Dormzz: Hostel Management System

A project submitted to

UKA TARSADIA UNIVERSITY

in partial fulfillment of the requirements for the degree of

Bachelor of Science

in

Information Technology

for

5 Years Integrated M.Sc.(IT)

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CERTIFICATE

This is to certify that **Parth Desai (202003103410001)** and **Pooja Patel (202003103410001)** has submitted project entitled "**Dormzz : Hostel Management System"** as the partial fulfillment for the award of the degree of Bachelor of Science in Information Technology for 5 Years Integrated M.Sc.(IT) in 2020 – 2021.

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1.Introduction

1.1 Problem Definition

A Hostel/Chain of Hostel is an essential part of an Institute along with educational curriculum. Every year hundreds of students takes admission and decides to stay in Hostel. It Provides a space to students who are unable to travel a lot or who are living much far away from the institute or are unaware of the surroundings to live with. The best hostel management systems not only allow the admin, owner or staff members to manage the various aspects of the business from one location, they offer the possibility for employees to access the system remotely, and the information that is updated within the system to all the employees automatically.

Finding a PG is not easy sometimes because there are lots of essential tasks that are needed to be done in order to finalize a place to live-in such as finding a good PG situated not very far from the institute, availability of the life essential things, amenities etc. and importantly, living in a Hostel helps students save their traveling time and utilize this time into many different useful areas. Therefore, a good platform must be required to provide all the useful privileges to find a Hostel and book a place that comforts them.

1.2 Project Definition / Objective

Dormzz: The Hostel Management System allows to use wide range of loaded features online which are usually not provided to the students or staff members due to unapproachable resources. Given below are the key features of the system that the students and staff will be able to use:

- Booking Rooms
- Online Payment
- Saving Transportation Time
- Daily Activities and Games
- Cleanliness and Hygiene
- Counseling
- Events
- Proper Maintained Schedule
- Immediate Health assist/support.

1.3 Scope / Boundaries

The Scope of the system is limited to the stack holders of the Uka Tarsadia University, Bardoli. Viz. Admin, Staff and Students. This system is designed to be used for the long period of time over the number of new batches.

2. Overall Description

2.1 Product Perspective / Environment Description

2.1.1 Hardware Interface / Hardware Specification

Device name	PARTHs-DESKTOP
Processor	Intel(R) Core (TM) i5-1035G1 CPU @ 1.00GHz 1.19 GHz
Installed RAM	16.0 GB
System type	64-bit operating system, x64-based processor
Hard Disk	512 GB

2.1.2 Software Interface / Software Specification

Operating System	Microsoft Windows 11
Front End	HTML, CSS, JS, Bootstrap
Back End	Mysql, JSP
Input Device	Keyboard, Mouse
Output Device	Monitor, Printer
Software Used	Eclipse IDE, Visual Studio Code (Version 1.69.0)
Tools	Tomcat, MYSQL Server

3. System Specific Requirements

3.1 Functional Requirements

- Registration
- Login
- Add contact details
- View Dashboard
- Add / Update Posts/Notices
- Manage User Profiles (All users)
- Manage Packages
- Manage Rooms
- Book Rooms
- Manage Mess Information
- Manage Events / Activities
- Manage Leaves
- Manage Requests
- Manage Complains
- Manage Duties
- View Feedbacks, Ratings, Portfolio

3.2 Non-Functional Requirements

- Security: The System will be able to Manage stored Payment Options
- Reliability: The System will be reliable on Enrollment Number and Institute Id.
- Compatibility: The System will be compatible with different OS and Devices.
- Useability: The System will be able to Provide Easy-to-Use Interface to for Users.
- Availability: The System will be able to provide all the necessary data under regular traffic as well as critical situations.
- Simplicity: The System will be able to perform simple tasks and Operations.

