

# AIUB One: Project Definition

AIUB One is a complex mobile development aimed at helping simplify and modernize the work with university services for its students. The new approach given by the technological solution is that access to the university portal does not become the same any more but much efficient and customizable using QR codes.

## Key Features:

- **Quick Access Portal:** Keeps an offline copy of the online version which will reduce the hassle of logging into the portal every time. Eventually, it will reduce pressure on the main server.
- **Dynamic Club Management:** Easy club registration, up-to-date information on what is happening on the club and membership e-status.
- **On-the-Go Registration System:** Allows the students to scan some location-specific QR codes to complete registrations in events, courses and activities.
- **Reminder System:** Gives a reminder before important dates like quizzes, term exams, registration or events.
- **Co-curricular Booking:** Modernizing the application system to book slot for playground (Football ground, basketball ground, badminton or volleyball ground) from offline to online. It will make the system more efficient and way managed.
- **Semester Planning:** Often students face problem to plan their courses for next semester. This key feature will sort this problem by suggesting which course they can take next semester based on their current running courses and previously done courses.
- **User-friendly UI:** Class routine, course teacher and other information related to their current course will be shown in a modern and organized way, which will help the students to get exact information they are looking for.
- **Connect with OSA:** Students can write their complain or suggestions for improvement or their issues related to university through the app. It will strong the communication between OSA and students of the university.

It is expected that the application will simplify the administrative burden, increase student interaction and optimize their experience during university years by the use of modern technologies.

# AIUB One: Users Definition

## User: Admin

They can create/delete/modify student or faculty or staff profiles easily. They can do anything that an user (student, faculty, staff) can do depending on their admin role.

- **Faculty Admin:** They can create faculty profile. They can create/modify/delete sections and assign faculties to those sections.
- **Student Admin:** They can create/modify/delete student profiles. If any students faces issue regarding course, student admin will help them out.
- **Co-curricular Admin:** They review slot requests that requested by student.

## User: Faculty

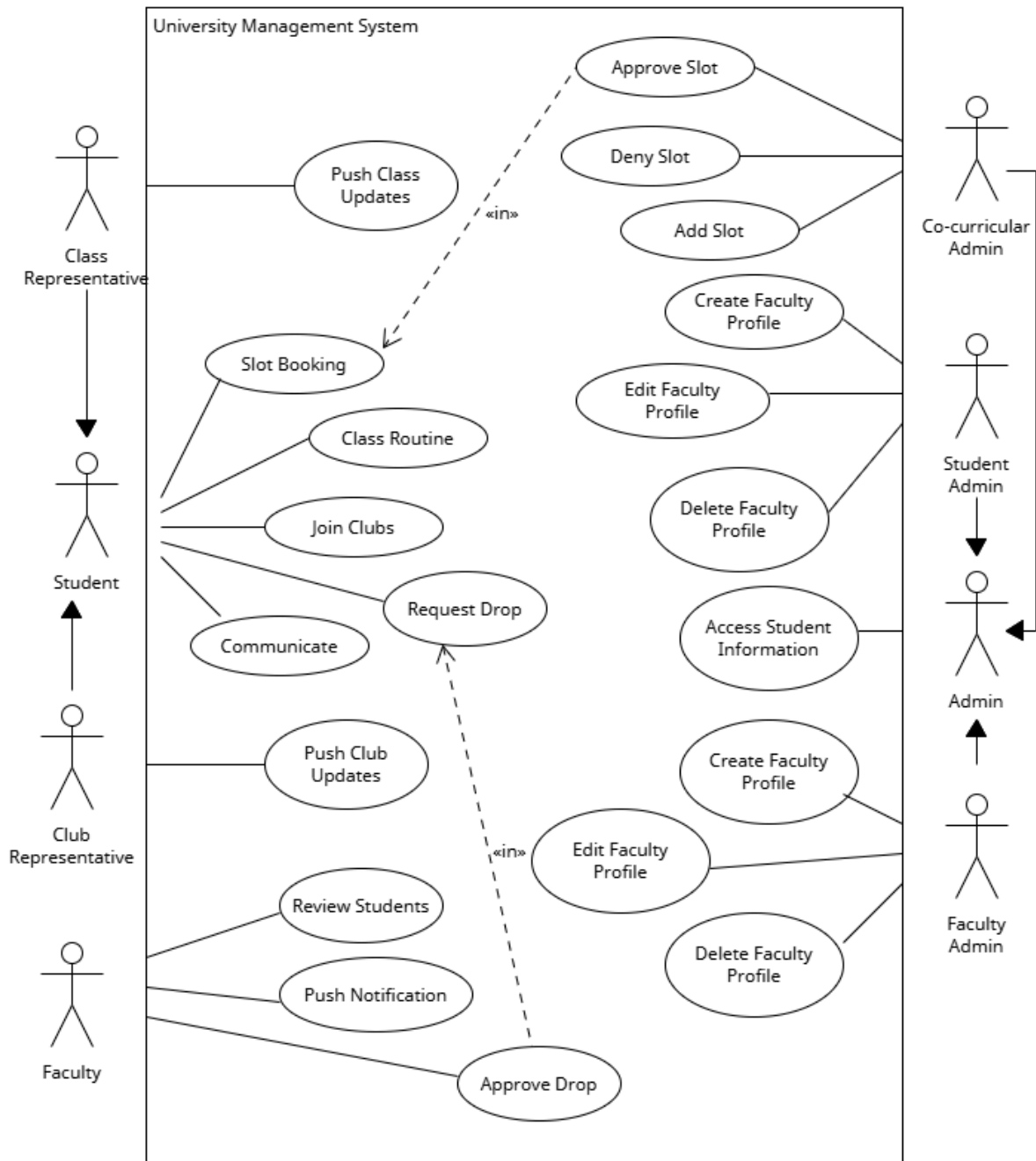
They can review their students in their assigned section, approve students' drop application and also they can push results or notifications to their students.

