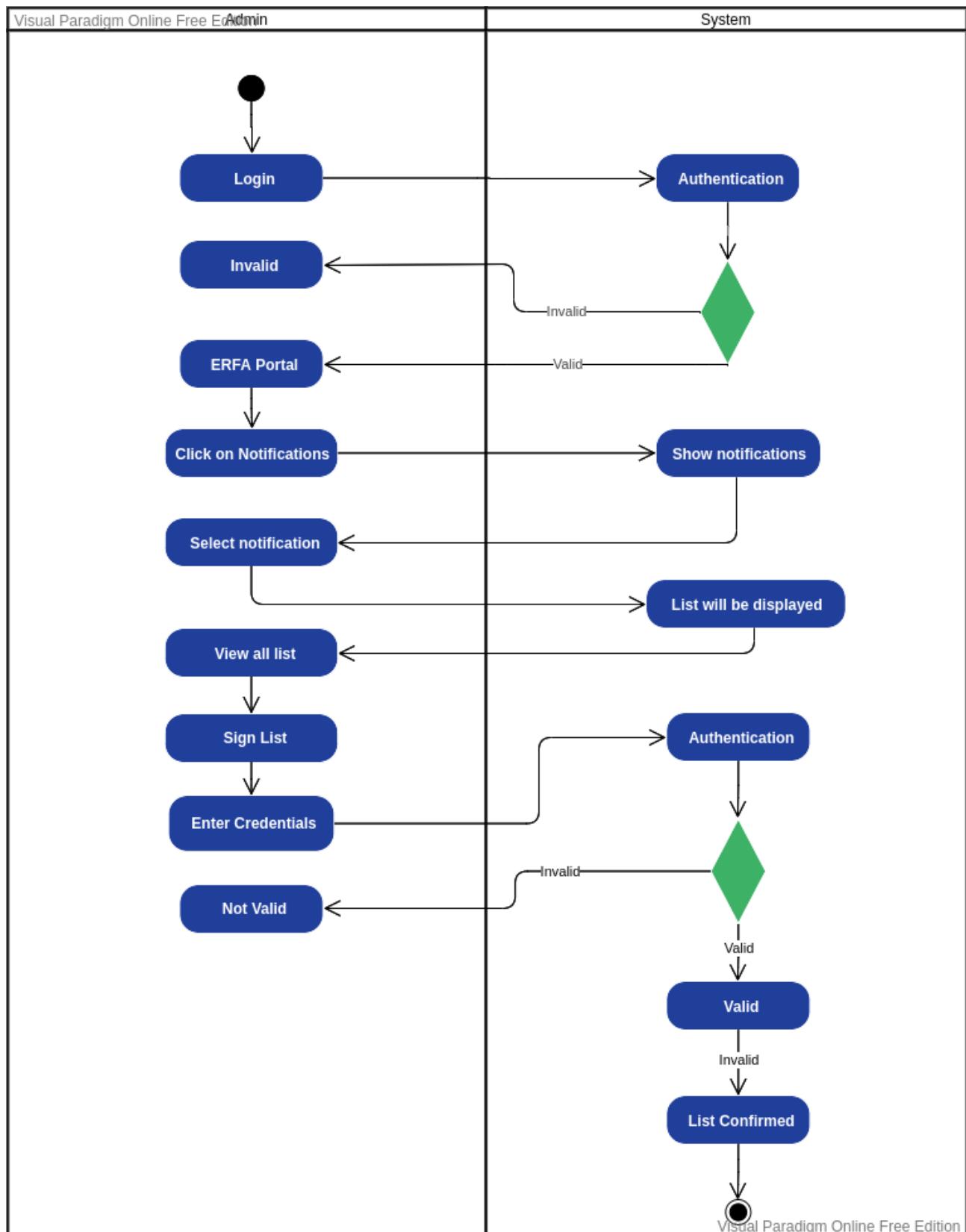
Update ERFA Officer



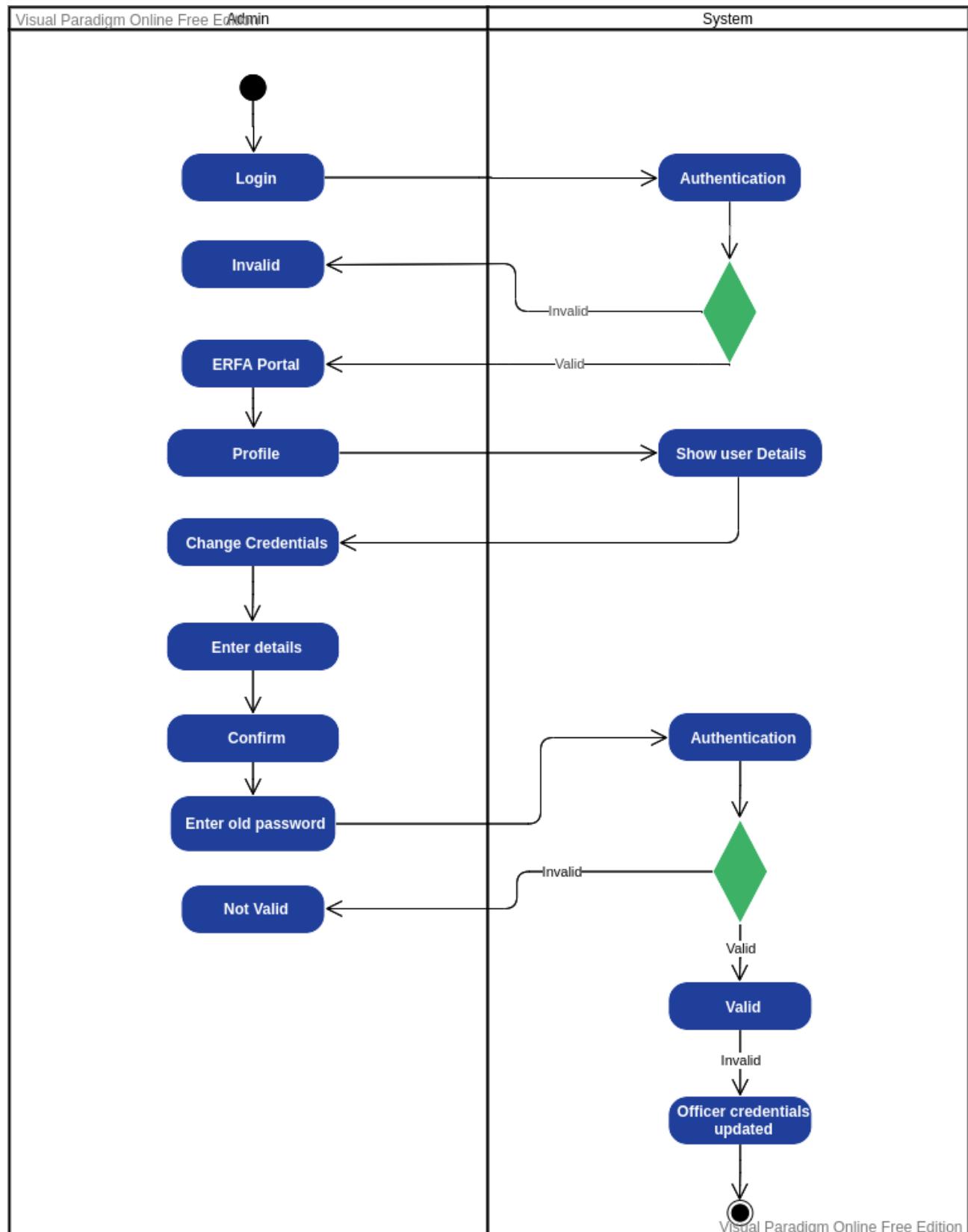
Delete ERFA Officer



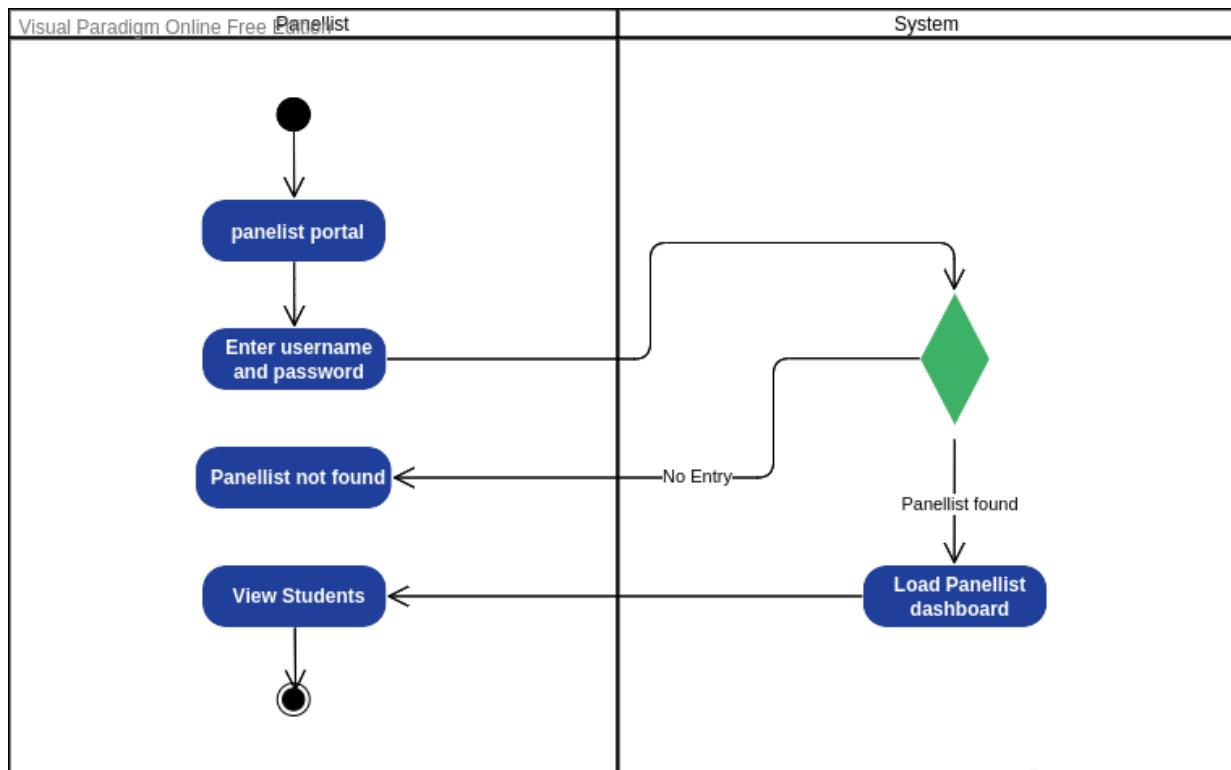
Final Shortlisting Students for Interview & Final Scholarship List



