

CODE LOGIC EXPLANATION

GitHub link:

<https://github.com/BhavanaPerecharla/Builder-Portfolio-Management-System>

```
/Library/Java/JavaVirtualMachines/amazon-corretto-17.jdk/Contents/Home/bin/java -javaap  
  
* ===== Welcome to Builder Portfolio Management System =====*  
[1] Login to your account  
[2] Register as New User  
[0] Exit  
👉 Enter your choice:
```

LoginUI.java:

- The code acts as the main entry point for the Builder Portfolio Management System.
- It provides users with a menu to **login**, **register**, or **exit** the application.
- Supports multiple user roles: **Admin**, **Builder**, **Client**, and **Manager**, each with separate account creation.
- On choosing registration, users are directed to a **role-specific registration module**.
- If login is selected, the system invokes a method to handle **user authentication**.
- The menu runs inside an **infinite loop**, allowing repeated interactions until the user exits.
- User inputs are validated, and passwords are **hashed before storing** in the database for security.

```

        while (true) {
            System.out.println("\n★ ===== Welcome to Builder Portfolio Management System =====★ ");
            System.out.println("[1] Login to your account"); // Handle user login
            System.out.println("[2] Register as New User"); // Redirect to registration UI
            System.out.println("[0] Exit");
            System.out.print("👉 Enter your choice: ");
            String choice = sc.nextLine().trim();

            switch (choice) {
                case "1":
                    performLogin(sc);
                    break;
                case "2":
                    RegisterUI.showRegisterOptions(sc);
                    break;
                case "0":
                    System.out.println("👋 Exiting... Goodbye!");
                    return;
                default:
                    System.out.println("❌ Invalid choice. Try again.");
            }
        }
    }
}

```

LoginService.java: While logging in by users

- **Email Existence Check:**
Validates if a user's email exists in the database, dynamically querying the correct table based on user role (Admin, Builder, Client, Manager).
- **Role-Based Query Construction:**
SQL queries are built dynamically using role-specific table names and column names, ensuring flexibility and scalability.
- **Secure Login Authentication:**
Authenticates the user by verifying the provided password against the stored hashed password.
- **Password Hash Verification:**
Compares the plaintext password with the hashed password stored in the database using PasswordUtil.verifyPassword().

```
        if (PasswordUtil.verifyPassword(password, hashedPassword)) {  
            return name; // Authentication successful, return username  
        }  
    }  
}
```

LOGIN OF 4 USERS: ADMINS, CLIENTS, BUILDERS, MANAGERS

ADMIN LOGIN:

```
↓ * ===== Welcome to Builder Portfolio Management System =====*  
[1] Login to your account  
[2] Register as New User  
[0] Exit  
👉 Enter your choice: 1  
  
👉 ===== Login =====  
Enter Role (Admin/Builder/Client/Manager): Admin  
Enter Email: bhavana@Admin.com  
Enter Password: Bhavana2412@  
✓ Login Successful! Welcome, Bhavana Perecharla (ADMIN)  
  
🛡 ===== Admin Dashboard =====  
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] View All Builders  
[5] View All Clients  
[6] View All Managers  
[0] Logout  
👉 Enter your choice: 0  
👋 Logging out...
```

BUILDER LOGIN:

```
🔐 ===== Login =====
Enter Role (Admin/Builder/Client/Manager): Builder
Enter Email: bumika@builder.com
Enter Password: Bumika2412@
 Login Successful! Welcome, Bumika (BUILDER)

🔗 ===== Builder Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] Manage My Projects
[0] Logout
👉 Enter your choice: 0
👋 Logging out...
```

Client Login

```
🌟 ===== Welcome to Builder Portfolio Management System =====🌟
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 1

🔐 ===== Login =====
Enter Role (Admin/Builder/Client/Manager): Client
Enter Email: nikhila@client.com
Enter Password: Nikhila2412@
 Login Successful! Welcome, Nikhila (CLIENT)

🔗 ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice:
```

4.Manager Login

```
★ ===== Welcome to Builder Portfolio Management System =====★
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 1

🔑 ===== Login =====
Enter Role (Admin/Builder/Client/Manager): Manager
Enter Email: bhavanaperecharla@manager.com
Enter Password: Bhavana2412@
✓ Login Successful! Welcome, Bhavana Perecharla (MANAGER)

📊 ===== Manager Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[0] Logout
👉 Enter your choice: 0
👋 Logging out...
```

REGISTERUI: They can create their own accounts

- **Role-Based Registration UI:**
Users can register as Admin, Builder, Client, or Manager by selecting from a menu, which maps each choice to a specific role enum.
- **User Detail Collection:**
Prompts users for name, email, password (with validation and hashing), contact number, and address details before inserting into the database.
- **Email Uniqueness Check:**
Validates whether the provided email is already registered for the selected role using a dynamic SQL query.
- **Password Security:**
Enforces strong password criteria and securely hashes the password using PasswordUtil before storing.
- **Role-Specific Fields:**
Additional role-specific data is collected — for Clients (clientType), for Managers (pmStatus and associated builderId).
- **Database Transaction Handling:**
Uses JDBC transactions to insert address and user data; commits only after all inputs are valid and confirmed by the user.

- **Robust Input Validation & Logging:**

Ensures all inputs are validated (e.g., phone number format, non-empty fields) and logs errors using Java's Logger for traceability.

REGISTER OF USERS:

```
/*
 * This class provides a menu for user registration options.
 */
public static void showRegisterOptions(Scanner scanner) { 1 usage
    while (true) {
        // Display menu
        System.out.println("\n===== Registration =====");
        System.out.println("[1] Register as Admin");
        System.out.println("[2] Register as Builder");
        System.out.println("[3] Register as Client");
        System.out.println("[4] Register as Manager");
        System.out.println("[0] Back to Main Menu");
        System.out.print("👉 Enter your choice: ");

        String choice = scanner.nextLine().trim();
        Role role = null;

        // Map user choice to Role enum
        switch (choice) {
            case "1": role = Role.ADMIN; break;
            case "2": role = Role.BUILDER; break;
            case "3": role = Role.CLIENT; break;
            case "4": role = Role.MANAGER; break;
            case "0": return;
            default: System.out.println("❌ Invalid choice. Try again.");
        }
    }
}
```

REGISTERED AS CLIENT:

```
■ ===== Registration =====
[1] Register as Admin
[2] Register as Builder
[3] Register as Client
[4] Register as Manager
[0] Back to Main Menu
👉 Enter your choice: 3
Enter Name: Mahesh Babu
Enter Email: maheshbabu@client.com
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): MaheshBabu2412@
Re-enter password: MaheshBabu2412@
Enter Contact Number (10 digits): 9000533000
Address Line 1: BalajiNagar
City: Guntue
State: VIZAG
Zip Code: 599922
Country: India
Enter Client Type (individual/corporate): individual
● Submit registration? (Y/N): Y
✓ Registration successful! Welcome, Mahesh Babu (CLIENT)
```

