Vehicle Rental System
Duration: 5.0 hours

Vehicle Rental Agency
This application allows the vehicle agent to book available vehicles for customers.

Instructions and Assumptions
- This will be a single-user system. Do not implement authentication/authorization.
- Use appropriate data types and precisions for the variables.
- Handle all exception and alternate flows.
- Do not share the problem statement or code with others, during or after the assessment.
- The required API documents will be provided. Usage of the Internet is not allowed during the assessment.
- Include a brief explanation of your design and assumptions along with your code. This can be a in the form of code comments or a separate text file attached along with your source code.
- The sample fields are shown in the use-cases. You can assume the presence of other fields in the database tables.
- The home page contains the following links
  - → "Add a new Vehicle"
  - → "Book a Vehicle"
  - → "Vehicle Booking Report"

System Features

Use Case #1	Add a new Vehicle
Trigger	The user clicks on the "Add a new Vehicle" link on the home page.
Pre-Conditions	
Post-Conditions	The complete information about the vehicle is stored in the application database.
UI Screen Details	The input form contains the following fields: • Registration Number: text value (KA06-AB-8765) • Vehicle Category: static single-select containing vehicle categories (e.g. 'Truck', 'Car', 'Bus') • Manufacturer: text value • Daily Rent: numeric text value • Mileage: numeric text value indicating kilometers per liter (e.g. "12") • Fuel type: radio buttons for the fuel types (e.g. "petrol", "diesel", "LPG") • Description: multi-line text value • Save: button • Cancel: button
Main Flow	The user provides the required details in the form and clicks the "Save" button. On successfully saving the details, the user is redirected to the home page, and the following message is displayed there: "The new vehicle has been saved successfully".
Data Validations	All the form fields, except "description" are mandatory.
Business Rules	A unique identifier is generated for the vehicle.
Exception Flows	If the user provides incorrect or incomplete values in any of the input fields and tries to save the record, the operation is aborted and the following message is displayed on the screen: "The value provided for the field <name| ...> is incorrect or incomplete".
Alternate Flows	If the user chooses to abort the "Add a new Vehicle" operation by clicking on the "Cancel" button, he should be redirected to the home page.

Use Case #2	Book a Vehicle
Trigger	The user clicks on the "Book a Vehicle" link on the home page.
Pre-Conditions	
Post-Conditions	The complete information about the booking is stored in the application database.
UI Screen Details	The input form contains the following fields: • Customer Name: text value • Vehicle Category: static single-select list of vehicle categories (e.g. 'Truck', 'Car', 'Bus'). • Vehicle Registration Number: the filtered list of vehicle registration numbers matching the

	selected vehicle type. • Booked From: date value in the DD-MM-YYYY format • Booked To: date value in the DD-MM-YYYY format • Total Rent: read-only text value, calculated as the "number of days rented" multiplied by the "daily rent" for the vehicle. • Payment Received: checkbox indicating if the payment was made in advance. • Save: button • Cancel: button
Main Flow	When the user selects the "vehicle category" from the list, the "vehicle registration number" list gets refreshed with the filtered list of registration numbers of vehicles of the selected type. The user provides the required details in the form and clicks the "Save" button. On successfully saving the details, the user is redirected to the home page, and the following message is displayed there: "The vehicle has been booked successfully".
Data Validations	All the form fields are mandatory.
Business Rules	A unique identifier is generated for the booking. The same vehicle cannot be rented by two customers in the same period of time.
Exception Flows	If the user provides incorrect or incomplete values in any of the input fields and tries to save the record, the operation is aborted and the following message is displayed on the screen: "The value provided for the field <name| ...> is incorrect or incomplete". If the vehicle is booked by another customer during the chosen dates, the following message should be displayed on the screen: "This vehicle has been booked by another customer on these dates. Please choose another vehicle".
Alternate Flows	If the user chooses to abort the "Book a Vehicle" operation by clicking on the "Cancel" button, he should be redirected to the home page.

Use Case #3	**Vehicle Booking Report**
Trigger	The user clicks on the "Vehicle Booking Report" link on the home page.
Pre-Conditions	
Post-Conditions	
UI Screen Details	The list of vehicles booked in the **current month** is displayed in the format given below: | Vehicle Type	Total No of Vehicles	Total No of Vehicles Rented	Total Rent Earned
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Truck	4	2	20000 Rs
Car	10	4	12000 Rs
…	…	…	…	 Note: Few vehicles may be rented multiple times. Hence the rent earned cannot be computed using a formula. This screen also contains a "Cancel" button.
Main Flow	
Data Validations	
Business Rules	If the booking dates starts in one month, and ends in the next, it is counted in the month in which it ends.
Exception Flows	
Alternate Flows	If the user chooses to abort the "Vehicle Booking Report" operation by clicking on the "Cancel" button, he should be redirected to the home page.