4. System Design

4.1 Database Design:

4.1.1 Database Schema

- 1. Table Name: tblRegister tblRegister (user_id[PK], EnrollmentNo, CourseName, DepartmentName, Username, Password, FirstName, LastName, Gender, Email, PhoneNo)
- Table Name: tblStudent tblStudent (user_id[PK], Club_id[FK], Profile_img)
- Table Name: tblStaff tblStaff (user_id[PK], role_id[FK],)
- Table Name: tblRole tblRole(Role_id[PK], Role_type)
- 5. Table Name: tblHostel tblHostel (Hostel_id[PK], Capacity, Hostel_Name, Hostel_Category, Hostel_Status, Hostel_Distance, Hostel_Type, Available_Rooms, user_id[FK], Mess_ID[FK], Address, Hostel_Floor, Hostel_Map)
- 6. Table Name: tblRoom tblRoom_id[PK], Room_Type_id[FK], Hostel_id[FK])
- Table Name: tblRoomType tblRoom (Room_Type_id[PK], Room_Type, Room_Capacity, Room_Facilities_id[FK])
- 8. Table Name: tblRoomFacilities tblRoomFacilities (Room_Facilities_id[PK], Room_Facilities)
- Table Name: tblMess tblMess(Mess_id[PK], Mess_Name, user_id[FK], Hostel_id[FK], MessMenu_id[FK])
- 10. Table Name: tblMess_Menu tblMess_Menu_id[PK], Menu_Day, Menu_Time, Dish_id[FK])
- 11. Table Name : tblDish tblMess(Dish_id[PK], DishName)

12. Table Name: tblPackage tblPackage [Package_id[PK], Package_Name, Package_Description, Package_Price, Package_Valid_From, Package_Valid_To)

13. Table Name: tblHostel_Record tblHostel_Record (Record_id[PK], user_id[FK], Hostel_id[FK], Room_id[FK], Room_Type_id[FK], Timestamp_Check_Out, Timestamp_Check_In, User_Status)

14. Table Name: tblTransaction tblTransaction (Trn_id[PK], user_id[FK], Record_id[FK], Package_id[FK], Trn_Timestamp, Trn_Amount, Trn_Mode, Trn_refference_id, Trn_Status)

15. Table Name: tblComplain tblComplain (Cmp_id[PK], Cmp_Type_id[FK], user_id[FK], Cmp_Timestamp, Cmp_Brief, Cmp_Remarks, Cmp_Status, Cmp_ClosedBy, Cmp_UpdatedTS)

16. Table Name : tblComplain_Type tblComplain_Type (Cmp_Type_id[PK], Cmp_Type, ReC_Type)

17. Table Name: tblRequest tblRequest (Req_id[PK], Req_Type_id, user_id[FK], Req_Timestamp, Req_Brief, Req_Remarks, Req_Status, Req_UpdatedBy, Req_UpdatedTS)

18. Table Name: tblFeedback tblFeedback (Fdb_id[PK], user_id, Fdb_Timestamp, Fdb_Brief)

19. Table Name: tblEvent tblEvent (Event_id[PK], Event_Name, Event_Date)

20. Table Name: tblClub tblClub (Club_id[PK], Club_Name, user_id, Event_id)

21. Table Name: tblNotice tblNotice (Notice_id[PK], Notice_Brief, user_id, Notice_Timestamp)

22. Table Name: tblLeave tblLeave (Leave_id[PK], user_id[FK], Leave_Reason, Leave_From, Leave_To, Leave_Status, Leave_Remarks, Leave_ApprovedBy)

4.1.2 Data Dictionary

1. Table Name: tblRegister

tblRegister					
Field Name	Datatype	Size	Constraint	Description	
user_id	int	7	Primary Key	Unique id of Users	
EnrollmentNo	big int	9	Not Null	Enrollment Numbers of User	
CourseName	Varchar	500	Not Null	Current Course Pursuing	
DepartmentName	Varchar	500	Not Null	Department Name	
Username	Varchar	100	Not Null	User Account id	
Password	Varchar	255	Not Null	User Account Password	
FirstName	Varchar	100	Not Null	First Name of the User	
LastName	Varchar	100	Not Null	Last Name of the User	
Gender	Varchar	10	Not Null	Gender of User	
Email	Varchar	500	Not Null	Email id of the User	
PhoneNo	Numeric	10	Not Null	Phone number of the User	

