CHAPTER 3:REQUIREMENT ELICITATION HOMEWORK

Q1. What are some different user classes for smart home system described in appendix A?
Ans. Some of the different user classes for the smart home system are:
- Architects
- Interior Designers
- Relatives
- Guests
- Owners
- Construction workers
- Electrician and many more.

Q2. What are some difficulties that may be encountered in attempting to elicit requirements without face to face interactions?
Ans. Some of the difficulties faced in gathering information without face to face interactions are as follows:
- Communication is asynchronous
- Discussions are not continuous
- Instant feedback is not possible
- Miscommunication probability increases
- Complete requirements may not be gathered
- Interpretation of data on both client as well as developer side might not be the same
- Trust cannot be build amongst client and developer
- It might take more time to gather the requirements
- The overall process slows down due to extensive reliability on virtual methods

Q3. Does the Heisenberg Uncertainty Principle apply to techniques other than ethnographic observations? What are some ways to alleviate the Heisenberg Uncertainty Principle?
Ans. In my view, HUP can be applied to:
- Domain knowledge
- Scenarios
- User stories etc

This is because, the client or the developer might mislead the other to prove oneself superior. In the former the developer might try to portray more knowledge than he or she possesses. Whereas in the latter, the user will only tell the positive aspects of the stories to create a better impression of himself. This can be misleading and might also lead to wrong interpretation of the data.

Some ways to alleviate the principle is by:
- Have written proof of the data being shared between the client and the developer
- Having many face to face interactions thus clearing more things out
- Using more JAD, QFD or other techniques

Q4. During ethnographic observations, what is the purpose of recording the time and day the observation was made?

Ans. The main reason behind recording is that what people say and what they actually do are two different things. In order to provide an accurate report of the surroundings and the needs of the client, this recording is necessary. It helps in gathering evidence about the customer's needs derived from the surroundings which are not communicated directly. As ethnographic observations take a very long duration to complete, thus the exact time and day is necessary of the things happening around, which can also help in prioritizing the needs of the customer.

Q5. Should requirements account for future scalability and enhancements?

Ans. In my opinion, yes. Requirements do account for future scalability and enhancements. Recognizing the scalability of the requirements is very important as it will tell us about the scope in enhancements of the user growth, usage and data growth. We need to make sure that these requirements are prioritized and maintained keeping the future in mind and not just the short-term goal satisfactions. Apart from the requirements, the experience of the types of tools which are used and also the experience of the developer, help have a huge impact on the development time and future scope of the overall project. Scaling of the requirements is very necessary. If scalability is not kept in mind, the complete system might breakdown when the usage is exceeded with respect to the project capacity. This will eventually lead to more time and money investment to fix the system again, thus increasing the overall cost of the complete project. Considering the requirements properly and from the bud stage, is thus very crucial.

Q6. Which subset of the techniques described in the chapter would be appropriate for a setting where the customers are geographically distributed?

Ans. The following techniques might bring out the better requirement gathering if the customers are geographically distributed:
- Card sorting
- QFD
- JAD
- Viewpoints
- Prototypes
- Questionnaires etc

Q7. Investigate the concept of "active listening". How could this technique assist in requirement engineering?

Ans. Active Listening is a method which is used to listen and respond to others in a structured way. It requires a listener to understand and actively evaluate what they have heard. It is used to achieve a number of goals. Goal of active listening are:
- to ensure that the listener understands what the speaker has said by replying to the speaker. The speaker can either acknowledge that the listener's understanding was accurate or can quickly identify any misunderstanding that the listener may have. Thus, removing miscommunications instantly. Actively listening helps the listener avoid

incorrect conclusions. But it does not necessarily mean that the listener agrees with the speaker.

- For the listener to extract additional information from the speaker. While listening to the speaker, the listener may notice something in the speaker's tone or body language. Thus extracting more details apart from ones which are communicated directly.

Active Listening is a powerful tool during requirements elicitation. Requirements elicitation often occurs during in the beginning of the project where everyone does not have the same background knowledge and understanding of the project. Because of this, there are typically many assumptions that are being made by each person as they build an image of the project in their mind. Actively listening can verify correct assumptions and remove the misunderstanding resulting in a clearer and more accurate set of requirements.

Q8. If you are working on a class project, what selection techniques described in this chapter would you use to elicit requirements from your customer?
Ans. Some of the techniques that we could use during the class project for gathering information are:
- Laddering
- Protocol Analysis
- Brainstorming
- Group Work
- JAD
- Interviews
- Viewpoints
- Repertory grids and so on.
As these techniques mentioned are easy to gather information from the customer. As well as have instant feedback from the customers.

Q9. There are several "shall not" requirements in the SRS of the appendix A. Which if any, of these would you consider to be hazards?
Ans. Some of the hazards are as follows:
- Under health and safety detectors- system shall not interfere in any way with detector manufacturer's operating procedures.
  Reason- if the detectors are not made properly, it might lead to unsafety of the customers using it.
- Under pet food delivery – It shall not exceed the amount of portion weight.
  Reason- if the portion of food is way more, then it might cause danger to the health of the pet.
- Under outdoor irrigation- Shall not run irrigation devices if rain is detected.
  Reason- if used devices then it will lead to unnecessary usage of the resources which can be used in times of extreme situations.

Q10.Speculate as to why there are no "shall not" requirements in SRS of Appendix B?

Ans. There are no shall not in this SRS because the system defined in this scenario is extremely important and if not meddled properly might lead to disastrous effects on human life. All the important details are mentioned and are of high prioritization and should be obeyed to the point. There is no room for any kind of mistake. Methane gas, if not handled properly can be very dangerous, as well as can pose to a threat to the area in which sewage is grinded in.

Q11. For pet store point of scale system, develop an antimodel pertaining to inventory control. For example: system should not record negative inventory. Write the corresponding shall not requirements for this antimodel.

Ans. The "shall not" are:
- Shall not record negative inventory
- Shall not have expired food
- Shall not have damaged toys and things
- Shall not have open inventory
- Shall not be located in a damp place

Close shop

$\otimes$

Negative inventory

$\otimes$

Open inventory

$\oplus$

expired food $\oplus$ damaged goods

damp place

$\oplus$-or

$\otimes$- and