

## Laboratory 2

### Requirements Analysis - II

#### 1. Introduction and Purpose of Experiment

Students will formally document the identified requirements in an SRS document for the scenario

#### 2. Aim and Objectives

Aim: To develop formal SRS document in a standard format for a given engineering problem

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

- Identify dependencies of a software requirement
- Create SRS document in a standard format

#### 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. Presentation of Results

System Requirements:

- The system should have an UI that is specific to only the given scenario like ordering, payment, feedbacks, et cetera.
- The system should have multiple languages support to assist the customer.
- The system (cashier's, table assistant, manager, chef) should be capable of connecting to a central server where all the data is stored and can be accessed by different users based on username and password.
- The system should be able to connect to the bank server when the customer chooses to pay cashless.

Requirement Specification:

Item	Detail
Requirement Tag	FR1

<b>Requirement Statement</b>	When a customer comes into the hotel and sits on the chair, a melody music starts playing, which can be cancelled or changed by the customer.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR4, FR5
<b>Stake holder owning the requirements</b>	Customer
<b>Example of user/system interaction for this requirement</b>	When a customer enters the hotel and takes a table the tablet starts playing the music for the customer to entertain him/her.

Item	Detail
<b>Requirement Tag</b>	FR2
<b>Requirement Statement</b>	Each table has a digital equipment (tablet/iPad) named as smart table assistant with unique table number.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR6
<b>Stake holder owning the requirements</b>	----
<b>Example of user/system interaction for this requirement</b>	Each tablet on each table is specified for that table only as the food ordered from that tablet refers to the specified table number, which the tablet belongs to.

Item	Detail
<b>Requirement Tag</b>	FR3
<b>Requirement Statement</b>	The menu in the <i>table assistant</i> changes whenever the hotel wants to change the items being served. For example, breakfast, lunch and dinner has different food items.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR4, FR6, FR7
<b>Stake holder owning the requirements</b>	----
<b>Example of user/system interaction for this requirement</b>	The table assistant displays food types available at that specified time and the menu displayed on it updates automatically after specified time or when a special dish is introduced.

Item	Detail
<b>Requirement Tag</b>	FR4
<b>Requirement Statement</b>	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.
<b>System requirement addressed</b>	SSFR1, SSFR2
<b>Dependent on requirements</b>	FR5, FR6, FR7
<b>Stake holder owning the requirements</b>	Customer, Chef, Cashier
<b>Example of user/system interaction for this requirement</b>	When the customer places his order the order details are directly sent to the chef and the cashier along with the table number and then customer is provided a 5-7 min of time to change or cancel his order.

Item	Detail
<b>Requirement Tag</b>	FR5
<b>Requirement Statement</b>	Orders are queued and the customer will be notified on the table assistant about the waiting time.
<b>System requirement addressed</b>	SSFR1, SSFR2
<b>Dependent on requirements</b>	FR6
<b>Stake holder owning the requirements</b>	Customer
<b>Example of user/system interaction for this requirement</b>	When there are many orders are given they are queued and displayed on the monitor of the chef based on the time the orders are received.

Item	Detail
<b>Requirement Tag</b>	FR6
<b>Requirement Statement</b>	The dishes will be served to customer's table by the serving team who can track the customer from his table id.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR2, FR7
<b>Stake holder owning the requirements</b>	Service staff, Customer
<b>Example of user/system interaction for this requirement</b>	And when the ordered items are prepared chef notifies the serving team with bell and serving team serve the customer based on their table id given by the chef.

Item	Detail
<b>Requirement Tag</b>	FR7
<b>Requirement Statement</b>	If the customer needs any extra item or side dishes served, they directly contact the service team through the smart table assistant.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR6, FR8
<b>Stake holder owning the requirements</b>	Service staff, Customer

<b>Example of user/system interaction for this requirement</b>	If customer wants any side dishes or extra food items to be served he can order them by contacting the serving team through the table assistant directly.
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Item	Detail
<b>Requirement Tag</b>	FR8
<b>Requirement Statement</b>	When customer has finished dining, they can click on “Finish” button upon which the bill will be generated in the smart table assistant.
<b>System requirement addressed</b>	SSFR1
<b>Dependent on requirements</b>	FR9,FR10
<b>Stake holder owning the requirements</b>	Customer
<b>Example of user/system interaction for this requirement</b>	When the customer has finished eating he can click on the finish button displayed on the table assistant by which the customer is taken into the payment page.