2. Table Name: tblStudent

tblStudent				
Field Name	Datatype	Size	Constraint	Description
user_id	int	7	Primary Key	Unique id of Users
Club_id	int	6	Foreign Key	Unique id of Club
Profile_img	Varchar	800	./Image/default_profile.jpeg	Default Path of Profile Pic

3. Table Name: tblStaff

tblStaff				
Field Name	Datatype	Size	Constraint	Description
user_id	int	7	Primary Key	Unique id of Users
Role_id	int	5	Foreign Key	Unique id of Role
Hostel_id	Bigint	7	Foreign Key	Id of Hostel

4. Table Name: tblRole

tblRole				
Field Name	Datatype	Size	Constraint	Description
Role_id	Int	5	Primary Key	Unique id of Role Type
Role_Type	Varchar	100	Not Null	Type of Role

5. Table Name: tblHostel

tblHostel				
Field Name	Datatype	Size	Constraint	Description
Hostel_id	Int	7	Primary Key	Unique id of Hostel
Capacity	Int	3	Not Null	Capacity of a Hostel
Hostel_Name	Varchar	500	Not Null	Name of the Hostel
Hostel_Category	Varchar	50	Not Null	Category of Hostel (Male/Female)
Hostel_Status	Varchar	100	Not Null	Status of Hostel
Hostel_Distance	Varchar	10	Not Null	Distance of Hostel from Campus
Hostel_Type	Varchar	200	Not Null	Type of Hostel
Available_Rooms	Int	100	Not Null	Availability of the Rooms
user_id	Int	7	Foreign Key	Unique Staff id of Rector
Mess_id	Int	3	Foreign Key	Unique Mess id of Mess
Address	Varchar	500	Not Null	Address of the Hostel
Hostel_Floor	Int	3	Not Null	Number of Floor of Hostel
Hostel_Map	LongText	65000	Not Null	Map of Rooms of Hostel

6. Table Name: tblRoom

tblRoom					
Field Name	Datatype	Size	Constraint	Description	
Room_id	Int	5	Primary Key	Unique id of Room	
Room_Type_id	Varchar	4	Foreign Key	Unique id of Room Type	
Hostel_id	int	7	Foreign Key	Unique id of Hostel	

7. Table Name: tblRoomType

tblRoomType					
Field Name	Datatype	Size	Constraint	Description	
Room_Type_id	Int	5	Primary Key	Unique id of Room Type	
Room_Type	Varchar	20	Not null	Type of Room	
Room_Capacity	int	2	Not null	Capacity of the Room	
Room_Facilities_id	Varchar	250	Foreign Key	Unique id of Facilities Provided	

8. Table Name: tblRoomFacilities

tblRoomFacilities				
Field Name	Datatype	Size	Constraint	Description
Room_Facilities_id	Int	5	Primary Key	Unique id of Facilities Provided
Room_Facilities	Varchar	80	Not Null	Facilities Provided in Rooms

9. Table Name: tblMess

tblMess				
Field Name	Datatype	Size	Constraint	Description
Mess_id	int	3	Primary Key	Unique id of Mess
Cateres_Name	Varchar	500	Not Null	Name of Mess Cateres
user_id	Big Int	7	Foreign Key	Unique id of Staff Members only
Hostel_id	Big Int	7	Foreign Key	Unique id of Hostel
MessMenu_id	Big Int	5	Foreign Key	Unique id of Mess Menu

10. Table Name : tblMess_Menu

tblMess_Menu					
Field Name	Datatype	Size	Constraint	Description	
MessMenu_id	Int	5	Primary Key	Unique id of Mess Menu	
Menu_Day	Date		Not Null	Day of Menu Applicable	
Menu_Time	Time		Not Null	Time of Day Menu Applicable	
Dish_id	Varchar	10000	Foreign Key	Unique id of Dishes	

11. Table Name : tblDish

tblDish					
Field Name	Datatype	Size	Constraint	Description	
Dish_id	Big Int	6	Primary Key	Unique id of Dishes	
DishName	Varchar	800	Not Null	Name of Dishes	