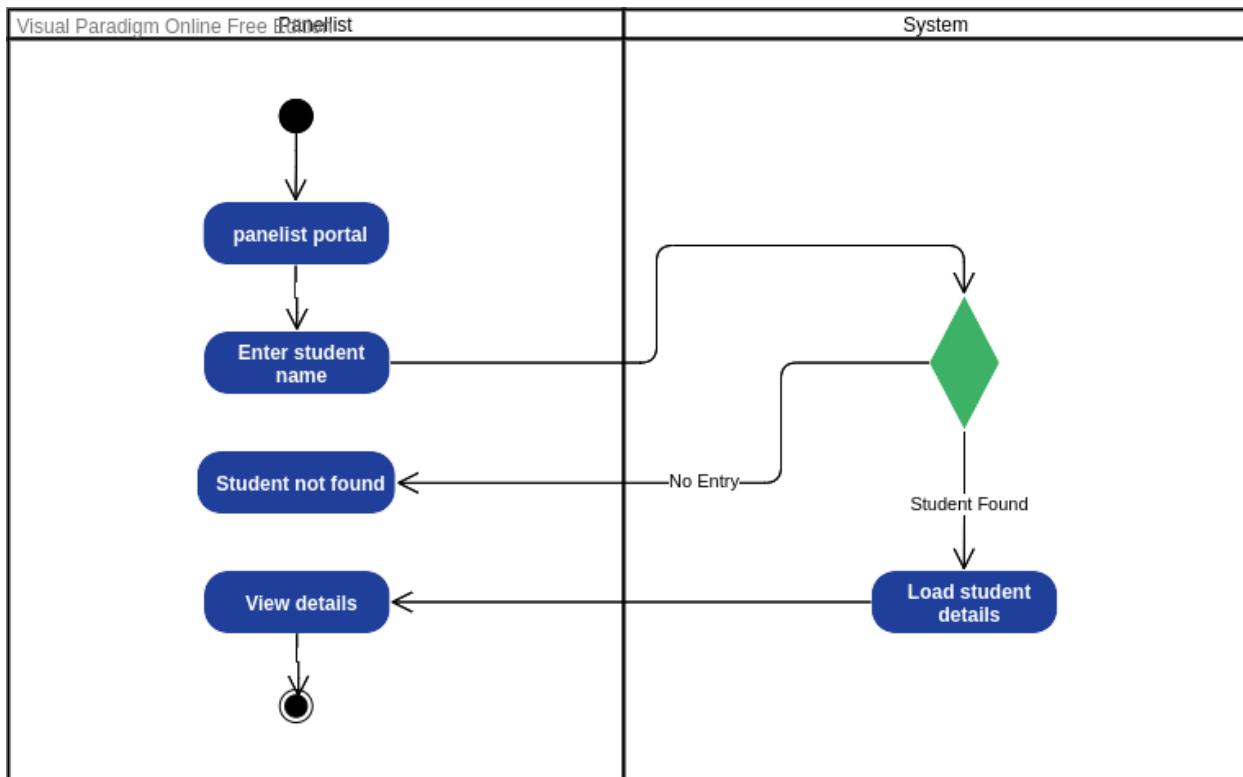
Change Credentials



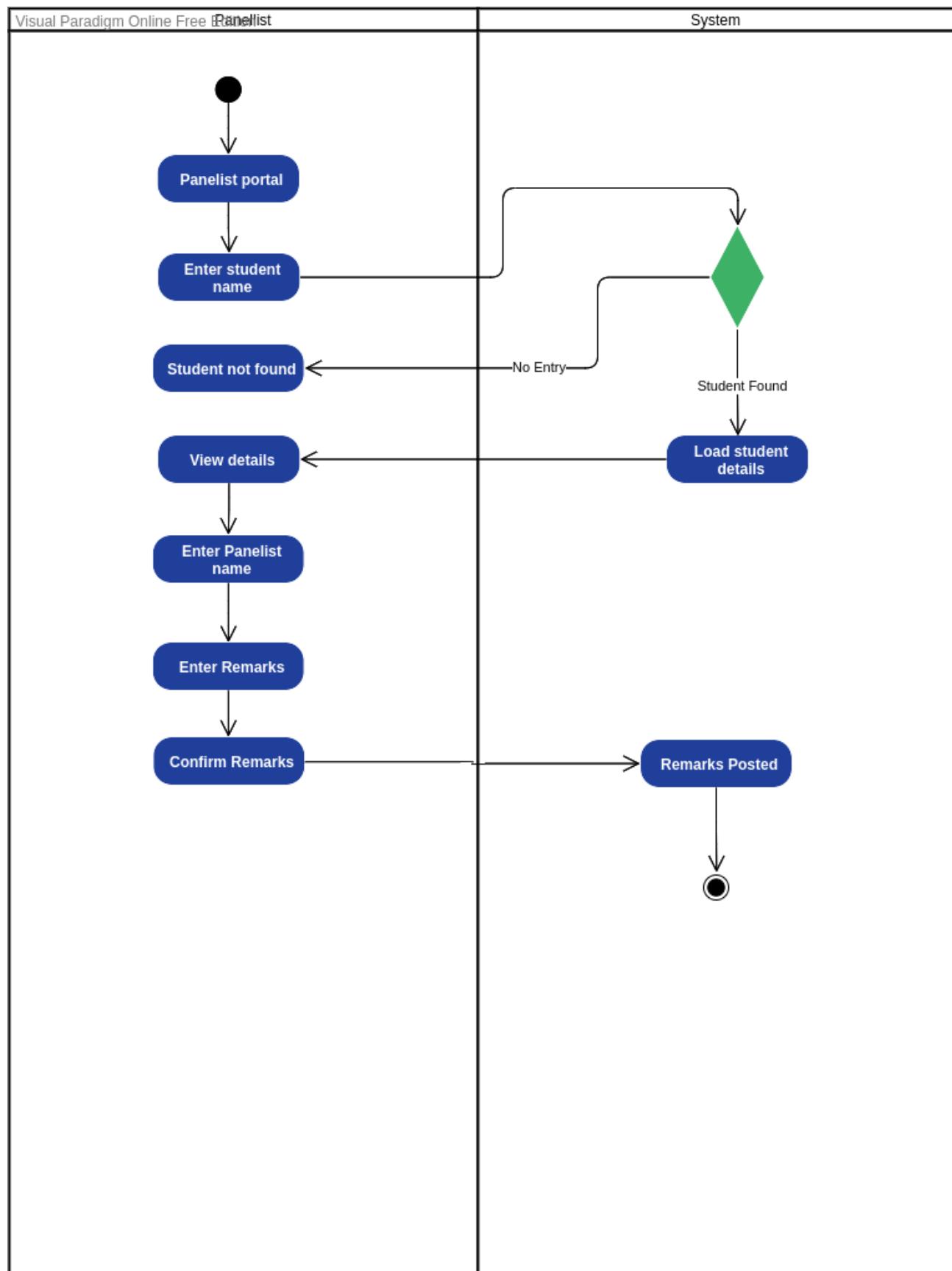
Panellist login



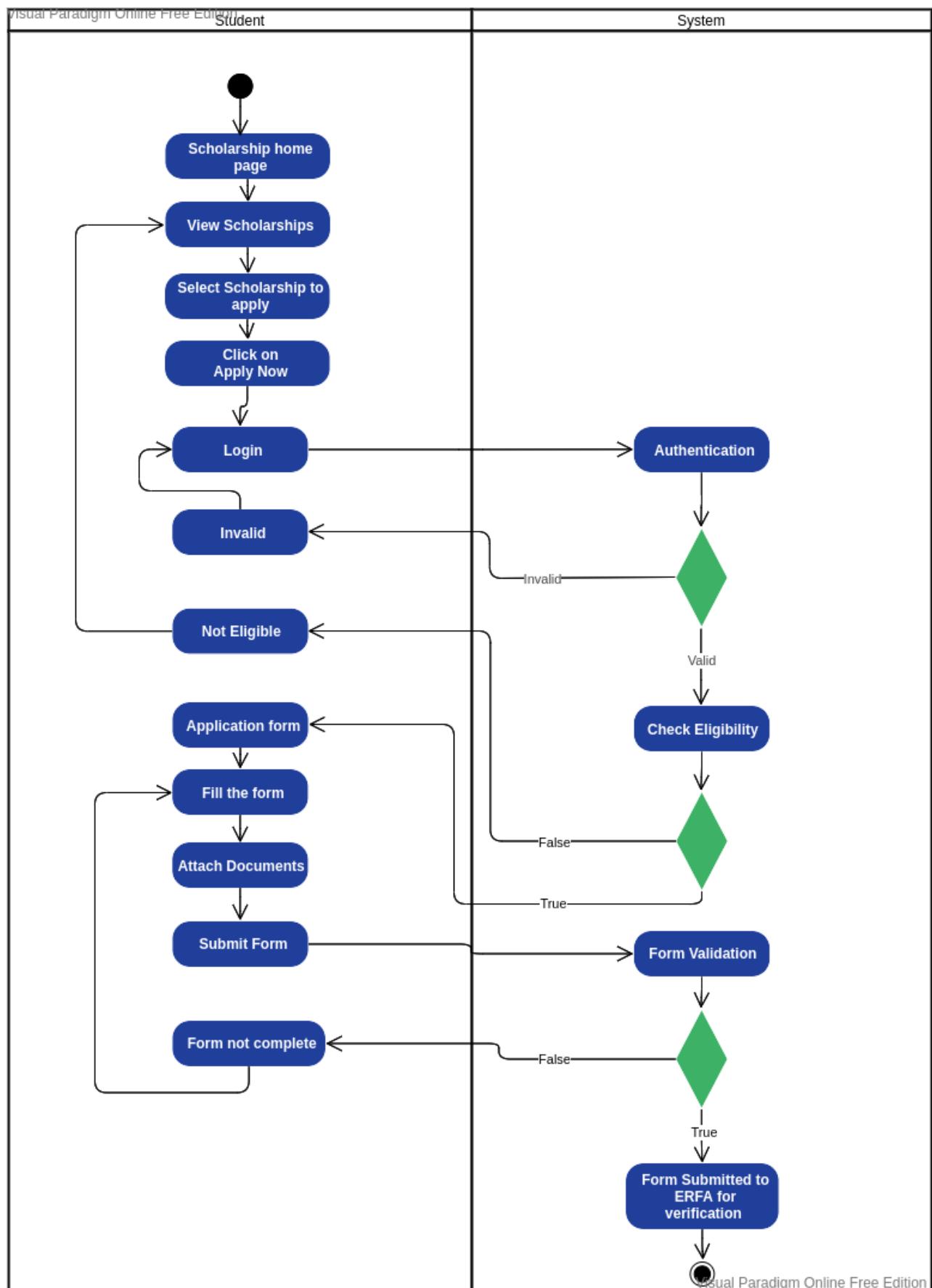
Retrieve Student Record



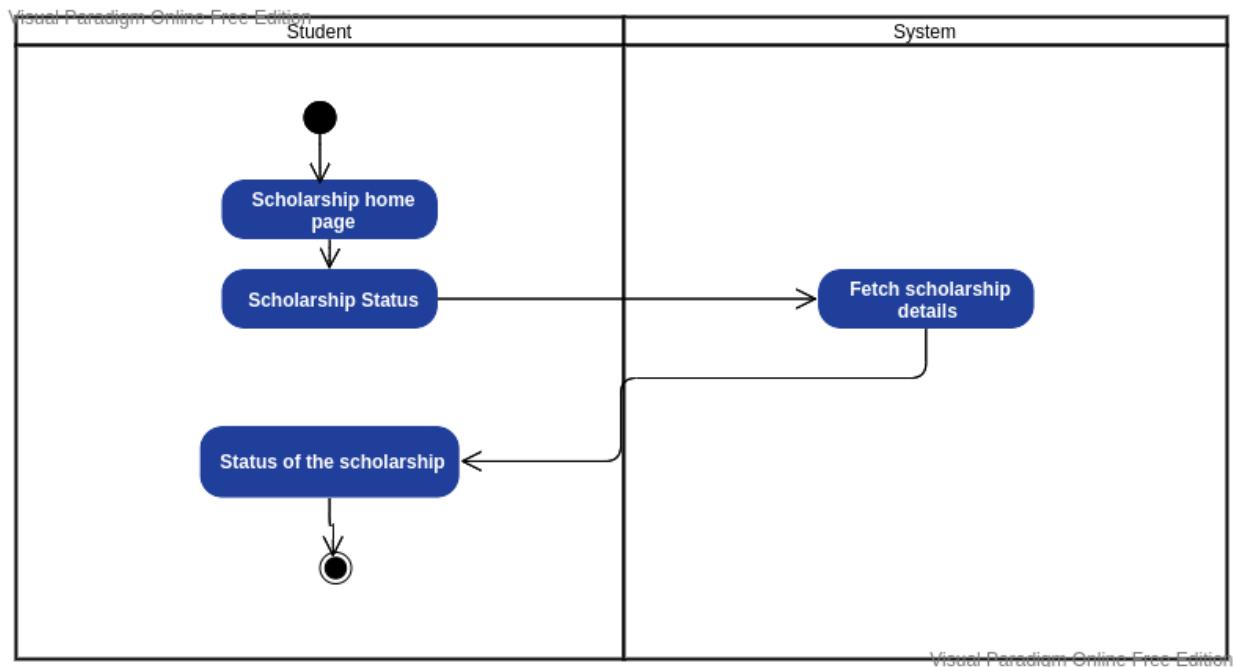
Post Interview Remarks



View scholarship and Apply for Scholarship

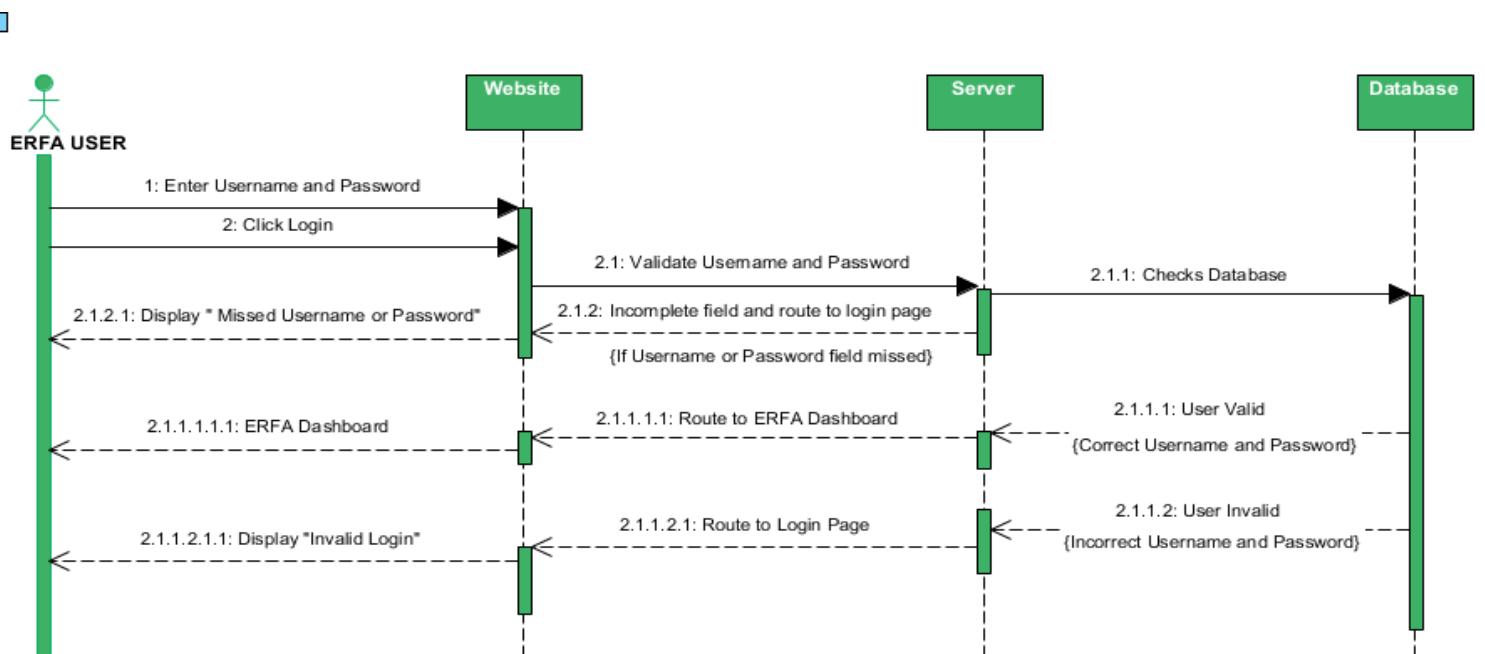


Status of Scholarship

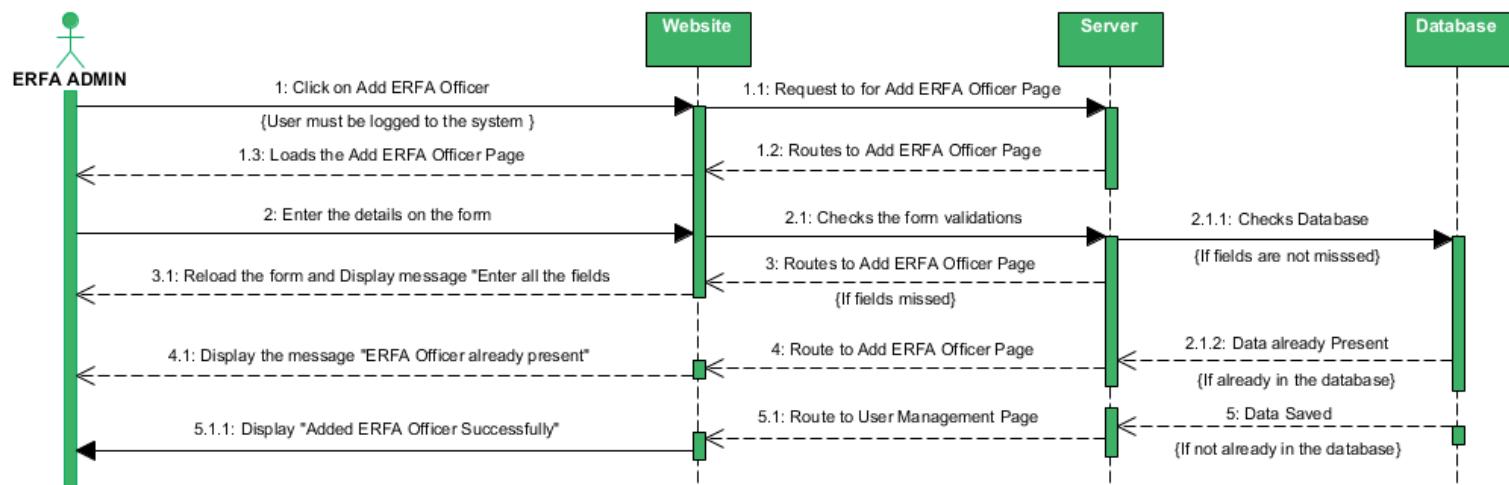


3.8.5. Sequence Diagram

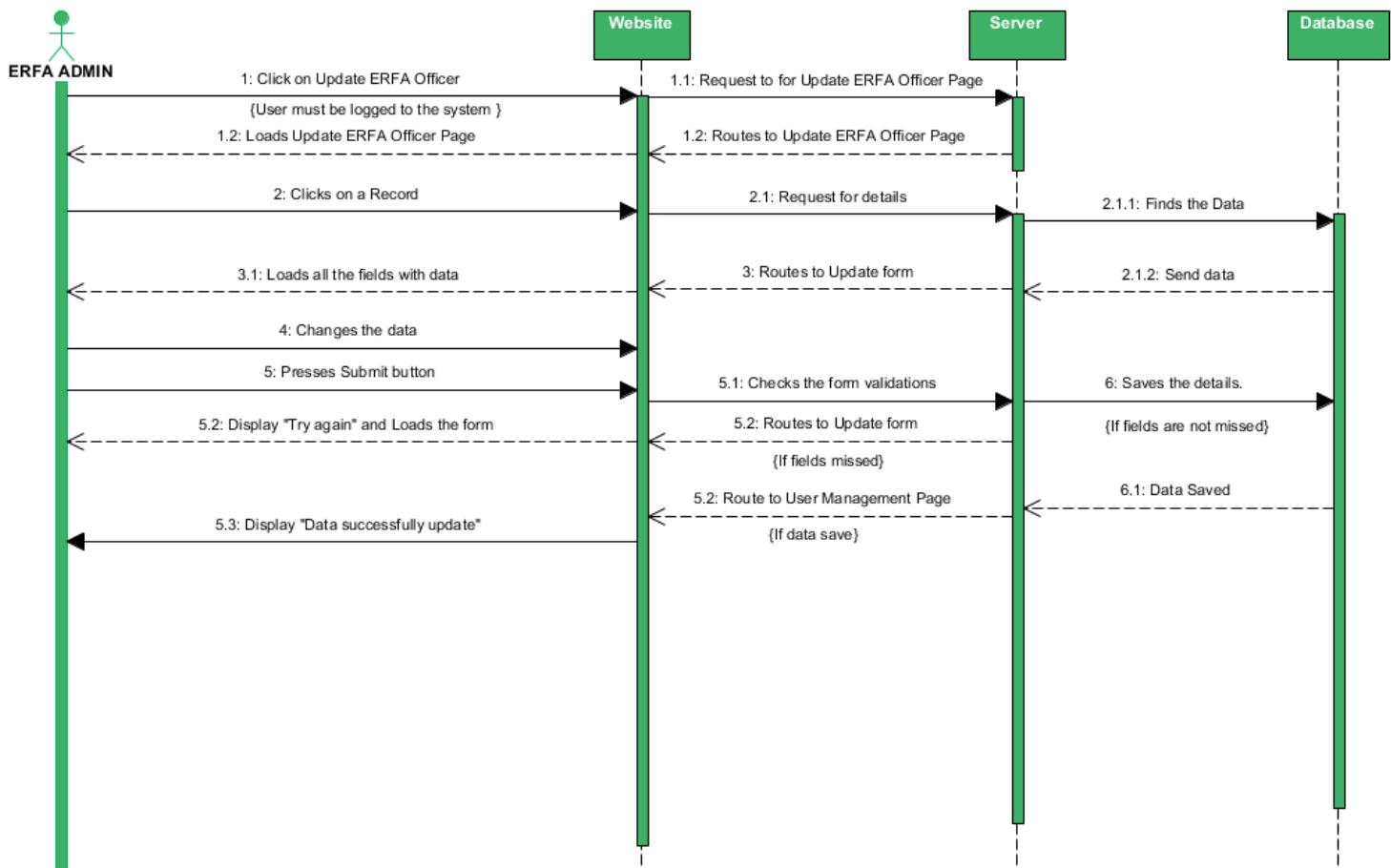
Login (ERFA USER)



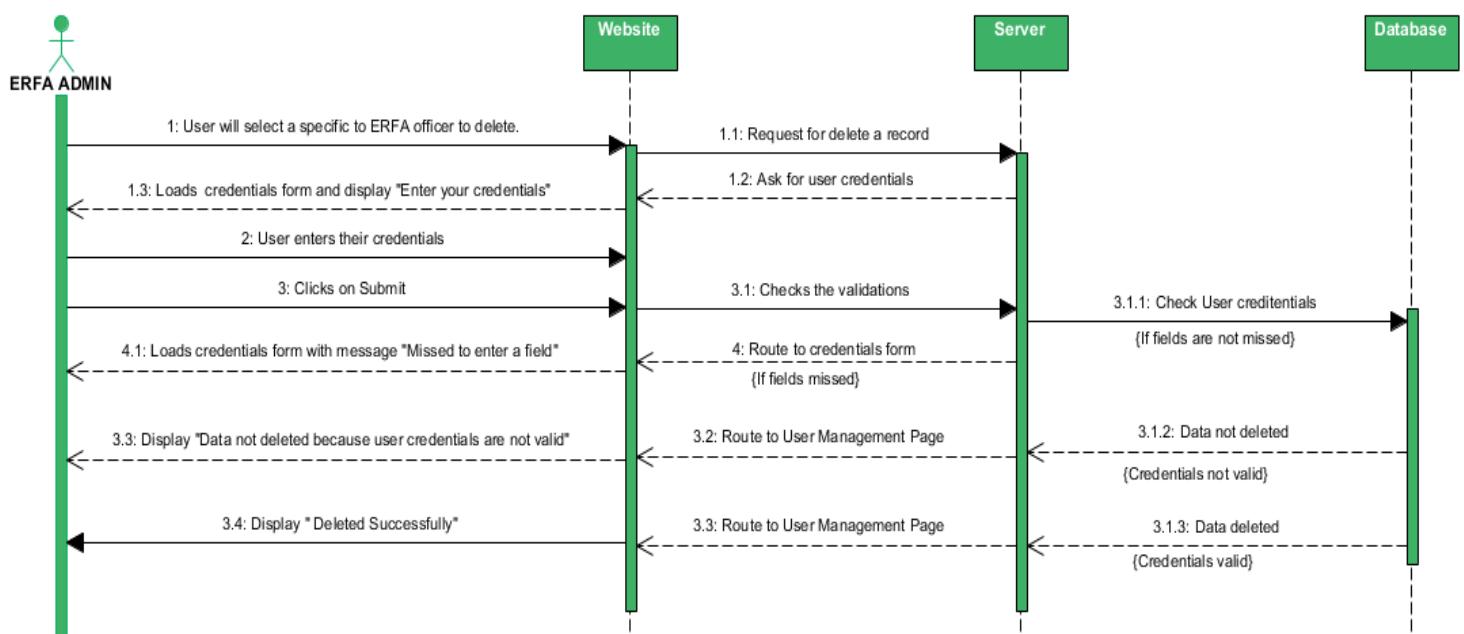
Add ERFA Officer



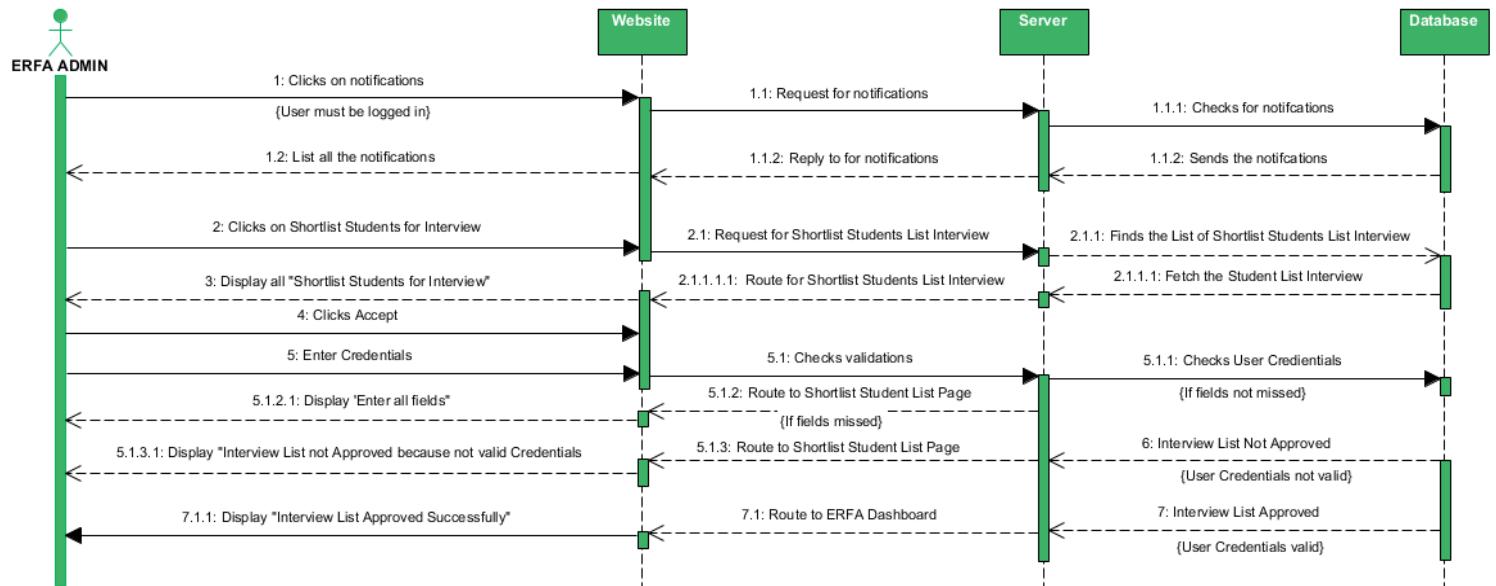
Update ERFA Officer



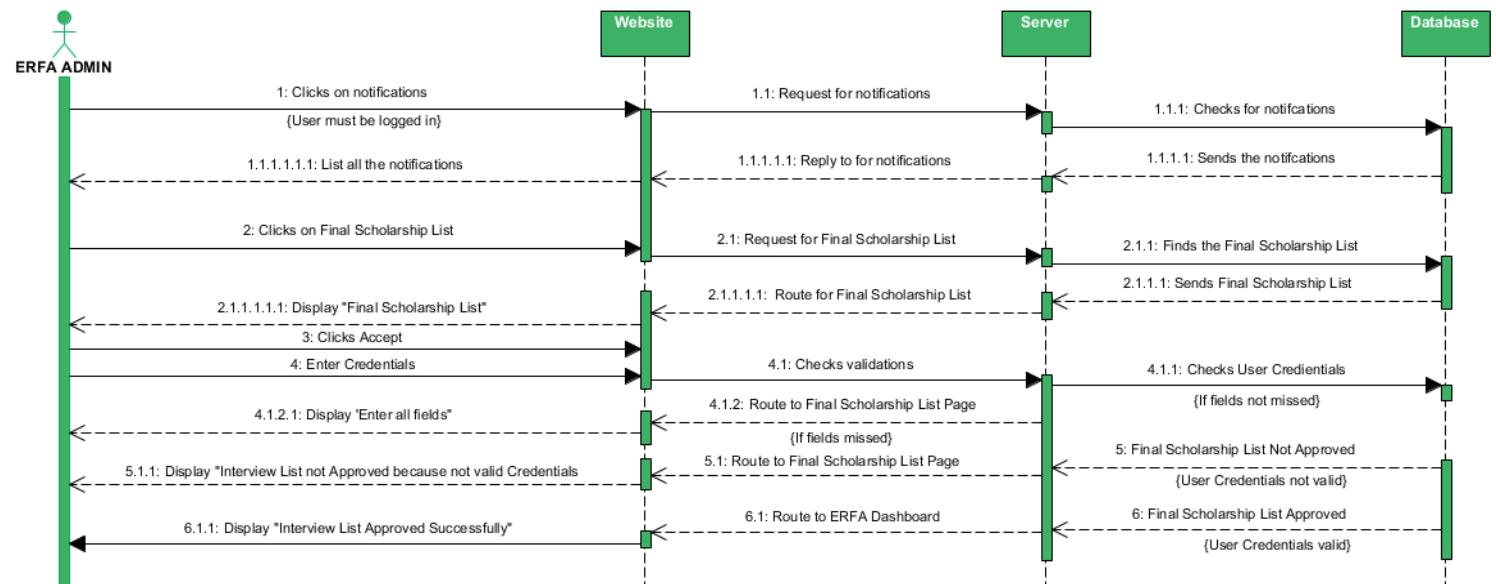
Delete ERFA Officer



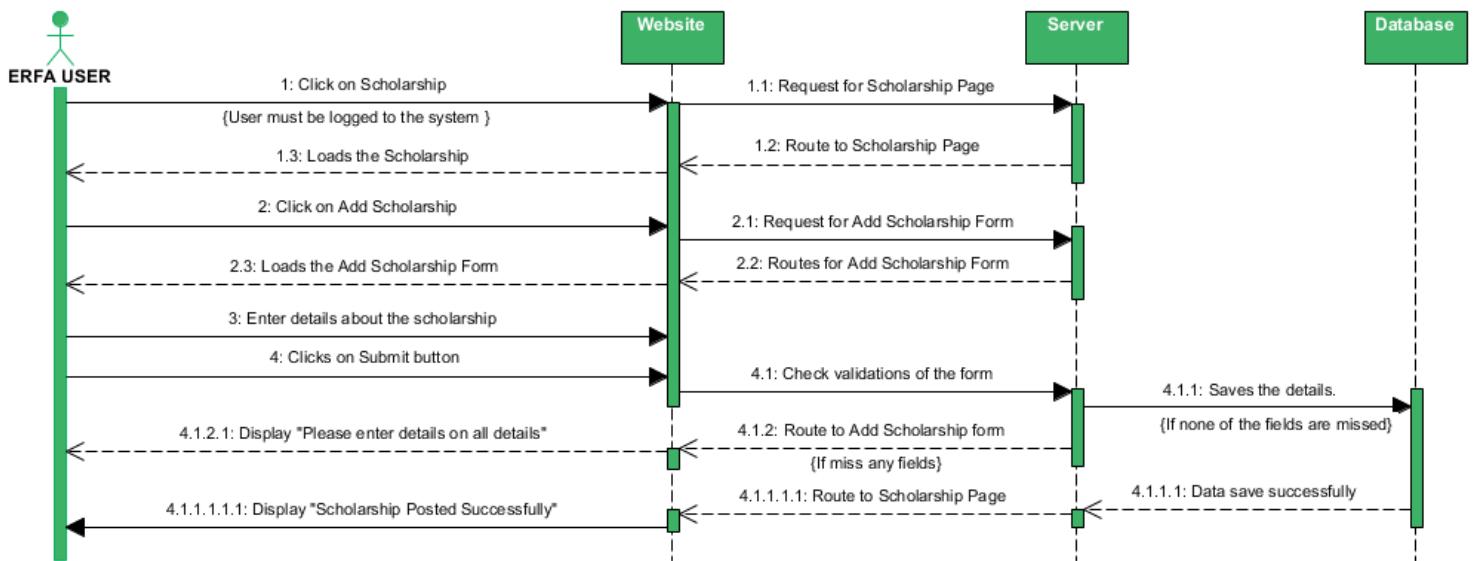
Final Shortlist for Interview



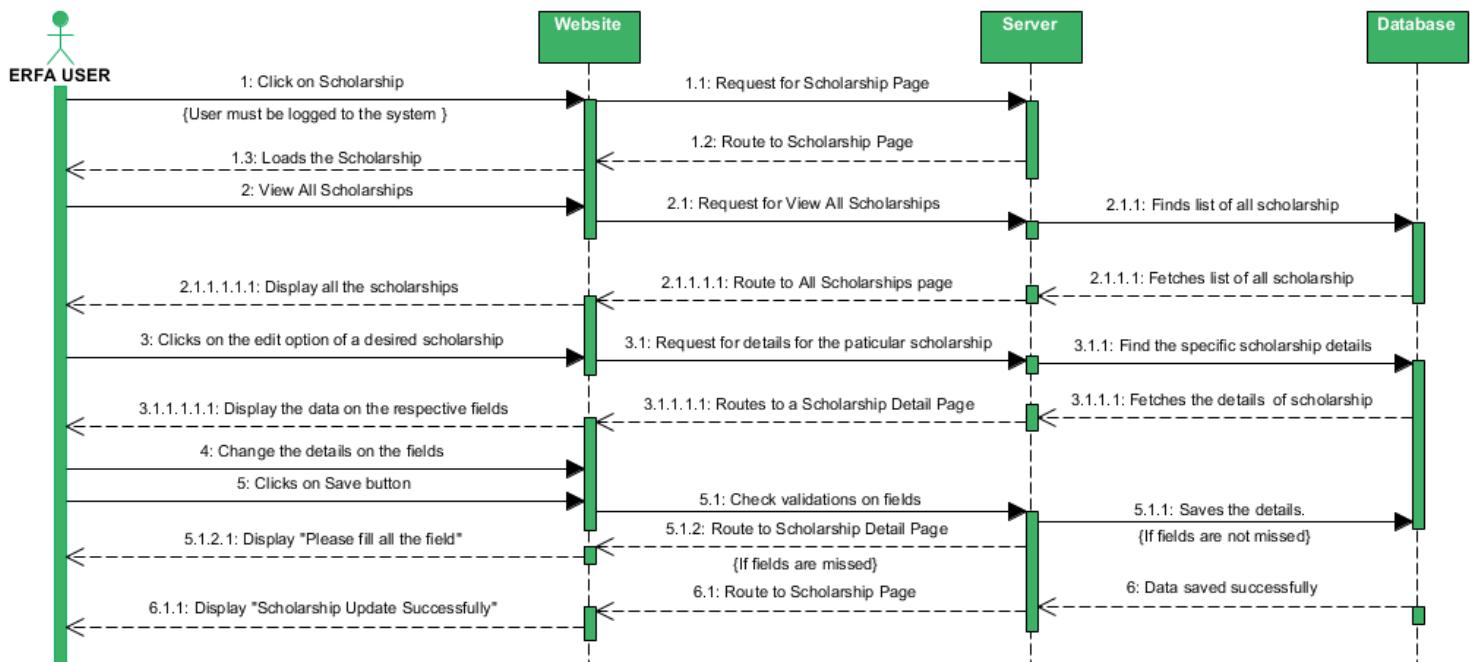
Final Scholarship List



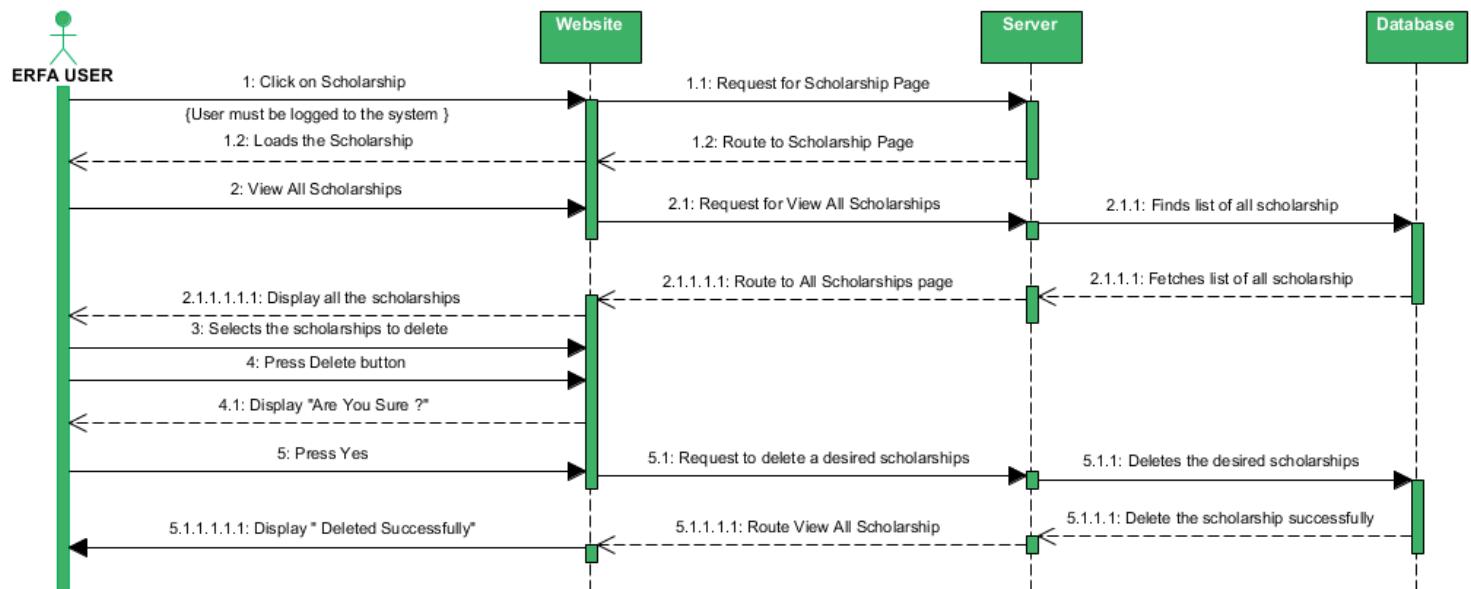
Add Scholarship



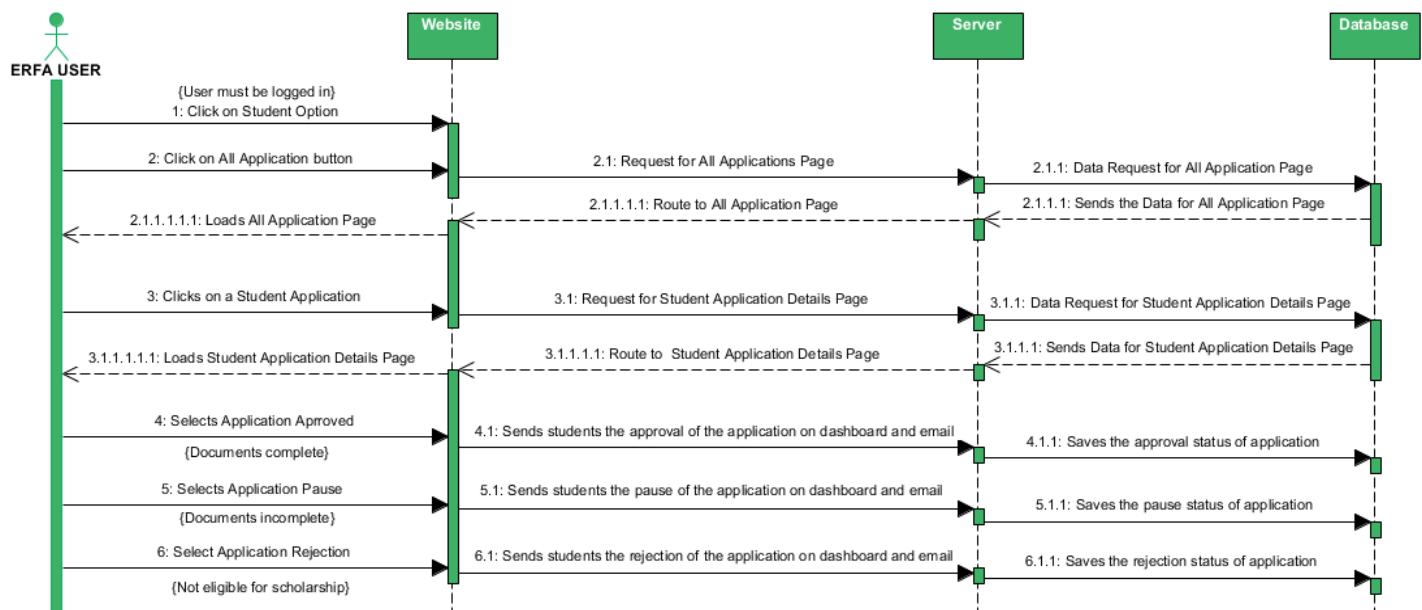
Update Scholarship



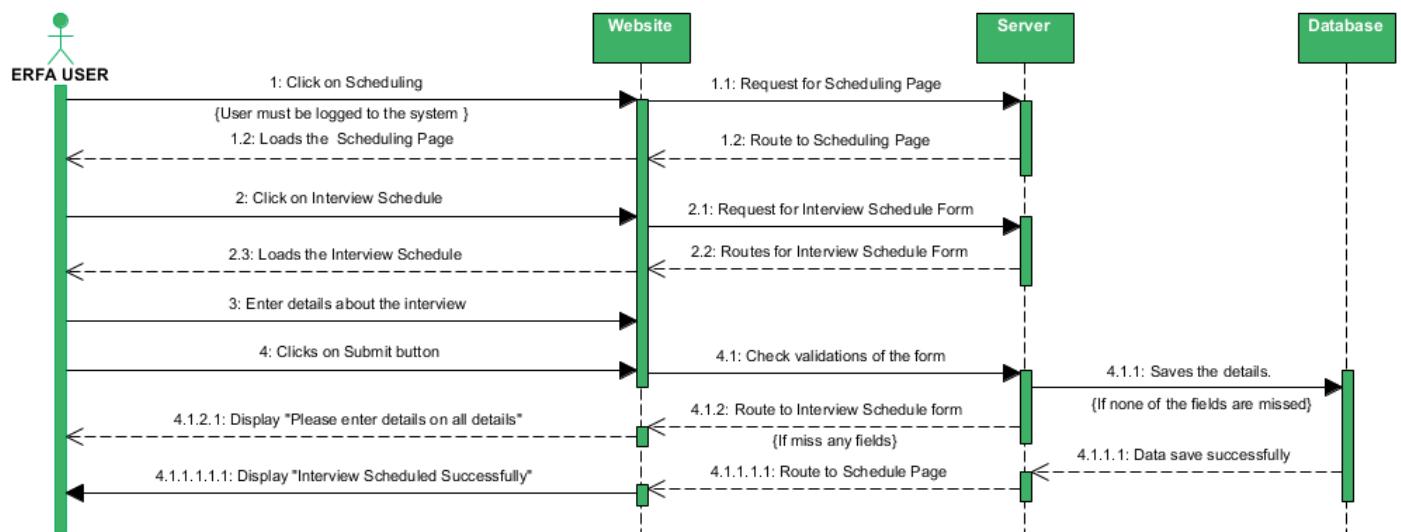
Delete Scholarship



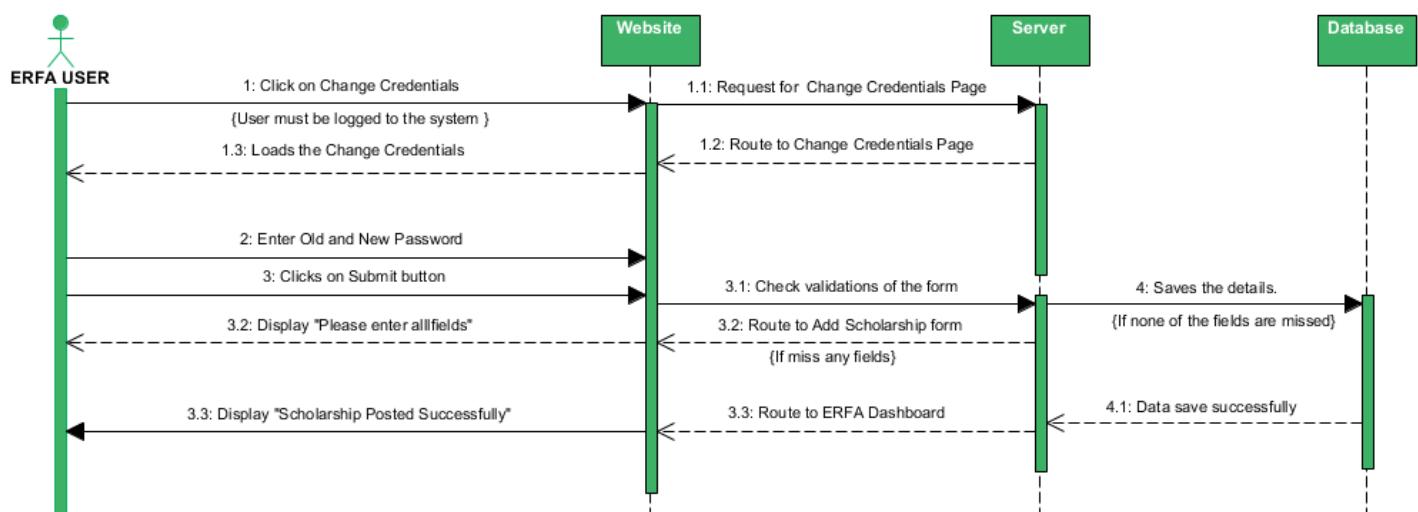
Online Document Verification and Shortlisting



