CS21120 Assignment 1 – Competition Management System Report

I successfully attempted both Single Elimination and Double Elimination in this assignment, unfortunately I did not work on Bubble Sort. The resources I used to help me for the assignment was Bernie Tiddeman (bpt@aber.ac.uk) slides on blackboard titled 'Queues and list implementations.'

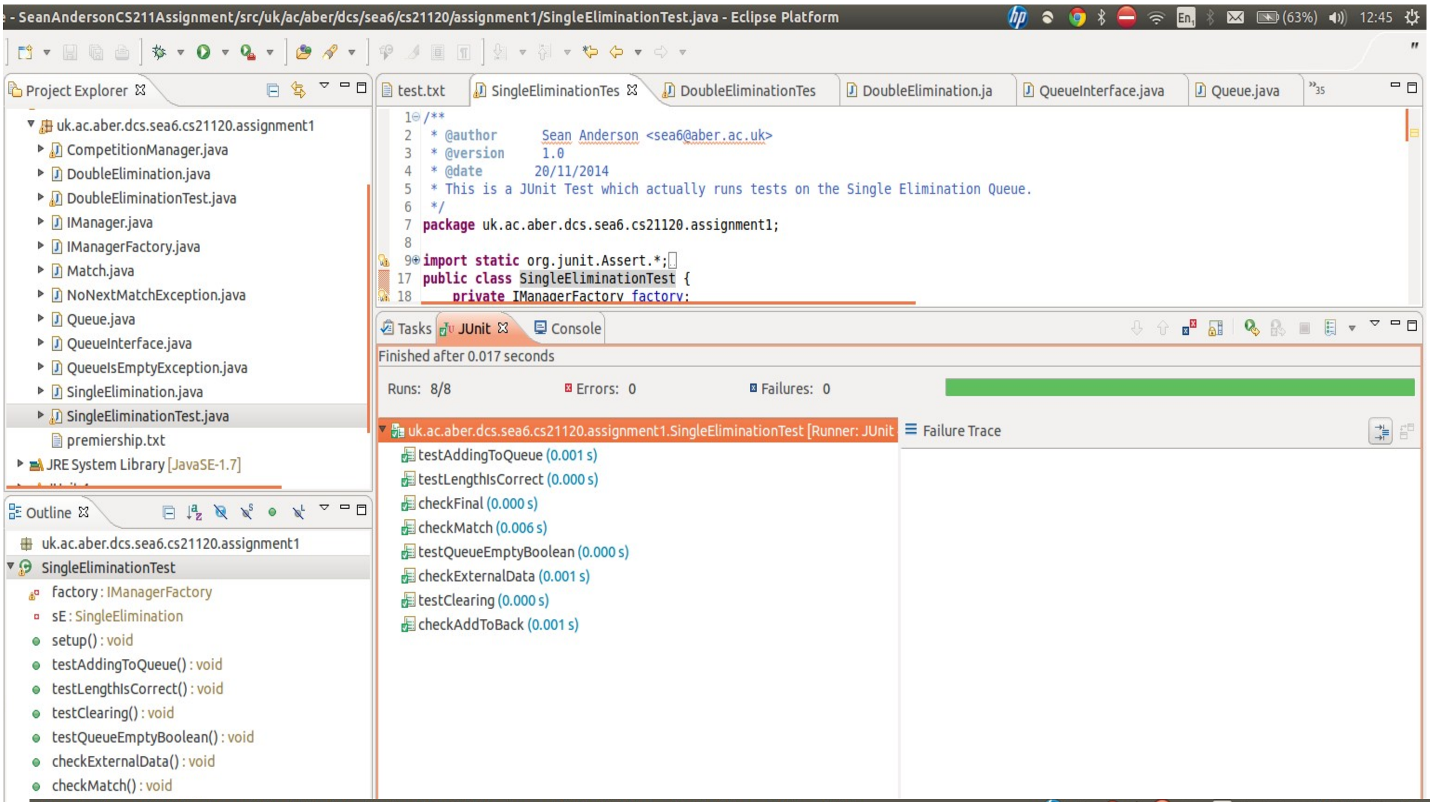
To create a Queue I first of all created an interface which had all the different methods required for the Queue. In terms of how I decided on what the methods this would be; I looked at the slides on Blackboard and I also looked at the assignment specification and decided what methods would be appropriate for my Queue.

In terms of Single Elimination I created one queue and cycled through it by using the next match, the winner of the match would then be placed onto the back of the queue where as the loser of the match would be discarded, for Single Elimination it is only possible to return a winner and consequently when Single Elimination is completed my code prints a message saying the winner and that determining a runner up using Single Elimination is not possible.

