Laboratory 1

Requirements Analysis - I

1. Introduction and Purpose of Experiment

Students get familiar with the documentation and scenario specified for all the lab exercises while analysing the requirements of the scenario

2. Aim and Objectives

Aim: Develop formal software requirements in a standard format for a given engineering problem

Objectives: At the end of this lab, the student will be able to

- Identify software requirements from problem statement
- Identify type of a software requirement
- Create an unambiguous list of software requirements based on interaction with a client

3. Experimental Procedure

- Work in teams of 4 students
- Each team should read the problem statement and identify requirements as a group
- Each team will then confirm the requirements and document the requirements in an SRS document
- Each individual will then write their lab manual, documenting their observations

4. Calculations/Computations/Algorithms

Question: DESIGN A SYSTEM FOR A HOTEL MANAGEMENT. THE SYSTEM HAS TO EFFICIENTLY MANAGE THE CUSTOMER NEEDS ONCE THEY ENTER THE HOTEL TILL THEY LEAVE

Stake holders:

1. Manager of the hotel
2. Hotel Employees
    a. Cashier
    b. Check & the service people

c. Cleaners

To manage the needs of the customer right from entering the hotel till leaving many parameters have to considered like response time, food quality, cleanliness etc. So the designed system has to take care of all of these parameters.

5. Presentation of Results

Functional Requirements:

- ✓ When a customer comes into the hotel and sits on the chair, a melody music starts playing, which can be changed or cancelled by the customer.
- ✓ Each table has a digital equipment (tablet/iPad) named as "**Smart Table Assistant**" with unique table number.
- ✓ The menu in the *table assistant* changes whenever the hotel wants to change the items being served. For example, breakfast, lunch and dinner has different food items.
- ✓ The customer selects and orders food from the menu, which he can cancel within 5-7 minutes of confirming the order. The order given is updated to the chef and the cashier & both will know from which table number the order was placed.
- ✓ Orders are queued and the customer will be notified on the table assistant about the waiting time.
- ✓ The dishes will be served to customer's table by the serving team who can track the customer from his table id.
- ✓ If the customers needs any extra item or side dishes served, they directly contact the service team through the smart table assistant.
- ✓ When customer has finished dining, they can click on "Finish" button upon which the bill will be generated in the smart table assistant.
- ✓ The smart table assistant asks user for the feedback about the hotel, it's infrastructure, food quality etc. These feedbacks are sent to the hotel manager so that he can use this data in the betterment of the hotel.
- ✓ The customer then has to select his/her mode of payment method i.e. cash or cashless.
    - o If the customers wish to pay cashless, they can use their debit/credit card to pay the bill. The smart table assistant has a built in Stripe Reader, which requires the customer to

swipe their card through the machine & then use their digital pin to pay the money. After paying the money, they get an acknowledgement receipt.

- If the customers choose cash payment, they have to go the cashier with a token that is generated upon selecting the "Cash Payment Mode" option. The table id is also mentioned on the token by which the receptionist can recognize the customer. After paying the money, they get an acknowledgement receipt.

- ✓ The customer's order list, payment info, feedback etc. are updated to the manager once the bill is paid.
- ✓ When moving out of the hotel, the customer has to show the acknowledge receipt without which the security staff cannot the let them go. This ensures that all the customers have paid the bill.
- ✓ Once the customer checks out, the cleaning team is notified to clean the specific table with it's id.

Non-Functional Requirements:

- ✓ The service should be available 24 hours a day and specifically during working hours.
- ✓ The feedback report should be generated automatically everyday for manager and anytime upon request.
- ✓ The time taken between the placing of order and the receiving of order should be possibly less.
- ✓ All the hotel staffs should be well behaved. They have to treat the customers with hospitality.
- ✓ Benefits have to be given to the customer such as festive offers, combo offers to maintain promotions.
- ✓ Able to create offers or discounts for new or current customers when required.
- ✓ Vehicle parking facilities should be provided

6. Analysis and Discussions

Requirements are the backbone of any project. They help us understand the needs of our users and help us provide a solution **to meet those needs**. Documented requirements provide information not only to the **design team** but also to the **testing team** and other project **stakeholders**.

Documenting stakeholder needs involves understanding the viewpoints of different people. Often, users and stakeholders don't know how to solve the entire problem but are experts at explaining what they need to do their job better. Each stakeholder sees the problem from a different

perspective. Therefore, one must **understand the needs of all stakeholders** in order to understand the entire problem domain.

7. Conclusions

The requirements document is used to create the **product/service design** and **user interfaces** (in case of a software). It helps to develop the *functional and non-functional specifications* and performance rules. If the rules are *undefined* or hard to understand then the *designers will have to fill in the requirements gaps*. This could lead to missed requirements.

Thus, it can be concluded that by gathering the requirements one can get a *better insight* of what has to be done actually in the project.

8. Comments

1. **Limitations of Experiments**

- The current system is following the Waterfall Model. Due to this, the requirements are fixed and cannot be changed once the next phase is started.
- The requirements are not verified i.e. whether they are valid or not in this model.

2. **Limitations of Results**

The designed system is only for a customer who eat in the restaurant. There has been no software/automation for the customer who prefer eat-outs.

3. Learning happened

In the current lab, one can learn the **importance of Requirement Engineering, different aspects or steps followed wile gathering the requirements** and standard **procedure to document the requirements.**

Component	Max Marks	Marks Obtained
Viva	6	
Results	7	
Documentation	7	
Total	20	