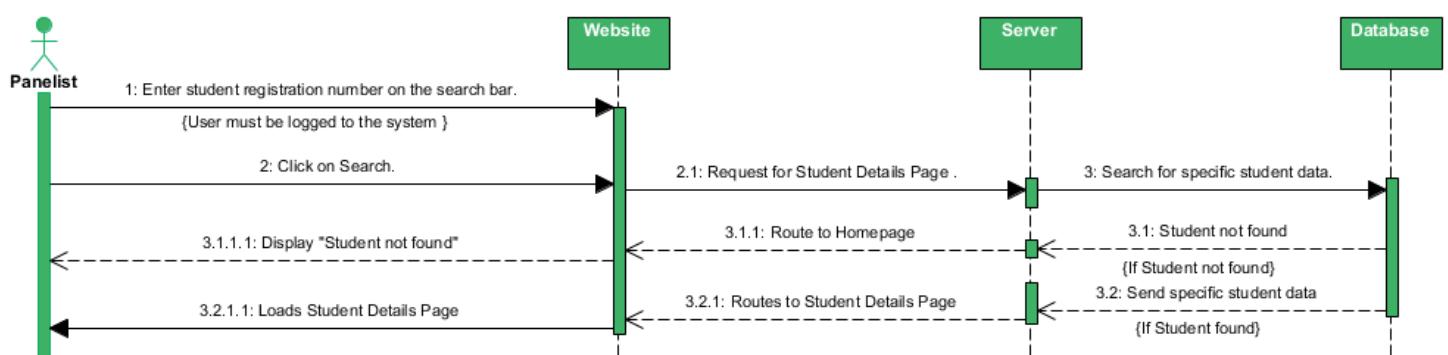
Interview Scheduling



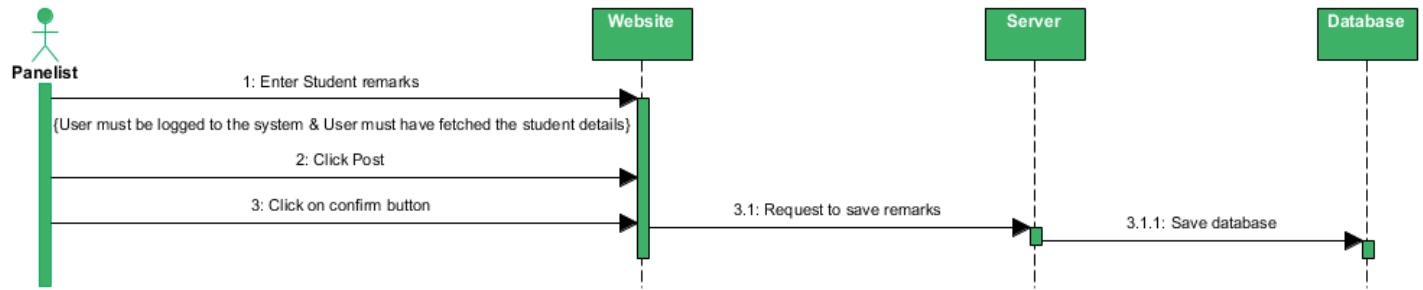
Change Credentials



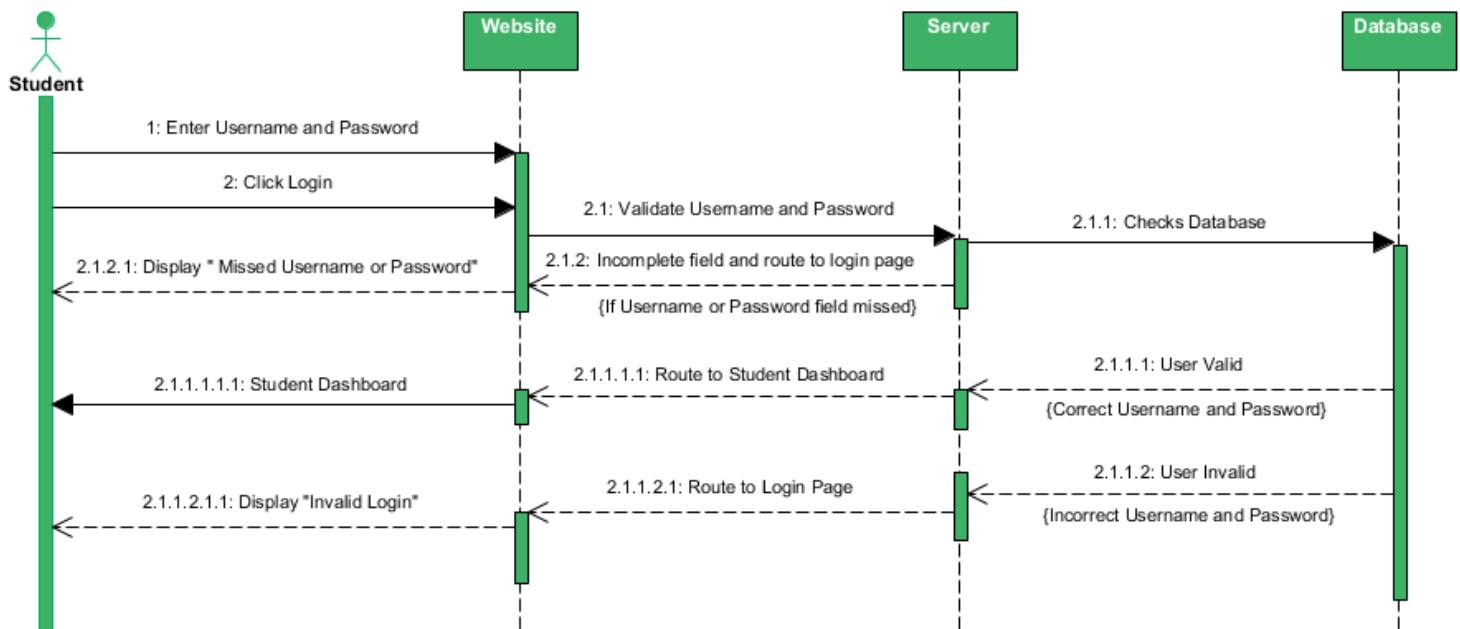
Retrieve Student Record



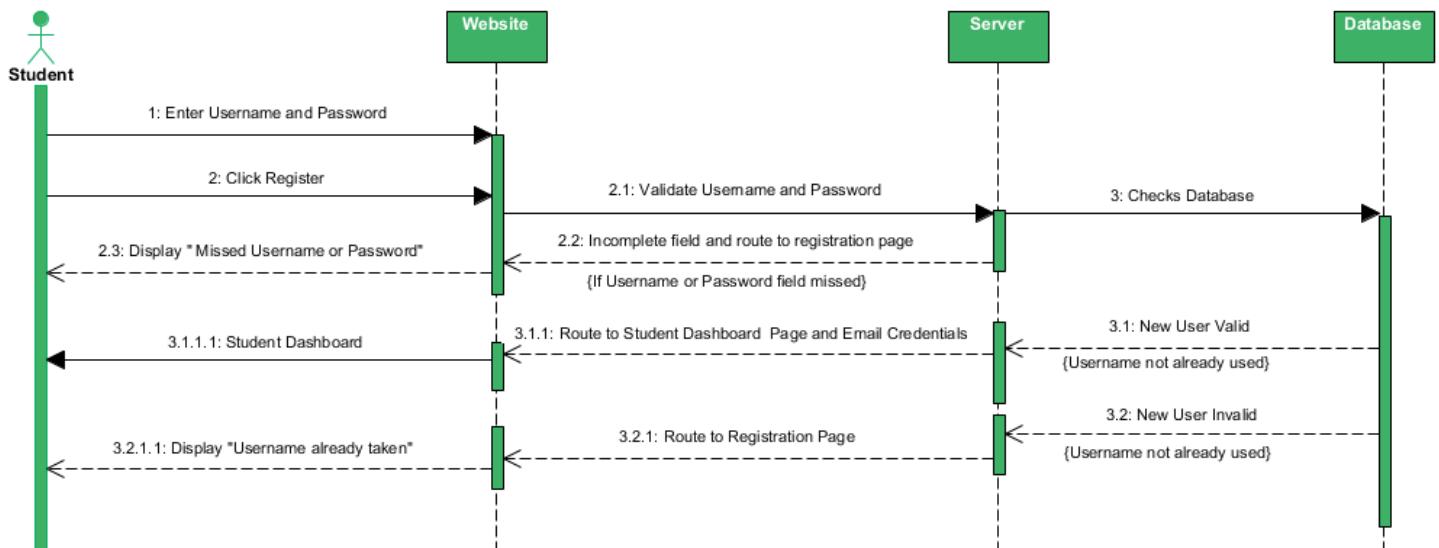
Post Interview Remarks



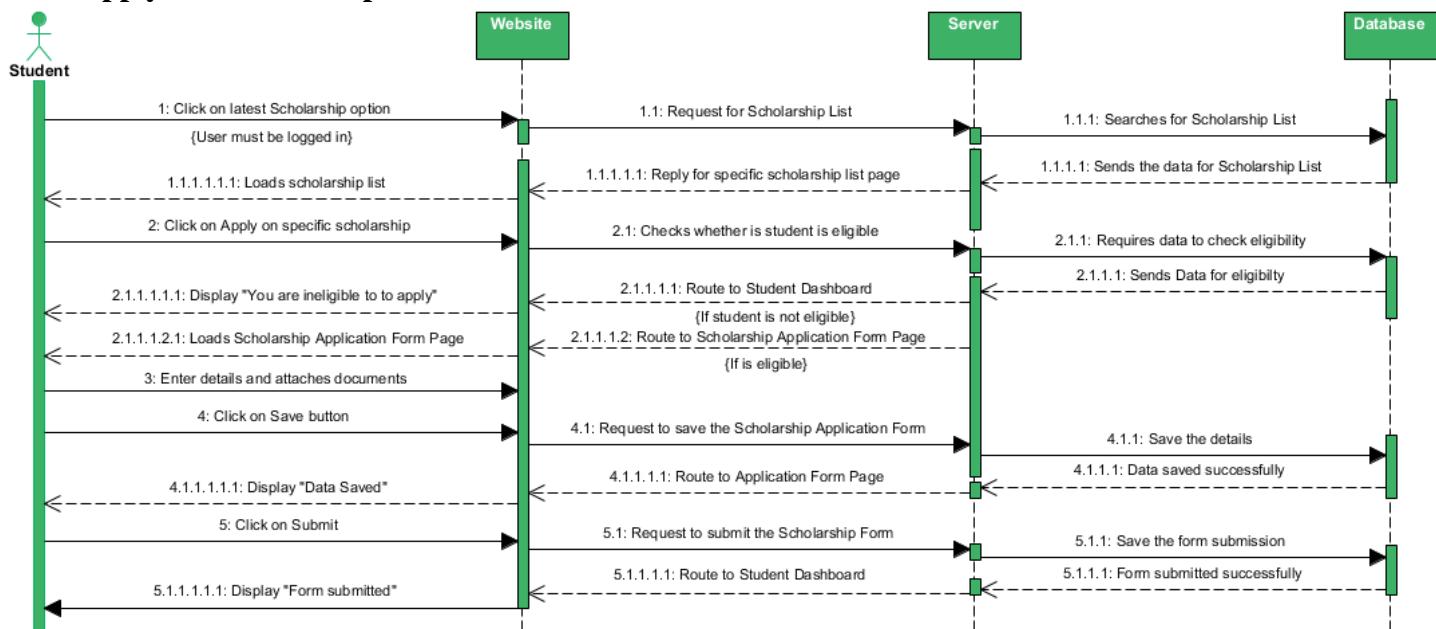
Login (Student)



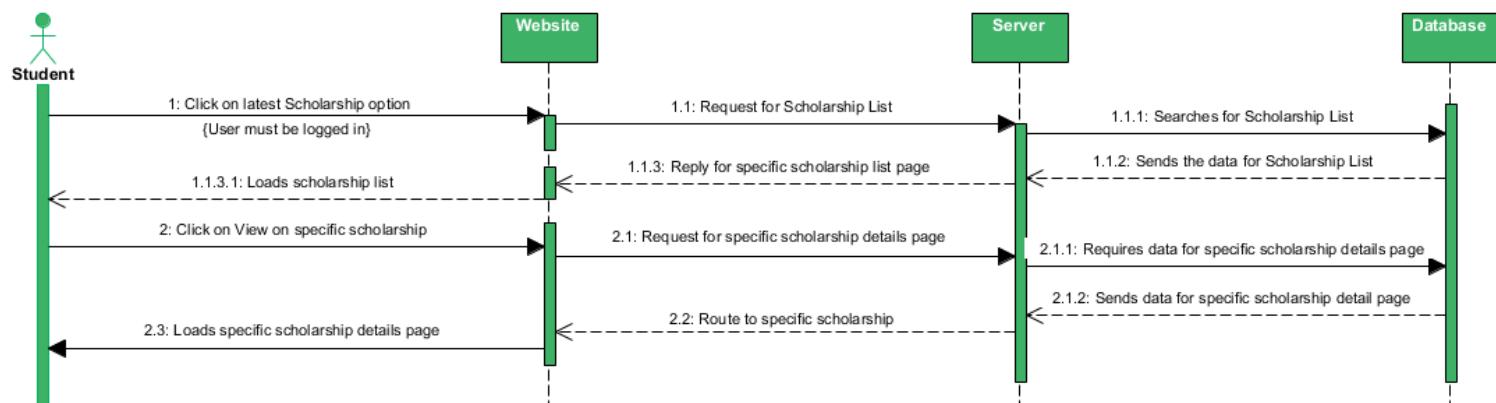
Sign Up (Student)



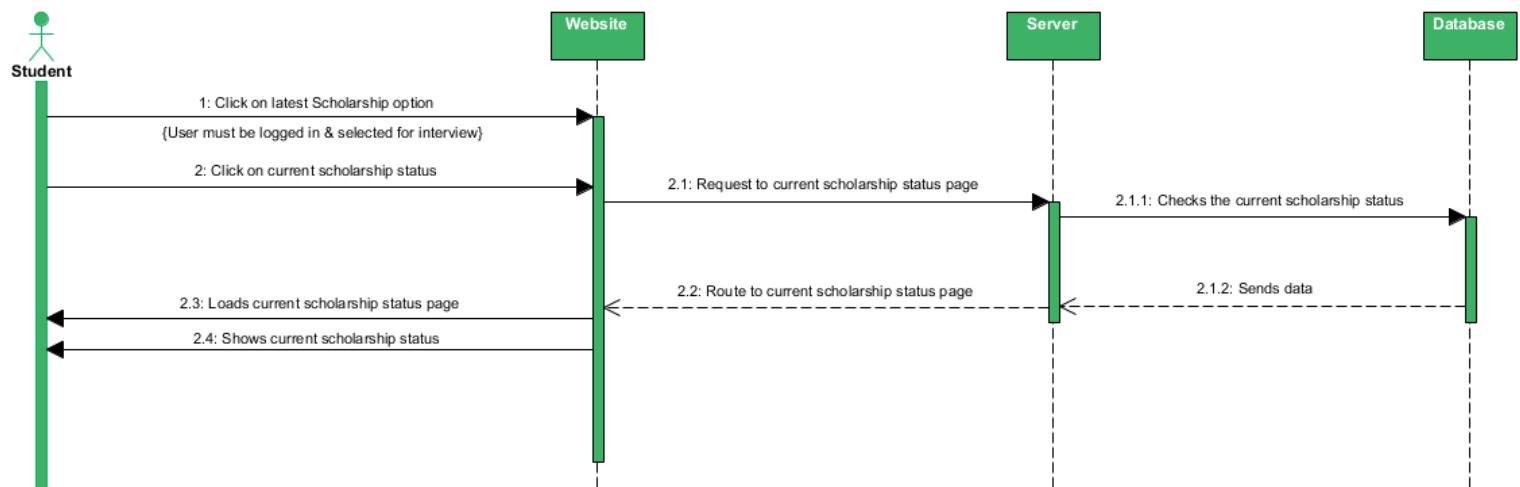
Apply for Scholarship



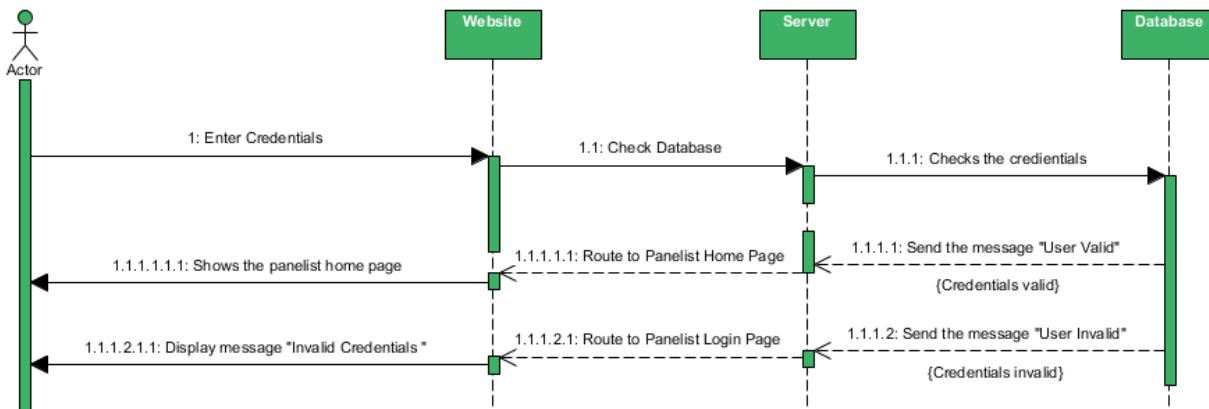
View Scholarship



Status of the Scholarship

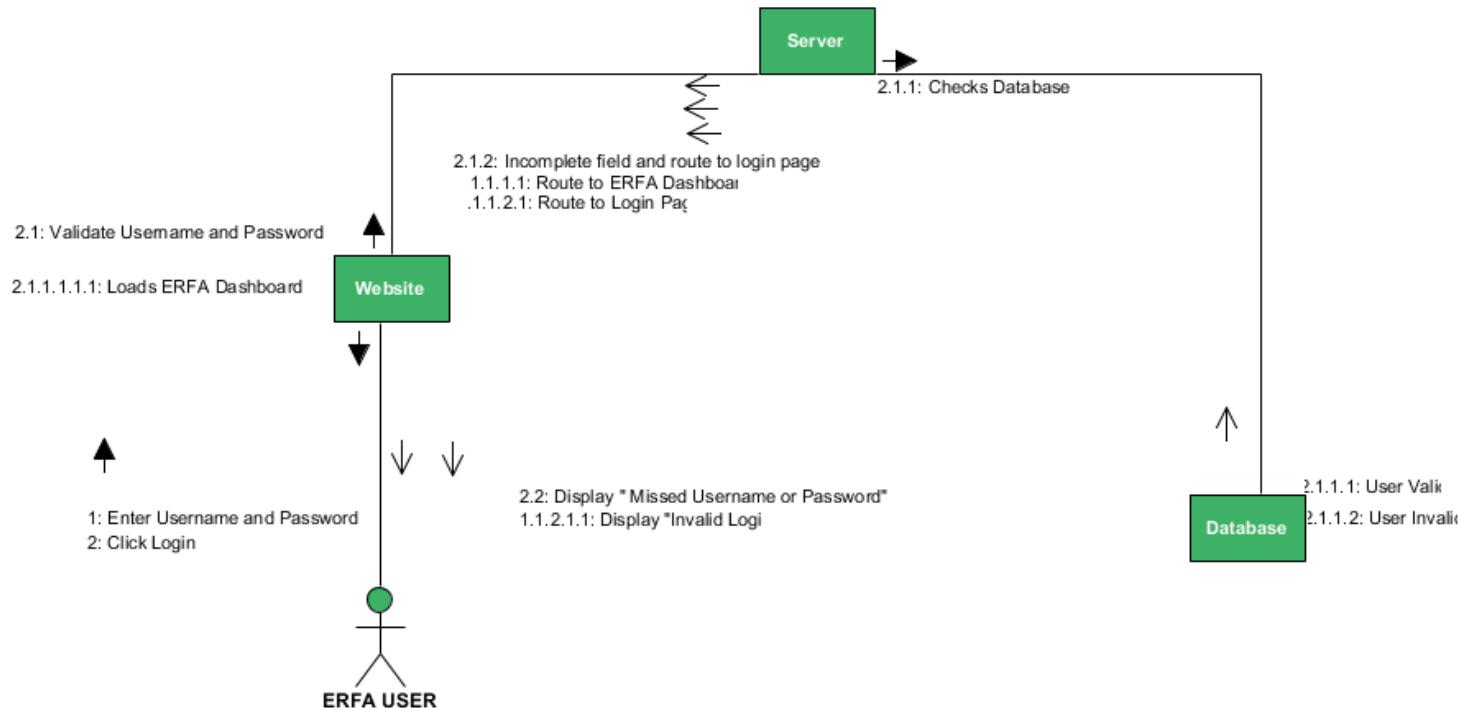


Login (Panelist)

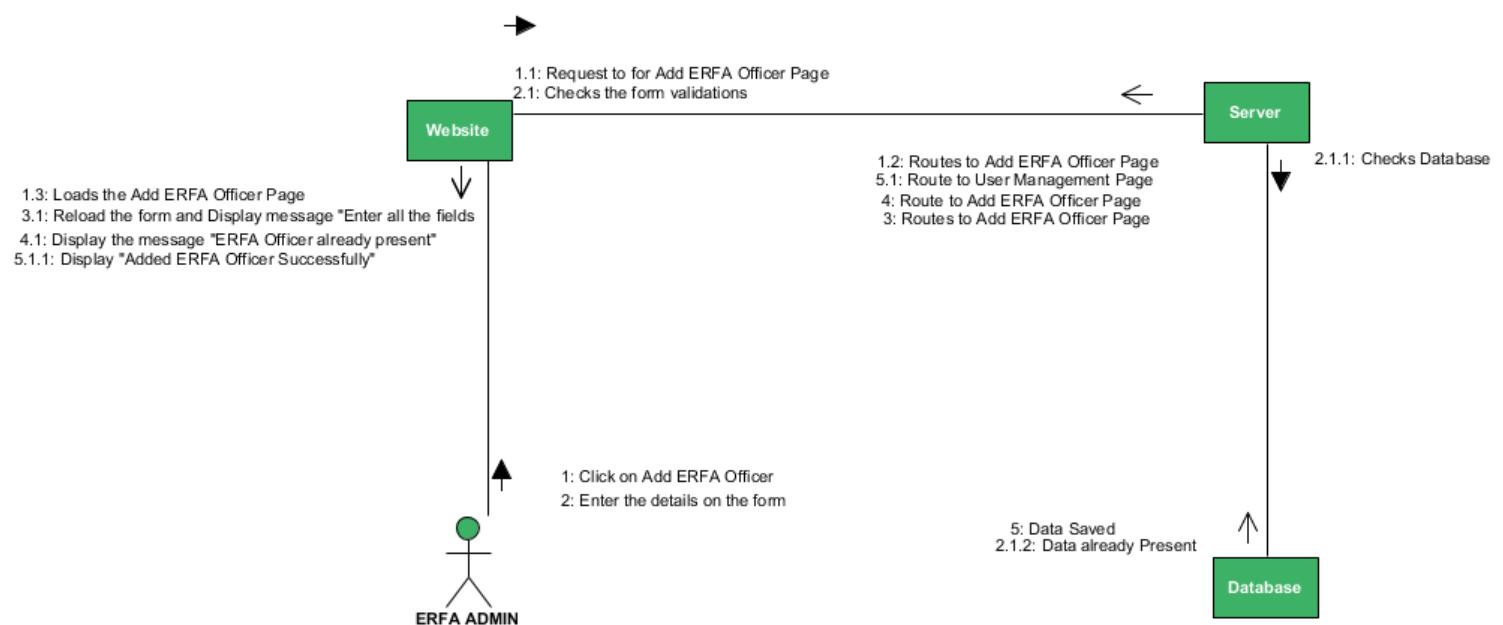


3.8.6. Collaboration Diagram

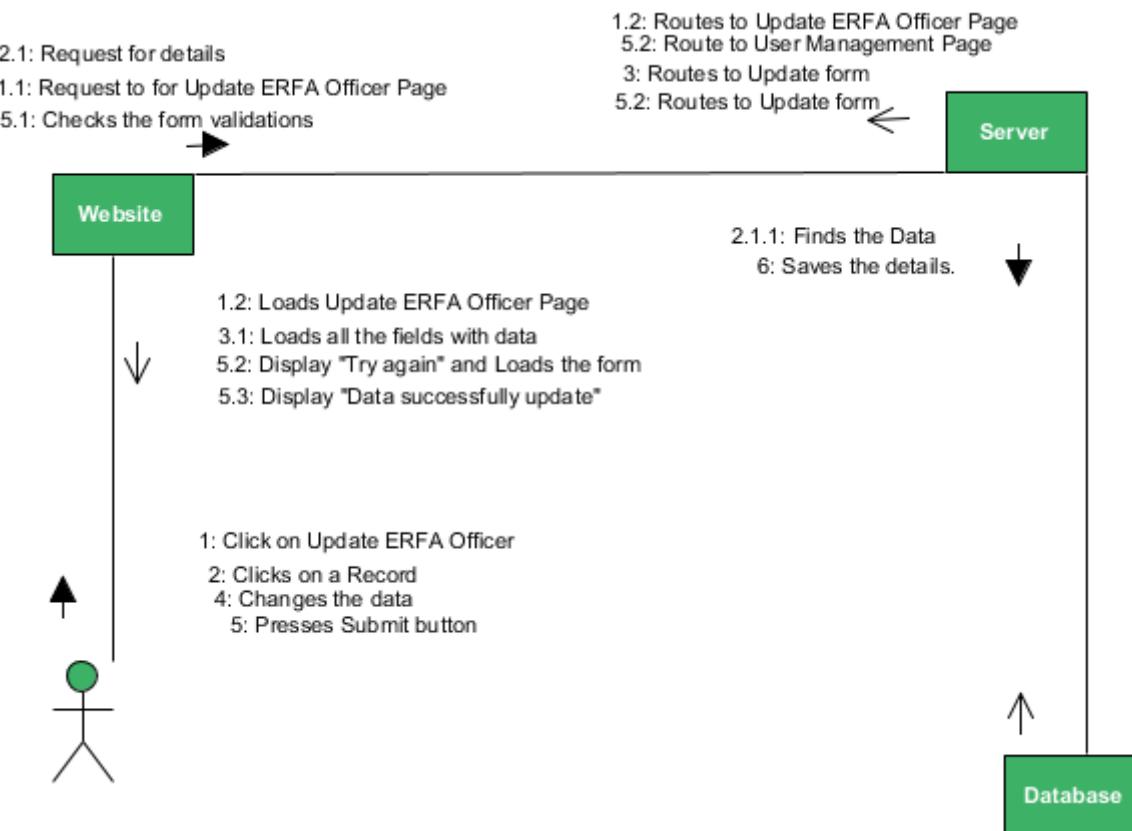
Login (ERFA USER)