## User: Student

They can access their class routine, join clubs with an easy QR code scan, and communicate with OSA officials/student co-ordinator. They can book slots for co-curricular activities like football, basketball, volleyball, badminton etc. They will get a reminder regarding important dates like quizzes or term exams.

- **Club Representative:** They can push notifications to their club members regarding important updates.
- **Class Representative:** Quizzes or any important class updates/notifications are being pushed by the class representative. The class representative will be selected by a voting system.

# AIUB One: Use Case Diagram



# AIUB One: User Stories

As A/An	I want to	So that	Acceptance Criteria
Faculty Admin	Create faculty profile	I can maintain faculty information.	Valid name, email and faculty details
	Create sections	I can assign faculties to their respective sections.	Valid Section
	Manage sections	I can change any type or mistakes that has made during creation.	Valid Section
Student Admin	Create student profile	I can maintain students information.	Valid name, email, student ID and other information.
	Update student course	I can help them regarding their course issues.	Valid student with issue regarding course.
Co-Curricular Admin	Review requested slots for playgrounds.	I can schedule playground time.	Valid slot booking.
Supervisor	Create admin profile	I can control admin profile	Valid name, email, and other information.
	Create/modify course	I can add and remove courses	Valid course name and course ID.
Faculty	Review my section's students	I can maintain their curriculum .	Valid section with valid students
	Review drop applications	I can approve or deny a student's course drop application.	Valid drop application
	Push notifications	I can keep updated my students about upcoming curriculum activities like quizzes or important dates.	Valid section with valid students.
	Push results	I can keep track of a student's progress.	Valid student within the section.

Class Representative	Push notifications	I can push quiz notifications on behalf of respected faculty.	Valid student within the section and already elected as CR.
Club Representative	Review club members	I can review my club members who has joined already.	Valid student within same club.
Student	I want to access class routine	I can attend classes without any hassle	Valid student
	Join clubs	I can do my extra curricular activities.	Valid student, Valid club
	Place playground booking	I can practice outdoor games.	Valid student, Valid book type selection
	Attend class representative election	I can help my section as Class Representative	Valid student, Valid section
	Communicate student officials	I can seek for help anytime I face problem.	Valid student

# AIUB One: Product Requirement Document (PRD)

Template Name	AIUB One: Unified University Portal
Goals & Objective	<p>Every university has it's own system to maintain. The goal of this project is to provide efficient portal access for individuals (student, faculties, supervisors) without pressurizing the main server.</p> <p>From this portal a user can</p> <ul style="list-style-type: none"> <li>- Login to portal which will be locally cached, only new data will be stored</li> <li>- Can push results [Faculty]</li> <li>- Can see results [Student]</li> <li>- Can book slot for playgrounds [Student]</li> <li>- Can push notifications [Faculty] [Class Representative]</li> <li>- Can maintain student or faculty profiles [Student Admin] [Faculty Admin] [Supervisor]</li> </ul>
Product Type	Android APP
Domain	University Management System (UMS)
Access Layers	student, student admin, faculty, faculty admin, co-curricular admin, supervisor
Design Required	Yes

