# List of Requirements, Stakeholders, and Elicitation Techniques

**Team Composition**


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# 1) Stakeholders

Following are the list of the Stakeholders :

1. **Residential People :**
   People living in houses and apartments are key stakeholders, as they can use the Electricity Consumption Planner System to reduce their energy consumption and efficiently manage their electrical resources.

2. **Small and Medium Enterprises :**
   Such businesses that have a limited amount of resources for their electricity management can interact with this Electricity Consumption Planner System in order to optimize their daily usage for electrical appliances.

3. **Commercial Buildings** :
   Commercial buildings that include office complexes , shopping centers and other commercial facilities that consume sustainable energy can optimize their daily usage by better managing appliances and other electrical systems.

4. **Electricity/Local Utility Providers:**
   Electricity (Local Utility) providers can partner with the system to promote off-peak usage, reducing the strain or load on power plants and customers modify their energy utilization habits.

5. **Client :**
   The client is the one who requested the creation of this system. The feedback from the client is important throughout the development process to ensure that the system to be developed meets the needs of the business.

6. **Domain Expert :**
   A domain expert in electricity consumption to pricing models will give insights into the minute details of electricity tariffs, such as TOU pricing. They guide the development team to understand how different energy consumptions affect the electricity bills, which shows that the scheduling algorithm best represents real-world pricing. They can bridge the gap between the technical implementation and real-life energy usage patterns.

7. **Software Engineer:**

   The software developer developed the basic features of the Electricity Consumption Planner System focusing on appliance entry, management of electricity rates and planning for consumption. They worked closely with the requirement engineer and domain expert to optimize the algorithm, ensuring smooth system operation and meeting user needs.

8. **Requirement Engineer:**

   The requirement engineer gathered and analyzed requirements from stakeholders like the client and domain expert. They translated these needs into technical specifications for the development team, ensuring the system's features and functionalities aligned with user expectations.

## 2) Elicitation techniques

Following are the Elicitation techniques that we are interested in for gathering furthermore information or requirements about the Electricity Consumption Planner System in order to gain a better understanding :

1. **Interviews:**

   Get more information through face-to-face surveys with users who live in the house and businesspersons that take offices in the houses.This elicitation technique helps us in the effectiveness for developing a better understanding of the problem.

2. **Joint Application Design (JAD):**

   Hold meetings with the Utility providers, SMEs , Users , Developers , Testers , Requirements Engineers and other StakeHolders together .This elicitation technique helps us to get detailed needs and anticipated functioning of the system ( list of Requirements).

3. **User Stories:**

   Create user stories by gathering input from residential users, business owners, and utility providers. This elicitation technique helps us to outline Stakeholders goals , expectations and benefits from the system's functionality or features.

4. **View Points:**

   Include the viewpoints of all stakeholders (residents, businesses, utility providers, developers).This elicitation technique helps us to make sure the system meets everyone's needs and improves user satisfaction.

5. **Repertory Grids:**

   Utilize repertory grids for ranking and comparing system features based on stakeholder preferences.This elicitation technique helps us identify and resolve conflicting requirements at the initial stages.

# 3) List of Requirements

Following are the list of requirements for the Electricity Consumption Planner System :

**3.1.** The system shall allow the user to input the details about the number of household applicances their power consumption and preferred usage time.

**Source:** User input of Residential consumers.

**3.2.** The system shall be able to display different time slots ( e.g. peak off and peak ) hours of the electricity rates.

**Source:** Electricity rate data from local utility providers.

**3.3.** The system shall enable the user to monitor the power rating of each of the electrical appliances they have, provide the user with real time or past information on how much power each of the electrical appliances uses.

**Source:** Residential user interviews.

**3.4.** The system shall have a mechanism that when users demand, the system should be capable of recreating the appliance usage schedule to accommodate any changes in planning or electricity tariffs.

**Source:** Self-generated data from a survey of residential users and SMEs.

**3.5.** The system shall be able to generate an optimized schedule on appliance data and electricity rates to minimize electricity costs to keep into account the User bill expectation.

**Source:** Residential and business consumers, energy consumption patterns.

**3.6.** The system shall display a 24-hour schedule that shows the best times to use appliances.

**Source:** User feedback and interface design preferences.

**3.7.** The system shall handle various household sizes and appliance types, adjusting to changing electricity rates.

**Source:** Business and residential consumer use cases, utility providers' future rate adjustments.

**3.8.** The system shall interface be simple and intuitive, allowing users to quickly enter appliance details and view schedules.

**Source:** Usability feedback from consumer trials or surveys.

**3.9.** The system shall ensure secure handling of user data, including appliance details and electricity usage.

**Source:** View point of some specific Residential User

**3.10.** The system shall be able to ensure that the scheduling algorithm has the most efficient possible computational model but one that is not heavy on the computer.

**Source:** Developer Research

**3.11.** The system must support various household sizes, appliances, and changing electricity rates.

**Source:** List of requirement from JAD

**3.12.** The system shall handle errors gracefully, providing informative messages for invalid inputs or system failures.

**Source:** User input of Residential consumers.

**3.13.** The system shall take input from the user in such a way that they should be able to provide what kind of device it is (for example refrigerator, washing machine etc.) and the size or general type of the device (for example small, medium, large), they have no to specify any model.

**Source:** Residential consumer

**3.14.** The system allows the Users so that he/she should be able to view a history of previous schedules and estimated costs for tracking purposes.

**Source:** Stakeholder actions form user stories.

**3.15.** The system allows the Users so that he / she should be able to view a history of previous schedules and estimated costs for tracking purposes.

**Source:** SMEs Workshop (JAD)

**3.16.** The system shall allow users to give feedback on their experience with the suggested schedules and system shall adjust based on user input.

**Source:** Residential users via interview

**3.17.** The system must provide an estimation of potential savings or costs associated with different usage patterns.

**Source:** Stakeholder benefits form user stories

**3.18.** The system should allow users to compare current energy usage with historical data.

**Source:** SMEs Workshop (JAD)

**3.19.** The system code should be written in C++ programming language.

**Source:** Developer Team

**3.20.** The system should use Winforms for the formation of an intuitive user interface.

**Source:** Developer Team

**3.21.** The system uses the File Handling concept of C++ in case to read any data from an outer source.

**Source:** Developer Team