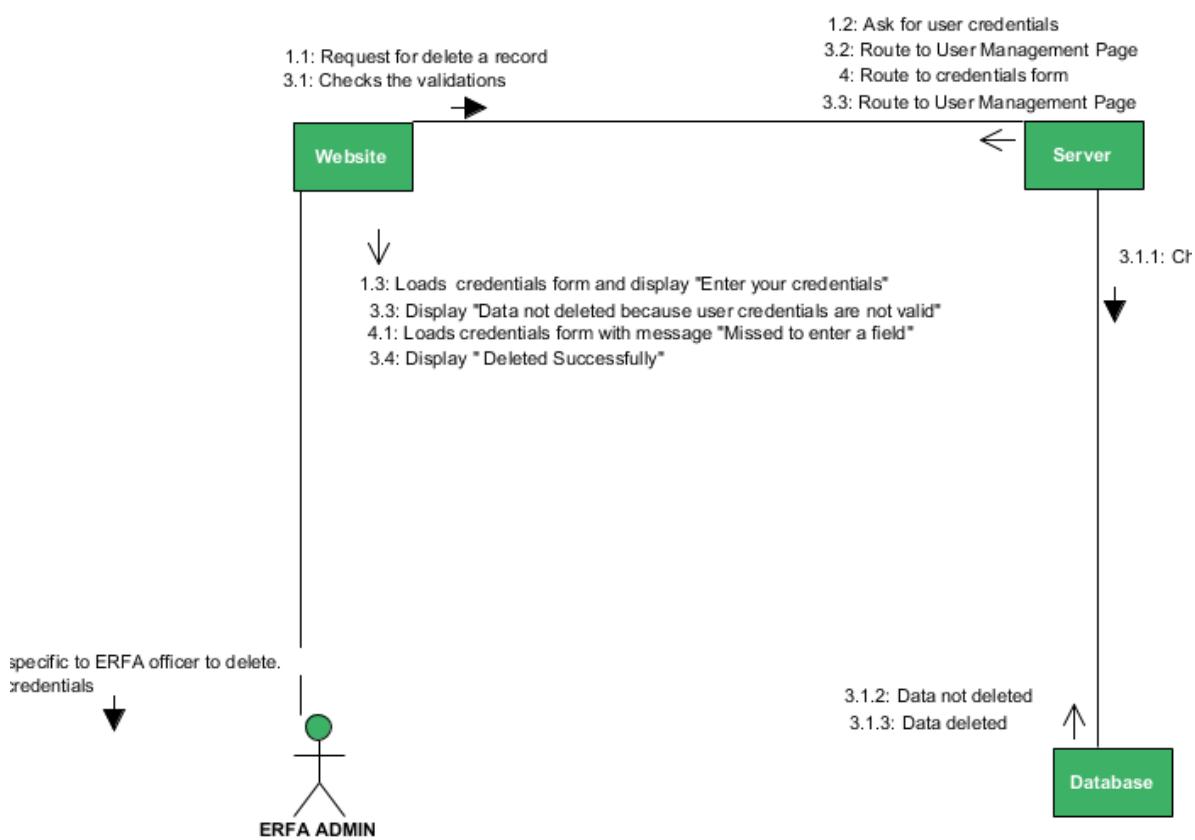
Add ERFA Officer



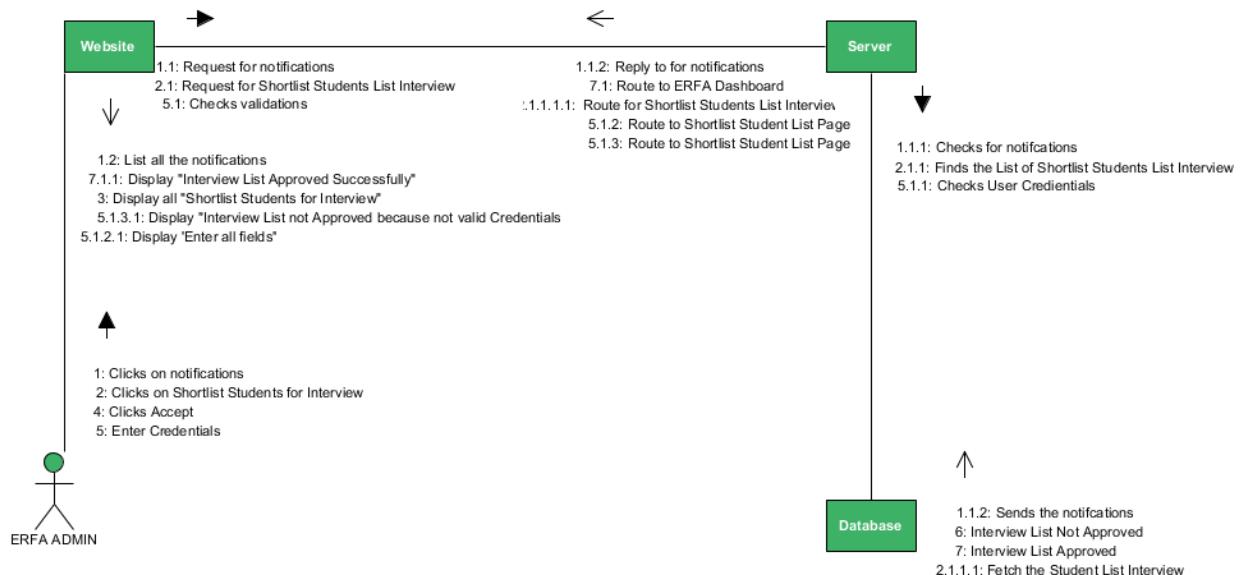
Update ERFA Officer



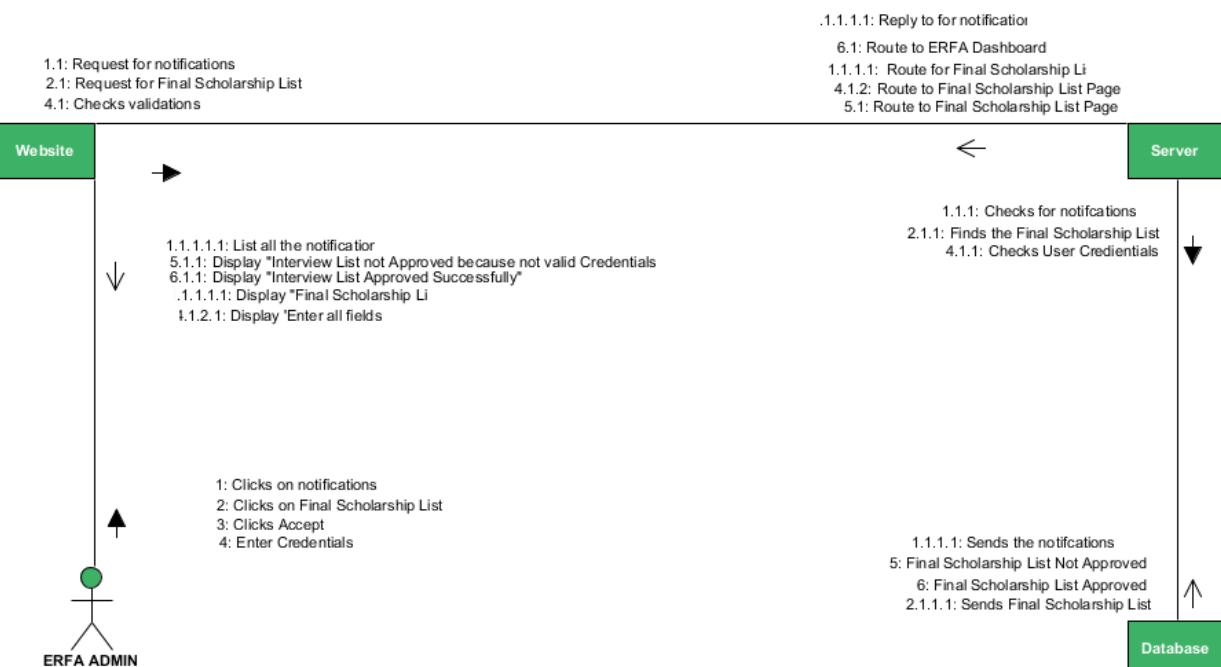
Delete ERFA Officer



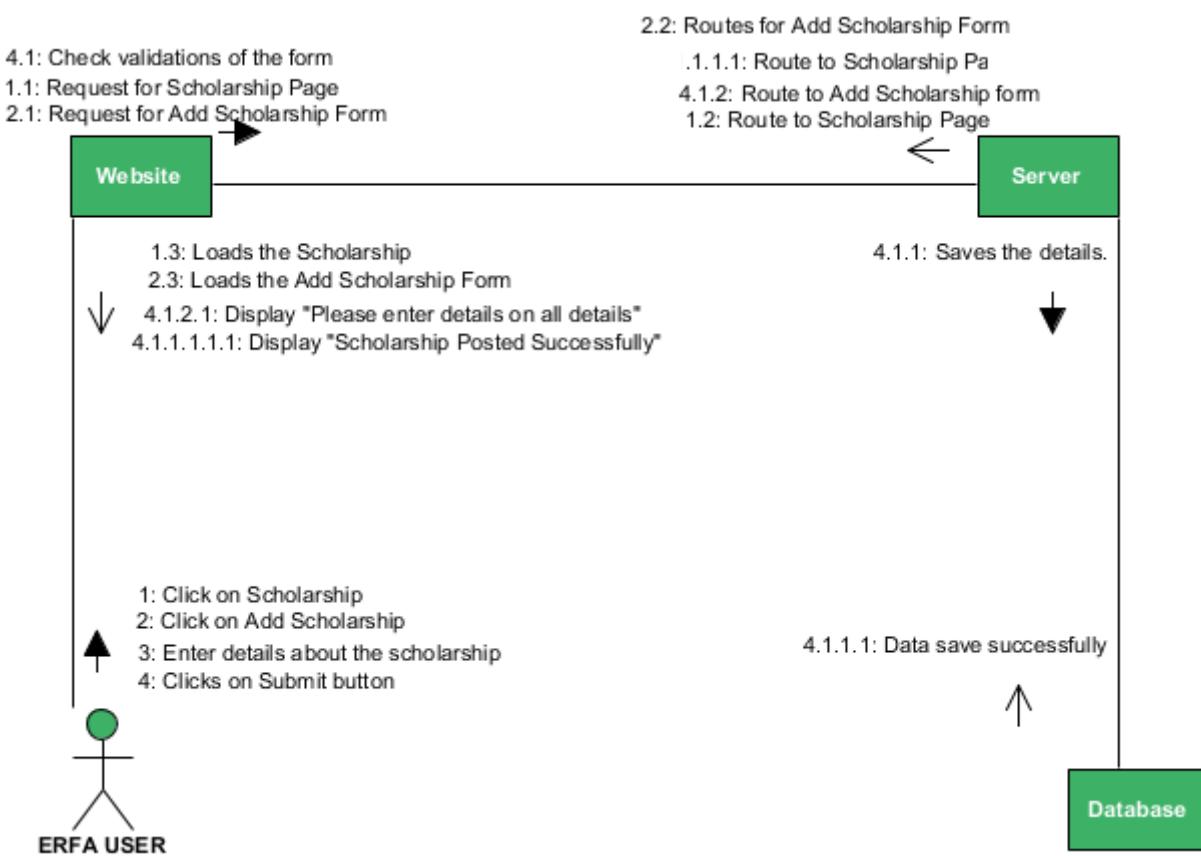
Final Shortlist for Interview



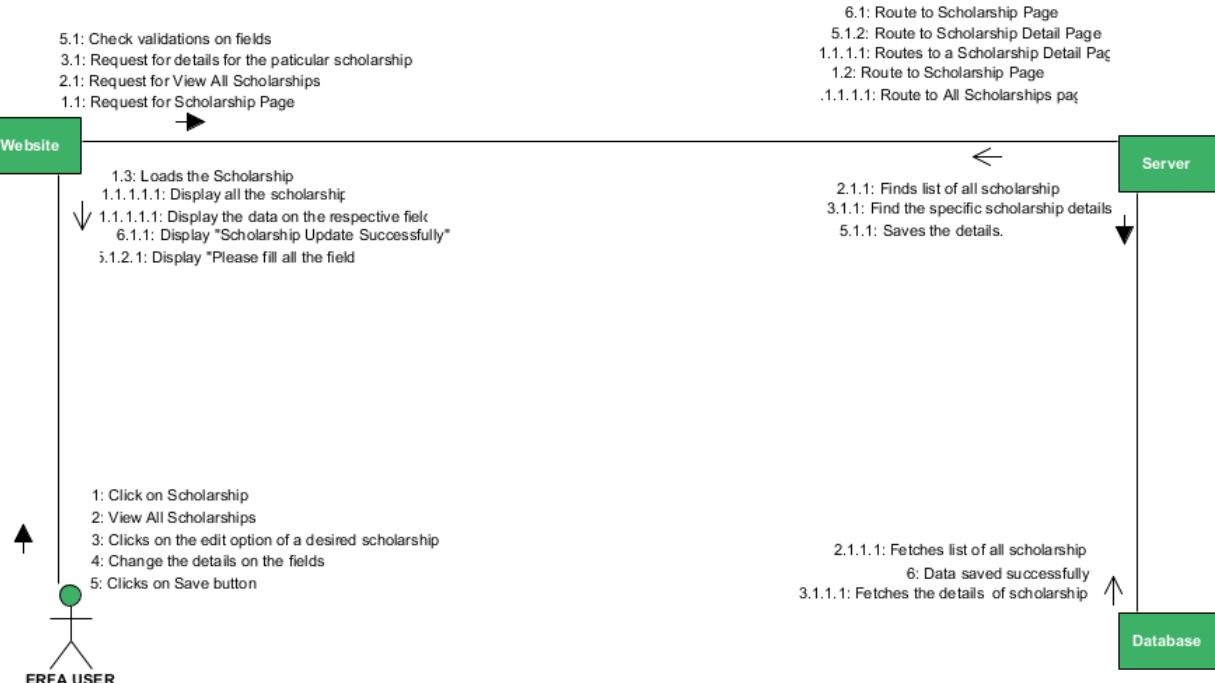
Final Scholarship List



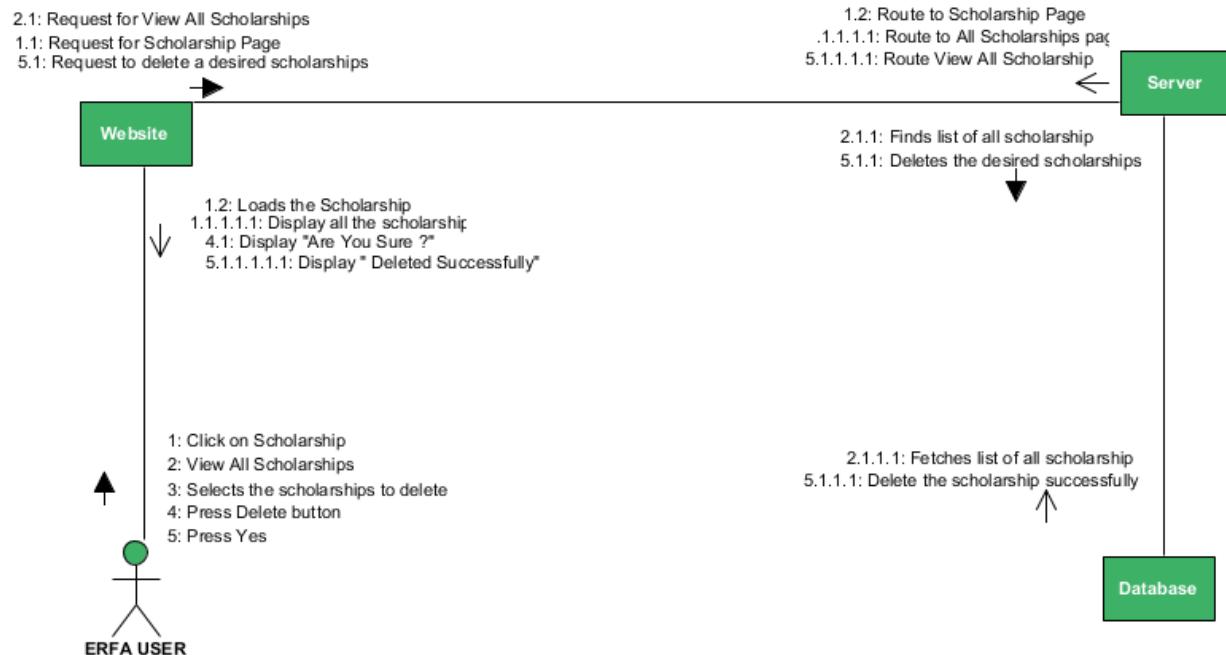
Add Scholarship



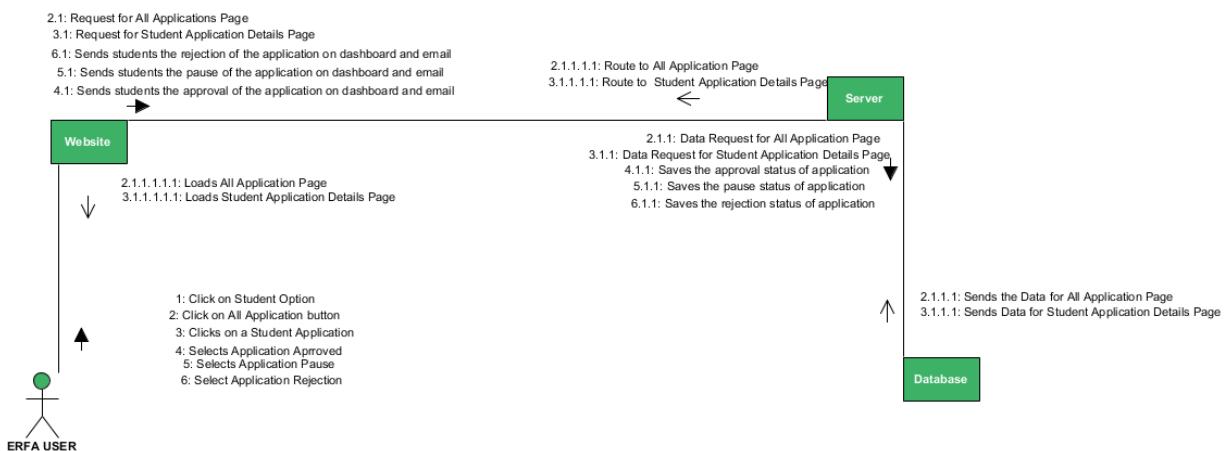
Update Scholarship



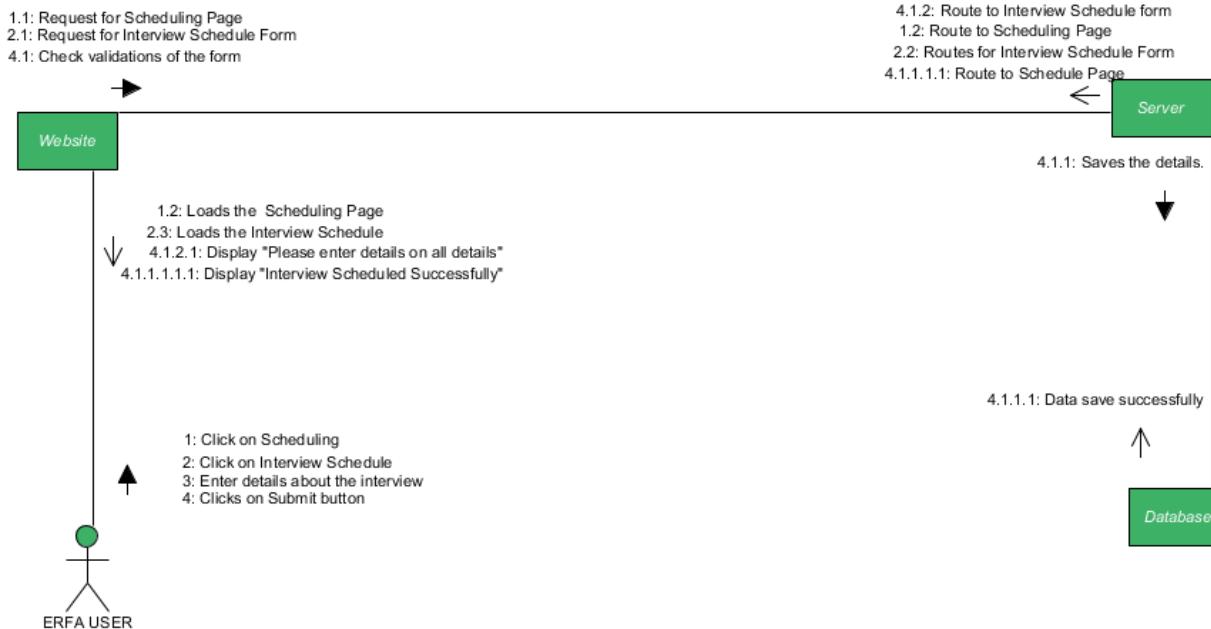
Delete Scholarship



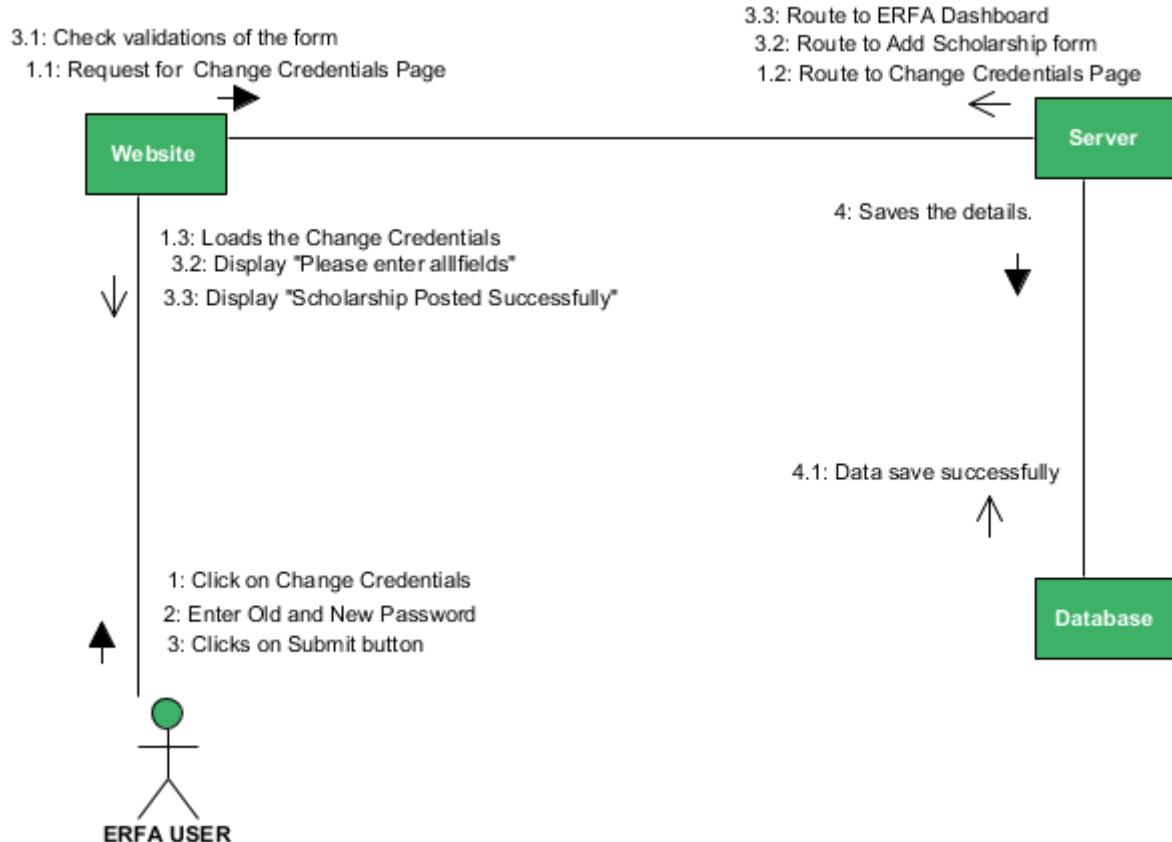
Online Document Verification and Shortlisting



Interview Scheduling

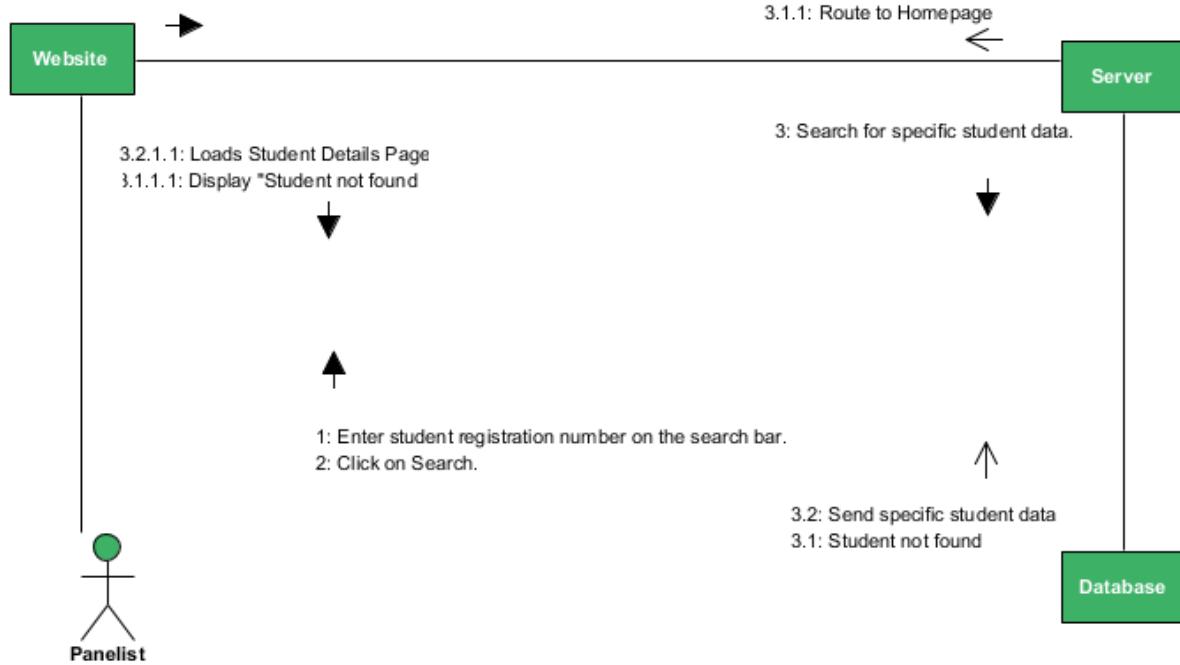


Change Credentials

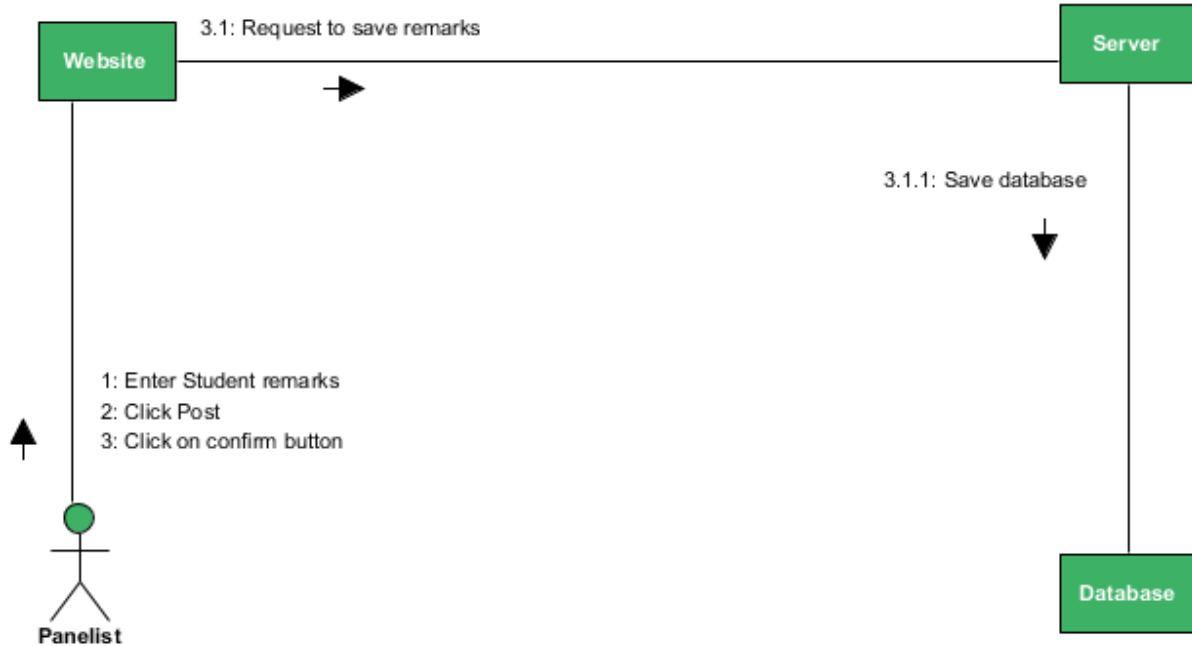


Retrieve Student Record

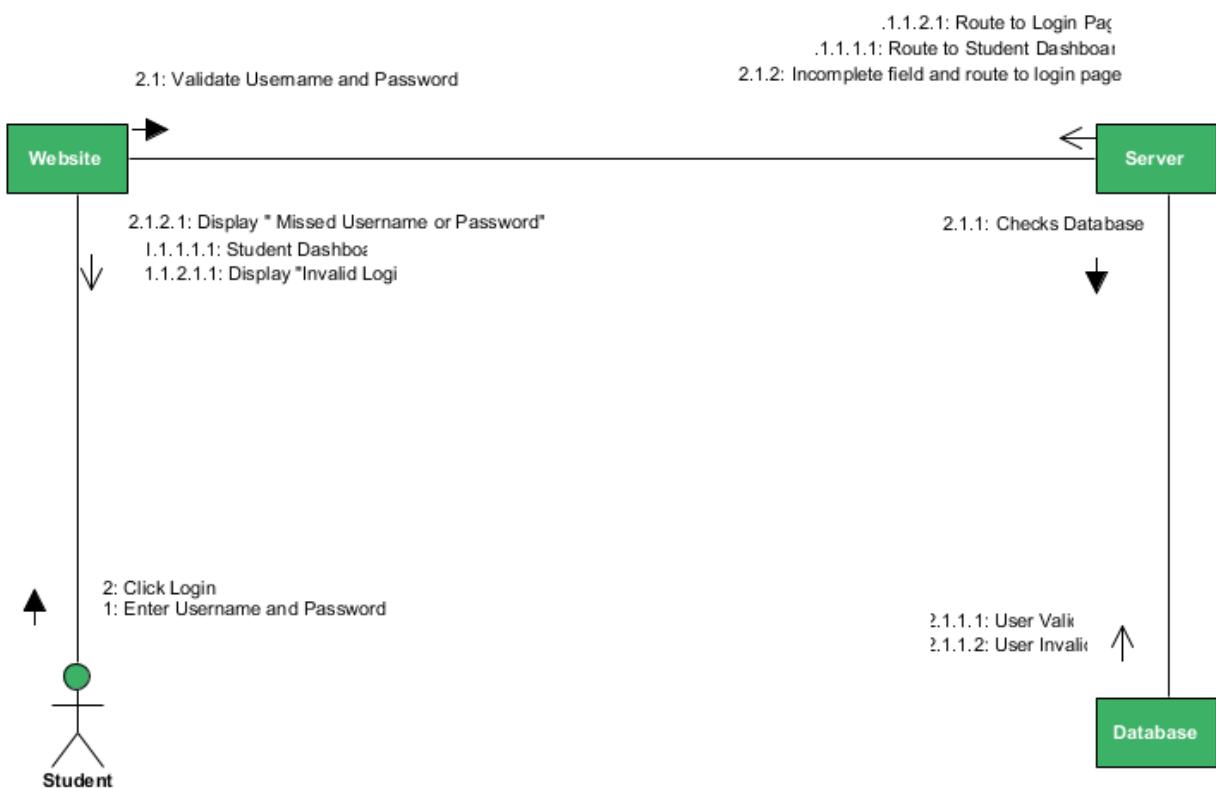
2.1: Request for Student Details Page .



