**Project Design Phase**

**Problem – Solution Fit Template**

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| --- | --- |
| Date |  |
| Team ID | PNT2025TMID09657 |
| Project Name | Rentease-HOUSE RENT APP USING MERN |
| Maximum Marks | 2 Marks |

**Problem – Solution Fit Template:**

**1. Discovery and Problem Analysis**

This initial phase focuses on understanding the core problems and user needs.

* **Problem Statement:** The process begins by clearly defining the issues. For a house rental app, this includes challenges like tenants struggling to find accurate listings, owners finding it difficult to vet applicants, and the lack of a streamlined, secure application process.
* **User Research:** We conduct interviews, surveys, and competitive analysis to understand the behaviors and pain points of both tenants and owners. An **Empathy Map** is created to visualize their thoughts, feelings, and actions.
* **Requirements Gathering:** The output of this phase is a detailed list of **functional** (e.g., user registration, property search) and **non-functional** (e.g., security, performance) requirements.

**2. Solution Design and Planning**

This phase translates the requirements into a concrete plan for the application.

* **Solution Brainstorming:** Potential solutions are explored to address the identified problems. For example, a unified dashboard for owners to manage applications and a robust search filter for tenants.
* **Technical Architecture:** A technical blueprint is created, often using a framework like the **MERN stack**. This defines the database structure (MongoDB), backend logic (Node.js/Express.js), and frontend user interface (React.js). A **Data Flow Diagram** is created to show how data moves through the system.
* **User Experience (UX) and User Interface (UI) Design:** Wireframes and mockups are created to design the user journey and visual layout. This ensures the application is intuitive and aesthetically pleasing.

**3. Development and Implementation**

This is the phase where the application is built based on the design plans.

* **Agile Development:** The project is broken down into small, manageable sprints. A **product backlog** is created, which is a prioritized list of features to be developed.
* **Sprint Planning:** Each sprint has a defined scope with specific **user stories**, which are small tasks written from a user's perspective (e.g., "As a tenant, I want to search for properties by location").
* **Coding and Testing:** The development team writes code for the frontend, backend, and database. Continuous testing is performed to ensure the application is functional, reliable, and secure.

**4. Deployment and Maintenance**

The final phase involves launching the application and ensuring its long-term success.

* **Deployment:** The application is launched and made available to users.
* **Monitoring:** The application's performance, availability, and security are continuously monitored.
* **Feedback and Iteration:** User feedback is collected and used to identify new features and improvements. The cycle then restarts with a new discovery phase to evolve the application.