Hands-On Exercises

Contents:

Manual Testing Hands On: SRS Library Management System

Lab Exercise - 1

Objective

Read and understand SRS and practicing questioning skills.

SRS: Library Management System

A. Introduction:

All processes in City library to be automated using software to facilitate faster transactions. Currently, all processes would be branch specific. No two branches should be able to access data of other branch. However, in future cross-branch transactions are expected and facility should be made in current software to enable this whenever required.

Book purchase process is excluded from scope of this software.

B. Users of software:

Key users of this software are stock managers, librarians and registration staff.

C. Stock management module:

I. Stock manager should be able to add new books in library stock

II. Librarian can only view the books in the stock

III. "New book addition" should include at least following details:

a. ISBN code (13 digit)

b. Book name (250 char)

c. Author name (100 char)

d. Translator name (Optional) (100 char)

e. Publisher name (100 char)

f. Date of addition

g. Quantity / Number of copies

h. Book category(Novel, Travel, cookery book etc.)

i. Market price
j. Remarks
k. Auto generated member ID"

D. For each book copy, a unique code should be generated.

E. Stock manager should be able to add, modify and remove book categories, book types

F. ISBN number can be scanned using ISBN scanner or entered manually

G. Stock manager should be able to create reports and export the same to Word, Excel and PDF as needed

I. Report - Total stock at any time – Book categorywise, Publisherwis

II. Report - New books added - Monthly, yearly

H. Registration Module:

I. Only registration staff should have access to enroll and renew members

II. Current membership is of 3 types - Citizens, Organizations and staff.

III. **Registration should include submitting at least following information:**

a. Name
b. Membership type
c. Address
d. Contact number
e. Email ID
f. Proof of identification (yes / No)
g. Registration date

IV. "Memership charges includes following types:

a. Joining fee
b. Deposit
c. Monthly charges

V. Membership charges vary for each membership type

VI. Facility should be available to change membership charges

VII. Facility should be available to configure discount for yearly payment

VIII. Receipt printing facility should be available

IX. Membership should get de-activated if the membership renewal is delayed by more than 15 days

X. Registration staff should be able to create reports and export the same to Word, Excel and PDF as needed:

a. Report - List of active members, category wise
b. Report - Renewal due list - weekly, monthly

XI. **Member ship card should printed to include following details:**

a. Memebr ID
b. Member Name
c. Membership Type

I. Librarian module:

a. Librarian should be able to issue and receive the books
b. Books can be issued only to active members
c. **Book issue should record at least following fields:**
    i. Date of issue
    ii. Book ISBN code
    iii. Member ID"
d. **Receipt of book should include recording of:**
    i. Date of issue
    ii. Boo ISBN code
    iii. Member ID"
e. Scanner should be used to scan book ISBN code and membership card ID
f. Maximum Number of books to be issued at the same time varies based on membership type and should be configurable
g. Maximum allowable duration for book return varies based on membership type and should be configurable
h. Fine should be calculated after due date
i. Fine rate varies based on membership type and should be configurable
j. Fine calculation should exclude library holidays
k. Process of single book issue or receipt should not take more than 30 seconds for a member

Manual Testing Hands On: Creating Mind Map of SRS Functionality Breakdown

Lab Exercise - 2

Objective

Develop an ability to create mind map for functionality breakdown.