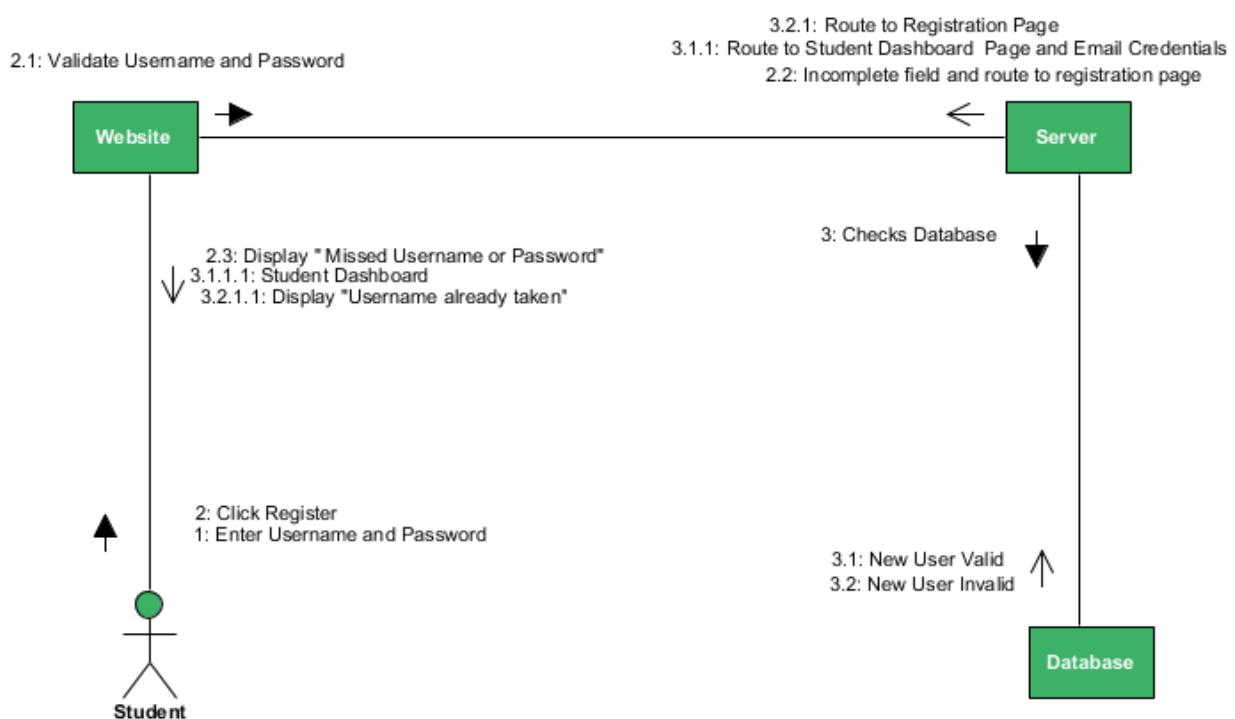
Post Interview Remarks



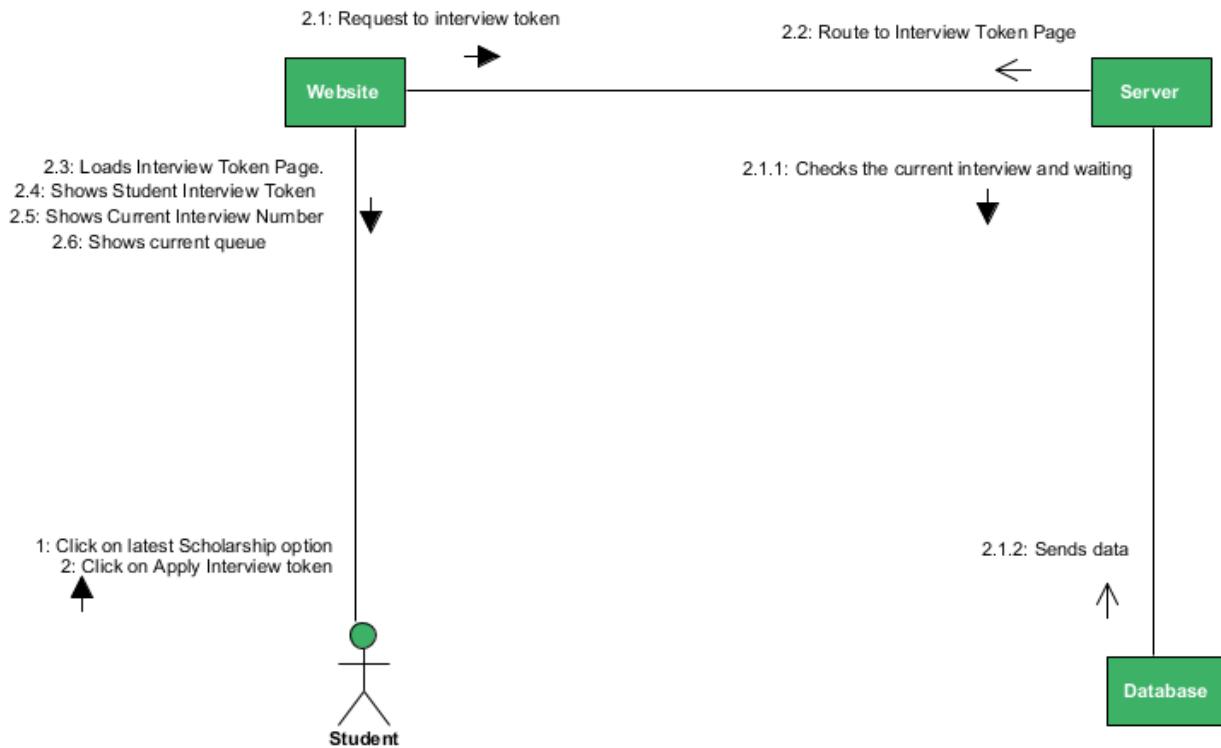
Login (Student)



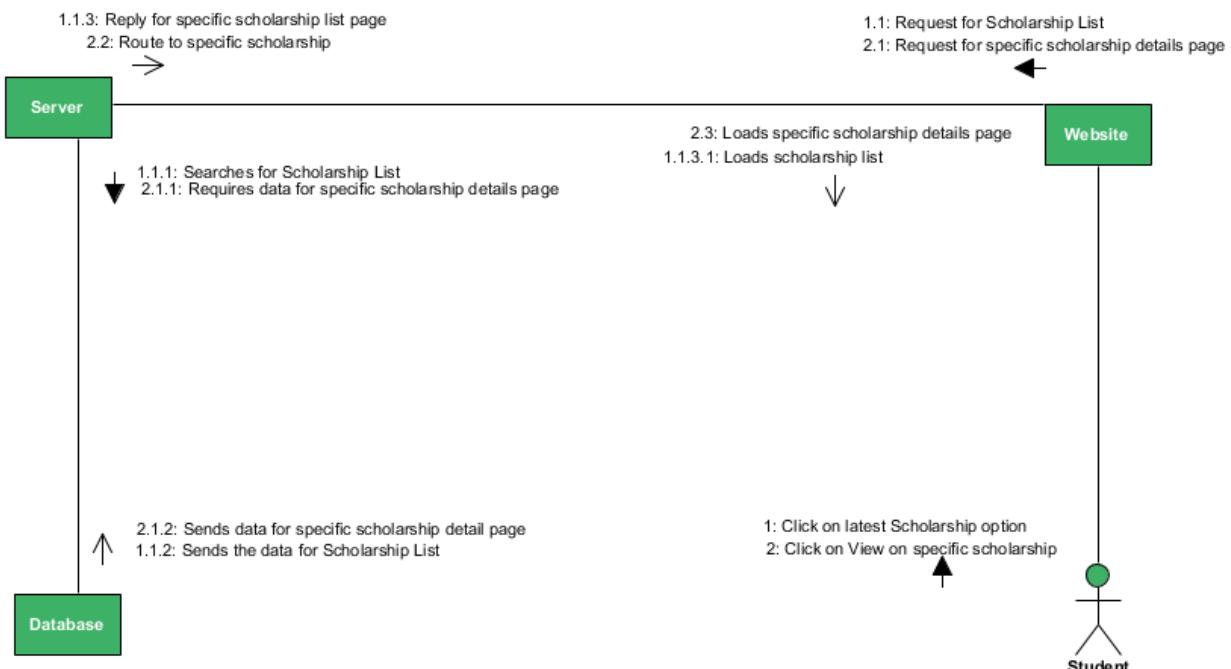
Sign Up



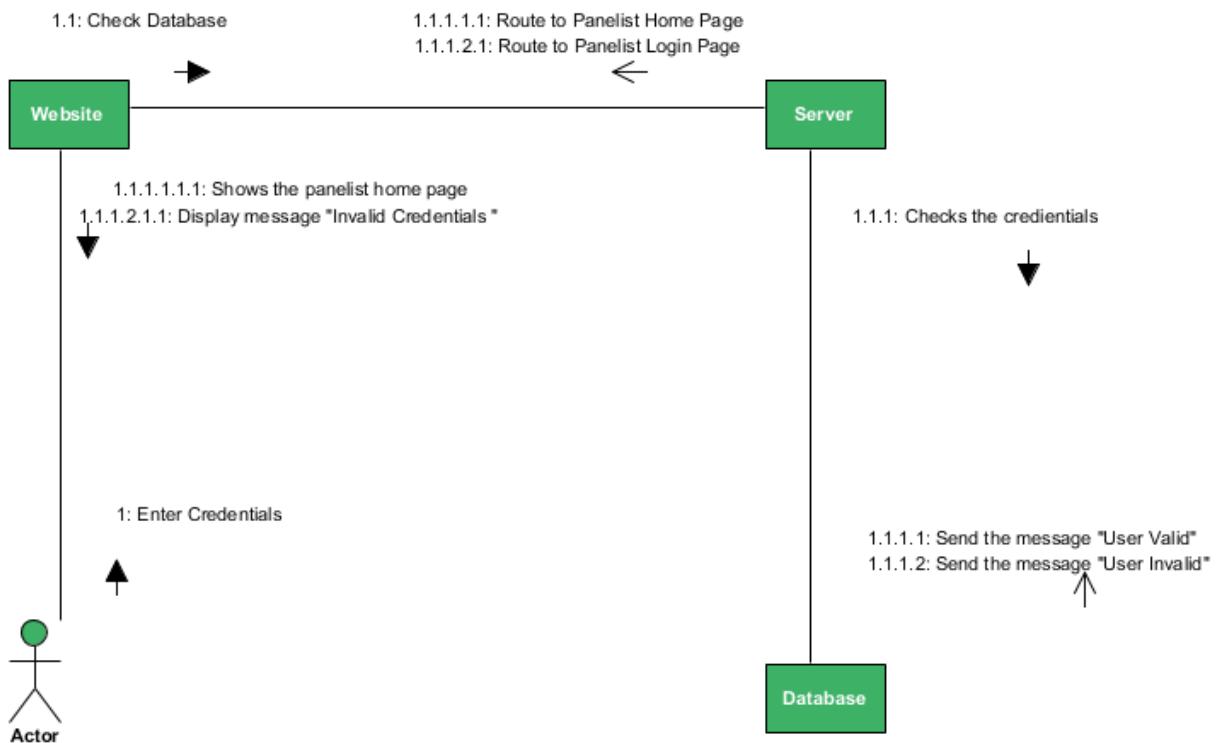
Apply for Scholarship



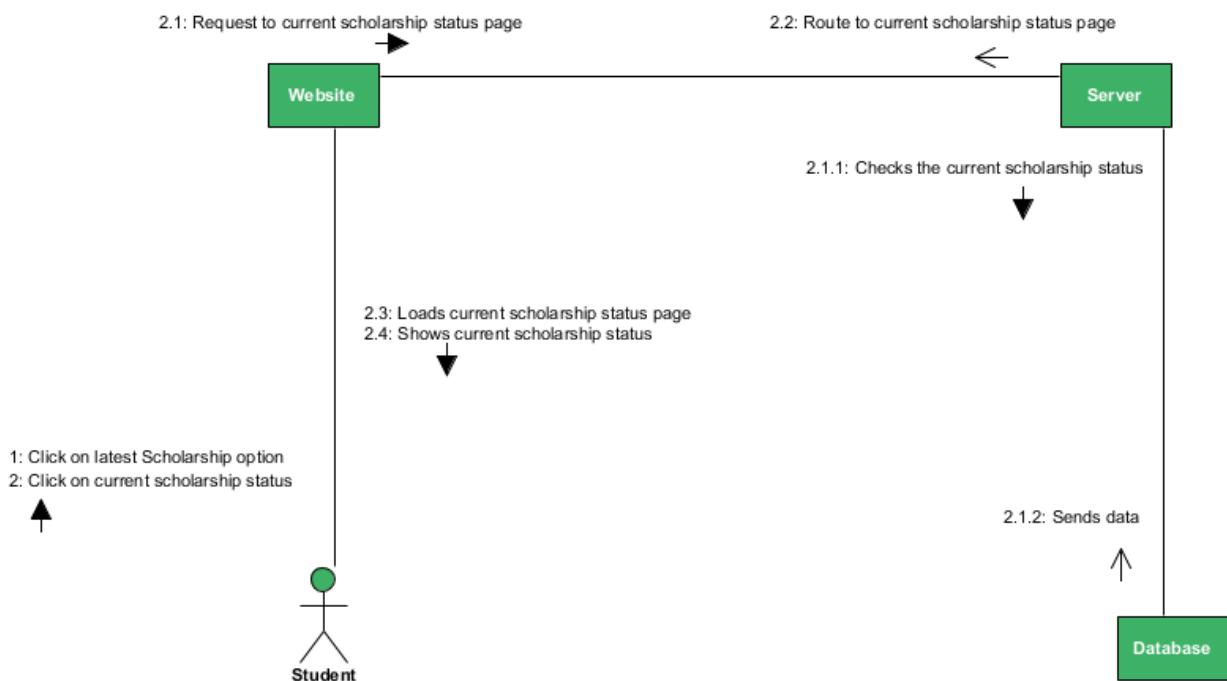
View Scholarship



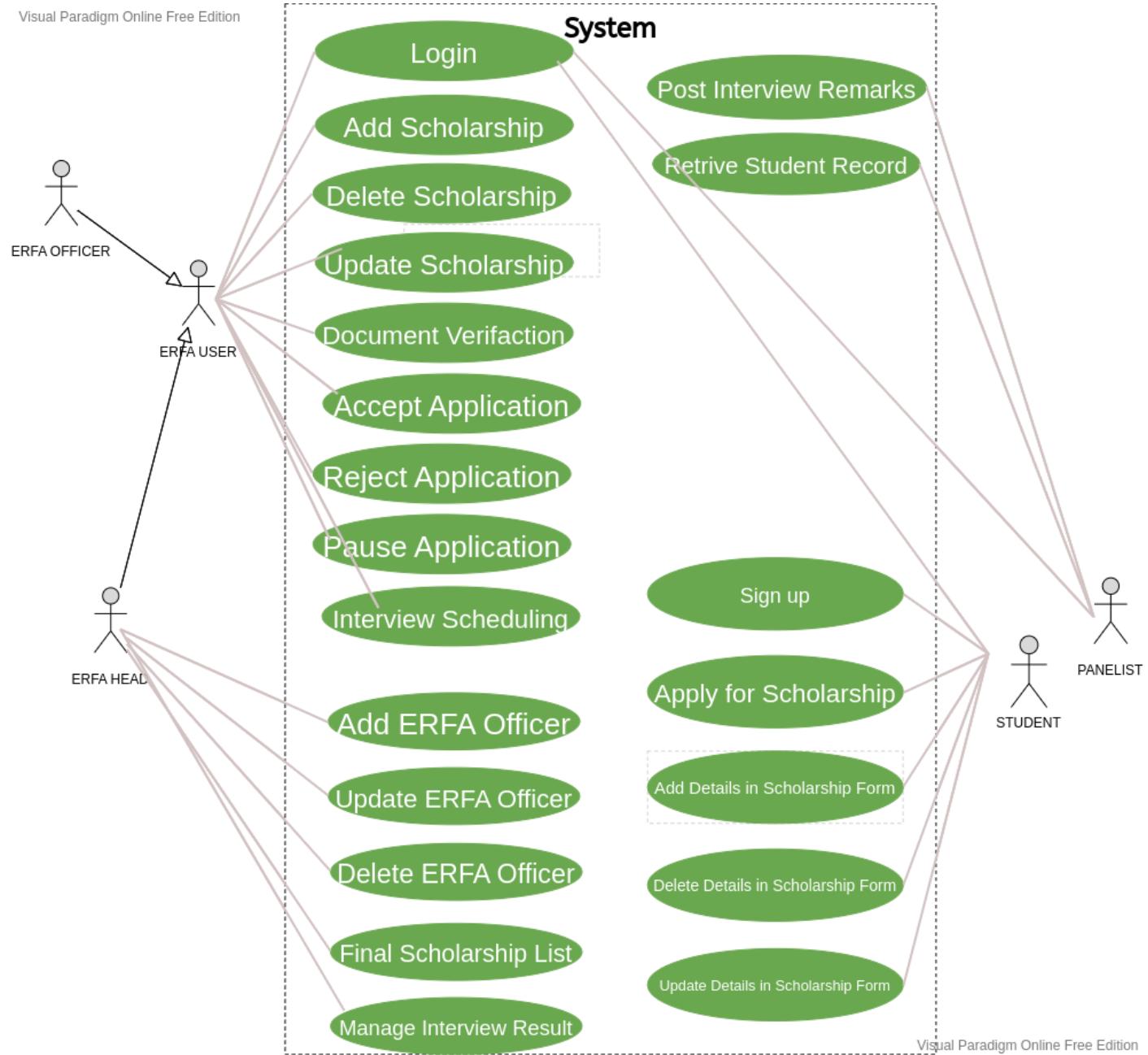
Login (Panelist)



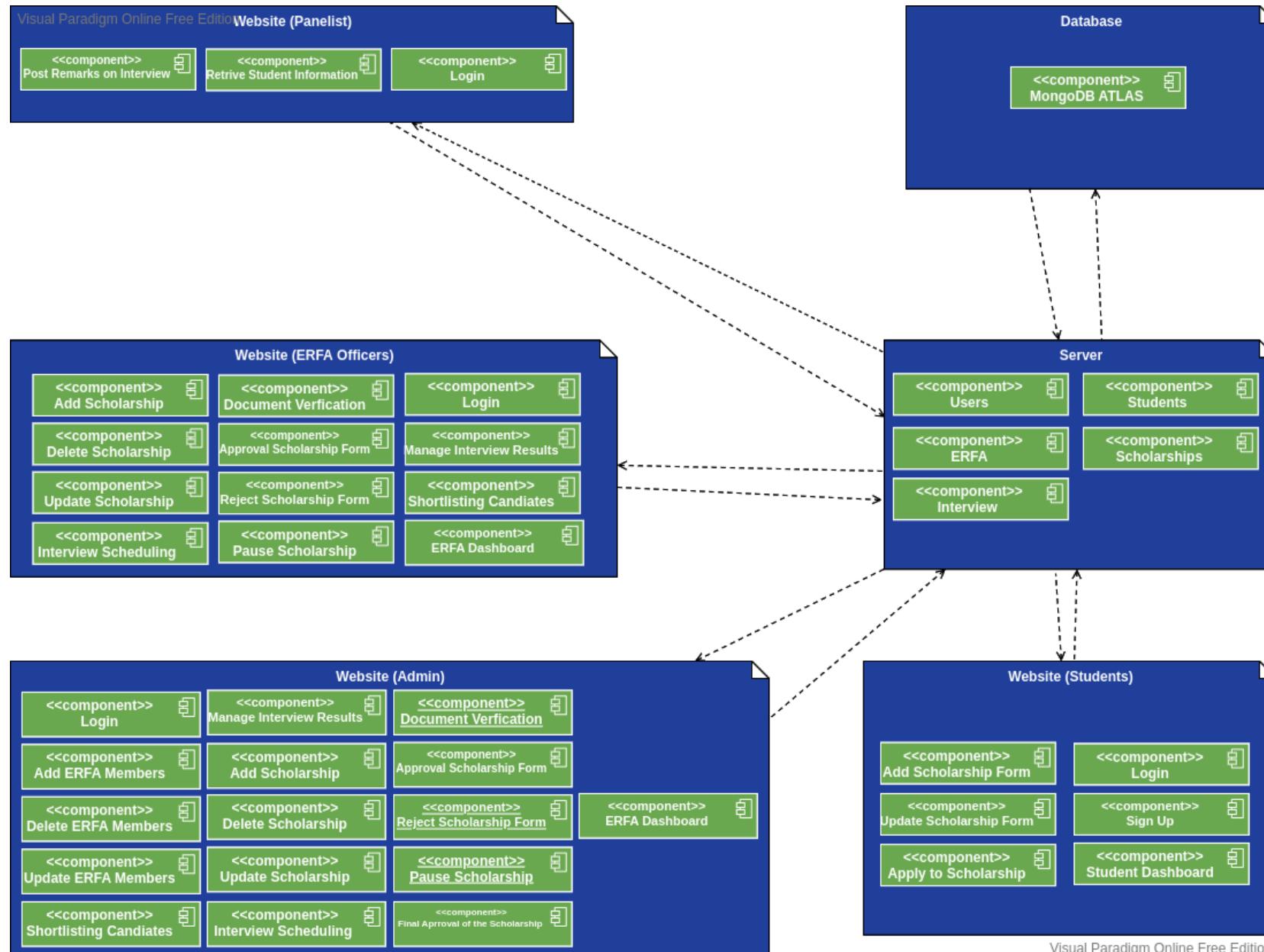
Status of the Scholarship



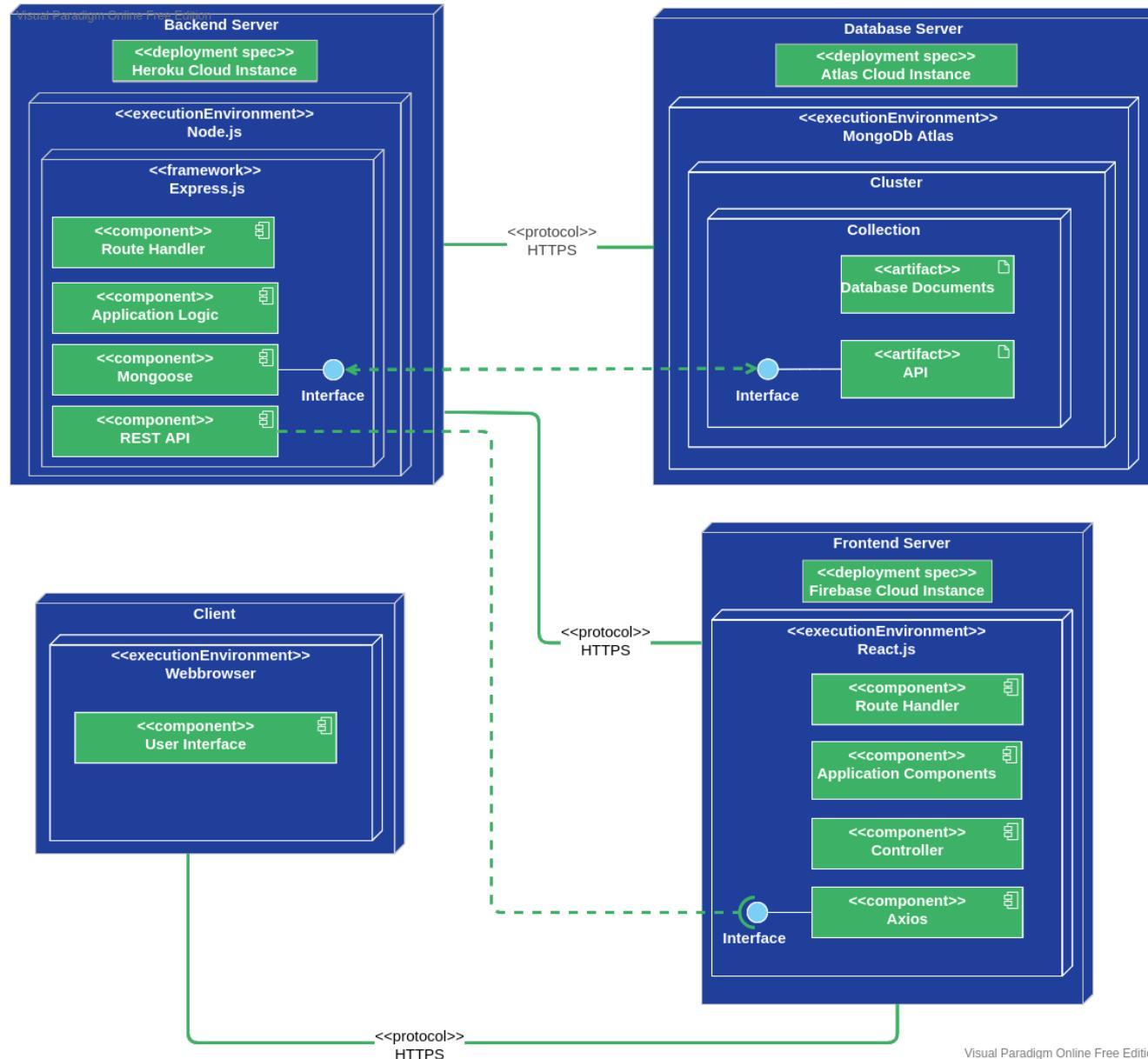
3.8.7. Use-case Diagram



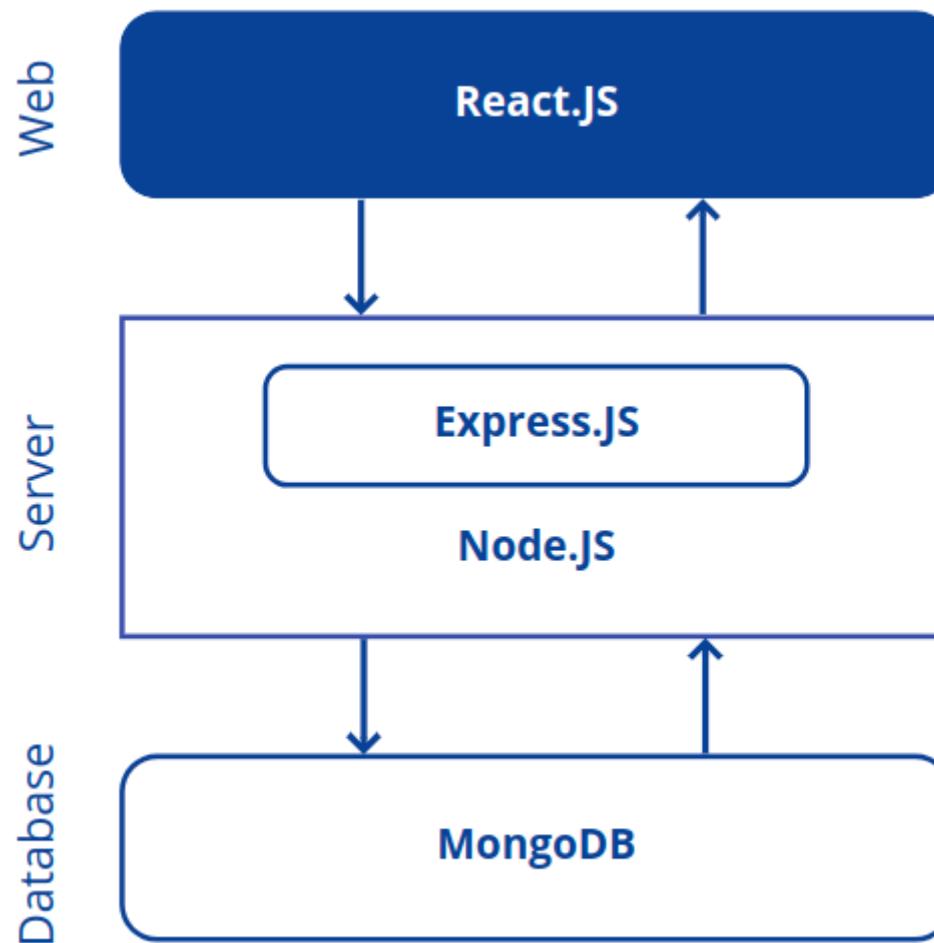
3.8.8. Component Diagram



3.8.9. Deployment Diagram



3.8.10. System Block Diagram



Software Testing Specification

for

Online ERFA

Version 1.4

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

Revision History

Name	Date	Reason For Changes	Version
Hirdesh Kumar, Syed Mustafa Imam	20th Nov 2021	Feature 1 Test Case	1.0
Hirdesh Kumar, Syed Mustafa Imam	23th Dec 2021	Feature 2 Test Case	1.1.1
Hirdesh Kumar, Syed Mustafa Imam	30th Dec 2021	Feature 3 Test Case	1.1.2
Hirdesh Kumar, Syed Mustafa Imam	2nd Feb 2022	Feature 4 Test Case	1.1.3
Hirdesh Kumar, Syed Mustafa Imam	2nd Feb 2022	Feature 5 Test Case	1.2
Hirdesh Kumar, Syed Mustafa	17th Mar 2022	Feature 6 Test Case	1.2.1
Hirdesh Kumar, Syed Mustafa	8th April 2022	Feature 7 Test Case	1.2.2
Hirdesh Kumar, Syed Mustafa	4st May 2022	Feature 8 Test Case	1.3
Hirdesh Kumar, Syed Mustafa Imam	16th May 2022	Feature 9 Test Case	1.3.1
Hirdesh Kumar, Syed Mustafa	2nd June 2022	Feature 10 Test Case	1.3.2
Hirdesh Kumar, Syed Mustafa	15th June 2022	Feature 11 Test Case	1.4