REGISTERED AS BUILDER

```
/Library/Java/JavaVirtualMachines/amazon-corretto-17.jdk/Contents/Home/bin/java -javaagent:/Applications/
★ ===== Welcome to Builder Portfolio Management System =====★
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 2

■ ===== Registration =====
[1] Register as Admin
[2] Register as Builder
[3] Register as Client
[4] Register as Manager
[0] Back to Main Menu
👉 Enter your choice: 1
Enter Name: RADHA KRISHNA
Enter Email: radhakrishna@admin.com
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): Radha2412@
Re-enter password: Radha2412@
Enter Contact Number (10 digits): 9000600073
Address Line 1: BalajiNagar
City: Guntur
State: ANDHRA PRADESH
Zip Code: 522001
Country: India
● Submit registration? (Y/N): Y
✓ Registration successful! Welcome, RADHA KRISHNA (ADMIN)
```

REGISTERED AS ADMIN

```
■ ===== Registration =====
[1] Register as Admin
[2] Register as Builder
[3] Register as Client
[4] Register as Manager
[0] Back to Main Menu
👉 Enter your choice: 2
Enter Name: Powen Kalyan
Enter Email: powen@builder.com
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): PowenKalyan2412@
Re-enter password: PowenKalyan2412@
Enter Contact Number (10 digits): 9000600073
Address Line 1: HarshaNagar
City: Guntur
State: Andhra Pradesh
Zip Code: 522001
Country: India
● Submit registration? (Y/N): Y
✓ Registration successful! Welcome, Powen Kalyan (BUILDER)
```

REGISTERED AS MANAGER:

```
■ ===== Registration =====
[1] Register as Admin
[2] Register as Builder
[3] Register as Client
[4] Register as Manager
[0] Back to Main Menu
👉 Enter your choice: 4
Enter Name: Faahad Dahan
Enter Email: faahad@manager.com
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): Faahad2412@
Re-enter password: Faahad2412@
Enter Contact Number (10 digits): 9878900022
Address Line 1: Charan
City: Guntur
State: AP
Zip Code: 50002
Country: India
Enter Manager Status (Bench/Working): Bench
Enter Associated Builder ID: B0023
✖ Builder ID not found.
Enter Associated Builder ID: BU0004
● Submit registration? (Y/N): Y
✓ Registration successful! Welcome, Faahad Dahan (MANAGER)
```

ALL THE REGISTERED CONTENT STORED IN DATABASE:

	admin_id [PK] character varying (10)	admin_name character varying (100)	admin_email character varying (100)	admin_password character varying (100)	admin_contact character varying (100)	address_id character varying (10)		
1	ADM0002	Bhavana Perecharla	bhavana@admin.com	\$2a\$12\$yjhcfW0f7aZb/MWk/Ds/000uCE0lgRx2600qWEtMlj6HxIusZCPOi...	9491119155	AD0010		
2	ADM0003	Sri Latha	lathasri@admin.com	\$2a\$12\$8tYIMZD6r5MSFxEa3NeB0lc8MsISJncf3jCtyXXvuhbxHaJlw...	9876678090	AD0015		
3	ADM0005	SrinivasaRao	srinu@builder.com	\$2a\$12\$NzA5TXGrnTKey6daF91JheCxFrEDarWtK8QAIY9qDNi4HLFYN5e...	9247199592	AD0034		
4	ADM0006	RADHA KRISHNA	radhakrishna@admin.com	\$2a\$12\$wxxK63Amv03SxUNDUFOJvu9LQyzmNEs.QWvVrmCkoMnpFGe...	9000600073	AD0038		
5	ADM0004	Bhavani Naga	bhavani@admin.com	\$2a\$12\$uN4dc3Yws/d1XXHAYAOnE.JPJPaQZDcyle6hxzByW/LEZPsFhk...	9491119144	AD0025		
6	ADM0001	Bhavana Perecharla	bhavanaperecharla@admin.com	\$2a\$12\$yjhcfW0f7aZb/MWk/Ds/000uCE0lgRx2600qWEtMlj6HxIusZCPOi...	9491119155	AD0003		
	builder_id [PK] character varying (10)	builder_name character varying (100)	builder_email character varying (100)	builder_password character varying (100)	builder_contact character varying (100)	address_id character varying (10)		
1	BU0001	MahimaLatha	mahima@builder.com	\$2a\$12\$9eMu0MhMqgONYPUsEW9vZvOZUKEY2mlWf9U7xWb09.Ys...	9491119155	AD0005		
2	BU0002	Padma	padma@builder.com	\$2a\$12\$t.TvzYW9Wne80eqjNs0u7!NcwzsdlDKBHyl4qTWOIF9dR...	9876543211	AD0009		
3	BU0003	Ram	ram@builder.com	\$2a\$12\$KCKXNGex3CkNjsA46kTFg.uvz/UDFLGbh9copi3qFYLOQqac...	9494949494	AD0011		
4	BU0004	Bumika	bumika@builder.com	\$2a\$12\$K5KE0lOUktTYICf/lnreQ40n4G06hD5DFdPLl/FlrXBgj93i...	7897897896	AD0016		
5	BU0005	RadhaKrishna	radhakrishna@builder.com	\$2a\$12\$DC8shCWGMWoDfWhGk1F2.WQup02L0HhpU0gefTEExbaC...	9839292921	AD0017		
6	BU0006	Shriya	shriya@builder.com	\$2a\$12\$y1g/9c4KxskEQ4EGopC50/RjrKXNwHWX.FjsMtBNXuHeDx...	8963289654	AD0022		
7	BU0007	ChitraLatha	chitra@builder.com	\$2a\$12\$gk4xm7aPyllMrkeblC4kxJiXSNSMbev89.bhkwXkuGXMQ9D...	7824798345	AD0030		
8	BU0008	SitaDevi	sita@builder.com	\$2a\$12\$81Jv3VqLXSOWIWdGlsUEauk4SkosJ3dbuaH2zWxQh/19M7Rz...	9000500032	AD0031		
9	BU0009	satya	satya@builder.com	\$2a\$12\$0iWTSfm4Gkvz5u3UaY5XxkaHrrWID2YJhrXpMblG...	8938430830	AD0033		
10	BU0010	Vara	varalaksmi@builder.com	\$2a\$12\$XdfRsJjkQNvIJUJN2J.h4FAWKJy8CGWZnZFFkY7n9K...	9000600073	AD0035		
11	BU0011	Powen Kalyan	powen@builder.com	\$2a\$12\$yhj0YuCuk5rg9InVujG9EuyU/D/Nx2c9XWY.Q5Z0JwfldAn7TLO...	9000600073	AD0039		
	client_id [PK] character varying (10)	client_name character varying (100)	client_email character varying (100)	client_password character varying (100)	client_contact character varying (100)	address_id character varying (10)	client_type character varying (50)	
1	CL0001	Krishna	krishna@client.com	\$2a\$12\$tu03RGJgehWoI0Q7cn8ebdRelYqFhG1pCNhFevsDO5Sjl...	9491119155	AD0007	Individual	
2	CL0002	Krishna Chaitanya	madhu@client.com	\$2a\$12\$5j6g7Ykj35Thg5LspzE0Actzsha5phW62BNloryvvog.Ys...	9491119155	AD0008	individual	
3	CL0003	Chandrika	chandrika@client.com	\$2a\$12\$cP2bzJYiLxyH3K7QDrw.JAKD1xd9zXo016UhF3cZqjo5ADiZ...	8939392992	AD0012	Zingla	
4	CL0004	Nikhila	nikhila@client.com	\$2a\$12\$edEXID.GdXdq5Rw1DFsNe0XGIP36DRKTIV1V5TyrnbLVPK2G...	9829191913	AD0018	Juda	
5	CL0005	Vasavi	vasavi@client.com	\$2a\$12\$MGXEP7HW7G.igAzSvo1Co.9vF9RZ1IB95vj.bMXRD0683f8eH...	9432432434	AD0023	Zudo	
6	CL0006	Sasrika	sasrika@client.com	\$2a\$12\$5CW6q990hdzbzC82zC5C6w2g3tBAzPvnbfqfKubLa62...	9436321234	AD0024	individual	
7	CL0007	Niharika	niharika@client.com	\$2a\$12\$mu3uXuXuG9FNNo.Ysg0Ag...sDlwrxJuhMpXaQoqb9vXIUcl6hs...	9823123145	AD0026	individual	
8	CL0008	Krishma Chaitanya	krishnachaitanya@client.com	\$2a\$12\$OpzlwQgev5cneEUSV61OrtFBWCU5GLSxMRA/7QD3vrB6...	8142422214	AD0036	individual	
9	CL0009	Mahesh Babu	maheshbabu@client.com	\$2a\$12\$G1u6HoBbGadCTwZt1ch/efWplrqAW47FoNogF5fgrA3oL7bInL...	9000533000	AD0040	individual	
	manager_id [PK] character varying (10)	manager_name character varying (100)	manager_email character varying (100)	manager_password character varying (100)	manager_contact character varying (100)	pm_status character varying (50)	builder_id character varying (10)	address_id character varying (10)
1	MA0010	Faahad Dahan	faahad@manager.com	\$2a\$12\$XSHnfauAvpIQ2P5jFGVm.Sfb2V0r0lBKYhCf06ml...	9878900022	WORKING	BU0004	AD0041
2	MA0006	Poojitha	poojitha@manager.com	\$2a\$12\$3UFlyVamPitRz44Shckce0BSNe98Tjs08eBmBF6f1f3q...	9090439090	BENCH	BU0006	AD0028
3	MA0008	Gayate	gayate@manager.com	\$2a\$12\$V9.06VAAHcjw0YGJBv050ZSkJKFbPoVht.ds687RJNyxCZd...	9000303330	BENCH	BU0003	AD0032
4	MA0009	Bhavana Perecharla	bhavanaperecharla@manager.com	\$2a\$12\$Fw2toms2x02z0PCgrwSsJOLErCcQ1.7YIEuI6pHYYorMs...	9491119155	BENCH	BU0006	AD0037
5	MA0004	Varsha	varsha@manager.com	\$2a\$12\$04PjOT9mK0MjMjXpJYDDEipS7k3t0fcf2zNepoE0121W...	9876543211	WORKING	BU0004	AD0021
6	MA0001	Meerakrishna	meera@manager.com	\$2a\$12\$PovXJc6q1To9V710xCKPZh3cPJQqlKRIVdapq8V9fgyUBVw...	9000600073	WORKING	BU0001	AD0014
7	MA0002	Varalakshmi	varalakshmi@manager.com	\$2a\$12\$hsXQphKuy73D/BqKtauKekVR2wdwseu6Xf/j57w//INNe...	9876543211	WORKING	BU0003	AD0019
8	MA0003	Harsha	harsha@manager.com	\$2a\$12\$QuDQd0t7WFe/fvP3dToU7zIZOQudQu0rTIWFe/F5FFX04tN80d...	9009090900	WORKING	BU0005	AD0020
9	MA0005	Indu	indu@manager.com	\$2a\$12\$caaf8WPGeVp3dToU7zIZOQudQu0rTIWFe/F5FFX04tN80d...	9009090900	WORKING	BU0003	AD0027
10	MA0007	Reena	reena@manager.com	\$2a\$12\$YaoxBh0f8Cwy58082TubXn9tDnR70126nP3Jh3JyImpJx...	898989888	WORKING	BU0006	AD0029