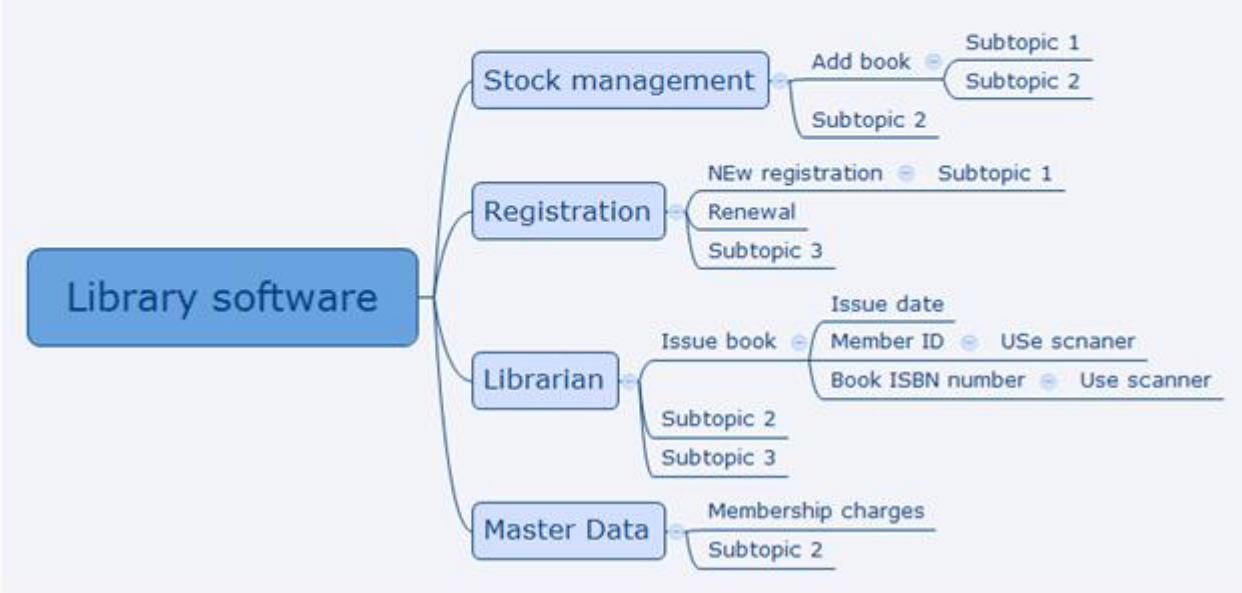
Creating Mindmap of SRS Functionality Breakdown:

A. Type of Activity:

Group activity

Instruction to Students

- Read the SRS for Library management engine individually
- Create mindmap in group
- Use following reference to start



Manual Testing Hands On: Creating Test Cases For Use Case

Lab Exercise - 3

Objective

Creation of at least 6 test cases for use case provided.

Creating Test Cases For Use Case

Use Case: Coffee Vending machine

Description: A user gets coffee from 'Coffee Vending Machine' after inserting a token

Actor: Coffee Lover

Precondition:

1. User has token for coffee
2. Vending machine is switched 'On' and shows 'Active' message

Flow – Happy Path:

1. User inserts token correctly in the machine and keeps cup in right position(See Error path 1)
2. Machine shows 'Choose coffee Type' message (See Error path 1)
3. User pushes any button out of 3 choices (Refer alternative path) (See Error path 2)
    a. Black coffee
    b. Café Latte
    c. Café Mocha
    d. Machine shows 'Dispensing' message and dispenses coffee (See Error path 3)
    e. User collects coffee cup

Post Condition:

1. Vending machine is 'On' and shows 'Active' message
2. Coffee dispensed counter is increased by 1

Alternate Path:

1. User does not push choice button but pushes 'Cancel' button'
2. Machine throws token out and displays 'Active' message

Exception OR Error Path 1:

1. User does not insert token completely (kept half way)

2. Machine makes '3 Beeps' sound and continues to display 'Active' message
3. User takes token out and inserts correctly

Exception OR Error Path 2:

1. User does not push any choice button
2. Machine makes '3 Beeps' sound after 10 seconds and displays 'Active' message
3. Machine pushes token out

Exception OR Error Path 3:

1. One or more Ingredients for chosen coffee type are fully consumed
2. Machine makes '3 Beeps' sound after 10 seconds and displays 'Try another' message
3. **User can take one of the following 2 options:**
    a. Push another choice button (Refer happy path)
    b. 'Cancel' button (Refer alternative path)

Manual Testing Hands On: Create Negative Scenarios

Lab Exercise - 4

Objectives

1. Create a list of negative scenarios for ATM money withdrawal process
2. Use a given structure to identify at least 20 negative scenarios

Create Negative Scenarios

Type of Activity:

1. Individual activity

ATM money withdrawal process works as follows.

1. User inserts card and removes, ATM asks for pin, user enters pin
2. ATM asks amount to withdraw, user enters amount and presses 'OK'
3. ATM asks if receipt needed, User says 'Yes'
4. Money is disbursed, receipt is printed, SMS is received, account is debited

Rules:

1. Amount to be withdrawn cannot be more than account balance
2. Amount to be withdrawn cannot be more than 25000
3. Maximum number of notes which can be disbursed through ATM slot is 25
4. Amount can only be multiples of 100
5. Withdrawal can be done maximum 3 times in 24 hours

Identify all possible detailed negative scenarios using following hints. Write ATM set up required, if specific for scenario

What user can do wrong or set up can create issues in reference to:

1. Card insert
2. Pin entry
3. Amount entry
4. Disbursed money
5. Processing

Manual Testing Hands On: Identify Negative Test Conditions

Lab Exercise - 5

Objective

Create a list of negative test conditions for payment by credit card process.