For the Double Elimination I created two different queues one was a winners queue and the other was the users queue, all the different teams started out on the winners queue. When the winners queue is bigger than the losers queue, the match is the first two elements on the winners queue. The winner of that match from the winners queue is then put onto the back of the winners queue and the loser is placed onto the back of the losers queue. When the losers queue is longer than the winners queue then the first two elements from the losers queue have a match; the winner of the match is put back onto the back of the losers queue and the loser of the match is completely discarded. This goes on until there is only 1 element on both the winners queue and the losers queue, this is then the final and the two teams have a match. The winner of the match becomes the overall winner and the loser of the match becomes the runner up.

In terms of testing I used JUnit to test both Single Elimination and Double Elimination, it is however worth pointing out that in my SingleEliminationTest class I have also tested the basic functions of the queue to ensure that the queue works properly along with the actual single elimination implementation of the queue I felt that doing this again in the DoubleEliminationTest class would be unnecessary and consequently I only tested the double elimination implementation in that class.

Output of Tests

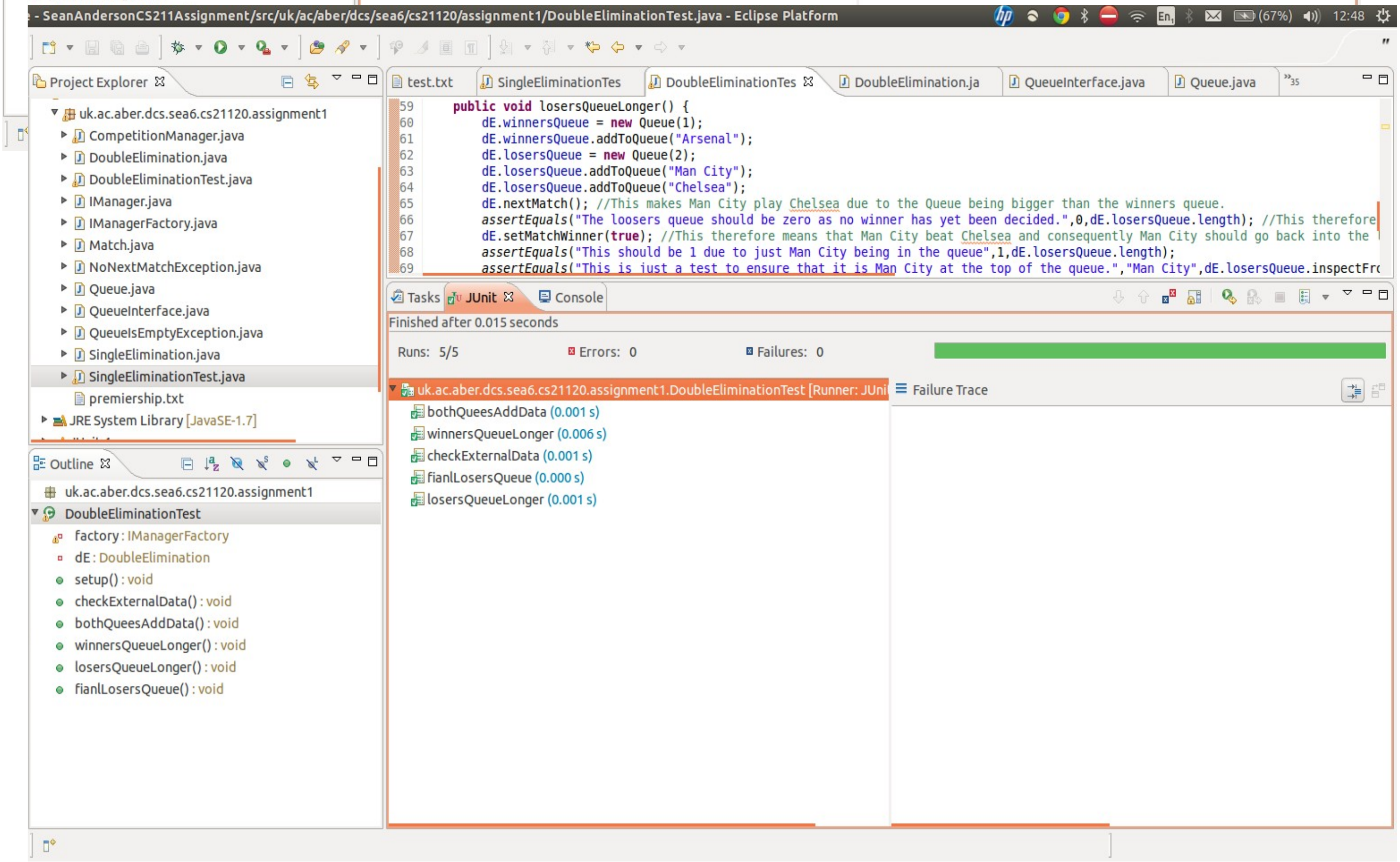

- SeanAndersonCS211Assignment/src/uk/ac/aber/dcs/sea6/cs21120/assignment1/SingleEliminationTest.java - Eclipse Platform
(63%) 12:45
Project Explorer
uk.ac.aber.dcs.sea6.cs21120.assignment1
CompetitionManager.java
DoubleElimination.java
DoubleEliminationTest.java
IManager.java
IManagerFactory.java
Match.java
NoNextMatchException.java
Queue.java
QueueInterface.java
QueueIsEmptyException.java
SingleElimination.java
SingleEliminationTest.java
premiership.txt
JRE System Library [JavaSE-1.7]
Outline
uk.ac.aber.dcs.sea6.cs21120.assignment1
SingleEliminationTest
factory : IManagerFactory
sE : SingleElimination
setup() : void
testAddingToQueue() : void
testLengthIsCorrect() : void
testClearing() : void
testQueueEmptyBoolean() : void
checkExternalData() : void
checkMatch() : void
test.txt
SingleEliminationTes
DoubleEliminationTes
DoubleElimination.ja
QueueInterface.java
Queue.java
»35
Tasks
JUnit
Console
Failure Trace

```
/**
 * @author      Sean Anderson <sea6@aber.ac.uk>
 * @version     1.0
 * @date       20/11/2014
 * This is a JUnit Test which actually runs tests on the Single Elimination Queue.
 */
package uk.ac.aber.dcs.sea6.cs21120.assignment1;

import static org.junit.Assert.*;
