

Testing Plan

SSE 657

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1. Test Objective

The objective of the test plan for the Car Rental System was to ensure the security, ease of use, functionality, and usability of each module of the software and all modules in conjunction works as per the specifications.

2. Type of Tests

Each test should test each module to ensure it is working as specified by the requirements. The type of tests are as follows:

- Unit Testing
- Regression Testing
- Integration Testing
- Security Testing
- Requirements Testing

The modules that will be tested are as follows:

- Login
- View Current/Upcoming reservation
- New reservation

3. Test methods and Techniques

3.1. Unit Testing

Unit testing will be carried out after the development of a module and after integrating the database functions. This will be done by running the modules and verifying the user interface is intuitive and presentable, user interaction is responsive, and necessary database data is displayed on the interface.

3.2. Regression Testing

Regression testing will be carried out whenever necessary changes are done on each module. This will take place especially during the integration of each module. The testing will be

done by running the program after each change and testing every interaction and element to find unexpected bugs.

3.3. Integration Testing

Integration testing will be carried out by integrating one module at a time to ensure that the integration testing can be easier to manage. This will test the transition from one module to another and test the updating of a module when a change occurs that should cause displayed information to be updated. The final integration test will occur when all modules are integrated and should test all interactions and transitions. This will be done by running the program and testing each interaction, especially interaction for module transitions.

3.4. Security Testing

Security testing will be carried out after the database is integrated to each module, especially for the login module. This will be done by running the module and checking if the necessary information is encrypted and checking that only the specified information is being displayed.

3.5. Requirements Testing

Each requirement has a specific test case to verify the functionality. These tests are all run manually and are described in the software test description document. The results of these tests are listed in the software test report. Our set of requirements tests are run before release to ensure the desired capability of the software is implemented properly.

4. Test Cases

4.1. User Interface

User interface should be intuitive and presentable. The interface shouldn't require too many relocations to find what the user is searching for.

4.2. Database information functionality

The modules should be able to send and receive necessary information to and from the database. The modules should be able to display the necessary database information.

4.3. Module transitions

The module transitions should be as seamless as possible. Modules should be updated when necessary information that is displayed has been altered from another module.

4.4. Data and information security

Login information should be encrypted and database information should not be leaked or accessed by the user unless specified.

4.5. Requirements test cases

A detailed description of the requirements test cases can be found in the software test description document.

5. Test Coverage Criteria

5.1. Unit Testing

Unit testing will only be carried out post development of a module or post integration of database functions into a module. This testing will be completed when the module and user interface is working as specified by the requirements and specifications with no bugs present.

5.2. Regression Testing

Regression testing will only occur during integration testing when output bugs are present from an integration test. This test is completed when the integration testing is complete or the integration testing no longer has bugs present.

5.3. Integration Testing

Integration testing only occurs after unit testing modules and after integrating modules together. The testing is completed when the displayed information and module transitions are working as intended and regression tests are satisfied.

5.4. Security Testing

Security Testing should only occur after unit testing a module and after integrating database functions to a module. This testing will be completed when there is 100% no information or data leakage or no unintended user access.

6. Documents Needed

The documents that are required for testing include the requirements document, mock ups of user interface, and use case documents. These documents will be used to check requirements, specifications, and intended outputs and functionality of the software components during each test.

7. Required Resources

The required resources are a compiler for easier debugging and bug location and human resources that will carry out each test. The human resources consists of the developers developing the software.

8. Testing Schedule

Completion Date:	Task
11/30/2023	Unit test Current/Upcoming reservation module
11/30/2023	Unit test Login module
11/30/2023	Unit test new reservation module
12/3/2023	Integration and regression test Current/Upcoming reservation and Login module
12/8/2023	Integration and regression test View Current/Upcoming reservation, Login module, and new reservation module
12/12/2023	Unit test and security test Login module with database functions
12/13/2023	Unit test and security test View Current/Upcoming reservation module with database
12/14/2023	Unit test and security test New reservation module with database
12/16/2023	Final integration, regression, and security test for the Car Rental System