AFTER LOGIN --EACH USERS WILL LEAD THEIR OWN DASH BOARDS

```

 * @param role User's role (ADMIN, BUILDER, CLIENT, MANAGER)
 * @param email User's email
 */
private static void launchDashboard(Role role, String email) { 1 usage
    switch (role) {
        case ADMIN:
            AdminDashboard.showDashboard(email);
            break;
        case BUILDER:
            BuilderDashboard.showDashboard(email);
            break;
        case CLIENT:
            ClientDashboard.showDashboard(email);
            break;
        case MANAGER:
            ManagerDashboard.showDashboard(email);
            break;
        default:
            System.out.println("⚠ Unknown role: " + role.name());
    }
}
}

```

> java > org > example > UI >  LoginUI >  performLogin

1.ADMIN DASHBOARD:

- **Dashboard Entry for Admins:**
After login, admins are redirected to this dashboard to perform all role-specific operations using their email for identification.
- **Menu-Driven Interaction:**
The dashboard presents a **looped interactive menu**, allowing the admin to select and perform actions repeatedly until logout.
- **View and Manage Profile:**
Admins can **view their profile**, **edit personal details**, and **change their password**, enhancing self-service account management.

- **View All Builders:**
Provides the admin a list of all registered **builders**, enabling monitoring of builder accounts in the system.
- **View All Clients:**
Allows the admin to access a complete list of **clients**, helping in client management and tracking.
- **View All Managers:**
Admins can view all **project managers**, which aids in managing workforce distribution and responsibilities.
- **Secure Logout:**
Option [0] allows the admin to **log out safely**, ending the current session and returning control to the main interface.
- **Delegation to Service Layer:**
All core operations like viewing/editing profiles and listing users are handled by the AdminService class, keeping the UI clean and modular.

```
🔒 ===== Login =====  
Enter Role (Admin/Builder/Client/Manager): Admin  
Enter Email: bhavani@admin.com  
Enter Password: Bhavani2412@  
✓ Login Successful! Welcome, Bhavani Naga (ADMIN)
```

```
👤 ===== Admin Dashboard =====  
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] View All Builders  
[5] View All Clients  
[6] View All Managers  
[0] Logout  
👉 Enter your choice: 1
```

```
👤 ===== Admin Profile =====  
◆ Name : Bhavani Naga  
◆ Email : bhavani@admin.com  
◆ Contact: 9491119144  
🏡 Address:  
- Line1 : KrishnaNagar  
- City : Kashmir  
- State : Andhra  
- Zip : 42342  
- Country : India
```

🛡 ===== Admin Dashboard =====

- [1] View Profile
- [2] Edit Profile
- [3] Change Password
- [4] View All Builders
- [5] View All Clients
- [6] View All Managers
- [0] Logout

👉 Enter your choice: 2

🛠 ===== Edit Profile =====

- [1] Edit Name
- [2] Edit Contact
- [3] Edit Email
- [4] Edit Address
- [0] Back to Dashboard

👉 Enter your choice: 2

📞 Enter 10-digit contact number: 9000600073

✅ Contact updated successfully.