12. Table Name : tblPackage

tblPackage				
Field Name	Datatype	Size	Constraint	Description
Package_id	Big Int	7	Primary Key	Unique id of Packages
Package_Name	Varchar	50	Not Null	Name of Package
Package_Description	Varchar	900	Not Null	Description about Package
Package_Price	Big Int	7	Not Null	Price of Package
Package_Valid_From	Date		Not Null	Date of Package Validity
Package_Valid_To	Date		Not Null	Expiry Date of Package

13. Table Name : tblHostel_Record

tblHostel_Record				
Field Name	Datatype	Size	Constraint	Description
Record_id	Big Int	10	Primary Key	Unique id of Hostel Record
Trn_id	Big Int	12	Null	Id of Transactions
user_id	Int	7	Foreign Key	Unique id of Users
Hostel_id	Int	7	Foreign Key	Id of Hostel
Room_id	Int	5	Foreign Key	Unique id of Room
Timestamp_Check_Out	DateTime		Not Null	Timestamp of Check out
Timestamp_Check_In	DateTime		Not Null	Timestamp of Check in
User_Status	Varchar	7	Not Null	Status of User Account

14. Table Name: tblTransaction

tblTransaction					
Field Name	Datatype	Size	Constraint	Description	
Trn_id	Big Int	12	Primary Key	Unique id of Transaction	
user_id	Big int	7	Foreign Key	Unique id of Users	
Record_id	Big Int	10	Foreign Key	Unique id of Hostel Record	
Trn_Timestamp	Date		Current TS	Timestamp of Transaction	
Trn_Amount	Double		Not Null	Amount of Hostel Fees / Package	
Trn_Mode	Varchar	200	Not Null	Mode of Transaction / Payment	
Trn_refference_id	Varchar	15	Not Null	Reference number of Transaction	
Trn_Status	Varchar	200	Not Null	Status of the Transaction	

15. Table Name : tblComplain_Type

tblComplain_Type				
Field Name	Datatype	Size	Constraint	Description
Cmp_Type_id	Big Int	5	Primary Key	Unique id of Complain Type
Cmp_Type	Varchar	50	Not Null	SubType of Complain
ReC_Type	Varchar	50	Not Null	Type of Complain

16. Table Name : tblComplain

tblComplain					
Field Name	Datatype	Size	Constraint	Description	
Cmp_id	Big Int	9	Primary Key	Unique id of Complain	
Cmp_Type_id	Big Int	5	Foreign Key	Unique id of type of Complain	
user_id	Big Int	7	Foreign Key	Unique id of Users	
Cmp_Timestamp	DateTime		Current TS	Timestamp of Complain Generated	

Cmp_Brief	Varchar	500	Not Null	Complain in Brief
Cmp_Remarks	Varchar	500	Null	Reply of the Complain
Cmp_Status	Varchar	50	Not Null	Status of the Complain
Cmp_ClosedBy	Big Int	7	Null	Id of staff who closed complain
Cmp_UpdatedTS	Timestamp		Current	Current TimeStamp

17. Table Name : tblRequest

tblRequest				
Field Name	Datatype	Size	Constraint	Description
Req_id	Big Int	9	Primary Key	Unique id of Request
Req_Type_id	Big Int	5	Foreign Key	Id of SubRequest Type
user_id	Big Int	7	Foreign Key	Unique id of Users
Req_Timestamp	DateTime		Not Null	Timestamp of Request Generated
Req_Brief	Varchar	500	Not Null	User Account Password
Req_Remarks	Varchar	500	Null	Reply of the Request
Req_Status	Varchar	50	Not Null	Status of the Request
Req_UpdatedBy	Big Int	7	Not Null	Id of staff who updated request
Req_UpdatedTS	TimeStamp		Not Null	Current TimeStamp

18. Table Name : tblFeedback

tblFeedback					
Field Name	Datatype	Size	Constraint	Description	
Fdb_id	Big Int	9	Primary Key	Unique id of Feedback	
user_id	Big Int	7	Primary Key	Unique id of Users	
Fdb_Timestamp	DateTime		Not Null	Feedback Timestamp	
Fdb_Brief	Varchar	800	Not Null	Feedback of the User	