public class SingleEliminationTest {
    private IManagerFactory factory;
```

```
Finished after 0.017 seconds
Runs:  8/8        Errors:  0        Failures:  0

uk.ac.aber.dcs.sea6.cs21120.assignment1.SingleEliminationTest [Runner: JUnit
    testAddingToQueue (0.001 s)
    testLengthIsCorrect (0.000 s)
    checkFinal (0.000 s)
    checkMatch (0.006 s)
    testQueueEmptyBoolean (0.000 s)
    checkExternalData (0.001 s)
    testClearing (0.000 s)
    checkAddToBack (0.001 s)
```


- SeanAndersonCS211Assignment/src/uk/ac/aber/dcs/sea6/cs21120/assignment1/DoubleEliminationTest.java - Eclipse Platform
(67%) 12:48
Project Explorer
uk.ac.aber.dcs.sea6.cs21120.assignment1
CompetitionManager.java
DoubleElimination.java
DoubleEliminationTest.java
IManager.java
IManagerFactory.java
Match.java
NoNextMatchException.java
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QueueInterface.java
QueueIsEmptyException.java
SingleElimination.java
SingleEliminationTest.java
premiership.txt
JRE System Library [JavaSE-1.7]
Outline
uk.ac.aber.dcs.sea6.cs21120.assignment1
DoubleEliminationTest
factory : IManagerFactory
dE : DoubleElimination
setup() : void
checkExternalData() : void
bothQueesAddData() : void
winnersQueueLonger() : void
losersQueueLonger() : void
fianlLosersQueue() : void
test.txt
SingleEliminationTes
DoubleEliminationTes
DoubleElimination.ja
QueueInterface.java
Queue.java
»35
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JUnit
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```
    public void losersQueueLonger() {
        dE.winnersQueue = new Queue(1);
        dE.winnersQueue.addToQueue("Arsenal");
        dE.losersQueue = new Queue(2);
        dE.losersQueue.addToQueue("Man City");
        dE.losersQueue.addToQueue("Chelsea");
        dE.nextMatch(); //This makes Man City play Chelsea due to the Queue being bigger than the winners queue.
        assertEquals("The loosers queue should be zero as no winner has yet been decided.",0,dE.losersQueue.length); //This therefore
        dE.setMatchWinner(true); //This therefore means that Man City beat Chelsea and consequently Man City should go back into the
        assertEquals("This should be 1 due to just Man City being in the queue",1,dE.losersQueue.length);
        assertEquals("This is just a test to ensure that it is Man City at the top of the queue.","Man City",dE.losersQueue.inspectFro
```

```
Finished after 0.015 seconds
Runs:  5/5        Errors:  0        Failures:  0

uk.ac.aber.dcs.sea6.cs21120.assignment1.DoubleEliminationTest [Runner: JUni
    bothQueesAddData (0.001 s)
    winnersQueueLonger (0.006 s)
    checkExternalData (0.001 s)
    fianlLosersQueue (0.000 s)
    losersQueueLonger (0.001 s)
```