🏡 ===== Edit Address =====

- [1] Edit Address Line 1
- [2] Edit City
- [3] Edit State
- [4] Edit Zip Code
- [5] Edit Country
- [0] Done Editing Address

👉 Choose field to edit: 4

Enter Zip Code: 522002

✅ Address updated successfully.

```
❖ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit Email
[4] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 3
Enter new email: bhavaninaga@admin.com
✓ Email updated successfully.
```

UPDATED PROFILE DETAILS

```
↑   🛡 ===== Admin Dashboard =====
↓   [1] View Profile
    [2] Edit Profile
    [3] Change Password
    [4] View All Builders
    [5] View All Clients
    [6] View All Managers
    [0] Logout
👉 Enter your choice: 1

👤 ===== Admin Profile =====
◆ Name : Bhavani Naga
◆ Email : bhavaninaga@admin.com
◆ Contact: 9000600073
🏠 Address:
- Line1 : KrishnaNagar
- City : Kashmir
- State : Andhra
- Zip : 522002
- Country : India
```

```
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] View All Builders  
[5] View All Clients  
[6] View All Managers  
[0] Logout  
👉 Enter your choice: 4
```

```
─ ┌── List of Builders ──┐
```

```
─ ┌────────────────────────┐  
─ | ID | Builder ID : BU0001  
─ | 🚧 | Name : MahimaLatha  
─ | 📩 | Email : mahima@builder.com  
─ | ☎ | Contact : 9491119155
```

```
─ | 🏠 | Address:
```

```
─ | - Line1 : ramNagar  
─ | - City : Golkonda  
─ | - State : maharastra  
─ | - Zip : 23992  
─ | - Country : India
```

```
─ ┌────────────────────────┐  
─ | ID | Builder ID : BU0002  
─ | 🚧 | Name : Padma  
─ | 📩 | Email : padma@builder.com  
─ | ☎ | Contact : 9876543211
```

```
─ | 🏠 | Address:
```

```
─ | - Line1 : KashmirNagar  
─ | - City : jammy  
─ | - State : JAMMU and Kashmir  
─ | - Zip : 54300  
─ | - Country : India
```

```
─ ┌── Admin Dashboard ──┐
```

```
─ | [1] View Profile  
─ | [2] Edit Profile  
─ | [3] Change Password  
─ | [4] View All Builders  
─ | [5] View All Clients  
─ | [6] View All Managers  
─ | [0] Logout  
─ | ↵ Enter your choice: 5
```

```
─ ┌── All Clients ──┐
```

```
─ | ID | Client ID : CL0001  
─ | 🚧 | Name : Krishna  
─ | 📩 | Email : krishna@client.com  
─ | ☎ | Contact : 9491119155
```

```
─ | 🏠 | Type : Individual
```

```
─ | 🏠 | Address:  
─ | - Line1 : HousingNagar  
─ | - City : Vijayawada  
─ | - State : Andhra  
─ | - Zip : 45002  
─ | - Country : India
```

```
─ | ID | Client ID : CL0003  
─ | 🚧 | Name : Chandrika
```

```
─ | 📩 | Email : chandrika@client.com  
─ | ☎ | Contact : 8939392992
```

```
─ | 🏠 | Type : ZInglia
```

```
─ | 🏠 | Address:  
─ | - Line1 : JhanisiNagar  
─ | - City : Old guntur  
─ | - State : Uttar Pradesh  
─ | - Zip : 566003  
─ | - Country : India
```

```

� ===== Admin Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View All Builders
[5] View All Clients
[6] View All Managers
[8] Logout
👉 Enter your choice: 6

>All Managers Details:
-----
ID ID : MA0010
Name Name : Faahad Dahan
Email Email : faahad@manager.com
Contact Contact : 9878900022
PM Status PM Status : WORKING
Builder ID Builder ID : BU0004
Address:
- Line1 : Charan
- City : Guntur
- State : AP
- Zip : 50002
- Country : India
-----
ID ID : MA0006
Name Name : Poojitha
Email Email : poojitha@manager.com
Contact Contact : 9890439090
PM Status PM Status : BENCH
Builder ID Builder ID : BU0006
Address:
- Line1 : LakshmiPuram
- City : LandiNagar
- State : Guntue
- Zip : Andhra Pradesh
-----
```

2.BUILDER-SPECIFIC DASHBOARD:

After logging in, builders are directed to this dashboard, which displays options tailored to their responsibilities.

- **View and Manage Profile:**
Builders can view their profile, edit personal information, and change their password, using their email for identification.
- **Project Management Access:**
The dashboard provides access to **ProjectUI.manageProjects(email)**, enabling builders to add, update, or delete their projects.
- **Interactive Menu Loop:**
The dashboard runs in a loop, allowing continuous interaction until the builder chooses to log out.

- **Logout Option:**
Builders can securely **log out** using option [0], which ends the session and returns to the main menu.
- **Delegation to Service Layer:**
Profile-related operations are handled by the BuilderService, promoting clean separation between UI and business logic.
- **Role-Specific Functionality Isolation:**
Ensures that builders only access functionalities relevant to their role, enhancing security and usability.
- **Input Handling and Validation:**
Uses InputUtil.prompt() to capture and validate user input, ensuring robust user interaction.

LOGIN AS BUILDER:

```
👤 ===== Login =====  
Enter Role (Admin/Builder/Client/Manager): Builder  
Enter Email: bumika@builder.com  
Enter Password: Bumika2412@  
✓ Login Successful! Welcome, Bumika (BUILDER)
```

```
🏗 ===== Builder Dashboard =====  
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] Manage My Projects  
[0] Logout  
👉 Enter your choice: |
```

```
🏗 ===== Builder Dashboard =====  
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] Manage My Projects  
[0] Logout  
👉 Enter your choice: 1
```

```
👤 ===== Builder Profile =====  
◆ Name: Bumika  
◆ Email: bumika@builder.com  
◆ Contact: 7897897896  
🏡 Address:  
- Line1: SitaNagar  
- City: Guntur  
- State: MadhyaPradesh  
- Zip: 39382  
- Country: India
```

```
─[1]==== Builder Dashboard =====  
[1] View Profile  
[2] Edit Profile  
[3] Change Password  
[4] Manage My Projects  
[0] Logout  
👉 Enter your choice: 2
```

```
───────── Edit Profile ─────────  
[1] Edit Name  
[2] Edit Contact  
[3] Edit Address  
[0] Back to Dashboard  
👉 Enter your choice: 1  
Enter new name: Bhumika  
✓ Profile updated successfully!
```

MENU FOR MANAGING PROJECT DETAILS BY BUILDERS

```
BuilderFactory ====== Builder Dashboard ======
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] Manage My Projects
[0] Logout
👉 Enter your choice: 4

ProjectMenu ======
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice:
```

Key Features & Responsibilities of ProjectUI Class-PROJECT MENU

1. Builder-Focused Interface:

- a. Acts as the **UI layer** specifically for builders to manage their projects.
- b. Triggered after builder login via the **BuilderDashboard**.