4.1. Test Plan

4.1.1. Scope of Testing

These features are included for testing:

- Login
- Add ERFA Officer
- Delete ERFA Officer
- Update ERFA Office
- Add Scholarship
- Update Scholarship
- Delete Scholarship
- Sign Up (Student Portal)
- Login (Student Portal)
- Apply for Scholarship (Student Portal)
- Documents Verification (Admin Portal)
- Retrieve Student Record
- Interview Scheduling
- Interview Marking
- Application Acceptance

4.1.2. Test Strategy

4.1.2.1. Unit Testing

The features identified mentioned above were crucial to the application, so they were tested extensively. Testing tools were applied to the test case, the changes in database were closely monitored with respect to the functionality of the feature. This exercise was carried out till the functionality was performed without any errors.

4.1.2.2. Integration Testing

After the results of unit testing were successful, all the components were working individually. Subsequently, these features were integrated into one complete system, and integration testing was carried out. In order to check, the functionalities were not troublesome to each other's interface. In this phase, a bottom to top approach was followed so lower level modules were tested first and integrated. The main advantage approach is fault localization detection.

4.1.2.3. System Testing

System testing is performed over a completed integrated application for following reasons:

- End to End Testing is done from the perspective of the end user simulating the scenarios which the user may follow while using the system.
- Testing each input parameter, in order to check for functionality's desired results.
- Testing the end user's possible interaction with the application.

4.1.2.3.1. Stress and Load Testing

Online ERFA's backend server was deployed on a private Oracle Cloud Server. The following stress and load testing details done the backend server.

TEST SETUP DETAILS	
	Link to the report https://a.blazemeter.com/app/executive-summary/index.html?master_id=63242329#/
	Executed By Syed Mustafa Imam (cs1812134@szabist.pk)
	Locations Used External
	Test Types Taurus
	Test Started Sat, 06/18/2022 - 16:20
	Test Finished Sat, 06/18/2022 - 16:41
	Elapsed 20 minutes

Fig. 1: Test Setup Details

In Fig. 1, the test setup details are given. The testing was done on a.blazemeter.com website. The testing time is 20 minutes.

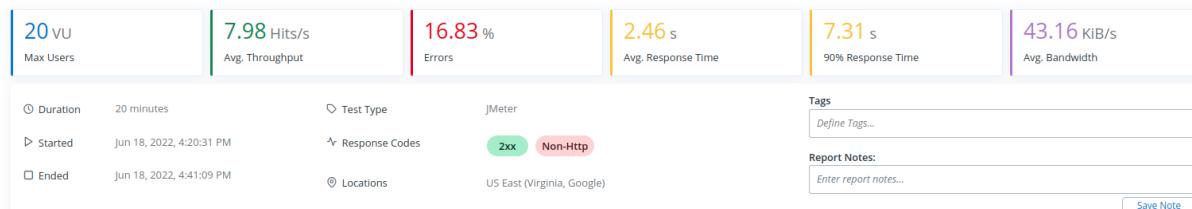


Fig. 2: Testing Summary

In Fig. 2, has the summary of the results. The instance on Oracle Cloud is free, as they are giving less number computing resources like processor and memory. The website can handle loads from 20 users. The Average Throughput is 7.98 Hits per second. The Errors are 16.83% because the server only handles HTTPS request, no request using HTTP Protocol. Average Response Time is 2.46 seconds, Average Bandwidth is 43.16 KiloBytes per second and Response time is 7.31 seconds which accumulates close to 90%.

Further, testing will be done when the project will be deployed on SZABIST servers for the ERFA department.

4.1.2.3.2. Usability Testing

The end users of the application would be ERFA members, interview panelists, and students. It was very important to have their perspective. All the stakeholders were asked for suggestions regarding experience with the current state of the application. The feedback was highly valuable and used to make the application more user friendly.

4.1.2.3.3. Security Testing

It is a priority to maintain confidentiality, integrity and authority over the application's data.

The login module was tested thoroughly. It includes the following:

1. Tokens are generated in the user login, these tokens need to be verified to access other pages within the application.
2. Session timeout was tested.
3. Encryption of password was done on the database.
4. If a user makes five wrong password attempts the, login page would inactive for thirty seconds. This prevents DOS (Deinal of Service) and Brute Attacks.
5. In case of an user forgeting password, an email for password reset would sended to an existing email address verified from the database.
6. RBAC (Role Based Acces Control) is followed, so ERFA User, Students, and Panelist are only given rights for their work to function.

4.1.2.3.4. Regression Testing

Regression testing extensively followed in the development process, whenever a feature was complete it was integrated components to ensure that other functionalities were not affected by the changes in the code.

4.1.3. Resource

4.1.3.1. Human

- Hirdesh Kumar
- Syed Mustafa Imam

4.1.3.2. Hardware

4.1.3.2.1. Web System Testing

- The tests were carried out on the laptops of the project members. Both machines were with different specifications, the tests on the local host server of the machines with internet connection.

4.1.3.3. Software

The software used for testing was Microsoft Visual Studio Code.

4.2. Test Cases Design and Description

4.2.1. Login (Admin / Officer Portal / Panelist)

Test Case ID:	TC-01				
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam			
Test Case Version:	Version 1.0				
Test Execution Date:	20-11-2021				
Use Case Reference	UC-01 and UC-13.				
GUI Reference					
Objective:	To check the login functionality of the ERFA Users.				
Product / Ver / Module:	ERFA User and Panelist.				
Environment:	Server should be running and has an internet connection.				
Assumptions:	User is on the login page.				
Pre-Requisite:	The user must have the designated username and password. Through which they can log in to the system.				
Test Case Description	This test case checks the login functionality of the ERFA User.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	Click on login without email and password as an input.	Alert showing "Please fill all fields!"	Alert showing "Please fill all fields!"	Pass	-
2-	Click on login with invalid email and password.	Alert showing "Invalid Credentials"	Alert showing "Invalid Credentials"	Pass	-
3-	Click on login with valid email and password.	Route to their Dashboard Page	Route to their Dashboard Page	Pass	-
Comments:		All the test cases passed successfully on the UC-01 and UC-13.			

4.2.2. Add ERFA Officer

Test Case ID:		TC-02							
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar							
Test Case Version:	Version 1.0								
Test Execution Date:	20-11-2021								
Use Case Reference	UC-02								
GUI Reference									
Objective:	To test for any bugs and errors while adding a new ERFA Officer.								
Product / Ver / Module:	ERFA Admin								
Environment:	Server should be running and has an internet connection.								
Assumptions:	Admin on the new user page.								
Pre-Requisite:	The admin must be logged in the System.								
Test Case Description	This test case will check the “Add ERFA Officer” feature.								
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure				
1-	Press Add User button without any input.	Alert showing “Incomplete form, please fill all fields!”	Alert showing “Incomplete form, please fill all fields!”	Pass	-				
2-	Press Add User with an email address already in the database and other form details as input data.	Show error “ERROR — User with this email already existed!”	Show error “ERROR — User with this email already existed!”	Pass	-				
3-	Input different password at password and confirm password field	Display message “Password did not match with your confirmed password!”	Display message “Password did not matched with your confirm password”	Pass	-				

4-	Enter invalid email at email field	Display message "Email Address is not valid!"	Display message "Email Address is not valid!!"	Pass	-
5-	Press Add User with an unique email address and other form details as input.	Route to view user page with an entry of the user at table.	Route to view user page with an entry of the user at table.	Pass	-
Comments:		All the test cases passed successfully on the UC-02.			

4.2.3. Update ERFA Officer

Test Case ID:	TC-03				
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam			
Test Case Version:	Version 1.0				
Test Execution Date:	20-11-2021				
Use Case Reference	UC-04				
GUI Reference					
Objective:	To test for any bugs and errors while updating an ERFA Officer.				
Product / Ver / Module:	ERFA Admin				
Environment:	Server should be running and has an internet connection.				
Assumptions:	1- ERFA admin is on edit user page 2- There must be an ERFA Officer added to the system				
Pre-Requisite:	1- The admin must be logged in the System. 2- Must have pressed the edit button of a particular user view user list page.				
Test Case Description	This test case will check the “Update ERFA Officer” feature.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	Press the Update button without any input.	Routes to view user page and data of the user remains in the view user page	Routes to view user page and data of the user remains in the view user page	Pass	-
2-	Clicks on Update User with data input.	Routes to view user page and data of the user changes in the view user page	Routes to view user page and data of the user changes in the view user page	Pass	-
Comments:		All the test cases passed successfully on the UC-04.			

4.2.4. Delete ERFA Officer

Test Case ID:	TC-04				
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam			
Test Case Version:	Version 1.0				
Test Execution Date:	20-11-2021				
Use Case Reference	UC-03				
GUI Reference					
Objective:	To test for any bugs and errors while deleting an ERFA Officer.				
Product / Ver / Module:	ERFA Admin				
Environment:	Server should be running and has an internet connection.				
Assumptions:	1- ERFA admin is on edit user page 2- There must be an ERFA Officer added to the system				
Pre-Requisite:	1- The admin must be logged in the System.				
Test Case Description	This test case will check the “Delete ERFA Officer” feature.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	Press the Delete button. A prompt with Close and Confirm options. Press the Close button.	Routes to view the user page and no deletion occurs.	Routes to view the user page and no deletion occurs.	Pass	-
2-	Press the Delete button. A prompt with Close and Confirm options. Press the Confirm button.	Routes to view the user page and deletion occurs.	Routes to view the user page and deletion occurs.	Pass	-
Comments:		All the test cases passed successfully on the UC-03.			

4.2.5. Add Scholarship

Test Case ID:	TC-05							
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar						
Test Case Version:	Version 1.0							
Test Execution Date:	02-02-2022							
Use Case Reference	UC-07							
GUI Reference								
Objective:	To test for any bugs and errors while adding a new Scholarship Post.							
Product / Ver / Module:	ERFA Admin and ERFA Officer.							
Environment:	Server should be running and has an internet connection.							
Assumptions:	Admin or officer on the add scholarship page.							
Pre-Requisite:	The admin or officer must be logged in the System.							
Test Case Description	This test case will check the “Add Scholarship” feature.							
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure			
1-	Click the Post Scholarship button without any input.	Alert showing “*Fill all the fields!”	Alert showing “*Fill all the fields!”	Pass	-			
2-	Click the Post Scholarship button with an Scholarship Title already in the database and other form details as input data.	Alert showing “Scholarships with this title already exist!!”	Alert showing “Scholarship with this title alredy exist!!”	Pass	-			
3-	Click the Post Scholarship button with user input of all the fields.	Alert showing “Scholarship posted!”	Alert showing “Scholarship posted!”	Pass	-			
Comments:		All the test cases passed successfully on the UC-07.						

4.2.6. Update Scholarship

Test Case ID:	TC-06							
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam						
Test Case Version:	Version 1.0							
Test Execution Date:	02-02-2022							
Use Case Reference	UC-08							
GUI Reference								
Objective:	To test for any bugs and errors while updating a Scholarship Post.							
Product / Ver / Module:	ERFA Admin and ERFA Officer.							
Environment:	Server should be running and has an internet connection.							
Assumptions:	1. Admin or officer on the update scholarship post page. 2. A scholarship post must be added in the portal.							
Pre-Requisite:	The admin or officer must be logged in the System.							
Test Case Description	This test case will check the “Update Scholarship Post” feature.							
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure			
1-	Press the Update button without any input.	Alert showing “Nothing update!”	Alert showing “Nothing update!”	Pass	-			
2-	Clicks on Update User with data input.	Alert showing “Scholarship update!”	Alert showing “Scholarship update!”	Pass	-			
Comments:		All the test cases passed successfully on the UC-08.						

4.2.7. Delete Scholarship

Test Case ID:	TC-07				
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar			
Test Case Version:	Version 1.0				
Test Execution Date:	02-02-2022				
Use Case Reference	UC-09				
GUI Reference					
Objective:	To test for any bugs and errors while deleting an Scholarship.				
Product / Ver / Module:	ERFA Admin				
Environment:	Server should be running and has an internet connection.				
Assumptions:	1. Admin or officer on the list post page. 2. A scholarship post must be added in the portal.				
Pre-Requisite:	The admin or officer must be logged in the System.				
Test Case Description	This test case will check the “Delete Scholarship Post” feature.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	Click the Delete button. A prompt with Close and Confirm options. Press the Close button.	Routes to view the list post page and no deletion occurs.	Routes to view the list post page and no deletion occurs	Pass	-
2-	Click the Delete button. A prompt with Close and Confirm options. Press the Confirm button.	Routes to view the list post page and deletion occurs.	Routes to view the list post page and deletion occurs.	Pass	-
Comments:		All the test cases passed successfully on the UC-09.			

4.2.8. Sign Up (Student portal)

Test Case ID:		TC-08				
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam				
Test Case Version:	Version 1.0					
Test Execution Date:	02-02-2022					
Use Case Reference	UC-17					
GUI Reference						
Objective:	To check the login functionality of the Student.					
Product / Ver / Module:	Student					
Environment:	Server should be running and has an internet connection.					
Assumptions:	User is on the sign up page.					
Pre-Requisite:	1. The user must enter a designated registration number. 2. The student must be enrolled in SZABIST.					
Test Case Description	This test case checks the sign up functionality of the Student.					
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure	
1-	Click on Register without any fields as an input.	Alert showing "Please fill all fields!"	Alert showing "Please fill all fields!"	Pass	-	
2-	Click on Register with any invalid registration number with other input.	Alert showing "ERROR — Registration record is already present or the registration id is not valid"	Alert showing "ERROR — Registration record is already present or the registration id is not valid"	Pass	-	
3-	Input different password at password and confirm password field	Display message "Password does not match!"	Display message "Password does not match"	Pass		

4-	Enter invalid email at email field	Display message "Email Address is not valid!"	Display message "Email Address is not valid!"	Pass	
5-	Click on register with valid registration number and other details.	Route to Login Page	Route to Login Page	Pass	-
Comments:		All the test cases passed successfully on the UC-17.			

4.2.9. Login (Student portal)

Test Case ID:	TC-09								
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar							
Test Case Version:	Version 1.0								
Test Execution Date:	02-02-2022								
Use Case Reference	UC-16								
GUI Reference									
Objective:	To check the login functionality of the ERFA Users.								
Product / Ver / Module:	ERFA User								
Environment:	Server should be running and has an internet connection.								
Assumptions:	User is on the login page.								
Pre-Requisite:	The user must have the designated username and password. Through which they can log in to the system.								
Test Case Description	This test case checks the login functionality of the ERFA User.								
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure				
1-	Click on login without registration number and password as an input.	Alert showing "Please fill all fields!"	Alert showing "Please fill all fields!"	Pass	-				
2-	Click on login with invalid registration number and password.	Alert showing "Invalid Credentials"	Alert showing "Invalid Credentials"	Pass	-				
3-	Click on login with valid registration number and password.	Route to Announcement Page	Route to Announcement Page	Pass	-				
Comments:		All the test cases passed successfully on the UC-16.							

4.2.10, Apply Scholarship (Student portal)

Test Case ID:		TC-10				
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam				
Test Case Version:	Version 1.0					
Test Execution Date:	05-05-2022					
Use Case Reference	UC-18					
GUI Reference						
Objective:	To test student applying for the scholarship.					
Product / Ver / Module:	Student					
Environment:	Server should be running and has an internet connection.					
Assumptions:	User is on the selected application page.					
Pre-Requisite:	The students should log in to the system. He must have already filled in his academic information.					
Test Case Description	This test case checks the apply for the scholarship login functionality of the student.					
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure	
1-	Student clicks on the apply now button if the student is not eligible	Alert showing "They are not eligible for the scholarship"	Alert showing "They are not eligible for the scholarship"	Pass	-	
2-	Student clicks on the apply now button if the student is eligible	Proceed to page where the student can download the form	Proceed to page where the student can download the form	Pass	-	
3-	Student uploads a document	Alert showing "Data Submitted! Please be patient for the response."	Alert showing "Data Submitted! Please be patient for the response."	Pass	-	

4-	Student sends a message	Alert showing "Data Submitted! Please be patient for the response."	Alert showing "Data Submitted! Please be patient for the response."	Pass	
5-	Student neither uploads document or sends a message	Alert showing "Data Submitted! Please be patient for the response."	Alert showing "Data Submitted! Please be patient for the response."	Pass	
Comments:		All the test cases passed successfully on the UC-18.			

4.2.11. Document Verification and Shortlisting (Admin portal)

Test Case ID:	TC-11
QA Test Engineer:	Syed Mustafa Imam
Test Case Version:	Version 1.0
Test Execution Date:	05-05-2022
Use Case Reference	UC-10
GUI Reference	
Objective:	To test functionality that ERFA User verifying documents submitted by the students.
Product / Ver / Module:	ERFA Admin
Environment:	Server should be running and has an internet connection.
Assumptions:	User is on the applications page.
Pre-Requisite:	The users should be logged into their dashboard. The students must have submitted their scholarship forms.
Test Case Description	This test case checks for the document verification of the student.

S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	ERFA user selects accepted from the dropdown	All the accepted applications appear on screen	All the accepted applications appear on screen	Pass	-
2-	ERFA user selects paused from the dropdown	All the paused applications appear on screen	All the accepted applications appear on screen	Pass	-
3-	ERFA user selects rejected from the dropdown	All the rejected applications appear on screen	All the rejected applications appear on screen	Pass	

4-	ERFA user selects not reviewed from the dropdown	All the not reviewed applications appear on screen	All the not reviewed applications appear on screen	Pass	
5-	ERFA user sends a message on a particular application	Alert showing "Evaluation done!"	Alert showing "Evaluation done!"	Pass	
6-	ERFA user selects status accepted on a particular application	Alert showing "Evaluation done!"	Alert showing "Evaluation done!"	Pass	
7-	ERFA user selects status pending on a particular application	Alert showing "Evaluation done!"	Alert showing "Evaluation done!"	Pass	
8-	ERFA user selects status rejected on a particular application	Alert showing "Evaluation done!"	Alert showing "Evaluation done!"	Pass	
Comments:		All the test cases passed successfully on the UC-10.			

4.2.12. Interview Scheduling

Test Case ID:	TC-12							
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar						
Test Case Version:	Version 1.0							
Test Execution Date:	05-05-2022							
Use Case Reference	UC-05 and UC-11							
GUI Reference								
Objective:	To test for any bugs and errors while adding interview scheduling for student							
Product / Ver / Module:	ERFA Admin and ERFA Officer.							
Environment:	Server should be running and has an internet connection.							
Assumptions:	Admin or officer on the add scholarship page.							
Pre-Requisite:	The admin or officer must be logged in the System.							
Test Case Description	This test case will check the “Interview Scheduling for Student” feature.							
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure			
1-	Click the Schedule Interviews button without any input.	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass	-			
2-	Click the Schedule Interviews button with some input missing.	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass	-			
3-	Click the Schedule Interviews button with user input of all the fields.	Alert showing “New schedule created successfully.”	Alert showing “New schedule created successfully.”	Pass	-			
Comments:		All the test cases passed successfully on the UC-05 and UC-11.						

4.2.13. Retrieve Student Record

Test Case ID:	TC-13							
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam						
Test Case Version:	Version 1.0							
Test Execution Date:	28-05-2022							
Use Case Reference	UC-14							
GUI Reference								
Objective:	To test for any bugs and errors while sending interview marking							
Product / Ver / Module:	Panelist and ERFA Officer							
Environment:	Server should be running and has an internet connection.							
Assumptions:	1. Panelist should be on search student page. 2. Student must have filled an scholarship and his application should be accepted 3. Student must be sented an email							
Pre-Requisite:	The panelist or officer must be logged in the System.							
Test Case Description	This test case will check the “Retrieve Student Record” feature.							
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure			
1-	Click the Post Results button without any input.	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass				
2-	Click the Post Results with an Registration ID	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass				
3-	Click the Post Results with an Selected Scholarship	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass				

4-	Click the Post Results with an Registration ID and Selected Scholarship of student application that does not exist.	Alert showing "Student record does exist!"	Alert showing "Student record does exist!"	Pass	
5-	Click the Post Results with an Registration ID and Selected Scholarship of student application that does not exist.	Student details show up.	Student details show up.	Pass	
Comments:		All the test cases passed successfully on the UC-14.			

4.2.14. Interview Marking

Test Case ID:	TC-14				
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar			
Test Case Version:	Version 1.0				
Test Execution Date:	28-05-2022				
Use Case Reference	UC-15				
GUI Reference					
Objective:	To test for any bugs and errors while sending interview marking				
Product / Ver / Module:	Panelist and ERFA Officer				
Environment:	Server should be running and has an internet connection.				
Assumptions:	1. Panelist should be on search student page. 2. Student must have filled an scholarship and his application should be accepted				
Pre-Requisite:	The panelist or officer must be logged in the System.				
Test Case Description	This test case will check the “Interview Marking of Panelis” feature.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	Click the Post Results button without any input.	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass	
2-	Click the Post Results with Selected Percentage	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass	
3-	Click the Post Results with Comments	Alert showing “Invalid form, please fill all the fields properly!”	Alert showing “Invalid form, please fill all the fields properly!”	Pass	

4-	Click the Post Results with Comments and Selected Percentage	Alert showing "Evaluation Done!!"	Alert showing "Evaluation Done!!"	Pass	
5-	Click the Post Results with Comments and Selected Percentage for already evaluate student	Alert showing "Interview panelist has evaluated this candidate!!"	Alert showing "Interview panelist has evaluated this candidate!!"	Pass	
Comments:		All the test cases passed successfully on the UC-15.			

4.2.15. Application Acceptance

Test Case ID:	TC-15							
QA Test Engineer:	Hirdesh Kumar	Reviewed by: Syed Mustafa Imam						
Test Case Version:	Version 1.0							
Test Execution Date:	02-06-2022							
Use Case Reference	UC-06							
GUI Reference								
Objective:	To test for any bugs and errors while application acceptance							
Product / Ver / Module:	ERFA Admin							
Environment:	Server should be running and has an internet connection.							
Assumptions:	1. Admin or officer must be on student's application form 2. Student must be interviewed							
Pre-Requisite:	The admin must be logged in the System and is on evaluation page of an interviewed.							
Test Case Description	This test case will check the "Application Acceptance" feature.							
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure			
1-	Click on the Post Finalize Evaluation Results Button, without selecting a scholarship percentage.	Alert show, "Scholarship Percentage not Selected!"	Alert show, "Scholarship Percentage not Selected!"	Pass				
3-	Click on the Post Finalize Evaluation Result Button, with selecting a 0% scholarship percentage	Alert "Evaluation Done", the screen 0% of scholarship appear	Alert "Evaluation Done", the screen 0% of scholarship appear	Pass				

3-	Click on the Post Finalize Evaluation Result Button, with selecting a 25% scholarship percentage	Alert "Evaluation Done", student gets email, and on the screen 25% of scholarship appear	Alert "Evaluation Done", student gets email, and on the screen 25% of scholarship appear	Pass	
4-	Click on the Post Finalize Evaluation Result Button, with selecting a 50% scholarship percentage	Alert "Evaluation Done", student gets email, and on the screen 50% of scholarship appear	Alert "Evaluation Done", student gets email, and on the screen 50% of scholarship appear	Pass	
5-	Click on the Post Finalize Evaluation Result Button, with selecting a 75% scholarship percentage	Alert "Evaluation Done", student gets email, and on the screen 75% of scholarship appear	Alert "Evaluation Done", student gets email, and on the screen 75% of scholarship appear	Pass	
6-	Click on the Post Finalize Evaluation Result Button, with selecting a 100% scholarship percentage	Alert "Evaluation Done", student gets email, and on the screen 100% of scholarship appear	Alert "Evaluation Done", student gets email, and on the screen 25% of scholarship appear	Pass	
Comments:		All the test cases passed successfully on the UC-06.			

4.2.16. Scholarship Results Announcement

Test Case ID:	TC-16				
QA Test Engineer:	Syed Mustafa Imam	Reviewed by: Hirdesh Kumar			
Test Case Version:	Version 1.0				
Test Execution Date:	10-06-2022				
Use Case Reference	UC-06				
GUI Reference					
Objective:	To test for any bugs and errors while sending scholarship results Announcement				
Product / Ver / Module:	Admin				
Environment:	Server should be running and has an internet connection.				
Assumptions:	1. Student must be have allocate a scholarship percentage				
Pre-Requisite:	The student must be logged in the system and is on his student dashboard.				
Test Case Description	This test case will check the “Scholarship Results Announcement” feature.				
S No.	Input Parameters	Expected Output	Actual Output	Test Conformance Status	Possible Reason(s) in case failure
1-	If the student has not been accepted for scholarship	Cards shows “We regret to inform you that you did not qualify for this scholarship for your academic year 2022 - 2023.”	Cards shows “We regret to inform you that you did not qualify for this scholarship for your academic year 2022 - 2023.”	Pass	

2-	If the student has been accepted for scholarship	Card shows "Congratulations you have been successful awarded \${Patictular Scholarship Title} {Percentage of scholarship} scholarship for your academic year 2022 - 2023.	Card shows "Congratulations you have been successful awarded \${Patictular Scholarship Title} {Percentage of scholarship} scholarship for your academic year 2022 - 2023.	Pass	
Comments:		All the test cases passed successfully on the UC-06.			

