**Test Plan**

**Objectives**

* Verify that all system functionalities related to user registration, car rental booking, news article commenting, and administrator content management are working as expected.
* Ensure that the system handles errors gracefully and provides users with clear instructions for resolving issues.

**Scope**

* The test will cover all steps outlined in the Use Cases for User Registration, Car Rental Booking, News Article Commenting, and Administrator Content Management.
* Both success and non-success scenarios will be tested.

**Use Cases and Test Cases**

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| --- | --- | --- | --- | --- | --- |
| **UC** | **TC** | **Name** | **Pre-condition** | **Test Data** | **Expected result** |
| **UC1** | **TC1.1** | Successful User Registration | Follow the steps outlined in the Use Case. | Username: johndoe, Email: johndoe@example.com, Password: Password,  Driving License: 123456789 | The user receives a confirmation message and can log in. |
| **UC1** | **TC1.2** | Invalid Email Format | Follow the registration steps but enter an invalid email. | Username: johndoe,  Email: johndoeexample.com, Password: Password,  Driving License: 123456789 | The system displays an error message indicating the issue. |
| **UC1** | **TC1.3** | Password Too Short | Enter a password shorter than the system's minimum. | Username: johndoe,  Email: johndoeexample.com, Password: Pass,  Driving License: 123456789 | An error message indicating the password is too short. |
| **UC2** | **TC2.1** | Successful Car Rental Booking | Follow the steps outlined in the Use Case. | Car: Toyota Rav4,  Rental Duration: 5 days,  Start Date: 2024-07-10,  End Date: 2024-07-15 | The booking is completed successfully, and the user is redirected to a congratualation page where rental information is displayed. |
| **UC2** | **TC2.2** | Invalid Rental Data | Enter incorrect rental data (e.g., invalid dates). | Car: Toyota Rav4,  Rental Duration: 5 days,  Start Date: 2024-07-10,  End Date: 2024-07-05 | The system displays an error message indicating the issue. |
| **UC3** | **TC3.1** | Successful Commenting on News Article | Follow the steps outlined in the Use Case. | Article: BMW M8,  Comment: "Great article on the new car!" | The comment is posted successfully under the article. |
| **UC3** | **TC3.2** | Comment with Prohibited Content | Enter a comment with prohibited content. | Article: BMW M8,  Comment: “” | The system displays an error message indicating the issue. |
| **UC4** | **TC4.1** | Admin - Add New Car | Follow the steps outlined in the Use Case. | Brand: Tesla,  Model: Model S,  Price: $80000,  Color: Blue,  VIN: HJ544634K6  Specifications: Electric,  Range: 400 miles,  Images: tesla\_model\_s.jpg | The new car is added successfully without errors. And the list in Car Controls page is updated with the new car. |
| **UC4** | **TC4.2** | Admin - Invalid Car Data | Enter car data in an incorrect format. | Brand: Tesla,  Model: Model S,  Price: $80000,  Color: Blue,  VIN: HJ544634K6  Specifications: Electric,  Range: 400 miles,  Images: invalid\_image.txt | The system displays an error message indicating the issue. |
| **UC5** | **TC5.1** | Admin - Post New News Article | Enter car data in an incorrect format. | Title: "New Tesla Model S Released",  Content: "Tesla has released the new Model S with a range of 400 miles.",  Images: tesla\_news.jpg | The new article is posted successfully without errors. And the list in CarNews page is updated with the new car. |
| **UC5** | **TC5.2** | Admin - Invalid Article Data | Enter news article data in an incorrect format. | Title: "New Tesla Model S Released",  Content: "",  Images: tesla\_ news.jpg, | The system displays an error message indicating the issue. |
| **UC6** | **TC6.1** | Admin - Update Personal Information | Follow the steps outlined in the Use Case. | Name: John Doe,  Contact: JD@example.com, Password: Password | The updated information is saved successfully. And new admin information is loaded in Admin page. |
| **UC6** | **TC6.2** | Admin - Invalid Personal Data | Enter personal information in an incorrect format. | Name: John Doe,  Contact: JD@example.com, Password: Pass | The system displays an error message indicating the issue. |