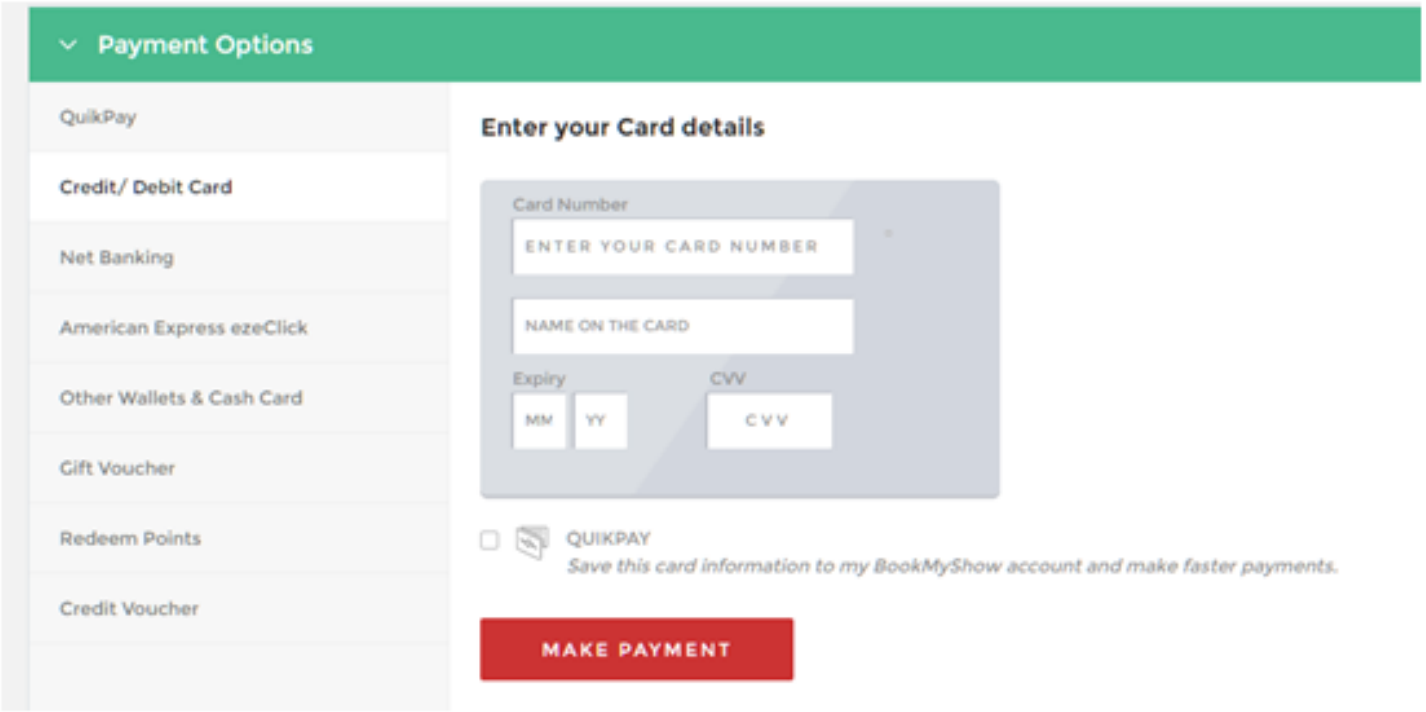
Identify Negative Test Conditions

Type of Activity:

Individual activity

Requirements:

Application provides you option to pay using credit card / debit card as follows.



Manual Testing Hands On: Create Test Data Based On Requirements

Lab Exercise - 6

Objective

Develop an ability to identify test data based on requirements.

Create Test Data Based On Requirements

Type of Activity:

Individual activity

Instruction to Students:

Read following requirements and identify what data you will use for thoroughly testing the requirements.

Use all techniques.