2. Modular Menu System:

- a. Provides an **interactive, looped menu** allowing builders to:
 - i. View, Add, Edit, and Delete projects.
 - ii. Manage payments and project-related documents.

3. Role-Specific Data Filtering:

- a. Every operation is scoped to the **logged-in builder's email**, ensuring secure and personalized data access.

4. Project Display Functions:

- a. `displayProjects(builderEmail)` shows detailed project info (ID, name, dates, cost, client/manager/builder IDs).

- b. `displayProjectSummary(builderEmail)` lists only Project IDs and names for selection menus.
- 5. Integration with Service & Repository Layers:**
- a. Delegates core logic to `ProjectService` and `ProjectRepository`, promoting **separation of concerns** and cleaner architecture.
- 6. Document Management:**
- a. `handleDocumentManagement()` enables builders to manage project-related documents securely through validation and controller invocation.
- 7. Secure and Validated Inputs:**
- a. Uses **input validation** (e.g., checks for valid project IDs) to avoid runtime errors and enforce data integrity.
- 8. Error & Edge Case Handling:**
- a. Displays informative messages when no projects exist or an invalid input is entered, enhancing user experience.

```

while (true) {
    displayProjectMenu(); // Modularized menu display
    System.out.print("👉 Enter your choice: ");
    String choice = sc.nextLine().trim();

    switch (choice) {
        case "1" -> displayProjects(builderEmail); // View projects
        case "2" -> ProjectService.addProject(builderEmail); // Add project
        case "3" -> {
            displayProjects(builderEmail); // Show list before editing
            ProjectService.viewAndEditProject(); // Edit project
        }
        case "4" -> {
            displayProjects(builderEmail); // Show list before deleting
            ProjectService.deleteProjectByMenu(); // Delete project
        }
        case "5" -> {
            displayProjectSummary(builderEmail); // Show IDs before adding payment
            ProjectService.addPaymentForProject(); // Add payment
        }
        case "6" -> {
            displayProjectSummary(builderEmail); // Show IDs before viewing payments
            ProjectService.viewPaymentsForProject(); // View payments
        }
        case "7" -> handleDocumentManagement(builderEmail); // Manage project documents
        case "0" -> {
            System.out.println("👋 Returning to dashboard...");
            return;
        }
        default -> System.out.println("🔴 Invalid choice. Please try again.");
    }
}

```

I. VIEW PROJECTS – RELATED TO BUILDER:

```
■ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 1

■ ===== Your Projects =====
-----
>ID Project ID      : BU0004_PRJ002
🔥 Name            : Tree System Building
📝 Description     : 10 Floors 3BHK FLATS
📅 Start Date      : 2025-05-24
📅 Est. Completion Date : 2027-03-03
✅ Actual Completion : 2027-01-23
📊 Status          : In Progress
👤 Manager ID      : MA0006
👤 Client ID       : CL0007
🏗️ Builder ID      : BU0004
₹ Estimated Cost   : ₹6000000.00
-----

-----
>ID Project ID      : BU0004_PRJ003
🔥 Name            : Ganesh Sky Towers
📝 Description     : Duplex Houses
📅 Start Date      : 2021-03-03
📅 Est. Completion Date : 2025-12-02
✅ Actual Completion : N/A
📊 Status          : Completed
👤 Manager ID      : MA0007
👤 Client ID       : CL0002
🏗️ Builder ID      : BU0004
₹ Estimated Cost   : ₹8000000.00
-----
```

II. ADD NEW PROJECT-

Key Functionalities & Unique Features of addProject()

1. Role-Scoped Project Creation:

- a. Associates the new project with the **logged-in builder** using their email → builder ID, ensuring **secure and accurate ownership**.

2. Smart Project ID Generation:

- a. Dynamically generates a **unique Project ID** using the builder ID and an auto-incremented suffix (_PRJ###), ensuring no collisions and traceability.

3. Comprehensive Project Data Entry:

- a. Collects essential details like project name, description, multiple dates (start, estimated, actual), client/manager IDs, and cost — enabling **rich project records**.

4. Robust Input Validation:

- a. Utilizes InputValidator for enforcing **non-empty fields, valid date formats, numeric amounts, and verified foreign keys** (Manager and Client IDs), preventing bad data from entering the system.

5. Manager Status Auto-Update:

- a. Automatically updates the **Project Manager's status** (BENCH or WORKING) based on the project status, helping track **resource allocation dynamically**.

6. Reliable Persistence & Feedback:

- a. Calls ProjectRepository.insertProject() to save data; confirms success with meaningful messages and handles edge cases like builder or manager not found.

BEFORE ASSIGNING THE PROJECT- MA0009 pm_status BENCH

	manager_id [PK] character varying (10)	manager_name character varying (100)	manager_email character varying (100)	manager_password character varying (100)	manager_contact character varying (100)	pm_status character varying (50)	builder_id character vari
1	MA0010	Faahad Dahan	faahad@manager.com	\$2a\$12\$ZXShf0uvAuPIQZP5jFGVm.Sfb2VOr0IBkXYhc.FVdHiatJhCQ06mi	9878900022	WORKING	BU0004
2	MA0006	Poojitha	poojitha@manager.com	\$2a\$12\$3UFlyvamPttRZ14AShkcceKeDBSNe9BTJgSdb8mBFBe1Fq3M...	9090439090	BENCH	BU0006
3	MA0008	Gayate	gayate@manager.com	\$2a\$12\$V9.o6kVAAHcjw0YGJBVo50ZSkJKFbPoVht.dsj6B7RNyxCZ8do...	9000303330	BENCH	BU0003
4	MA0009	Bhavana Perecharla	bhavanaperecharla@manager.com	\$2a\$12\$FwZtoma2xO2IPCrwvtsjOLErCcQ1.7Y.VtEzEuiGp6PHYYorMsy	9491119155	BENCH	BU0006

ADDED PROJECT AND ASSIGNED MANAGER

```

█ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 2

█ ===== Add New Project =====
Enter Project Name: India Builder Towers
Enter Project Description: 10 Floors High FULL Furnished Buildings
Enter Start Date (YYYY-MM-DD): 2024-03-23
Enter Estimated Completion Date (YYYY-MM-DD): 2028-3-20
Enter Actual Completion Date (YYYY-MM-DD) (Leave blank if not applicable):
Enter Project Status (Upcoming / In Progress / Completed): In Progress
Enter Manager ID: MA0009
Enter Client ID: CL0001
Enter Estimated Cost: 7932999.00
✓ Project created successfully. ID: BU0004_PRJ004

```

FUNCTIONALITY: AFTER ASSIGNING PROJECT TO MANAGER the pm_status changes to WORKING:

	manager_id [PK] character varying (10)	manager_name character varying (100)	manager_email character varying (100)	manager_password character varying (100)	manager_contact character varying (100)	pm_status character varying (50)	builder_id character vari
1	MA0010	Faahad Dahan	faahad@manager.com	\$2a\$12\$ZXShf0uvAuPIQZP5jFGVm.Sfb2VOr0IBkXYhc.FVdHiatJhCQ06mi	9878900022	WORKING	BU0004
2	MA0006	Poojitha	poojitha@manager.com	\$2a\$12\$3UFlyvamPttRZ14AShkcceKeDBSNe9BTJgSdb8mBFBe1Fq3M...	9090439090	BENCH	BU0006
3	MA0008	Gayate	gayate@manager.com	\$2a\$12\$V9.o6kVAAHcjw0YGJBVo50ZSkJKFbPoVht.dsj6B7RNyxCZ8do...	9000303330	BENCH	BU0003
4	MA0009	Bhavana Perecharla	bhavanaperecharla@manager.com	\$2a\$12\$FwZtoma2xO2IPCrwvtsjOLErCcQ1.7Y.VtEzEuiGp6PHYYorMsy	9491119155	WORKING	BU0006