User Manual

for

Online ERFA

Version 1

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

Name	Date	Reason For Changes	Version
Syed Mustafa	10th Jun 2022	Initial draft	1.0
Hirdesh Kumar	15th Jun 2022	Review	1.1

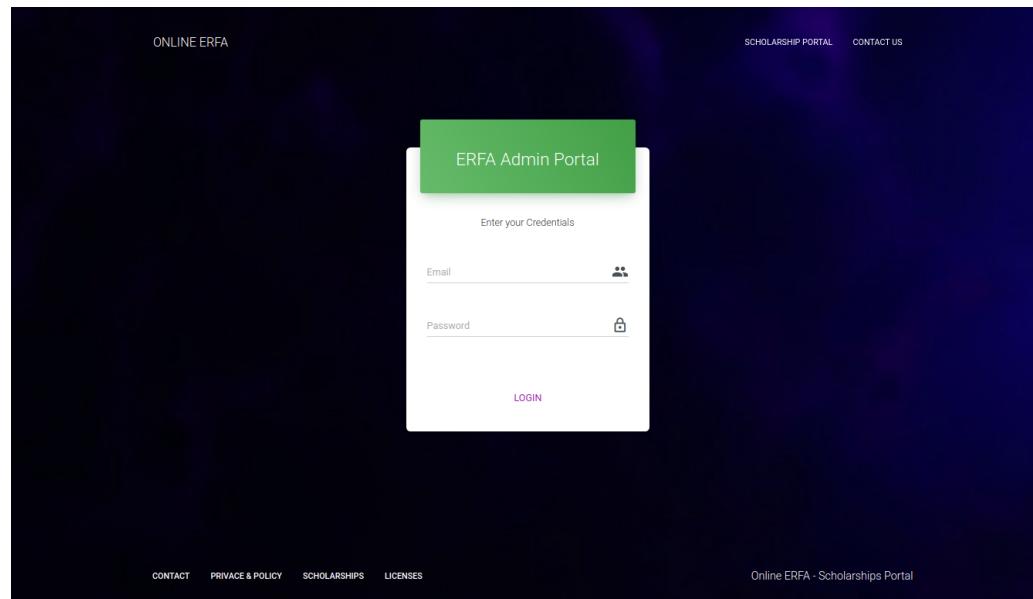
5.1. Accessing the website

The website has two portals, one is for the admin/officers/pannelist and other is for the students.

- So to access the admin/officers/pannelist portal put the following URL in the browser:
<https://online-erfa-admin.web.app/>
- To access the student portal use the following URL:
<https://online-erfa.web.app/>

5.2.1. Admin / Officers Portal

5.2.1.1. Login



Description:

Through this screen, the ERFA admin and ERFA officer will be able to get logged in to the ERFA dashboard.

Steps:

1. Enter the email and password of your user.
2. Press Login.

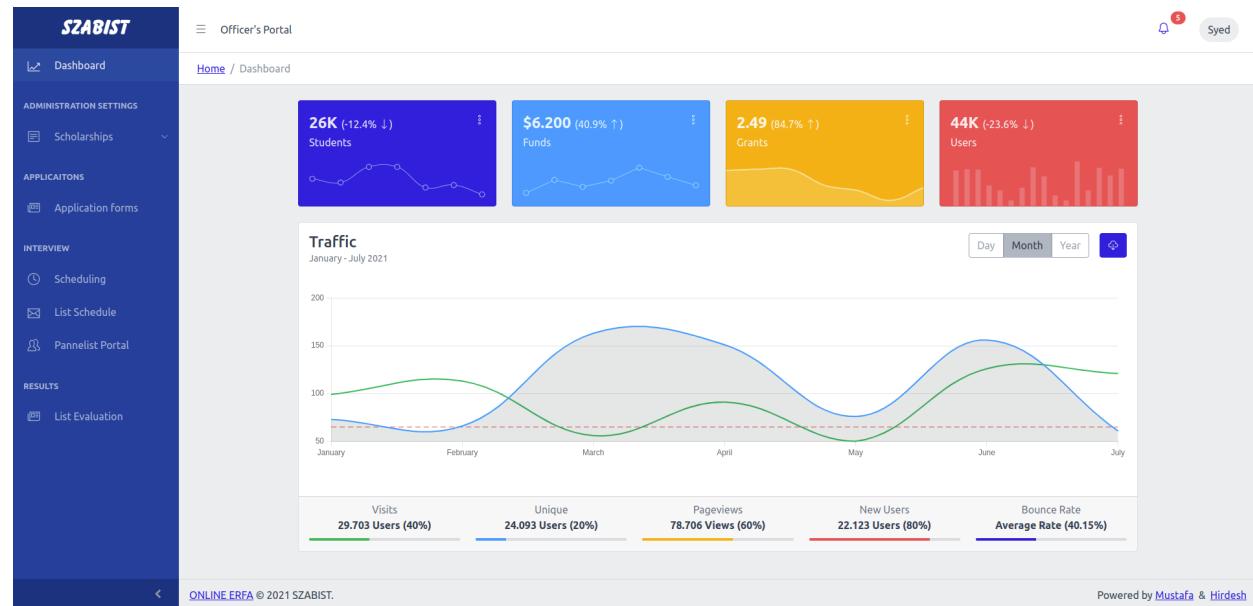
5.2.1.2. Login to the ERFA Dashboard (admin)



Description:

This is the dashboard page for the ERFA Admin/ Head.

5.2.1.3. Login to the ERFA Dashboard (Officer)



Description:

This is the dashboard for ERFA users, where the ERFA officers do not have access to user management.

5.2.1.4. Add ERFA Officer (Admin)

The screenshot shows the 'New User Form' on the SZABIST Admin's Dashboard. The form fields include:

- First Name: Syed
- Last Name: Mustafa
- Designation: Officer
- Cell Number: 03030565656
- Email: cs1812134@szabist.pk
- NIC Number: 4210125973775
- Password: (redacted)
- Retype Password: (redacted)
- Date of Birth: 06/08/2022

An error message at the top states: "ERROR – Password not matched!". Below the password fields, a note says: "Your Password must be atleast of 8 characters. It should contain," followed by a list of requirements:

- 1 Uppercase Letter like A
- 1 Lowercase Letter like a
- 1 AlphaNumber like 4
- 1 Special Character like @

Add User

Description:

From this page, the admin will be able to add new users.

Steps:

1. Click on the User Management tab then click on the user tab.
2. User Form will appear then enter the details of the user.
3. Click on the add user button.
4. Then the user will receive the following email.

New User Email Confirmation ➤ **Inbox** ✏

Online ERFA cs1812114@szabist.pk ... Fri, 1 to contact ▾

Hello Mustafa,

We have registered you to the ERFA Admin Portal,

First Name	Last Name	Designation	Email	Password
Mustafa	Imam	Faculty	contact@syedmustafaimam.com	Abc.1234

Please refer to the following link: <https://online-erfa-admin.web.app/#/login>

Regards,
ERFA Department

Description:

And after adding a new user the user will receive an email for their onboarding, in which they will be having their credentials.

5.2.1.5. View officers (Admin)

User's Name	Designation	Email	Action
Mustafa Imam	Faculty	ali@szabist.pk	<button>Edit</button> <button>Delete</button>
Peter Parker	Head	admin22@szabist22.pk	<button>Edit</button> <button>Delete</button>
Harry Kumar	Faculty	hirdeshkumar2407@gmail.com	<button>Edit</button> <button>Delete</button>
Harry Kumar	Officer	kherdesh@gmail.com	<button>Edit</button> <button>Delete</button>
Syed Mustafa	Officer	cs1812134@szabist.pk	<button>Edit</button> <button>Delete</button>
Hirdesh Kumar	Faculty	cs1812114@szabist.pk	<button>Edit</button> <button>Delete</button>
Dr Stephen Strange	Officer	smustafa086@gmail.com	<button>Edit</button> <button>Delete</button>
Ali Riaz	Faculty	2sm2@gmail.com	<button>Edit</button> <button>Delete</button>
Lee Bravo	Faculty	hirdesh20@gmail.com	<button>Edit</button> <button>Delete</button>

Description:

From this page, the admin will be able to view all the users.

Steps:

1. Click on the User Management tab then click on the View Users from the menu.
2. List of all the users will be displayed.

5.2.1.6. Update officer (Admin)

The screenshot shows the Admin's Dashboard with the User Management section selected. A modal window titled "Update User Form" is open, allowing the admin to update user details. The form fields include Name, Email, NIC Number, Date of Birth, Designation, Cell Number, and New Cell Number. The "Name" field is populated with "Syed Mustafa" and the "Email" field with "cs1812134@szabist.pk". The "Designation" field is set to "Officer" and the "Cell Number" field shows "03039122434". The "New Cell Number" field also shows "03039122434". An "Update User" button is at the bottom of the form.

Description:

From this page, the admin will be able to update selected users.

Steps:

1. Click on the User Management tab then click on the View Users from the menu.
2. List of all the users will be displayed.
3. Click on the specific user's delete button.
4. The user update form will be appeared from where user can update the designation or the cell number.
5. Then click update.

5.2.1.7. Confirmation for update (Admin)

The screenshot shows the Admin's Dashboard with the User Management section selected. A modal window titled "Update User" is open, prompting the admin to enter a password for confirmation. The modal displays the current username "admin@szabist.pk" and a password field containing "*****". There are "Close" and "Confirm" buttons at the bottom of the modal.

Description:

This is the re-validation when the admin wants to update any specific user.

5.2.1.8. Delete officer (Admin)

The screenshot shows the SZABIST Admin's Dashboard. On the left sidebar, under 'ADMINISTRATION SETTINGS', the 'User Management' option is selected. The main content area displays a table titled 'All Users' with columns for 'User's Name', 'Designation', 'Email', and 'Action'. A modal window titled 'Delete User' is overlaid on the table, asking for a password confirmation. The modal includes fields for 'Username' (admin@szabist.pk) and 'Password' (*****), along with 'Close' and 'Confirm' buttons.

User's Name	Designation	Email	Action
Mustafa Imam	Faculty	ali@szabist.pk	<button>Edit</button> <button>Delete</button>
Peter Parker			<button>Edit</button> <button>Delete</button>
Harry Kumar			<button>Edit</button> <button>Delete</button>
Harry Kumar			<button>Edit</button> <button>Delete</button>
Syed Mustafa			<button>Edit</button> <button>Delete</button>
Hirdesh Kumar			<button>Edit</button> <button>Delete</button>
Dr Stephen Strange			<button>Edit</button> <button>Delete</button>
Ali Riaz	Faculty	2sm2@gmail.com	<button>Edit</button> <button>Delete</button>
Lee Bravo	Faculty	hirdesh20@gmail.com	<button>Edit</button> <button>Delete</button>

Description:

This is the re-validation when the admin wants to delete any specific user.

Steps:

1. Click on the User Management tab then click on the View Users from the menu.
2. List of all the users will be displayed.
3. Click on the specific user's delete button.
4. After clicking on the delete button the user need to verify their credentials.
5. Then click on the confirm button to delete.

5.2.1.9. Scholarship posting (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard. On the left sidebar, under the 'SCHOLARSHIPS' section, there is a 'New Post' button. The main content area is titled 'Scholarship Posting'. It contains fields for 'Title', 'Application starting date' (mm/dd/yyyy), 'Application ending date' (mm/dd/yyyy), 'Description', 'Eligibility' (checkboxes for various programs like BBA, BEME, etc.), 'Tags', and a 'Load Poster Image' section with a file upload area. A blue button at the bottom right says 'Post Scholarship'.

Description:

Through this, the admin or the officers will be having the right of posting new scholarships on the portal which will be visible to the students on their portal.

Steps:

1. Go to the scholarship's tab, then click on the new post.
2. Now enter the scholarship details.
3. Upload the poster of the scholarship.
4. Then Post the scholarship.

5.2.1.10. List all scholarships (Admin / Officers)

Title	Tags	Start Date	End Date	Action
Need based Scholarship	tag1 tag2 tag3 tag4 tag5	2022-02-10	2022-03-12	Edit Delete
Merit Scholarship	asdad	2022-02-12	2022-02-21	Edit Delete
Balochistan Scholarship	November Covid-19 2021	2022-03-30	2022-04-30	Edit Delete
Sindh Endowment Fund	SZABIST 2015 needbased	2022-03-31	2022-04-13	Edit Delete
Need Based For New Students 2022	October November	2022-04-01	2022-04-15	Edit Delete
Balochistan Education Endowment Fully Funded Scholarship	BalochistanEducationEndowmentFund FullyFund	2022-04-01	2022-05-08	Edit Delete
Orange Tree Foundation Scholarship	OrangeTreeFoundationOTF dsa	2022-03-29	2022-05-07	Edit Delete
Stipendium Hungaricum	Pakistan Hungaricum	2022-04-07	2022-05-08	Edit Delete
Nottingham Developing Solutions Scholarships	Nottingham Commonwealth	2022-05-18	2022-06-01	Edit Delete

Description:

Now from this List posts page the user will be able to view all the posted scholarships and they will also be able to view, delete and update scholarships from this portal.

5.2.1.11. Delete scholarship (Admin / Officers)

Delete Post
X

Enter password for confirmation to delete scholarship post.

Username: admin@szabist.pk

Password:

Close Confirm

Description:

Through the delete button, the user can delete the respective scholarship, by re-entering their credential for validation.

5.2.1.12. Edit specific scholarship (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard with the 'Scholarships' section selected. On the right, a modal window titled 'Need based Scholarship' is open. It displays the following information:

- Title:** Need based Scholarship
- Application starting date:** 02/10/2022
- Application ending date:** 03/12/2022
- Description:** Mauris blandit aliquet elit, eget tincidunt nibh pulvinar a. Nulla quis lorem ut libero malesuada feugiat. Pellentesque in ipsum id orci porta dapibus. Curabitur non nulla sit amet nisl tempus convallis quis ac lectus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec sollicitudin molestie malesuada. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Praesent sapien massa, convallis a pellentesque nec, egestas non nisi. Cras ultricies ligula sed magna dictum porta.
- Eligibility:** Vivamus suscipit tortor eget felis porttitor volutpat. Nulla quis lorem ut libero malesuada feugiat. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula.
- Check only those programs which are eligible for this scholarship:** BBA (checked), BEME (checked), BABS (checked), BS-BIO (checked), BS-BIOTECH (checked), BS-ENTRE (unchecked), BSAF (unchecked), BSCS (unchecked), BSAI (unchecked), BSMS (unchecked), BSSS (unchecked), MA-EDU (unchecked), MBA-EVE-36 (unchecked), MBA-EVE-72 (unchecked), MSMD (unchecked), MSPM (unchecked), PhD-BIOL (unchecked), MS-Mech (unchecked), MSCS (unchecked), MSMS (unchecked), PhDMS (unchecked), MSPH (unchecked), MSSS (unchecked), PhDSS (unchecked).
- Tags:** tag1,tag2,tag3,tag4,tag5
- Existing Poster:** An image of the 'SZABIST NEED-BASED SCHOLARSHIPS 2020' poster.
- Load Poster Image:** A placeholder area for uploading a new poster image, with a 'Update image' button and a file upload icon.
- Update Scholarship:** A green button at the bottom of the modal.

At the bottom of the page, there is a footer with the text 'ONLINE ERFA © 2021 SZABIST.' and 'Powered by Mustafa & Hirdesh'.

Description:

The admin and officer can update any existing scholarship through this page, where they can make changes to anything.

5.2.1.13. View selected scholarships (Admin / Officers)

The screenshot shows the SZABIST Admin Dashboard with the following details:

- Sidebar Navigation:**
 - Dashboard
 - ADMINISTRATION SETTINGS
 - User Management
 - Scholarships
 - New Post
 - List Posts
 - APPLICATIONS
 - Application Forms
 - INTERVIEW
 - Scheduling
 - List Schedule
 - Pannelist Portal
 - RESULTS
 - List Evaluation
- Header:** Admin's Dashboard | Home / Scholarships / View Post
- Post Content:**

Need based Scholarship
Application Starts: 2022-02-10 | Application Deadline: 2022-03-12

SZABIST NEED-BASED SCHOLARSHIPS 2020

To streamline the process of SZABIST Need Based Scholarship during COVID-19, we will have online form submission and online scholarship interviews please click on the link for further details:
<http://szabist.edu.pk/scholarships.html>

ELIGIBILITY CRITERIA:

 - Annual family income should not be more than Rs. 900,000/-.
 - Previous Qualification
 - For Fall 2020 entrants meeting admission criteria
 - For current students CGPA 2.5 and above

Application Forms are available on <http://szabist.edu.pk/scholarships.html>

LAST DATE TO APPLY:
17TH JULY, 2020

External Relations & Financial Assistance Department,
90 Campus, Tel: (021)35830447 (Ext:104)
Email: erfa@szabist.edu.pk

Karachi Campus | Shaheed Zulfikar Ali Bhutto Institute of Science & Technology
- Text (Below Post):**

Mauris blandit aliquet elit, eget tincidunt nibh pulvinar a. Nulla quis lorem ut libero malesuada feugiat. Pellentesque in ipsum id orci porta dapibus. Curabitur non nulla sit amet nisl tempus convallis quis ac lectus. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Donec sollicitudin molestie malesuada. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Donec velit neque, auctor sit amet aliquam vel, ullamcorper sit amet ligula. Praesent sapien massa, convallis a pellentesque nec, egestas non nisi. Cras ultricies ligula sed magna dictum porta.

Mauris blandit aliquet elit, eget tincidunt nibh pulvinar a. Mauris blandit aliquet elit, eget tincidunt nibh pulvinar a. Proin eget tortor risus. Nulla porttitor accumsan tincidunt. Proin eget tortor risus. Curabitur arcu erat, accumsan id imperdiet et, porttitor at sem. Donec rutrum congue leo eget malesuada. Nulla quis lorem ut libero malesuada feugiat. Curabitur non nulla sit amet nisl tempus convallis quis ac lectus. Nulla porttitor accumsan tincidunt.
- Section Headers:**
 - Eligibility**
 - Timeline**
 - Tags**
- Buttons:** Edit | Delete
- Page Footer:** ONLINE ERFA © 2021 SZABIST. Powered by Mustafa & Hirdesh

Description:

By clicking the name on the list page of the scholarship the user will be landing on to this page. From where the user would be able to view the scholarship and also they can update or delete that specific scholarship.

5.2.1.14. All Applications Page(Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'All Applications' page selected. The page has a header with 'All applications', a filter bar, and a button to 'Show All scholarships'. Below is a table of application details:

Application title	Start date	End date	Student Id	Status	Message from Student	Action
Need based Scholarship	2022-02-10	2022-03-12	1112155	Accepted	done	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112155	Accepted	Resubmitted	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112101	Accepted	done	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112155	Accepted	Han bahi check kar lo	<button>View</button>
Balochistan Scholarship	2022-03-30	2022-04-30	1112155	Accepted	bahi rukh kar raha hu upload ma	<button>View</button>
Stipendium Hungaricum	2022-04-07	2022-05-08	1112109	Accepted	Done	<button>View</button>
Orange Tree Foundation Scholarship	2022-03-29	2022-05-07	1112155	To be evaluated	undefined	<button>View</button>
Nottingham Developing Solutions Scholarships	2022-05-18	2022-06-01	1112155	To be evaluated	Whats the issue	<button>View</button>
Merit Scholarship	2022-02-12	2022-02-21	1112144	Accepted	undefined	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112144	Accepted	Done	<button>View</button>
Need Based For New Students 2022	2022-04-01	2022-04-15	1112145	Pending	I have uploaded the form please check! Thankyou.	<button>View</button>

At the bottom left is a footer with 'ONLINE ERFA © 2021 SZABIST.' and at the bottom right is 'Powered by Mustafa & Hirdesh'.

Description:

Through this page, the user will be able to filter the scholarship on the basis of the status of the scholarship.

5.2.1.15. Scholarship form review by user (Admin / Officers)

The screenshot shows the Admin's Dashboard with a sidebar containing various management and application-related links. The main content area displays a scholarship application form for 'Nottingham Developing Solutions Scholarships - Form'. The student's name is Omair Zunnoor Farooq, and the registration ID is 1112155. The application status is 'Pending'. The message from the student is 'Whats the issue', and the message from the officer is 'Submit the latest electricity bill'. There is a link to open the file 'form_1651781630259.pdf'. A dropdown menu for 'Update status' is set to 'Pending Application', and a blue button at the bottom right says 'Update Evaluation Form'.

Description:

Through this page, the user will be able to review the scholarship form submitted by the student through their portal. After reviewing the scholarship form the user can update the status of the form, which could be accepted, pending or rejected, and then the student will be notified about the status of the scholarship form.

5.2.1.16. Interview Scheduling (Admin / Officers)

The screenshot shows the Admin's Dashboard with a sidebar containing various management and application-related links. The main content area displays an 'Interview Scheduling' form. The scholarship title is 'Need based Scholarship'. The interviews start date is 06/20/2022, and the end date is 06/22/2022. The start time is 08:31 AM, and the end time is 05:30 PM. The venue is '100 Campus, room 106 and 107'. A blue button at the bottom right says 'Schedule Interviews'.

Description:

Through this page, the user will be able to schedule an interview slot for a scholarship program.

5.2.1.17. All Interview Schedule Page (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'List Schedule' section selected. The table lists eight scheduled interviews:

Application title	Start date	End date	Start Time	End Time	End Venue	Action
Need based Scholarship	2022-03-31	2022-04-08	01:23	04:23	99	<button>Re-schedule</button> <button>Send Emails</button>
Merit Scholarship	2022-04-27	2022-04-29	02:04	08:58	Campus 90	<button>Re-schedule</button> <button>Send Emails</button>
Need based Scholarship	2022-03-29	2022-04-08	03:01	06:01	Campus 154	<button>Re-schedule</button> <button>Send Emails</button>
Need based Scholarship	2022-04-09	2022-04-30	01:41	06:46	Nathiya Gali	<button>Re-schedule</button> <button>Send Emails</button>
Need Based For New Students 2022	2022-04-01	2022-04-07	08:14	09:14	135 campus	<button>Re-schedule</button> <button>Send Emails</button>
Stipendium Hungaricum	2022-04-02	2022-04-29	13:28	23:33	100 Campus, Room 404	<button>Re-schedule</button> <button>Send Emails</button>
Orange Tree Foundation Scholarship	2022-05-07	2022-05-12	07:50	14:51	Campus 100, Room 420	<button>Re-schedule</button> <button>Send Emails</button>
Balochistan Scholarship	2022-06-05	2022-05-27	06:08	02:14	knn	<button>Re-schedule</button> <button>Send Emails</button>

Description:

Through this page, the user will be able to see all scheduled interviews.

5.2.1.18. Re-schedule Interview Page (Admin / Officers)

The screenshot shows the Admin's Dashboard with the 'Re-scheduling' section selected. The form is for re-scheduling the 'Need based Scholarship' interview:

Scholarship Title: Need based Scholarship

Interviews Start Date: 03/31/2022

Interviews End Date: 04/08/2022

Start Time: 01:23 AM

End Time: 04:23 AM

Venue: 99

Re-schedule Interview

Description:

Through this page, the user will be able to see to reschedule an interview slot.

5.2.1.19. Send Email Page (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard. On the left, there is a sidebar with various menu items under categories like ADMINISTRATION SETTINGS, APPLICATIONS, INTERVIEW, and RESULTS. The main content area is titled "Need based Scholarship" and contains a table with student information. A button labeled "Send interview confirmation email" is visible at the top right of the table. The table has columns for Student Name, Student Id, Student Section, Status, and Email Sent. Three students are listed: Omaid Zunnoon Farooqu (Status: Accepted, Email Sent: Yes), Abdul Majeed Memon (Status: Accepted, Email Sent: Yes), and Hammad Hassan (Status: Accepted, Email Sent: No). At the bottom of the page, there is a footer with copyright information and a note about being powered by Mustafa & Hirsh.

Need based Scholarship				
				Send interview confirmation email
Student Name	Student Id	Student Section	Status	Email Sent
Omaid Zunnoon Farooqu	1112155	7B	Accepted	Yes
Abdul Majeed Memon	1112101	7A	Accepted	Yes
Hammad Hassan	1112144	8A	Accepted	No

Interview Details 1112144

[External](#)

[Inbox](#) [x](#)

onlineerfa1998@gmail.com

to me [▼](#)

Hello Hammad ,

Your interview is scheduled on 07:47 2022-06-02 at Campus 99, Room 500. Please be on time.

King Regards,

EERFA Department

Description:

Through this page, the user will be able to send emails to candidates that have their application forms accepted.

5.2.1.20. Final evaluation list (Admin / Officers)

The screenshot shows the Admin's Dashboard with the title "All Evaluations" and a dropdown filter set to "Merit Scholarship". The table lists three students:

Name	Student Id	Status	Action
Omaid Zunnoon Farooqu	1112155	Evaluation Done!	<button>View</button>
Abdul Majeed Memon	1112101	Evaluation Done!	<button>View</button>
Hammad Hassan	1112144	To be evaluated	<button>View</button>

On the left sidebar, under "APPLICATIONS", there is a section for "INTERVIEW" which includes "Scheduling", "List Schedule", and "Panellist Portal". Under "RESULTS", there is a section for "List Evaluation". The bottom right corner of the dashboard footer says "Powered by Mustafa & Hirdeh".

Description:

Through this page, the user can view the evaluations done by the panellist after the interview, from this page the user will be viewing the specific student's interview results.

5.2.1.21. Final evaluation list (Admin / Officers)

The screenshot shows the SZABIST Admin's Dashboard. On the left sidebar, under 'ADMINISTRATION SETTINGS', 'User Management' and 'Scholarships' are listed. Under 'APPLICATIONS', 'Application forms' is shown. Under 'INTERVIEW', 'Scheduling' and 'List Schedule' are listed. Under 'RESULTS', 'List Evaluation' is shown. The main content area is titled 'Need Based For New Students 2022 - Form'. It shows a student named 'Hammad Hassan' with a registration ID of '1112144'. Below this, there is a table with columns 'Panelist Name', 'Designation', 'Percentage', and 'Comments'. Two entries are listed: 'Peter Parker' (Head, 60%, Good) and 'Ali Riaz' (Faculty, 75%, He is deserving). Below the table, there is a dropdown menu labeled 'Select percentage' and a blue button labeled 'Finalize Evaluation Results'.

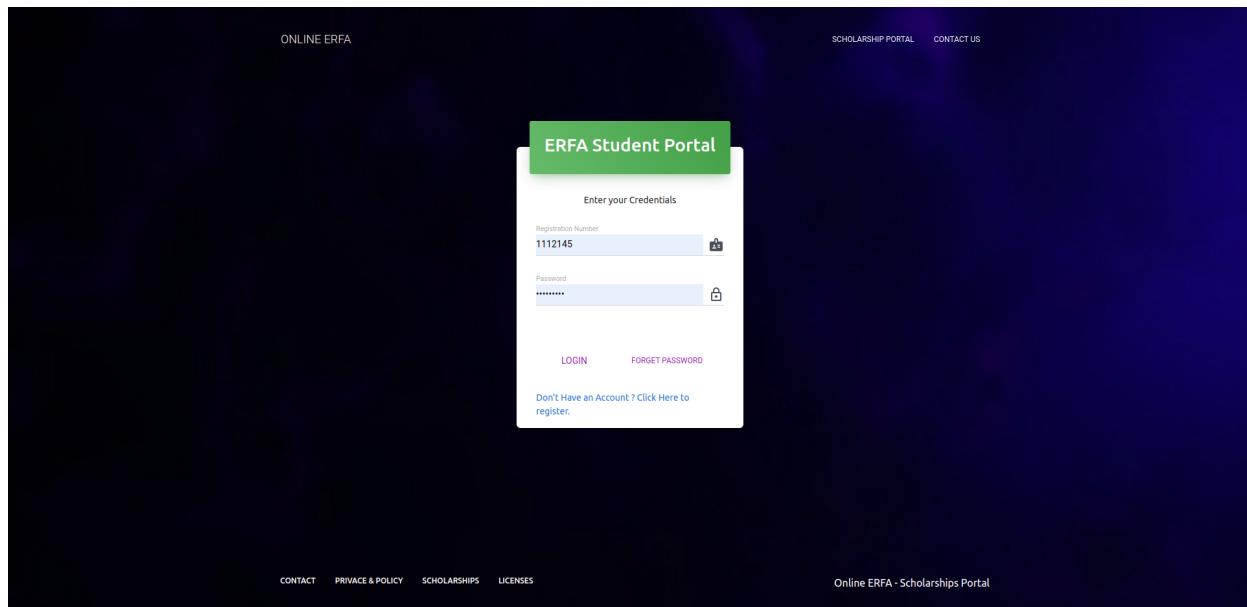
Panelist Name	Designation	Percentage	Comments
Peter Parker	Head	60	Good
Ali Riaz	Faculty	75	He is deserving

Description:

Through this page, the user can view the comment and percentages allocated by the panel after evaluating the students after the interview, after which they can decide to award the scholarship percentage from the drop-down. Then the student will be notified through their notice board.