Requirement 1:

A. A field accepts email ID. List all possible invalid email IDs which should give you error after entering.

Requirement 2:

A. Insurance company provides medical insurance to people. **People need to fill form where following information is required in addition to other data:**
    a. User can select birthdate using calendar control and age gets automatically calculated
    b. There are two checkboxes to mark if the person has Blood pressure or Diabetes disease.
    c. There is dropdown to select 'Yes / No' for 'Suffered Cardiac arrest (heart attack)
B. Insurance is offered only to the people between age 18 to 65, both inclusive
C. For a scheme, base insurance premium for all is Rs 3000 per year.
D. However, there are some additional criteria:
    i. For the person having age equal and above 50, if person has either Blood pressure or Diabetes, he needs to pay additional Rs 500
    ii. For the person below age of 50, if the person has BOTH Blood pressure and Diabetes, he needs to pay additional Rs 300

iii. For any age, if the person has already suffered Cardiac arrest (heart attack), he needs to pay additional Rs 800

Create a data table as follows: Assume that testing is done on 1st January 2016.-

Data Value (Birthdate)	Disease	Expected Result (Premium amount)

Requirement 3:

A. For credit card company, its 'Platinum' category of customers get 2 reward points for every Rs 150 purchase done using credit card. Example – If he shops for Rs 1500, he would get 20 points. If he shops for Rs 7600, he would get 100 points (for Rs 7500, nearest multiple of 150)
B. 'Gold' category customers get 1 reward point for every Rs 100 shopping.
C. 'Silver' category customers do not get any reward point.
D. Maximum points which customers get can be 100 at a time.
E. Minimum shopping amount should be Rs750 to get reward points

Create a data table as follows by applying all techniques:

Type of customer	Shopping amount	Expected Result (Reward points added)

Manual Testing Hands On: Identify Test Scenarios For Common Apps

Lab Exercise - 7

Objective

Create a list of positive and negative test scenarios for commonly used applications (Select 2 to 3 based on time each from part 1 and part 2).

Identify Test Scenarios For Common Apps

Type of Activity:

Group activity

Part 1:

What are top important functional and non-functional test scenarios for:

A. Pen
B. Lead Pencil
C. Lift
D. TV Remote
E. AC Remote
F. Bottle
G. Fan and regulator

Part 2:

What are top important functional and non-functional test scenarios for:

A. Gmail
B. Facebook
C. Whatspp
D. Any mobile game
E. Notepad
F. Photo editing software
G. Music playing software
H. Calculator

Manual Testing Hands On: Understand SRS

Lab Exercise - 8

Objective

1. Able to answer key questions about Online Examination System SRS.
2. Develop an ability to read and comprehend software requirements

Type of Activity:

Group activity

Instructions to Students:

A. Read the SRS for online examination engine individually.
B. Discuss answers of the questions given at the end of SRS in group.

SRS - Online Examination System

Table of Contents:

OAS should be web based, intranet site not accessible outside company firewall.

1. System Users:

OAS will be used by following users:

A. **Admin:** Administrative task, user management, configuration management
B. **Trainer:** Create exams
C. **Examiner:** Allocate exam to students
D. **Students:** Appear for exam
E. **Counselor:** Collect exam fees and create login to student

Refer last section to see the overview of the system model.

2. Admin Module:

Admin user is responsible for managing users (except students) and entering master data.

2.a. User Management:

A. Administrator should be able to create, modify and remove users from the system.
    a. Users include Trainers ,counselors, center managers, regional managers, business heads
B. During user creation, a temporary password should be created by Admin which needs to be reset by users on first login.
C. Admin can reset passwords for users if needed
D. User IDs should not be duplicate and should be a minimum of 6 characters. It can be a combination of alphabets, special characters and numerals.
E. Admin should be able to add new subject and remove existing subject
F. Admin should be able to allocate subjects to Trainers

3. Trainer Module:

3.1. Question Bank Management:

A. Trainer should be able to create topics under the subject
B. Trainer should be able to add, remove, modify and view questions
C. Addition of question should include:
    a. Select topic to which question should belong
    b. Entering question text
    c. Entering answer options
    d. Indicating correct answer option – Only one correct option is allowed
    e. Setting difficulty level (Easy, medium, complex)
D. Each easy question would have 1 mark, medium will have 2 marks and complex will have 3 marks
E. Each question should get saved with unique ID

3.2. Paper pattern Configuration:

A. Trainer should be able to configure paper pattern for the subject allocated to him

B. Creation of paper includes:

a. Selecting topics to be included in paper

b. Setting number of questions per topic to be included in paper:

i. Easy

ii. Medium

iii. Difficult

c. Setting time duration for exam

d. Setting passing %:

i. Passing percentage should not be less than 40%

C. Trainer should be able to modify paper pattern

D. Once exam is created by examiner, the questions need to be selected from question bank based on the exam configuration. Randomization should be done for the question sequence

a. For example if database has 20 easy questions for Topic A in Subject 'S1' and if paper pattern includes 4 easy questions for topic A, any 4 questions out of 20 should be randomly included in the exam created by examiner

4. Counselor Module:

4.1. Student Registration:

A. Once counselor receives exam fees from students, he should register student. Exam fee collection, receipt printing etc. is not part of this system.