III. EDIT PROJECTS:

```
■ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 3

■ Project List (ID - Name):
BU0004_PRJ002 - Tree System Building
BU0004_PRJ003 - Ganesh Sky Towers
BU0004_PRJ001 - Sky Tower Buildings
BU0004_PRJ004 - India Builder Towers

Enter the Project ID to view/edit (or type '0' to exit): BU0004_PRJ004

Editing project: BU0004_PRJ004
-----
Project ID      : BU0004_PRJ004
Name           : India Builder Towers
Description     : 10 Floors High Full Furnished Buildings
Start Date     : 2024-03-23
Estimated Complete : 2028-03-20
Actual Complete   : null
Status          : In Progress
Manager ID      : MA0009
Client ID       : CL0001
Estimated Cost   : ₹7932999.00
-----
```

```
Which detail would you like to edit?  
1. Project Name  
2. Project Description  
3. Start Date  
4. Estimated Completion Date  
5. Actual Completion Date  
6. Project Status  
7. Estimated Cost  
0. Save and Exit  
👉 Your choice: 1  
Enter new Project Name:: SKY TOWER BUILDERS-
```

```
Which detail would you like to edit?  
1. Project Name  
2. Project Description  
3. Start Date  
4. Estimated Completion Date  
5. Actual Completion Date  
6. Project Status  
7. Estimated Cost  
0. Save and Exit  
👉 Your choice: 2  
Enter new Project Description:: 500 acres individual Houses
```

ID	Project ID	:	BU0004_PRJ004
🔥	Name	:	SKY TOWER BUILDERS-
📝	Description	:	500 acres individual Houses
📅	Start Date	:	2024-03-23
📅	Est. Completion Date	:	2028-03-20
✅	Actual Completion	:	N/A
📊	Status	:	In Progress
👤	Manager ID	:	MA0009
👤	Client ID	:	CL0001
🏗	Builder ID	:	BU0004
₹	Estimated Cost	:	₹7932999.00

IV. View Payments For Project:

```
■ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 6

■ Project List (ID - Name):
BU0004_PRJ002 - Tree System Building
BU0004_PRJ003 - Ganesh Sky Towers
BU0004_PRJ001 - Sky Tower Buildings
BU0004_PRJ004 - SKY TOWER BUILDERS-

● Enter Project ID to view payments: BU0004_PRJ002

■ ===== Payments for Project ID: BU0004_PRJ002 =====
=====
# Project ID      : BU0004_PRJ002
# Payment ID     : PAY000115
# Payment Date   : 2025-07-01
# Amount Paid    : ₹7000.0
# Description     : Project Initiation Payment
=====
# Project ID      : BU0004_PRJ002
# Payment ID     : PAY000060
# Payment Date   : 2025-07-01
# Amount Paid    : ₹3000.0
# Description     : Payment 1
=====
# Project ID      : BU0004_PRJ002
# Payment ID     : PAY000061
# Payment Date   : 2025-07-02
# Amount Paid    : ₹3100.0
# Description     : Payment 2
=====
```

V. ADD PAYMENTS FOR PROJECTS

```
█ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 5

█ Project List (ID - Name):
BU0004_PRJ002 - Tree System Building
BU0004_PRJ003 - Ganesh Sky Towers
BU0004_PRJ001 - Sky Tower Buildings
BU0004_PRJ004 - SKY TOWER BUILDERS-

Enter Project ID to add payment: BU0004_PRJ003
Enter Payment Date (YYYY-MM-DD):: 2025-3-12
Enter Payment Amount:: 800000
Enter Payment Description:: Flooring
✓ Payment recorded successfully.
```

VI. ADD/MODIFY DOCUMENTS- FOR EVERY PROJECT

UPLOAD DOCUMENT:-

```
■ ===== Project Menu =====
[1] View My Projects
[2] Add New Project
[3] Edit Project
[4] Delete Project
[5] Add Payment for Project
[6] View Payments For Project
[7] Manage Documents for Project
[0] Back to Dashboard
👉 Enter your choice: 7

■ Project List (ID - Name):
BU0004_PRJ002 - Tree System Building
BU0004_PRJ003 - Ganesh Sky Towers
BU0004_PRJ001 - Sky Tower Buildings
BU0004_PRJ004 - SKY TOWER BUILDERS-
Enter Project ID to manage documents: BU0004_PRJ003

===== Document Management for Project ID: BU0004_PRJ003 =====
1. Upload Document
2. Download Document
3. List Documents
4. Delete Document
0. Back to Project Menu
Enter your choice: 1
Enter Project ID: BU0004_PRJ003
Enter full file path to upload: /Users/perecharlab/Desktop/BluePrint1.pdf

You're about to upload:
📄 File Name : BluePrint1.pdf
📄 File Type : pdf
📄 File Size : 22098157 bytes
🔗 Project ID: BU0004_PRJ003
Do you want to proceed with the upload? (Y/N): Y
Document uploaded successfully.
✅ File uploaded successfully.
```

2.DOWNLOAD THE DOCUMENT

```
===== Document Management for Project ID: BU0004_PRJ003 =====
1. Upload Document
2. Download Document
3. List Documents
4. Delete Document
0. Back to Project Menu
Enter your choice: 2
Enter Project ID: BU0004_PRJ003

📄 Documents for Project ID: BU0004_PRJ003
Document ID: DOC005 | Name: BluePrint3.pdf | Type: pdf | Uploaded On: 2025-07-21 11:47:32.670963
Document ID: DOC006 | Name: BluePrint1.pdf | Type: pdf | Uploaded On: 2025-07-22 19:56:09.049699
Enter Document ID to download: DOC006
Enter destination file path (including filename): /Users/perecharlab/Desktop/BluePrint2.pdf
✓ File downloaded to: /Users/perecharlab/Desktop/BluePrint2.pdf
```

3. LIST DOCUMENT

```
===== Document Management for Project ID: BU0004_PRJ003 =====
1. Upload Document
2. Download Document
3. List Documents
4. Delete Document
0. Back to Project Menu
Enter your choice: 3
Enter Project ID: BU0004_PRJ003

Documents for Project ID: BU0004_PRJ003
Document ID: DOC005 | Name: BluePrint3.pdf | Type: pdf | Uploaded On: 2025-07-21 11:47:32.670963
Document ID: DOC006 | Name: BluePrint1.pdf | Type: pdf | Uploaded On: 2025-07-22 19:56:09.049699
```

4.DELETE

```
===== Document Management for Project ID: BU0004_PRJ003 =====
1. Upload Document
2. Download Document
3. List Documents
4. Delete Document
0. Back to Project Menu
Enter your choice: 4
Enter Project ID: BU0004_PRJ003

Documents for Project ID: BU0004_PRJ003
Document ID: DOC005 | Name: BluePrint3.pdf
Document ID: DOC006 | Name: BluePrint1.pdf
Enter Document ID to delete: DOC005
Are you sure you want to delete this document? (Y/N): Y
 Document deleted successfully.
```

CLIENTDASHBOARD

1. Client-Specific Dashboard:

After login, clients are redirected to this dashboard, which provides features relevant to their role and activities.

