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Hostel Management System

Institute of Business Administration, Karachi

WORKFLOW DOCUMENTATION — Module 1 & 2: Room Allocation & Mess Subscription			
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Program	BSCS	**Course**	Web-Based Application Development
Version	1.0 — Final	**Date**	February 2026
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1.   Document Overview

This document covers **Module 1: Hostel Room Allocation** and **Module 2: Mess Subscription & Billing** within HMS.iba.edu.pk, an integrated extension of the UMS portal at IBA Karachi.

Module	Title	Actor(s)	Scope
Mod. 1	Hostel Room Allocation	Student + Admin	Application & Room Assignment
Mod. 2	Mess Subscription & Billing	Student + Mess Manager	Meal Ordering & Billing

Student
Applies for room, orders meals, tracks status.

Hostel Admin
Reviews, approves/rejects, allocates rooms.

Mess Manager
Manages meal plans and subscriptions.

2.   Module 1: Hostel Room Allocation

2.1 Objective

Allow students to digitally apply for hostel accommodation and receive room allocation through HMS portal after admin review, replacing the previous manual system.

Preconditions: Student registered & logged in   > On Hostel Dashboard   > Available rooms exist   > No existing room for same term

2.2 Workflow

Login → Fill Form → Submit → Admin Review → Allocate Room → Notify Student → Done

2.3 Step-by-Step Workflow

#	Step	Description
1	Login	Authenticate via ERP ID & password. Dashboard shows Name, ERP, Program, Term, Status, Balance. Click *Apply for Room*.
2	Form Load	Auto-populated read-only fields: Full Name, ERP ID, Program, Gender. Note shown: *"Room selection is performed by admin."*
3	Select Term	Choose from: Spring 2026	Summer 2026	Fall 2026	Spring 2027. Only editable input field.
4	Submit	Validates term selected. Generates Application ID, status = *Pending*. Success message displayed.
5	Admin Reviews	Admin sees: App ID, Student Name, ERP, Program, Term, Applied On, Status, Action.
6	Allocate Room	Admin selects room (e.g. 101-A, 205-B), clicks *Approve & Allocate*. Or clicks *Reject*.
7	Notify Student	Banner: *"You have been allocated Room [X] for [Term]. Welcome to the hostel!"*

2.4 Application Status Reference

PENDING Awaiting admin review	**APPROVED** Room allocated	**REJECTED** Admin denied	**ALLOCATED** Confirmed & notified

2.5 Data Schema — Room Applications Table

Field	Type	Required	Description
application_id	UUID	Auto	Unique ID auto-generated at submission
student_id	INT / FK	Auto	Foreign key to students table
student_name	VARCHAR	Auto	Pulled from student profile (read-only)
term	VARCHAR	Required	Selected term (e.g., Spring 2026)
status	ENUM	Auto	Pending	Approved	Rejected
allocated_room	VARCHAR	Admin	Room number; NULL until allocated
applied_on	DATETIME	Auto	Timestamp of form submission

3. Module 2: Mess Subscription & Billing

3.1 Objective

Enable hostel residents to subscribe to mess meal plans and manage billing through the hostel dashboard, with dynamic total calculation and full billing history.

3.2 Available Meal Plans

Sehri **PKR 350 / day** Pre-dawn meal before Fajr prayer	Iftar **PKR 200 / day** Break-fast at sunset; dates, drinks & light food	Dinner **PKR 220 / day** Rice/bread, curry, salad & dessert

> **Available window:** 18 February 2026 — 19 March 2026   **Maximum duration:** 29 days within the window

3.3 Workflow

Navigate to Mess → Select Meals → Pick Dates → Review Summary → Place Order → View Billing

3.4 Step-by-Step Workflow

#	Step	Description
1	**Navigate**	Click *Apply for Mess* from dashboard. Loads Mess Management with two tabs: **Order Meals** and **Subscriptions**.
2	**Select Meals**	Review plans: Sehri (PKR 350), Iftar (PKR 200), Dinner (PKR 220). Click *Select* for one or more. Selections visually highlighted.
3	**Pick Dates**	Start & End Date pickers (18 Feb – 19 Mar 2026). System auto-calculates Total Days. Invalid dates prevented.
4	**Review Summary**	Panel shows: Selected Meals, Duration, Daily Rate, Total Amount. All update in real time as selections change.
5	**Place Order**	Validates: at least 1 meal AND both dates provided. Generates Order Number, saves as *Active*.
6	**View Billing**	*Subscriptions* tab: Order #, Meal Types, Rates, Total, Start/End Date, Status (Active/Paid).

3.5 Data Schema — Subscriptions Table

Field	Type	Required	Description
order_id	UUID	Auto	Unique order number, auto-generated
student_id	INT / FK	Auto	FK from students table via session
meal_types	VARCHAR[]	**Required**	Array: Sehri, Iftar, Dinner
total_amount	DECIMAL	Auto	sum(rates/day) x total_days
start_date / end_date	DATE	**Required**	Student-selected subscription dates
status	ENUM	Auto	Active | Paid | Cancelled
subscribed_on	DATETIME	Auto	Timestamp when order was placed

4. Validation & Business Rules

#	Rule	Module	Detail
1	Term selection mandatory	Room Application	Cannot submit without a hostel term selected
2	Room is admin-assigned only	Room Application	Students cannot request a specific room
3	One application per term	Room Application	Duplicate applications for same term blocked
4	At least one meal required	Mess Order	Order blocked without selecting a meal type
5	Both dates required	Mess Order	Start and end dates must both be provided
6	Date range validation	Mess Order	Dates must be within 18 Feb – 19 Mar 2026
7	Start before end date	Mess Order	Chronological order enforced by system
8	Auto-fill from session	Both	Name, ERP, Program non-editable by student
9	Status is system/admin only	Both	Status changes not available to students
10	Total auto-calculated	Mess Order	sum(rates) x duration; not user-editable

5. GitHub & Conclusion

Repository: https://github.com/Sagarlekhraj-19/HMS.iba.edu.pk **Owner:** Sagar Lekhraj **TAs:** adeenaoop, Muh-Aqib-Shah **Strategy:** Individual feature branches merged to main on completion

Module 1 and Module 2 establish the core digital hostel lifecycle for IBA students. The Room Allocation workflow delivers transparent, admin-controlled room assignment with real-time status tracking. The Mess Subscription workflow empowers students to manage meal planning with dynamic billing and full history. Together, these modules replace manual hostel administration with an efficient, traceable, and user-friendly digital system.

End of Document | Module 1 & 2: Room Allocation & Mess Subscription | HMS.iba.edu.pk | v1.0