B. Student registration should capture following mandatory data for the student:

a. First name, Last name

b. Subjects of exam

c. Email ID

d. Mobile number

e. Fee receipt number

C. Unique ID should be created for each student after registration

5. Examiner Module

A. Examiner should be able to create a batch and add registered students to the batch

B. Examiner should be able to set exam paper date and time for a batch

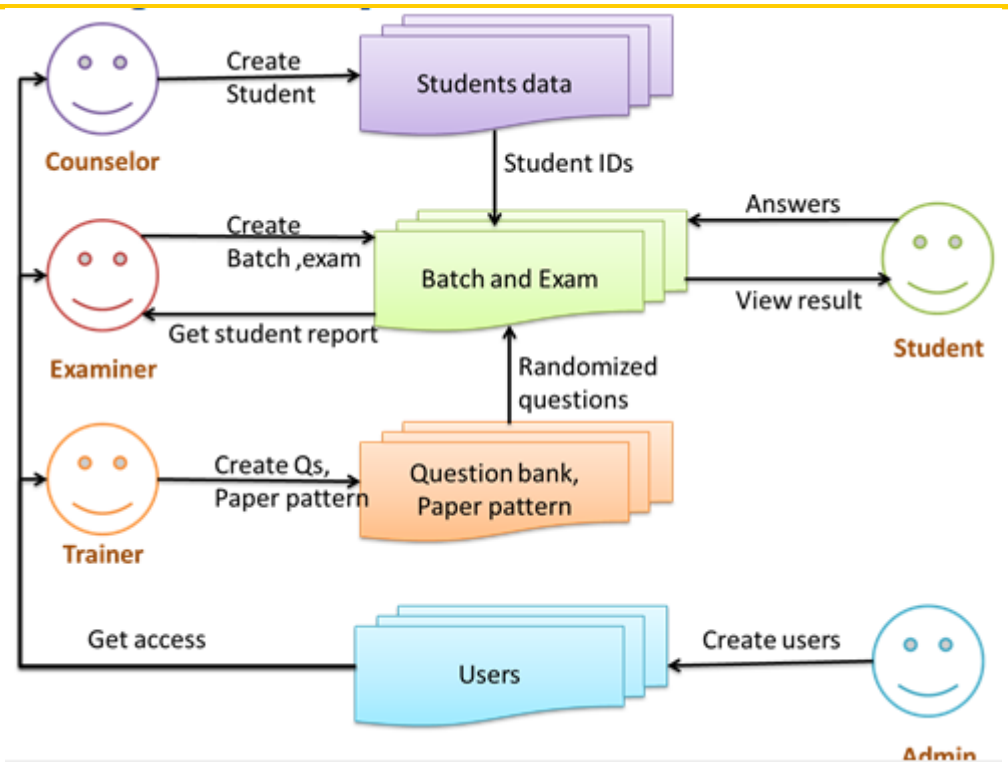
C. Notification email and SMS should be sent to students once they are allocated an exam

D. **Notification should include exam ID and one time password for the student:**
    a. Password should be autogenerated by the system
E. System should be generate individual student's report in PDF format after completion of exam
F. Examiner should be able to send certificate to student on email

6. Student Module:

A. Students are allowed only one attempt for exam.
B. Registered students should be able to appear for the exam with the assigned ID and password
C. Students should have ability to move to previous and next question with or without answering current question
D. Student should be able to mark question for review
E. Student can finish exam at any point of time within the time limit set for the paper
F. Time remaining should be displayed to student
G. Warning should be displayed when last 5 minutes are remaining
H. **After finishing an exam, student should be shown his result which should include:**
    a. Student details
    b. Subject
    c. Topic wise percentage
    d. Total percentage
    e. Pass / Fail status
I. Grade (A/B/C/D)

5. Diagrammatic Representation:



8. Non - Functional Requirements:

A. 500 students should be able to appear for exam concurrently

B. System should be easy to use for students, Trainers and other users.

C. Student certificates should be digitally secured (no one should be able to make change in the certificate)

D. Every new question in student module should get loaded within 3 seconds during examination

Questions:

Have you understood the flow of the application?