Phase	Item No.	Specification [Role]	User Story	Acceptance Criteria	Tags
Phase 1	1	Login UI [Student] [Faculty Admin] [Supervisor]	- <b>As a user, I want to</b> access my dashboard, <b>so that</b> I can get access to my controls.	- Valid login credentials	loginSection
Phase 2	2	Dashboard [Student] [Faculty Admin] [Supervisor]	<p>- <b>As a student, I want to</b> access class routine, <b>so that</b> I can attend classes without any hassle.</p> <p>- <b>As a faculty admin, I want to</b> access my dashboard, <b>so that</b> I can create or modify student or section details.</p> <p>- <b>As a faculty admin, I want</b></p>	<p>- Login function check</p> <p>- If ID is student, load student functions</p> <p>- If ID is faculty, load faculty functions</p> <p>- If ID is faculty admin, load faculty admin functions</p> <p>- If ID is student admin, load student admin functions</p> <p>- If ID is co-</p>	userDashboard

			<p><b>to</b> access my dashboard, <b>so that</b> I can create or modify student or section details.</p> <p><b>-As a</b> Supervisor, I <b>want to</b> access my dashboard, <b>so that</b> I can create admin profile and create or modify courses.</p>	curricular admin, load co-curricular admin functions	
Phase 3	3	Create Profiles [Faculty Admin] [Student Admin] [Supervisor]	<p><b>- As a</b> faculty admin, <b>I want to</b> create a faculty profile, <b>so that</b> I can maintain faculty information.</p> <p><b>- As a</b> student admin, <b>I want to</b> create a student profile, <b>so that</b> I can maintain them.</p> <p><b>- As a</b> system admin, <b>I want to</b> create new admin profiles, <b>so that</b> I can maintain the whole system.</p>	<p><b>- Email</b> (input) field should only accept valid unregistered email address as input, otherwise will show an 'email already used' message.</p> <p><b>- Password</b> (input) should be minimum 8 characters long. Otherwise show an invalid message.</p> <p><b>- Re-password</b> (input) should match password. Otherwise show 'password do not match' message.</p> <p><b>- User type</b> must be selected. Otherwise show 'Please select a user type'.</p> <p><b>- On clicking</b> signup button, credential will be stored in</p>	createProfile



				<p>database, user will be redirected to his dashboard.</p> <ul style="list-style-type: none"> <li>- A copy of the login information will be sent to the registered email.</li> </ul>	
	4	Add Course [Supervisor]	<ul style="list-style-type: none"> <li>- <b>As a supervisor, I want to</b> add new courses to my system, <b>so that</b> I can give student admin access to assign the courses.</li> </ul>	<ul style="list-style-type: none"> <li>- Valid course name that should only accept <b>unregistered</b> course.</li> <li>- Name should have <b>at least</b> 5 characters long.</li> <li>- Every course must have a <b>course ID</b>.</li> <li>- Courses can have <b>prerequisites</b>. (Optional)</li> </ul>	addCourse
	5	Create Sections [Faculty Admin]	<ul style="list-style-type: none"> <li>- <b>As a faculty admin, I want to</b> create sections, <b>so that</b> I can assign faculties.</li> </ul>	<ul style="list-style-type: none"> <li>- Valid course should be <b>selected</b> and <b>section name/character</b> should not exist for that specified course.</li> </ul>	createSection
Phase 4	6	View Routine [Student]	<ul style="list-style-type: none"> <li>- <b>As a student, I want to</b> view my class schedule easily, <b>so that</b> I can main my daily schedule.</li> </ul>	<ul style="list-style-type: none"> <li>- Valid student with <b>valid credentials</b></li> </ul>	userDashboard [Student]
	7	Submit Drop Application [Student]	<ul style="list-style-type: none"> <li>- <b>As a student, I want to</b> submit a drop application to my faculty, <b>so that</b> I can withdraw from a course before the deadline.</li> </ul>	<ul style="list-style-type: none"> <li>- Valid <b>drop application</b></li> </ul>	

	8	Join Club [Student]	- <b>As a student, I want to</b> join club, <b>so that</b> I can main my extra curricular activities.	- Valid student - Valid club	
	9	Playground Booking [Student]	- <b>As a student, I want to</b> book slot for playground, <b>so that</b> I can play on the specified time.	- Valid Student - Valid slot type - Valid timeframe	
	10	Attend Class Representative Election [Student]	- <b>As a student, I want to</b> attend class representative election, <b>so that</b> I can be either candidate or cast my vote.	- Valid student - Valid section	
Phase 5	11	Review Section [Faculty]	- <b>As a faculty, I want to</b> review my sections, <b>so that</b> I can maintain their curriculum.	- Valid faculty - Valid section	userDashboard [Faculty]
		Review Drop Application [Faculty]	- <b>As a faculty, I want to</b> review my section's drop application, <b>so that</b> I can approve or deny a student's course drop application.	- Valid faculty - Valid <b>drop application</b> from valid student	
		Push notifications [Faculty]	- <b>As a faculty, I want to</b> push notifications to my section, <b>so that</b> I can keep updated my students about upcoming curriculum activities like quizzes or	- Valid faculty - Valid section - Valid notification	