Item	Detail
<b>Requirement Tag</b>	FR9
<b>Requirement Statement</b>	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.
<b>System requirement addressed</b>	SSFR3
<b>Dependent on requirements</b>	FR10-b
<b>Stake holder owning the requirements</b>	Hotel manager, Serving staff
<b>Example of user/system interaction for this requirement</b>	If the customer has any feedback to be made he can type in the tablet and send his feedback, the feedback so sent enter into the database of the manager and chef.

Item	Detail
<b>Requirement Tag</b>	FR10-a
<b>Requirement Statement</b>	The customer then has to select his/her mode of payment method i.e. cash or cashless. 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.
<b>System requirement addressed</b>	SSFR3,SSFR4
<b>Dependent on requirements</b>	FR10-b, FR12
<b>Stake holder owning the requirements</b>	Hotel manager, Service staff, Cashier
<b>Example of user/system interaction for this requirement</b>	The customer has two options while he is paying the bill he can go cashless or cash. If he wants to go cashless he can swipe his credit/debit card and enter the pin in the table assistant.

Item	Detail
<b>Requirement Tag</b>	FR10-b
<b>Requirement Statement</b>	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.
<b>System requirement addressed</b>	SSFR3,SSFR4
<b>Dependent on requirements</b>	FR11, FR12
<b>Stake holder owning the requirements</b>	Cashier, Service staff
<b>Example of user/system interaction for this requirement</b>	If the customer chooses cash his bill details are sent to the cashier along with his table id and he can pay the bill amount to the cashier

Item	Detail
<b>Requirement Tag</b>	FR11
<b>Requirement Statement</b>	The customer’s order list, payment info, feedback etc. are updated to the manager once the bill is paid.
<b>System requirement addressed</b>	SSFR4
<b>Dependent on requirements</b>	FR12
<b>Stake holder owning the requirements</b>	Hotel manager, Cashier
<b>Example of user/system interaction for this requirement</b>	Customers order details and bill amount and his feedback are directly sent to the manager’s database.

Item	Detail
<b>Requirement Tag</b>	FR12

<b>Requirement Statement</b>	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.
<b>System requirement addressed</b>	SSFR3
<b>Dependent on requirements</b>	FR13
<b>Stake holder owning the requirements</b>	Security staff
<b>Example of user/system interaction for this requirement</b>	To check whether the bill amount is paid by the customer or not the customer is provided with the acknowledgement receipt based on which the security guard allows the customer to go.

<b>Item</b>	<b>Detail</b>
<b>Requirement Tag</b>	FR13
<b>Requirement Statement</b>	Once the customer checks out, the cleaning team is notified to clean the specific table with its id.
<b>System requirement addressed</b>	SSR3
<b>Dependent on requirements</b>	F.R12
<b>Stake holder owning the requirements</b>	Cleaning staff
<b>Example of user/system interaction for this requirement</b>	Once the bill is paid by any of the two method, the cashier notifies the cleaning team to clean the table.

## 5. Analysis and Discussions

*System requirements are all of the requirements at the system level that describe the functions which **the system as a whole should fulfil** to satisfy the stakeholder needs and requirements.* The requirements collected from the stakeholders should be converted to a document that highlights the technicalities of the system to be developed called **SRS**. The requirements, which are in the nonprofessional's terms, can be used by the **System Designer** to create a plan for the system, which needs a clear insight of what is to be done.

Dependencies are one of the most crucial aspect in any requirement specification. Dependencies in the requirements must be highlighted since they give ample of information on the events that occur if the current event fails to happen. The requirements may have two types of association.

- **Direct Association:** If two or more requirements have a direct association, then they are considered as a single conceptual element while designing the system. This reduces the work done on individual item separately.
- **Indirect Association:** If two or more requirements have an indirect association, they are considered as a separate entity but are implemented through code reusability.

## 6. Conclusions

The tabulated requirements are handy in developing the system design that is later converted to an actual software in the development phase. The system requirements provide an abstract idea of **what the system should do on a broader sense.**

## 7. Comments

### 1. Limitations of Experiments

### 2. Limitations of Results

### 3. Learning happened

- The importance of System Requirements Specification document
- Importance of identifying the dependencies in Functional Requirements
- Systematic Procedure of tabulating the requirements

### 4. Recommendations

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