19. Table Name : tblEvent

tblEvent				
Field Name	Datatype	Size	Constraint	Description
Event_id	Big Int	8	Primary Key	Unique id of Events
Event_Name	Varchar	Max	Not Null	Name of the Event
Event_Date	DateTime		Not Null	Date and Time of the Event

20. Table Name: tblClub

tblClub				
Field Name	Datatype	Size	Constraint	Description
Club_id	Big Int	7	Primary Key	Unique id of Club
Club_Name	Varchar	100	Not Null	Name of the Club
user_id	Big Int	7	Foreign Key	Unique id of Users
staff_id	Big Int	7	Foreign Key	Unique id of Staff Member

21. Table Name: tblNotice

tblNotice									
Field Name	Datatype	Size	Constraint	Description					
Notice_id	Big Int	9	Primary Key	Unique id of Notice					
Notice_Brief	Varchar	Max	Not Null	Notice in Brief					
user_id	Big Int	7	Foreign Key	Unique id of Users					
Notice_Timestamp	Datetime		Not Null	Timestamp of Notice Generated					

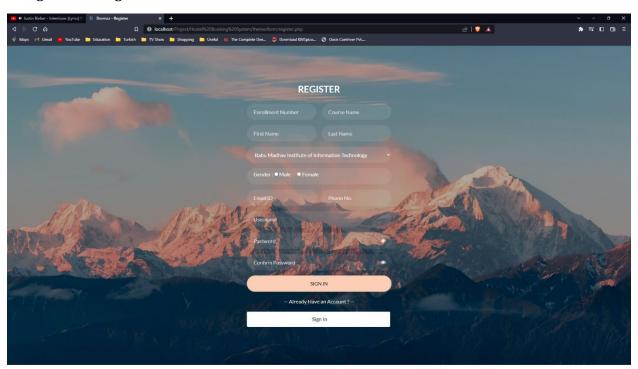
22. Table Name: tblLeave

tblLeave					
Field Name	Datatype	Size	Constraint	Description	
Leave_id	Big Int	9	Primary Key	Unique id of Blog	
User_id	Big Int	7	Foreign Key	Unique id of User	
Leave_Reason	Varchar	100	Not Null	Title of the Blog	
Leave_From	DateTime		Not Null	Timestamp of Leave Starting Day	
Leave_To	DateTime		Not Null	Timestamp of Leave Ending Day	
Leave_Status	Varchar	10	Not Null	Status of the Leave	
Leave_Remarks	Varchar	500	Null	Remarks of Staff regarding leave	
Leave_ApprovedBy	Big Int	7	Null	Id of Staff who approved Leave	

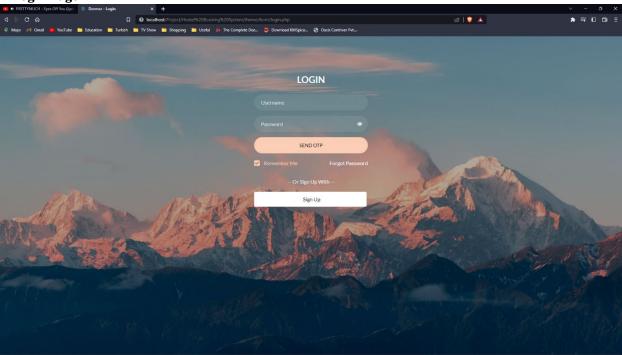
5. System Implementation

5.1 Screenshots:

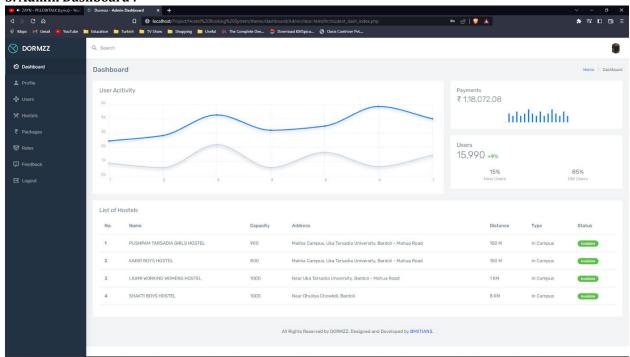
1. Registration Page :