A. Who does what?

B. Sequence of activities

C. Data that is stored

D. Give example of any user input validation specified in the requirements

E. Give example of any performance related requirement

F. What do you think are master data here?

G. Give 2 examples of business rules

H. Which requirement explicitly mentions an example of 'User comfort or user friendliness'?

I. With the requirement "Each question should have unique ID" what do you think - an examiner would enter unique ID or an ID would get created when examiner adds question?

J. Refer requirement about the result being shown to students after exam - Do you have any query here? Is any information missing?

K. What would be an automatic process in the system which would be done without any user?

L. Give an example of a security related requirement

M. Give example of some integration workflows – How activity of one user is dependent on other.

N. Which requirement is not mentioned explicitly but is very crucial for this application?

Manual Testing Hands On: Creating Test Scenarios For Online Examination System

Lab Exercise - 9

Objective

Create test scenarios based on SRS

Creating Test Scenarios For Online Examination Engine

Type of Activity:

Individual activity

Instructions to Students:

A. Read the SRS for online examination engine individually

B. Create functional test scenarios (detailed level) for each user role:

   a. At least 50 scenarios

C. Identify non-functional testing to be done

D. Create end to end scenarios (scenarios across modules)

Manual Testing Hands On: Creating Test Cases For Online Examination Engine

Lab Exercise - 10

Objective

Create test cases based on SRS.

Assignment: Creating Test Cases For Online Examination Engine

Type of Activity:

Individual activity

Instructions to Students:

A. Refer the SRS for online examination engine and the scenarios you created
B. **Create Detailed test cases in excel for the following functionalities**:
    a. At least 25 test cases

Validation for any 3 fields:

A. Test cases related to student registration by counselor
B. Question creation related test cases for trainer
C. Paper pattern configuration related test cases
D. Test cases for exam configuration by examiner
E. Test cases for students appearing for exam
F. Test cases for checking student report

Manual Testing Hands On: Creating Test Cases For Cab Booking System

Lab Exercise - 11

Objective

1. Create test cases for the test conditions below. Write test cases in Test Link.
2. Refer the detailed requirements for cab booking service

Creating Test Cases For Cab Booking System

Test Conditions Are:

A. To check that booking agent has access to Booking management and cab management screens

B. To check addition of new booking

C. To check field validation for 'date and start time'

D. To check the process of new booking entry

E. To validate the format of the booking Id

F. To validate contents of SMS sent after cab booking

Detailed Requirements For: Cab Booking Request Entry:

A. After login, Booking agent should be displayed a screen with an options as follows:

   a. Booking management

   b. Cab management

B. Booking management screen should have an option to view, add, modify and cancel booking

C. Add booking option should lead to booking form with following fields:

   a. First name – 40 char, mandatory

   b. Middle name - 40 char, Optional

   c. Last name - 40 char, mandatory

   d. Mobile number – 10 digit, mandatory

   e. 'From' address – Mandatory, Free text 1000 chars, City to be selected from pre-populated list

   f. 'To' Address – Mandatory , Free text 1000 chars, City to be selected from pre-populated list

g. Date and Start time – Mandatory –Selection option should be available, Should not be able to make past entries
h. Number of passengers – 2 digit field, mandatory
i. Preferred vehicle type – To be selected, optional
j. Alternate contact number - 12 digit, optional

D. Error should be displayed immediately in case any incorrect entries in the above fields

E. Once booking is submitted successfully, success message alongwith booking ID should be displayed to user:

a. Booking ID should be auto generated by system and displayed to – format YYMM<Srnum>.
   i. Sr num should restart one every new year
b. Booking should have status as 'New'

F. After booking ID generation, booking agent go to cab selection screen:

a. For the new booking, Cab selection screen should display all the available cabs based on:
   i. Date and time
   ii. Preferred type
   iii. Number of passengers .

b. Cab details should include:
   i. Cab number
   ii. Driver name
   iii. Driver number
   iv. Cab model
   v. Passenger capacity
   vi. Key facilities

G. On selection of cab, booking status should get changed to 'confirmed '

H. SMS with following details should be sent to customer:

a. Date and time
b. Cab number
c. Driver name
d. Driver number
e. Cab model