ASSIGNMENT 2

Testing document

COM410 SOFTWARE DEVELOPMENT II

B00792485 B00751280

Contents

Aaron Hoy B00792485 & Michael Watters B00751280

Testing Strategy and Plan for Elevens Java application

Type of Operating system and software package used

- Windows 10 pro and Home
- Testing carried out on IntelliJ Idea Community Edition
- With Java JDK 11 and JUnit 4 for unit test.

Types of testing

The testing that we carried out was mostly Junit testing, carried out on the methods of the associated classes throughout the app, however there were some methods in the classes that we were not able to test using Junit because they would have required external classes or collections to be used. This was not in our scope, so we tested these in a main method with an instantiated version of the class file to be tested.

Purpose and scope of testing carried out

To test the working elevens card game java application, we created test classes for each class file used in the app. Each of these test classes were initially created with the methods stubbed out that should be created in their associated class file. Testing each of these stubs in the test classes thoroughly will ensure that the methods will work as expected, to bring about the functionality required by the design specification, previously laid out in our design and development.

We went through each element as thorough as possible to ensure working order of each method tested, this helped us to see that our app had no underlying flaws that were not being picked up by other conventional test. Such as taking a demo through and running through the app itself, as a black box test methodology, where you are trying out the functionality of the app as a user's perspective where you are not looking at the code, just at a surface level seeing the output of the functionality of the elevens game.

As another way to quality check the code and unit tests we have written, we had numerous zoom call to code quality check and pair programme some of the functionality and tests. This helped to maintain a more consistent and higher quality code through the app and as a result of this the app has had few bugs and tests passed when we went through Junit testing the classes.

Test classes and other methods

Each class create in the elevens game java application had a test class create for it where we would Junit test the methods contained within, where was possible and where it wasn't possible, we tested the methods in a main method using an instance of the class.

The test classes tested in the application are as follows:

- CardTest
- CardSlotsBagTest
- CardNodeTest
- DeckTest

- HouseTest
- RankTest
- RoundQueueTest
- RoundTest
- ColorsTest
- DisplayTest
- ElevensTest
- GameMechanicsTest
- GameTest

Testing against requirements

We will have a full run through the elevens game application to fully test the playable functionality. Throughout these tests we referenced the requirements of the elevens game set to us in the design document, checking the functionality works in accordance with what is described in the requirements. Checking them off as we tested through playing the game and any aspects which were not covered sufficiently, we implemented the requirement missed out on. We then tested after each new piece of functionality was added and checked against our requirements until satisfied.

User Acceptance testing

Requirement	Test Description	Meets requirements
Level 1	Level 1 requirement was met because when testing the functionality I was able to make the selection to start a new game in the console menu which created a new game with the 9 starting cards available to the player. These cards had been dealt from a newly shuffled deck on creation of the game.	Passed
Level 2	The baseline functionality of the game is implemented, and the player can choose a combination pair of cards from their hand of 9 cards and any removed cards will be replaced to bring the cards in play to 9 again before the next round begins.	Passed
Level 3	The game is fully playable by the user and the app can inform the player when the game has reached the won status, when all cards have been removed from the game. The app can also inform the player when the game has lost when there has been a stalemate reached when no more cards combinations can be paired to be removed from the game.	Passed
Level 4	The app can provide a useful hint to the player on request, providing the player a valid move that is available in their cards in play or informing the player that there are no legal moves remaining in the game.	Passed

Level 5	When the game has been won or lost the application is able to show the player the entire game as it has been played move by move. The replays are shown on keypress by the player.	Passed
Level 6	The app can play a game of Elevens in demonstration mode where the player can ask the game to play its next move. The game will show the player each move it has taken, informing of which cards have been chosen and removed from the game. And when the game has been won or lost.	Passed

Conclusion

After thorough testing, both black box and white box testing, unit testing and user acceptance testing against the original requirements, our java application is in working condition with fleshed out functionality and working as expected. It will allow the player to start, play and complete a game of Elevens card game.