			important dates.		
		Publish results [Faculty]	- <b>As a</b> faculty, <b>I want to</b> publish results, <b>so that</b> I can keep track of a student's progress.	- Valid faculty - Valid course - Valid student	
Phase 6	12	Push notifications [Class Representative]	- <b>As a</b> class representative, <b>I want to</b> push notifications to my section on behalf of my faculty, <b>so that</b> I can help faculty to bridge with students.	- Valid student - Valid class representative	userDashboard [Student]
	13	Review Club Members [Club Representative]	- <b>As a</b> class representative, <b>I want to</b> review my club members, <b>so that</b> I can review my club members who has joined already.	- Valid student - Valid club - Valid club representative	
	14	Connect with OSA [Student]	- <b>As a</b> student, <b>I want to</b> communicate with OSA, <b>so that</b> I can seek for help anytime I face problem.	- Valid student - Valid message	

# AIUB One: Project Estimation

## Effort Estimation:

$$E = [LOC \times B^{0.333}/P]^3 \times (1/t^4)$$

Where,

$$LOC = 50,000$$

$$t = 2.5 \text{ months}$$

$$B = 1.1$$

$$P = 1118$$

$$\begin{aligned} E &= [50,000 \times (1.1)^{0.333}/1118]^3 \times (1/(2.5)^4) \\ &= 1.181 \text{ person-months} \end{aligned}$$

## COCOMO:

$$SLOC = 45,000$$

$$\text{Project complexity, } P = 1.05$$

$$\text{SLOC dependent coefficient, } T = 0.38$$

$$\begin{aligned} \text{Effort} = PM &= \text{Coefficient} \times \text{Effort Factor} \times (SLOC/1000)^P \\ &= 2.4 \times (45,000/1000)^{1.05} \\ &= 130.6424 \end{aligned}$$

$$\begin{aligned} \text{Development Time} = DM &= 2.50 \times (PM)^T \\ &= 2.50 \times (130.6424)^{0.38} \\ &= 15.9 \end{aligned}$$

**Required number of people = ST**

**= PM/DM**

= 130.6424/15.9

= 8.22

~ 9

# AIUB One: Earned Value Analysis (EVA)

Task	Planned Effort	Actual Effort
1	15.00	14.5
2	18.00	15
3	13.5	15.5
4	12.00	13.00
5	13.00	7.00
6	16.00	14.5
7	5.50	5
8	13.5	13
9	5.00	9.00
10	14	12.5
11	13.5	0
12	8.50	0
13	6.00	0
14	7.00	0
Task Total = 14	BCWP = 125.5	ACWP = 119.00
-	BCWS = 160.5	-
16	8.00	8.30
17	7.00	7.30
18	16.00	15.60
19	5.50	3.45
20	13.00	13.10
21	12.00	10.00
22	10.40	10.60
23	8.00	7.00
24	5.50	3.20
25	12.00	15.10

26	5.50	2.90
27	8.60	9.00
28	9.70	10.50
29	5.50	4.00
30	0.50	2.30
31	1.50	3.45
32	12.00	11.90
33	4.60	3.20
34	7.00	5.20
35	5.50	-
36	12.00	-
37	6.60	-
38	7.50	-
39	12.00	-
40	7.00	-
Given Total Task=100	Effort estimated=730.25325 Person Day	-

BCWP = 254

BCWS = 292.1013

ACWP = 264.18

BAC = 730.25325 person-day

**SPI = BCWP/BCWS**

= 254/292.1013

= 0.87

**SV = BCWP-BCWS**

= 254-292.1013

= -38.1013 person-day

**CPI = BCWP/ACWP**

$$= 254/264.18$$

$$= 0.96$$

$$\mathbf{CV = BCWP - ACWP}$$

$$= 254 - 264.18$$

$$= -10.18 \text{ person-day}$$

$$\mathbf{\% \text{ schedule for completion} = BCWS/BAC}$$

$$= 292.1013/730.25325$$

$$= 40\%$$

[% of work scheduled to be done at this time]

$$\mathbf{\% \text{ complete} = BCWP/BAC}$$

$$= 254/730.25325$$

$$= 34.7\%$$

[% of work completed at this time ]