5.2.2. Student's Portal

5.2.2.1. Login (Student)



Description:

Through this page, the student will be able to get registered into their portal. They will be required to be registered to get into the portal.

5.2.2.2. New student registration (Student)

ONLINE ERFA

SCHOLARSHIP PORTAL CONTACT US

ERFA Student Registration

Enter the following details

Registration Number	<input type="text"/>
Password	<input type="password"/>
Confirm Password	<input type="password"/>
First Name	<input type="text"/>
Last Name	<input type="text"/>
Program	<input type="text"/>
Section	<input type="text"/>
Cell Number	<input type="text"/>
Email	<input type="text"/>
DOB	<input type="text"/>
Father Name	<input type="text"/>
Mailing Address	<input type="text"/>
Permanent Address	<input type="text"/>

REGISTER

CONTACT PRIVACY & POLICY SCHOLARSHIPS LICENSES

Online ERFA - Scholarships Portal

Online ERFA

to me ▾



Hello 1112144,

You are registered with ERFA Student Portal:

Registration Number	Email	Password
1112144	cs1812134@szabist.pk	Abc.1234

Please refer to the following link: <https://online-erfa.web.app/#/login>

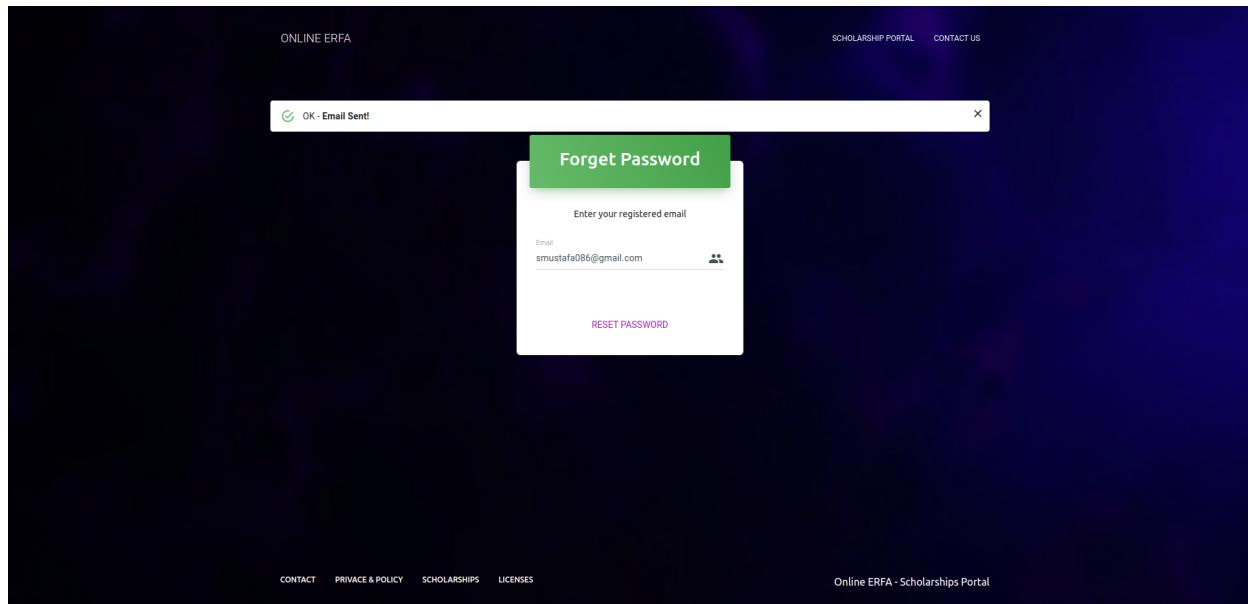
Regards,

ERFA Department

Description:

By clicking on the signup page the student will be able to get register, and then he will be receiving the email for his registration and signup.

5.2.2.3. Forget Password (Student)

**Description:**

Enter the registered email to reset the password then the student will be receiving an email for their password reset link.

5.2.2.4. Reset Password Email (Student)

Student New Password Confirmation | smustafa086@gmail.com ➤ Inbox ×

Hirdesh Kumar

to me ▾

Hello smustafa086@gmail.com,

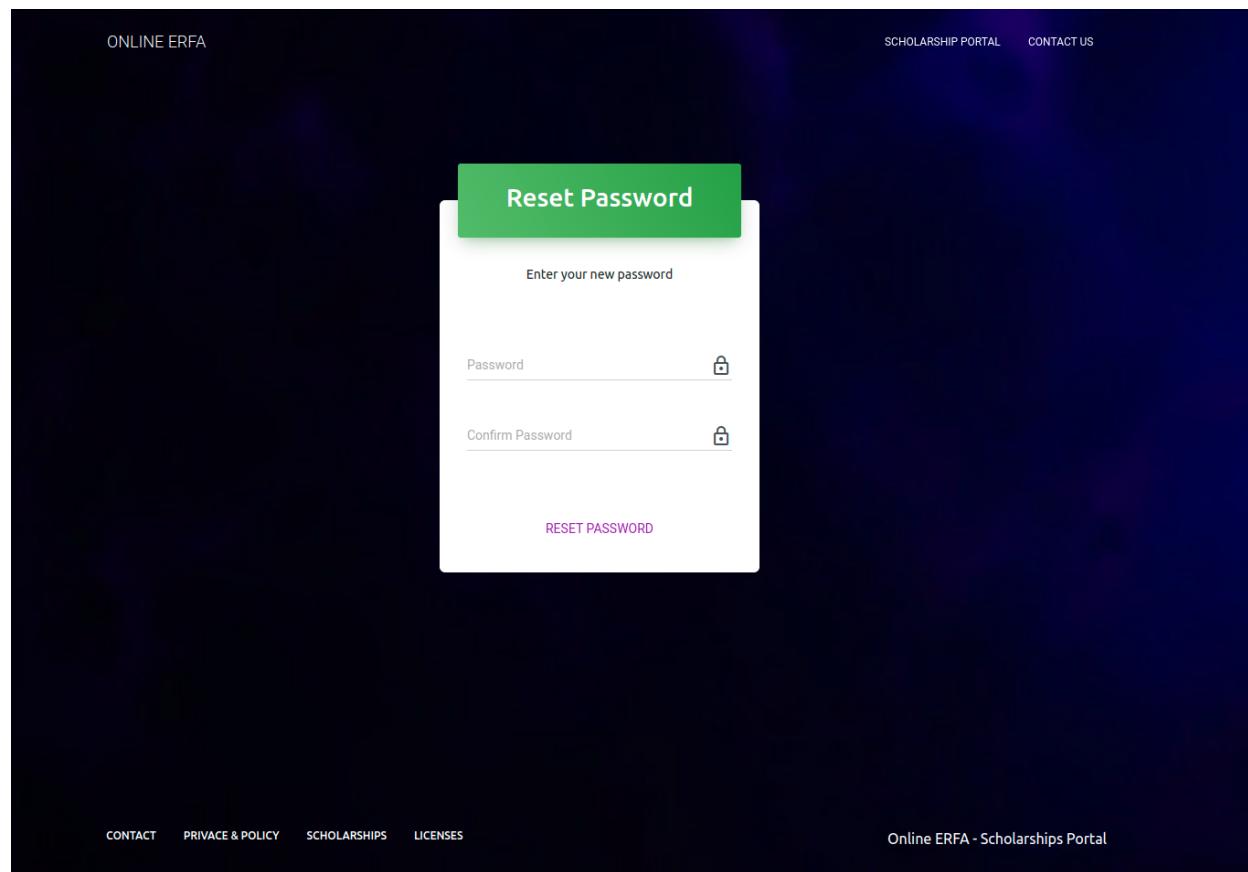
Your Student Password is requested to be changed, so click on the link given below:

<https://online-erfa.web.app/#/reset-password/627aba4c04b12f043c14b672>

Regards,

ERFA Department

Email sent via [EmailJS.com](#)



Description:

The student will receive this email from where they can reset their password through this portal.

5.2.2.5. Student's Portal (Student)

The screenshot shows the SZABIST Student's Portal (Student) interface. The top navigation bar includes links for Announcements and Scholarships. The main content area is titled "Your notice board" and displays three scholarship results:

- Scholarship Result**: **Need based Scholarship**. Congratulations you have been successful awarded **25** scholarship For your academic year 2022 - 2023.
- Scholarship Result**: **Merit Scholarship**. Congratulations you have been successful awarded **100** scholarship For your academic year 2022 - 2023.
- Scholarship Result**: **Balochistan Scholarship**. We regret to inform you that you did not qualify for this scholarship For your academic year 2022 - 2023.

Below this section is a "Latest Scholarships" grid with three items:

- Nottingham Developing Solutions Scholarships**: A thumbnail image of the University of Nottingham building, followed by text about the programme for international students from Africa, India or one of the selected Commonwealth countries who want to pursue a Master's Degree in the Unive... [read more](#).
- Stipendium Hungaricum**: A thumbnail image with the text "STIPENDIUM HUNGARICUM SCHOLARSHIP | FULLY FUNDED BACHELOR'S, MASTERS, ONE-YEAR MASTERS, NON-DEGREE PROGRAMMES, AND PHD".
- Orange Tree Foundation Scholarship**: A thumbnail image showing children at a desk, followed by text about the foundation creating equal opportunities for financially challenged household in Karachi by providing mainstream education, quality healthcare and financial assistance to deserving stude... [read more](#).

At the bottom of the page, there are "Quick Apply" buttons for each scholarship and a "View All Scholarships" link. The footer includes copyright information for ONLINE ERFA © 2021 SZABIST, and credits for Mustafa & Hirdesh.

Description:

This is the announcements page where all the latest announcements will be posted and the results of the scholarships.

5.2.2.6. List all scholarships (Student)

The screenshot shows the SZABIST Online ERFA portal interface. On the left, there is a vertical sidebar with a dark blue background. At the top of the sidebar, the SZABIST logo is displayed. Below the logo, there are three menu items: "Announcements", "Scholarships", and "List Posts". The "Scholarships" item is currently selected, indicated by a downward arrow icon next to it. To the right of the sidebar, the main content area has a light gray background. At the top of the content area, there is a navigation bar with the "Home" link, a "Scholarships" link, and a "List Posts" link. To the right of the "List Posts" link, there is a user profile icon with a red notification badge containing the number "5" and a "Changez" button. Below the navigation bar, there is a breadcrumb trail: "Home / Scholarships / List Posts". The main content area displays four scholarship listings in separate boxes:

- Need Based Scholarship 2021**
Start Date: 2021-12-01 | End Date: 2021-02-02
tag1 tag2 tag3 tag4 tag5
- Need-Based Scholarship 2020**
Start Date: 2020-01-03 | End Date: 2021-02-01
Needbased 2020 SZABIST
- Balochistan Education Endowment Fully Funded Scholarship**
Start Date: 2022-02-01 | End Date: 2022-02-23
Balochistan 2022 SZABIST
- USAID Funded Merit and Need-Based Scholarship Programs**
Start Date: 2022-02-11 | End Date: 2022-04-06
usaid usa szabist scholarship

Each listing includes a small thumbnail image of the scholarship brochure or announcement page on the right side.

Description:

This page is where all the scholarships that are posted by the ERFA portal will be listed here.

5.2.2.7. List all scholarships (Student)

The screenshot shows a web interface for managing scholarships. On the left, a sidebar titled "SZABIST" lists "Announcements", "Scholarships", and "List Posts". The main content area displays four scholarship posts:

- Need Based Scholarship 2021**
Start Date: 2021-12-01 | End Date: 2021-02-02
Tags: tag1, tag2, tag3, tag4, tag5
Thumbnail: SZABIST NEED-BASED SCHOLARSHIPS 2020
- Need-Based Scholarship 2020**
Start Date: 2020-01-03 | End Date: 2021-02-01
Tags: Needbased, 2020, SZABIST
Thumbnail: SZABIST NEED-BASED SCHOLARSHIPS 2020
- Balochistan Education Endowment Fully Funded Scholarship**
Start Date: 2022-02-01 | End Date: 2022-02-23
Tags: Balochistan, 2022, SZABIST
Thumbnail: SZABIST NEED-BASED SCHOLARSHIPS 2020
- USAID Funded Merit and Need-Based Scholarship Programs**
Start Date: 2022-02-11 | End Date: 2022-04-06
Tags: usaid, usa, szabist, scholarship
Thumbnail: USAID-Funded Merit and Need-Based Scholarship 2021-22

Description:

This page is where all the scholarships that are posted by the ERFA portal will be listed here.

5.2.2.8. Viewing a specific scholarship (Student)

The screenshot shows the SZABIST online application portal. On the left, there's a sidebar with a dark blue background and white text. It has three main sections: "Announcements" (with a speaker icon), "Scholarships" (with a document icon), and "List Posts". Above these, the "SZABIST" logo is displayed. At the top right of the main content area, there are icons for notifications (with a red '5' badge) and user profile, followed by a "Change" link.

The main content area shows a specific scholarship listing:

- Balochistan Education Endowment Fully Funded Scholarship**
- Application Starts: 2022-02-01 | Application Deadline: 2022-02-23
- SZABIST NEED-BASED SCHOLARSHIPS 2020**
- LAST DATE TO APPLY: 10th AUGUST, 2020
- How to Apply**

 - Download Form from the link: <https://szabist-isb.edu.pk/student-resources/#ERFA>
 - Submit your complete form along with documents at: snbsp2020@szabist-isb.edu.pk
 - For any query, please contact at: 0345-5997650

- Eligibility Criteria**

 - Annual family income should not be more than Rs.900,000/-
 - Only Undergraduate and MBA program.

- Shaheed Zulfikar Ali Bhutto Institute of Science & Technology**

Below the main content, there's a note: "The Balochistan Education Endowment Fund fully funded scholarship is provided to SZABIST students meeting the Merit and Need criteria. This scholarship covers the tuition fee, living expense, food expense, stationery, books expense and travel expense."

Eligibility

- The Government of Balochistan under the slogan of "SAY-YES-TO-MERIT" is awarding Need & Merit based Educational Scholarships to the talented students of Balochistan.

Timeline

Start Date: 2022-02-01

End Date: 2022-02-23

Tags

Balochistan, 2022, SZABIST

Apply to this Scholarship

ONLINE ERFA © 2021 SZABIST. Powered by [Mustafa](#) & [Hirdesh](#)

Description:

After clicking on the specific scholarship the students will be able to view the complete details of the specific scholarship, then after clicking on the “Apply to this scholarship” button student will be checked for the eligibility for the scholarship to which the student is applying.

5.2.2.9. Viewing a specific scholarship (Student)

Need Based For New Students 2022 Form

Student Name Adeel	Father Name Aalim
Registration Number 1112145	Email smustafa086@gmail.com
Date of Birth 05/26/2022	Program BSCS
Section A	Cell Number 03039122434
Mailing Address xyz	Permanent Address sdf

Confirm that all the details are updated!

[Download Application Form](#)

ONLINE ERFA © 2021 SZABIST.

Powered by [Mustafa](#) & [Hirdesh](#)

Description:

Now once the student is eligible to apply for the scholarship then they can download the form for the scholarship. Now they can fill out the form and can upload it from my application tab.

5.2.2.10. List all my application (Student)

Need Based For New Students 2022

Start Date: 2022-04-01 | End Date: 2022-04-15

[October](#) [November](#)

ONLINE ERFA © 2021 SZABIST.

Powered by [Mustafa](#) & [Hirdesh](#)

Description:

After clicking on my application, the student will be shown all of their applications for different scholarships.

5.2.2.11. Scholarship application submission (Student)

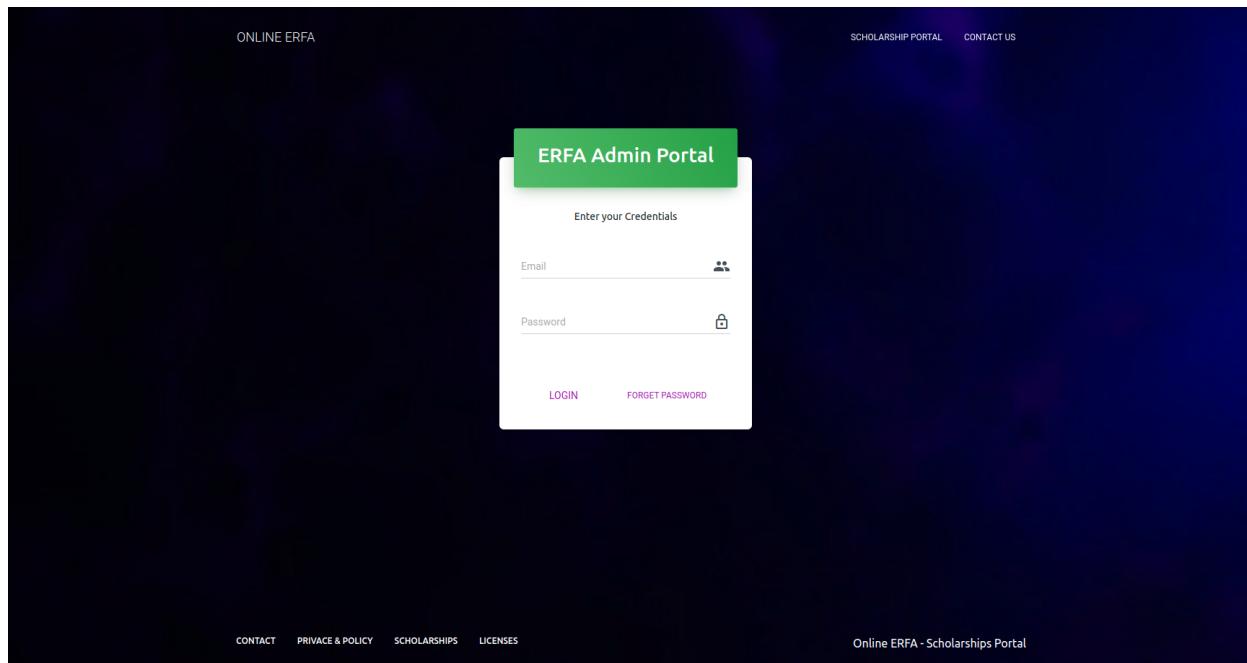
The screenshot shows a web-based application interface for submitting a scholarship form. The left sidebar has a dark blue header with the 'SZABIST' logo and navigation links for Announcements, Scholarships (selected), List Posts, and My Applications. The main content area has a light gray header 'Need Based For New Students 2022 - Form submission'. Below it, a status message says 'Status of the Application: Pending'. A file link 'form_1652210555404.pdf' is shown under 'Form'. Two text input fields for communication with an officer are present: one containing 'I have uploaded the form please check! Thankyou.' and another containing 'Please attach your Electricity and Gass Bill.'. A dashed box labeled 'Upload Completed Document' with a placeholder 'Drag and drop an pdf here or click' and a cloud icon is shown. At the bottom is a large blue 'Submit application' button.

Description:

After clicking on a specific application form, the student will upload his or her scholarship form, communicate with an official from the ERFA department, and the student will be notified of the status of his or her application to be evaluated, accepted, pending, or rejected.

5.2.3. Panellist's Portal

5.2.3.1. Login (Panellist)



Description:

The panellist will also be using the same admin login portal same as the admin.

5.2.3.2. Student search (Panellist)

Panellist's Portal

Search Student

Registration No. _____

Scholarship title

ONLINE ERFA © 2021 SZABIST.

Powered by Mustafa & Hirdesh

Description:

The panellist will now search the student by registration number and the scholarship title for the interview.

5.2.3.3. Student interview evaluation (Panellist)

Panellist's Portal

Student Evaluation		Application form	
Name	Omaid Zunnoon Farooqu	SZABIST Need-Based Scholarship Application Form <i>Instructions:</i> 1. Please fill in BLOCK LETTERS 2. In case of non-applicable field, please write "N/A" 3. Provide the required documents, mentioned on Pg. 12 & 13, for application processing. 4. Student must fill Online Portion of the Form as well on https://forms.gle/2XzuH4phxpDVTLr5	
Reg. No.	1112155	Fresh / Renewal, please specify % of fee waived off in case of renewal: _____	
Program	BBA	1. CANDIDATE'S INFORMATION: Name: _____ (First) _____ (Middle) _____ (Last) Father's Name: _____ Alive/Deceased: _____ Guardian's Name (if different): _____ Relationship with Guardian: _____ Father/ Guardian Cell Number: _____ Father/ Guardian Email: _____ DOB: _____ Age: _____ CNIC Number: _____	
Section	7B		
Comments	He should be awarded for 100% Select Percentage <input type="range" value="100"/>		
<input type="button" value="Post Results"/> <input type="button" value="Go back"/>			

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Description:

The panellist will now interview the student and will allocate the percentage of the scholarship and write their comments about the student.

Student Log Form

for

Online ERFA

Version 1

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022



SHAHEED ZULFIKAR ALI BHUTTO
INSTITUTE OF SCIENCE &
TECHNOLOGY KARACHI CAMPUS

Form IV: Student Log Form

Title: Online ERFA Supervisor: Asim Riaz Batch/Sec: 2018/A

Group #: 16 Reg. #: (Group members): 1812134, 1812114.

Sr.	Task Assigned	Due	Task Completed (S)	Date (S)/Sign.
1	Idea Proposals.	11/10/2021	Yes	
2	Meeting with the ERFA Department about the idea.	11/10/2021	Yes	
3	Scope of the Project.	11/10/2021	Yes	
4	Work on Project Proposals.	20/10/2021	Yes	
5	Work on Defense Presentation.	02/11/2021	Yes	
6	SRS Content.	03/11/2021	Yes	
7	UML Diagrams.	10/11/2021	Yes	
8	Work on Feature 1 .	24/11/2021	Yes	
9	Work on Feature 2.	28/11/2021	Yes	

10	Work on Feature 3.	07/01/2022	Yes	
11	Work on Feature 4.	03/02/2022	Yes	
12	Work on Feature 5.	03/02/2022	Yes	
13	Implementing the suggestion from FYP-I final panel.	25/02/2022	Yes	
14	Enhancing the previous features.	05/03/2022	Yes	
15	Work on Feature 6.	11/03/2022	Yes	
16	Work on Feature 7.	25/03/2022	Yess	
17	Work on Feature 8.	31/03/2022	Yes	
18	Work on Feature 9.	19/05/2022	Yes	
19	Work on Feature 10.	31/05/2022	Yes	
20	Work on Feature 11	04/05/2022	Yes	
21	Deployment of the project	06/05/2022	Yes	

Supervisor's Authentication (Completed report): _____

Dated: 06-05-2022

FYP Coordinator Authentication: _____

Dated: 07-05-2022

Gantt Chart

for

Online ERFA

Version 1

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

	ID	Name	Start Date	End Date	Duration	Progress	2021		2022		
							Q3	Q4	Q1	Q2	Q3
1	1	Online ERFA	Oct 11, 2021	Jun 15, 2022	248 days	100					
2	2	Requirements	Oct 11, 2021	Oct 27, 2021	17 days	100					
3	3	Literature Review	Oct 11, 2021	Oct 17, 2021	7 days	100					
4	4	Scope Review	Oct 11, 2021	Oct 17, 2021	7 days	100					
5	5	Project Proposals	Oct 12, 2021	Oct 27, 2021	16 days	100					
6	6	Documentation	Nov 03, 2021	Mar 21, 2022	139 days	100					
7	7	SRS	Nov 03, 2021	Nov 11, 2021	9 days	100					
8	8	SDS	Nov 19, 2021	Mar 21, 2022	123 days	100					
9	9	Test Cases	Nov 19, 2021	Mar 21, 2022	123 days	100					
10	10	FYP - I Features	Nov 03, 2021	Dec 14, 2021	42 days	100					
11	11	User Profile and Roles	Nov 03, 2021	Nov 16, 2021	14 days	100					
12	12	Scholarship Posting from ERFA Portal	Nov 03, 2021	Nov 19, 2021	17 days	100					
13	13	Student Profile	Nov 03, 2021	Dec 09, 2021	37 days	100					
14	14	Dashboard for Students	Nov 03, 2021	Dec 09, 2021	37 days	100					
15	15	Scholarship Post on the Student Portal.	Nov 03, 2021	Dec 14, 2021	42 days	100					
16	16	FYP - II Features	Feb 02, 2022	Jun 10, 2022	129 days	100					
17	17	Applying to Scholarship	Feb 02, 2022	Feb 28, 2022	27 days	100					
18	18	Online Document Verification	Mar 24, 2022	Apr 07, 2022	15 days	100					
19	19	Interview Scheduling for Students	Apr 15, 2022	Apr 26, 2022	12 days	100					
24	24	Interview Scheduling for Panelist	May 16, 2022	May 19, 2022	4 days	100					
20	20	Interview Marking	May 28, 2022	May 30, 2022	3 days	100					
21	21	Application Acceptance	Jun 02, 2022	Jun 05, 2022	4 days	100					
23	23	Scholarship Results Announcement	Jun 06, 2022	Jun 10, 2022	5 days	100					
25	25	Deployment	Jun 12, 2022	Jun 15, 2022	4 days	100					
26	26	Demo Prototype	Jun 12, 2022	Jun 13, 2022	2 days	100					
27	27	Deployment on Cloud	Jun 14, 2022	Jun 15, 2022	2 days	100					miro

Iteration Plan

for

Online ERFA

Version 1

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

15th June 2022

Online ERFA Iterational Iteration Plan

S.No.	Features	FYP-I Iterations			
		Monthly Iteration-I	Monthly Iteration-II	Monthly Iteration-III	Monthly Iteration-IV
F1	User Profile and Roles	Requirements (100%)			
		Design (40%)	Design (100%)		
			Implementation (100%)		
			Testing (50%)		Testing (100%)
F2	Scholarship Posting from ERFA Portal	Requirements (100%)			
			Design (50%)	Design (100%)	
				Implementation (100%)	
				Testing (50%)	Testing (100%)
F3	Student Profile	Requirements (50%)	Requirements (100%)		
				Design (100%)	
				Implementation (100%)	
				Testing (50%)	Testing (100%)
F4	Dashboard for Student	Requirements (50%)	Requirements (100%)		
				Design (100%)	
					Implementation (100%)
					Testing (100%)
F5	Scholarship Post on the Student Portal	Requirements (50%)	Requirements (100%)		
					Design (100%)
					Implementation (100%)
					Testing (100%)
Output Features		F1	F2, F3	F4, F5	

S.No.	Features	FYP-II Iterations			
		Monthly Iteration-I	Monthly Iteration-II	Monthly Iteration-III	Monthly Iteration-IV
F6	Applying to Scholarships	Requirements (100%)			
		Design (100%)			
		Implementation (100%)			
		Testing (50%)			Testing (100%)

F7	Online Document Verification	Requirements (100%)			
		Design (100%)			
		Implementation (100%)			
		Testing (50%)			Testing (100%)
F8	Interview Scheduling	Requirements (100%)			
		Design (50%)	Design (100%)		
			Implementation (100%)		
			Testing (50%)		Testing (100%)
F9	Interview Marking	Requirements (100%)	Requirements (100%)		
		Design (50%)	Design (50%)	Design (100%)	
				Implementation (100%)	
				Testing (50%)	Testing (100%)
F10	Application Acceptance	Requirements (50%)	Requirements (100%)		
			Design (50%)	Design (100%)	
				Implementation (100%)	
				Testing (50%)	Testing (100%)
F11	Scholarship Results Announcement	Requirements (50%)	Requirements (100%)		
			Design (50%)	Design (50%)	Design (100%)
					Implementation (100%)
					Testing (100%)
Output Features		F6, F7	F8	F9, F10	F11

Plagiarism Report

for

Online ERFA

Version 1

Supervisor:
Asim Riaz

Syed Mustafa Imam (1812134)
Hirdesh Kumar (1812114)

Shaheed Zulfikar Ali Bhutto Institute of Science and Technology

24th July 2022

Report

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