User

+ user_id : int
+ name: String
+ email : String
+ role : String

+ login()
+ logout()
+ accessSystem()

Admin

+ manageHostelOperartions()
+ overseeComplaints()
+ monitorsReports()

Student

+ roomNumber() : String

+ submitComplaint()
+ requestFood()
+ askChatbot()
+ reportLostitem()
+ viewCleaningSchedule()
+ bookWashingMachine()
+ findRoommateMatch()

Warden

+ assignedHostel : String

+ approveRequests()
+ monitorComplaints()
+ monitorCleaningSchedules()

MaintenanceStaff

+ StaffArea : String

+ ResolveComplaints()
+ manageRoomCleaning()

monitors

WashingMachineBooking

+ bookid_id : int
+ StudentName : String
+ roomNumber : String
+ machine_id : int
+ time_slot : String
+ status : String

+ bookWashingMachine()
+ cancelBooking()

ChatbotQuery

+ query_id : int
+ question : String
+ response : String

+ getChatbotResponse()

RoommateMatching

+ id : int
+ studentName : String
+ preferences : String
+ compatibilityScore : float

+ findRoommateMatch()

LostAndFound

+ lost_item_id : int
+ StudentName : String
+ description : String
+ status : String

+ reportLostItem()
+reportFoundItem()

FoodRequest

+ request_id : int
+ StudentName : String
+ roomNumber : String
+ illnessDetails : String
+ status : String

+ submitFoodRequest()

Complaint

+ complaint_id : int
+ StudentName : String
+ roomNumber : String
+ details : String
+ status : String

+ submitComplaint()

RoomCleaningSchedule

+ schedule_id : int
+ roomNumber : String
+ cleaningTime : String

+ viewCleaningSchedule()

books
sends
matches
reports
requests
submits
approves
resolves
manages
monitors
oversees

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Sequence Diagram

Participants: Student, Mobile App, Complaint API, Database, Warden, Maintenance Staff

Student → Mobile App: Submit Complaint
Mobile App → Complaint API: API Request
Complaint API → Database: Store in Database

Alternative

[If Database is up]
Database --> Complaint API: Confirm Storage
Complaint API --> Mobile App: Return Success
Mobile App → Student: Show Confirmation

[else]
DB Unavailable
Complaint API --> Mobile App: Return Error
Submission Failed

Warden reviews complaint
Warden → Database: Fetch Complaints
Database --> Warden: Retrieve from DB
Database --> Warden: Show Complaints

frame

[If warden approves]
Warden → Maintenance Staff: Approve and assign
Warden → Database: Assign to staff
Database --> Warden: Notify Assignement

[else]
Warden → Maintenance Staff: Reject Complaint
Warden → Database: Update Status
Database --> Warden: Mark as "Rejected"
Warden --> Maintenance Staff: Notify Student
Database --> Warden: Show "Complaint Rejected"

Maintenance staff resolves complaint
Maintenance Staff → Warden: View assigned complaints
Warden → Maintenance Staff: Fetch from DB
Maintenance Staff --> Warden: Return Complaint
Warden → Maintenance Staff: Mark as resolved
Maintenance Staff → Warden: Update DB
Maintenance Staff --> Warden: Confirm Resolution