2. Profile Management:

Clients can **view**, **edit** their profile details, and **change their password**, using their email for secure identification.

3. Project Viewing:

Clients can view a list of **their own projects**.

4. Payment Tracking:

Provides functionality for clients to **view payment details** related to their ongoing or completed projects.

5. Document Access:

Clients can access and **view project-related documents** such as blueprints, permits, and other uploads.

1.VIEW PROFILE- CLIENTS

```
🔗 ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice: 1
```

```
👤 ===== Client Profile =====
◆ Name: Krishna
◆ Email: krishna@client.com
◆ Contact: 9491119155
◆ Type: Individual
🏡 Address:
- Line1: HousingNagar
- City: Vijayawada
- State: Andhra
- Zip: 45002
- Country: India
```

2.EDIT PROFILE OF CLIENTS:

```
⚡ ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice: 2

⚡ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit Client Type
[4] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 1
Enter new name: Krishna Chaitanya

⚡ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit Client Type
[4] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 2
📞 Enter 10-digit contact number: 9000600073

⚡ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit Client Type
[4] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 3
Enter client type: Individual
```

```
☞ ===== Edit Profile =====
```

- [1] Edit Name
- [2] Edit Contact
- [3] Edit Client Type
- [4] Edit Address
- [0] Back to Dashboard

```
👉 Enter your choice: 4
```

```
🏠 ===== Edit Address =====
```

- [1] Edit Address Line 1
 - [2] Edit City
 - [3] Edit State
 - [4] Edit Zip Code
 - [5] Edit Country
 - [0] Done Editing Address
- ```
👉 Choose field to edit: 1
```
- ```
Enter Address Line 1: BalajiNagar
```
- ```
✓ Address updated successfully.
```

View The Edited Changes:

```
❖ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit Client Type
[4] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 0
✓ Profile updated successfully!
```

```
❖ ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice: 1
```

```
👤 ===== Client Profile =====
◆ Name: Krishna Chaitanya
◆ Email: krishna@client.com
◆ Contact: 9000600073
◆ Type: Individual
🏠 Address:
- Line1: BalajiNagar
- City: Vijayawada
- State: Andhra
- Zip: 45002
- Country: India
```

### 3.View ALL Projects- Belongs to Client:

```
⚡ ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice: 4

█ ===== Your Projects =====

⚡ Project ID : BU0001_PRJ001
🔥 Name : Luxury Villas Phase 1
📝 Description : Construction of 50 luxury villas
📅 Start Date : 2021-03-01
📅 Est. Completion: 2025-12-31
✅ Actual Completion: -
📊 Status : In Progress
👤 Manager ID : MA0001
👤 Client ID : CL0001
🏗️ Builder ID : BU0001
💰 Estimated Cost: ₹22000000.00

⚡ Project ID : BU0001_PRJ004
🔥 Name : Zeta Builders
📝 Description : Company House Building
📅 Start Date : 2025-02-23
📅 Est. Completion: 2029-03-23
✅ Actual Completion: -
📊 Status : In Progress
👤 Manager ID : MA0010
👤 Client ID : CL0001
🏗️ Builder ID : BU0001
💰 Estimated Cost: ₹70000000.00

```

## 4. View Payments of the Projects-By Client

| Your Projects:                                                              |            |             |                         |
|-----------------------------------------------------------------------------|------------|-------------|-------------------------|
| BU0001_PRJ001 - Luxury Villas Phase 1                                       |            |             |                         |
| BU0001_PRJ004 - Zeta Builders                                               |            |             |                         |
| BU0004_PRJ004 - SKY TOWER BUILDERS-                                         |            |             |                         |
| 👉 Enter Project ID to view payments: BU0001_PRJ001                          |            |             |                         |
| ===== Payments for Project: Luxury Villas Phase 1 (ID: BU0001_PRJ001) ===== |            |             |                         |
| Payment ID                                                                  | Date       | Amount      | Description             |
| PAY000100                                                                   | 2025-07-01 | ₹10000.00   | Initial Deposit         |
| PAY000020                                                                   | 2025-07-01 | ₹1000.00    | Payment 1               |
| PAY000036                                                                   | 2025-07-01 | ₹1000.00    | Payment 1               |
| PAY000037                                                                   | 2025-07-02 | ₹1100.00    | Payment 2               |
| PAY000021                                                                   | 2025-07-02 | ₹1500.00    | Payment 2               |
| PAY000038                                                                   | 2025-07-03 | ₹1200.00    | Payment 3               |
| PAY000022                                                                   | 2025-07-03 | ₹200000.00  | Payment 3               |
| PAY000023                                                                   | 2025-07-04 | ₹250000.00  | Payment 4               |
| PAY000039                                                                   | 2025-07-04 | ₹1300.00    | Payment 4               |
| PAY000040                                                                   | 2025-07-05 | ₹1400.00    | Payment 5               |
| PAY000024                                                                   | 2025-07-05 | ₹3000.00    | Payment 5               |
| PAY000101                                                                   | 2025-07-05 | ₹20000.00   | Foundation Work Payment |
| PAY000025                                                                   | 2025-07-06 | ₹3500.00    | Payment 6               |
| PAY000041                                                                   | 2025-07-06 | ₹1500.00    | Payment 6               |
| PAY000026                                                                   | 2025-07-07 | ₹4000.00    | Payment 7               |
| PAY000042                                                                   | 2025-07-07 | ₹1600.00    | Payment 7               |
| PAY000043                                                                   | 2025-07-08 | ₹1700.00    | Payment 8               |
| PAY000027                                                                   | 2025-07-08 | ₹4500.00    | Payment 8               |
| PAY000102                                                                   | 2025-07-10 | ₹15000.00   | Structural Payment      |
| PAY000103                                                                   | 2025-07-15 | ₹18000.00   | Electrical Work Payment |
| PAY000104                                                                   | 2025-07-20 | ₹22000.00   | Final Payment           |
| PAY000012                                                                   | 2025-07-20 | ₹1000000.00 | Initial payment         |
| PAY000004                                                                   | 2025-07-20 | ₹1000.00    | Initial payment         |

## 5. View Project Documents- Belongs to Client's Project

```

⚡ ===== Client Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[5] View Payments for My Projects
[6] View Project Documents
[0] Logout
👉 Enter your choice: 6

📁 ===== Project Documents =====

📌 Project ID: BU0001_PRJ002 | Project Name: Commercial Complex
📄 Document ID: DOC002 | Name: BluePrint2.pdf | Type: pdf | Uploaded On: 2025-07-21 11:15:06.940502
📄 Document ID: DOC004 | Name: BluePrint3.pdf | Type: pdf | Uploaded On: 2025-07-21 11:33:22.042787

📌 Project ID: BU0004_PRJ003 | Project Name: Ganesh Sky Towers
📄 Document ID: DOC006 | Name: BluePrint1.pdf | Type: pdf | Uploaded On: 2025-07-22 19:56:09.049699