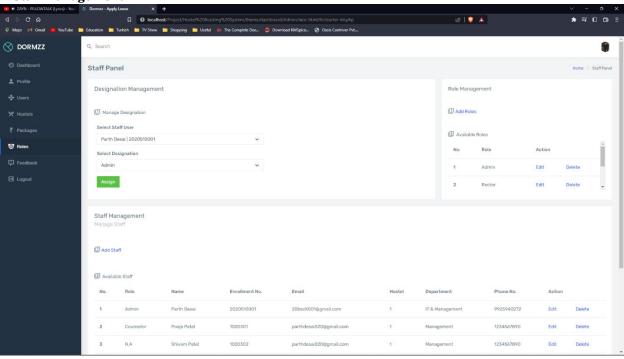
2. Login Page:



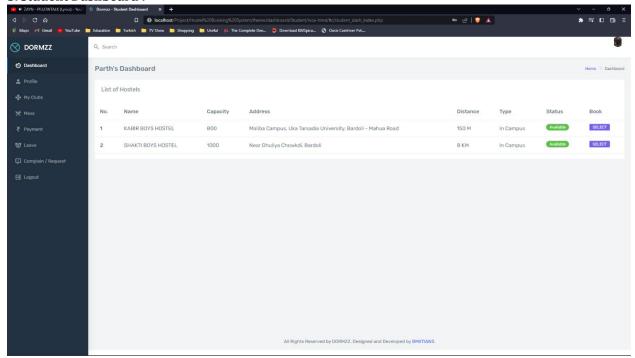
3. Admin Dashboard:



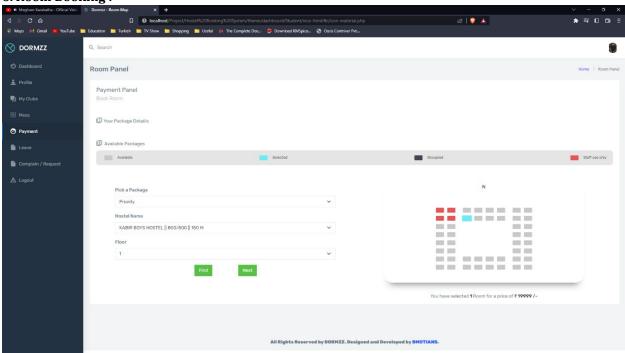
4. Staff Management :



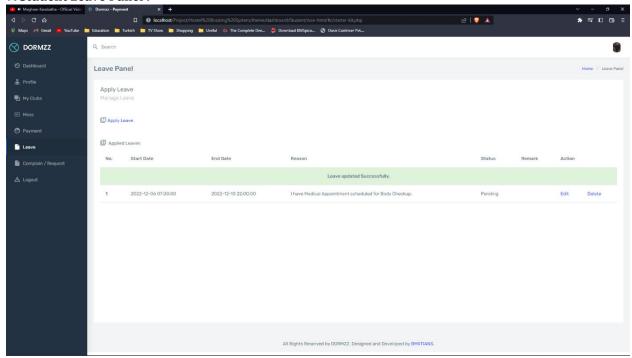
5. Student Dashboard:



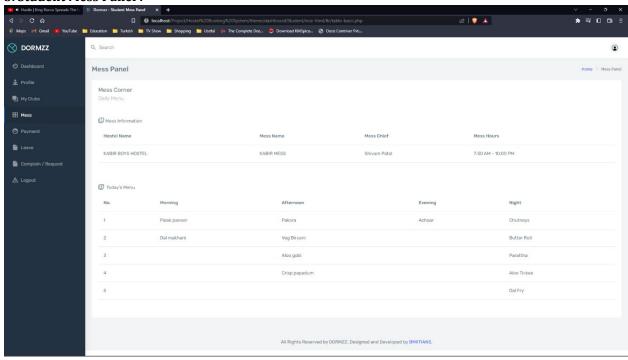
6. Room Booking:



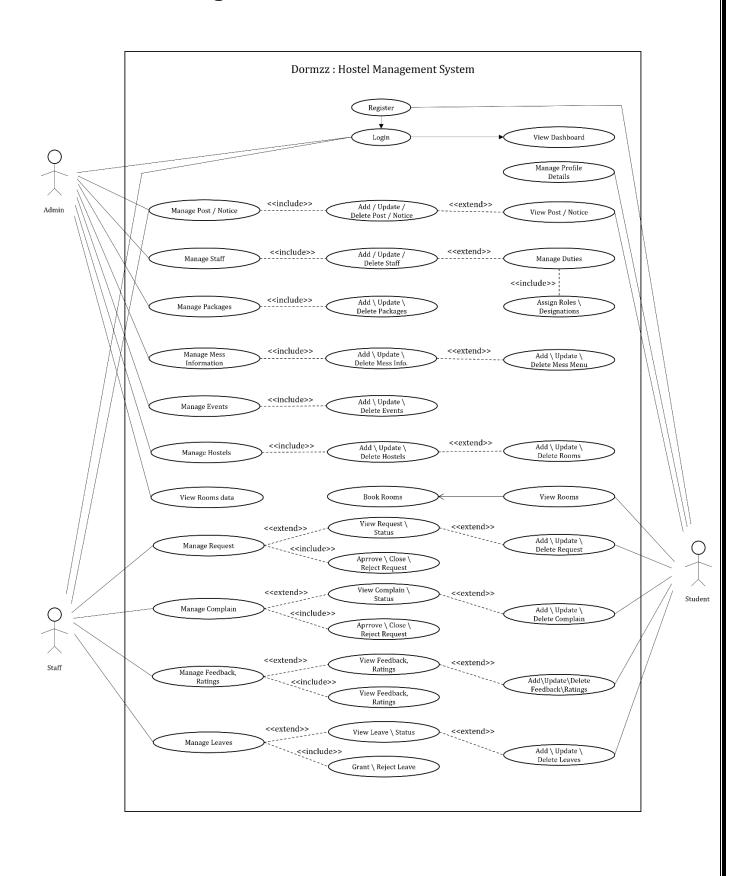
7. Student Leave Panel:



3. Student Mess Panel:

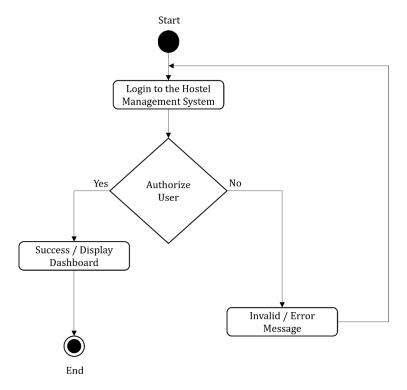


5.1.1 Use-case Diagram:

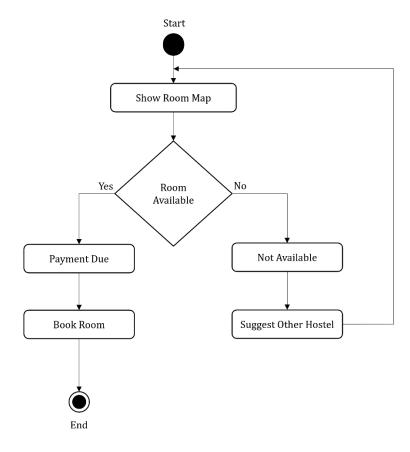


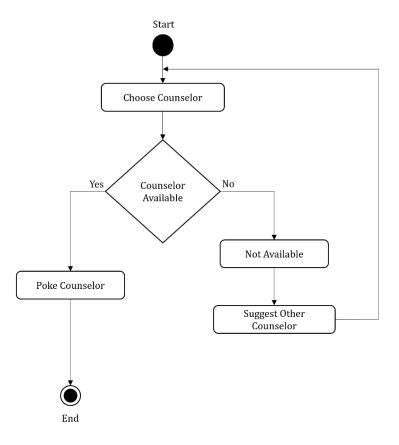
5.2.1 Activity Diagram:

Activity: Login into the System

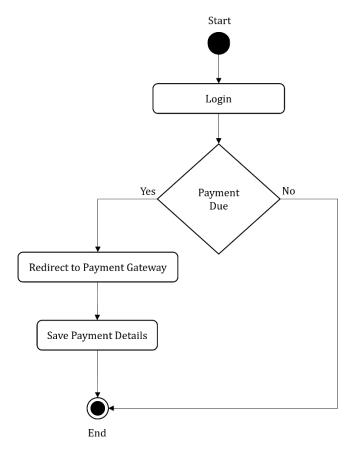


Activity: Book Room





Activity: Payment



6. Testing

6.1 Test Case:

1. Register

TestCase ID	TestCase Description	Input – n	Expected Result	Remark
		(n = 1,2,, 11)		
TU0001	All Fields Valid	Valid	Redirect to Login Page	-
TU0002	At Least one Field is Invalid	Invalid	Error Message. Redirect to Register Page.	Atleast one field is invalid as per it's type.

2. Login

TestCase ID	TestCase Description	Input - 1	Input - 2	Input - 3	Expected Result	Remark
TU0003	Login into the System	Valid	Valid	Valid	Open Dashboard	-
TU0004	All Credentials are Invalid	Invalid	Invalid	Invalid	Display Error Message	Invalid Credentials
TU0005	Username is Invalid	Invalid	Valid	Valid	Display Error Message	Invalid Username
TU0006	Password is Invalid	Valid	Invalid	Valid	Display Error Message	Invalid Password
TU0007	OTP is Invalid	Valid	Valid	Invalid	Display Error Message	Invalid OTP

3. Add / Update Staff Member

TestCase	TestCase	Input -	Expected	Remark						
ID	Descriptio	1	2	3	4	5	6	7	Result	
	n									
TU0011	Add Staff	Valid	Staff	Initially No						
									member	Designatio
									Added	n is
										Assigned

TU0012	Username	Invalid	Valid	Valid	Valid	Valid	Valid	Valid	Error	Must use
	is already								Message.	unique
	used									username
TU0012	All Fields	Invalid	Error	Must Enter						
	are invalid								Message.	all Fields.

4. Assign Designation

TestCase ID	TestCase	Input - 1	Input - 2	Input - 3	Expected Result	Remark
	Description					
TU0008	Designation is Not assigned	Valid	Valid	Valid	Designation Assigned	-
TU0009	Same Designation is assigned	Valid	Valid	Valid	Warning Message.	Designation Already Assigned
TU0010	Different Designation is assigned	Valid	Valid	Valid	Designation Updated	Different Designation was Assigned

5. Room-Map

TestCase ID	TestCase	Input -	Input -	Input -	Input -	Expected Result	Remark
	Description	1	2	3	4		
TU0011	Room-Booking	Valid	Valid	Valid	Valid	Redirect to Payment Gateway	-
TU0012	Package is not Selected.	Invalid	Valid	Valid	-	Warning Message.	Must Select Package
TU0013	Hostel is not Selected.	Valid	Invalid	-	-	Floors and Room-map not displayed	Must Select Hostel
TU0014	Hostel is not Selected.	Valid	Valid	Invalid	-	Room-map not displayed	Must Select Hostel Floor

6. Future Enhancement

Hostel Management System can be upgraded to a very large scope for expansion in the near future. The Dormzz can be upgraded and developed to maintain Hostels of other Nationwide Institutes as well. The system could be upgraded to have and maintain multiple Institutes' data, generate reports and serve its core purpose to the students accordingly. It could be made more flexible, user friendly with attractive UI and general by making it common for other similar institutions i.e. Nationwide Multiple institutions can work accordingly on the platform.

Conclusion

From going over this whole project development process we can get assurance that system just works amazing by bringing both students and Hostel Staff together as a Hostel is an essential part of an Institute along with educational curriculum which provides all the useful privileges to find a Hostel and book a place of their own terms that comforts them.

By digitizing the work, it will create a better workflow and we hope this system becomes useful in real world application.

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- 7. https://business.paytm.com/docs
- Thank you -