```

## 4. KEY RESPONSIBILITIES OF MANAGER DASHBOARD

- Interactive Dashboard Menu:**  
Displays a console-based menu with options specifically for a logged-in manager, allowing easy navigation through various features.
- View Profile:**  
Lets the manager view their personal profile details using ManagerService.viewProfile(email).
- Edit Profile:**  
Allows the manager to update their personal information through ManagerService.editProfile(email).
- Change Password:**  
Provides an option to change the current account password securely using ManagerService.changePassword(email).
- View Assigned Projects:**  
Displays all projects assigned to the manager by calling ProjectService.viewProjectsByManagerEmail(email).
- Logout:**  
Allows the manager to safely log out and exit the dashboard loop by choosing the logout option.

### VIEW PROFILE-MANAGER

```
★ ===== Welcome to Builder Portfolio Management System =====★
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 1

👤 ===== Login =====
Enter Role (Admin/Builder/Client/Manager): Manager
Enter Email: indu@manager.com
Enter Password: Indu2412@0
✓ Login Successful! Welcome, Indu (MANAGER)

💻 ===== Manager Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[0] Logout
👉 Enter your choice: 1

👤 ===== Manager Profile =====
◆ Name: Indu
◆ Email: indu@manager.com
◆ Contact: 9090909090
◆ PM Status: WORKING
◆ Assigned Builder ID: BU0003
🏠 Address:
- Line1: Gachibowli
- City: Hyderabad
- State: 434334
- Zip: 432243
- Country: India
```

## 2. EDIT PROFILE

```
👤 ===== Manager Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[0] Logout
👉 Enter your choice: 2

🛠 ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit PM Status
[4] Edit Assigned Builder ID
[5] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 1
Enter new name: Indu Mati
✓ Name updated successfully!
✓ Profile updated successfully!

🛠 ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit PM Status
[4] Edit Assigned Builder ID
[5] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 2
📞 Enter 10-digit contact number: 9000600000
✓ Contact updated successfully!
✓ Profile updated successfully!
```

### 3.EDIT PROFILE – WHILE CHANGING THE BUILDER\_ID (VERIFIES WHETHER BUILDER EXIST OR NOT IN TABLE)

```
✖ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit PM Status
[4] Edit Assigned Builder ID
[5] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 3
Enter PM status (bench / working): working
✓ PM status updated successfully!
✓ Profile updated successfully!
```

```
✖ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit PM Status
[4] Edit Assigned Builder ID
[5] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 4
Enter assigned Builder ID: BU0016
✗ Invalid Builder ID. No such builder exists. Please try again.
Enter assigned Builder ID: BU0003
✓ Builder ID assigned.
```

```
⚡ ===== Edit Profile =====
[1] Edit Name
[2] Edit Contact
[3] Edit PM Status
[4] Edit Assigned Builder ID
[5] Edit Address
[0] Back to Dashboard
👉 Enter your choice: 5

🏡 ===== Edit Address =====
[1] Edit Address Line 1
[2] Edit City
[3] Edit State
[4] Edit Zip Code
[5] Edit Country
[0] Done Editing Address
👉 Choose field to edit: 1
Enter Address Line 1: BalajiNagar
✓ Address updated successfully.

🏡 ===== Edit Address =====
[1] Edit Address Line 1
[2] Edit City
[3] Edit State
[4] Edit Zip Code
[5] Edit Country
[0] Done Editing Address
👉 Choose field to edit: 0
✓ Address updated successfully.
✓ Profile updated successfully!
```

VIEW PROFILE AFTER EDITING DETAILS:

```
👤 ===== Manager Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[0] Logout
👉 Enter your choice: 1
```

```
👤 ===== Manager Profile =====
◆ Name: Indu Mati
◆ Email: indu@manager.com
◆ Contact: 9000600000
◆ PM Status: working
◆ Assigned Builder ID: BU0003
🏡 Address:
- Line1: BalajiNagar
- City: Hyderabad
- State: 434334
- Zip: 432243
- Country: India
```

5. ALL THE PROJECTED WHICH ARE ASSIGNED TO MANAGER:

```
⌚ ===== Manager Dashboard =====
[1] View Profile
[2] Edit Profile
[3] Change Password
[4] View My Projects
[0] Logout
👉 Enter your choice: 4

📅 ===== UPCOMING PROJECTS =====

>ID Project ID : BU0007_PRJ001
🔗 Project Name : Shopping Mall Renovation
📝 Description : Major renovation of city shopping center
📅 Start Date : 2023-07-01
📅 Estimated Completion : 2025-12-31
📅 Actual Completion : -
📊 Status : Upcoming
👤 Manager ID : MA0005
🤝 Client ID : CL0004
🏗️ Builder ID : BU0007
₹ Estimation Cost : ₹78798980.00

📅 ===== IN PROGRESS PROJECTS =====
✖️ No in progress projects found.

📅 ===== COMPLETED PROJECTS =====
✖️ No completed projects found.
```

Some of the extra features in login and Sign up pages:

```
★ ===== Welcome to Builder Portfolio Management System =====★
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 2

▣ ===== Registration =====
[1] Register as Admin
[2] Register as Builder
[3] Register as Client
[4] Register as Manager
[0] Back to Main Menu
👉 Enter your choice: 2
Enter Name:
✖ This field cannot be empty.
Enter Name: Perecharla Bhavana
Enter Email:
✖ This field cannot be empty.
Enter Email: bhavanaperecharla@gmail.com
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): SUnshine
✖ Password doesn't meet the criteria.
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): Sunshine2412@
Re-enter password: Sun
✖ Passwords don't match.
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): Sunshine2412@
Re-enter password: Sunshine2412@
✖ Passwords don't match.
Enter password (min 10 chars, 1 uppercase, 1 lowercase, 1 digit, 1 special): Sunshine2412@
Re-enter password: Sunshine2412@
Enter Contact Number (10 digits): 9090
✖ Invalid phone number. Enter exactly 10 digits.
Enter Contact Number (10 digits): 9491119155
Address Line 1:
✖ This field cannot be empty.
Address Line 1: BalajiNagar
City: Guntur
State: Andhra Pradesh
Zip Code: 522001
Country: India
● Submit registration? (Y/N): Yes
```

```
★ ===== Welcome to Builder Portfolio Management System =====★
[1] Login to your account
[2] Register as New User
[0] Exit
👉 Enter your choice: 1

🔒 ===== Login =====
Enter Role (Admin/Builder/Client/Manager): builder
Enter Email: padma@builder
✖ Email not found for role: BUILDER
⌚ Attempts remaining: 2
Enter Email: padma@builder.com
Enter Password: Padma2412@
✖ Incorrect password.
⌚ Attempts remaining: 2
Enter Password: Padma2412@@
✓ Login Successful! Welcome, Padma (BUILDER)
```