Java Practical Skill Assessment 2- Testing

Group 90: Niall Morrissey B00787301, Michael Brown B00808857

We decided on the criteria by which to test the program before starting work on the program itself. This way, we would have clear goals to work towards and the more goals we have, the less issues the program will have. The criteria includes the main functions of the program, to create/delete student data, search for a specific record, show course details and save any changes to disk, as well as other criteria that, once implemented, reduces the likelihood of errors like validation for entering the gender of a student or ensuring that data has been entered in every required field.

Summary Table

Different Java Files: Main.java, Student_Register.java, Student.java, Course.java

Requirement	Implemented (Yes/No)	Filename (purpose)	Relevant Line of Code
Pre-populate the application with previously stored data	Yes	-Main.java (read in previous data from txtfile) -Student_Register.java(insert previous data into array)	Line 39 Line 32
Report the details of the course to the screen	Yes	-Course.java (print details method)	Line 40
Percentage of male/female students is updated if student is added or deleted	Yes	-Course.java(update details method) -Main.java(add student update details) -Main.java(delete student update details)	Line 31 Line 95 Line 99
Add a new student to the course	Yes	Student_Register.java(create student method)	Line 55
Null validation so user can't save student details without filling every field	Yes	Student_Register.java(null entry while loop validation)	Line 63 Line 69 Line 75
Validation for entering Gender	Yes	Student_Register.java(Specific format entry while loop validation)	Line 81
Delete a student from the course	Yes	Student_Register.java(delete student method)	Line 89
Search for a student by name and display their details	Yes	-Student Register.java(search student method) -Student.java(print details method)	Line 123 Line 26
Changes made will be stored to file on the relevant text file	Yes	-Student_Register.java(save student details method) -Course.java(save course details method)	Line 173 Line 52
A maximum of 20 students are able to be stored	Yes	-Student_Register.java(student array constuctor)	Line 18

Test Table

(Evidence of screenshots for each test can be found below table)

Test Case #	Requirement	Test Data User Input:	Expected Result	Actual Result	Pass/Fail
1	Report the details of the course to the screen	'5'	All details of the course are read from the right text file and displayed in the console	Option 2 shows all of the details that are stored in CourseDetails.txt	Pass
2	Add a new student to the course	'2' 'Josh M' '13/10/2002' '12 Little Street' 'male'	User will be able to enter details of a student and add it to the array of existing students	User can add up to 20 students to the array and will not be allowed to go over this number	Pass
3	Null validation so user can't save student details without filling every field	'2' '' 'Josh M'	User will be notified that they have not filled every field and the students' details will not be saved	The user will not be able to process without entering data into each field, thus only allowing fully detailed students to be saved	Pass
4	Validation for entering Gender	'2' 'Josh M' '13/10/2002' '12 Little Street' '' 'm' 'xdf' 'male'	User will only be able to enter "male" or "female" when prompted to enter the gender of the student	Only "male" or "female" are accepted and the user is told to enter one of these two values	Pass
5	Delete a student from the course	'3' 'Jimmy C'	User is able to remove an existing student from the array	User can remove a student from the array without error	Pass
6	Search for a student by name and display their details	'4' 'Niall M'	User is able to search for a student by their name and the console will display their details	User can search for a student (case sensitive) and display their details on the console	Pass
7	Changes made will be stored to file on the relevant text file	'6'	Any changes made to the list of students should be saved to the corresponding text files	Any changes made to the list of students will be saved to StudentDetails.txt and CourseDetails.txt will be updated	Pass

8	A maximum of 20 students are able to be stored	'2' 'Josh M' '12/09/2001' '11 Small Ave' 'male'	Users should only be able to add up to 20 students to the array	Users can only add 20 students to the array and will be notified if they try to add more than 20	Pass
9	Percentage of male/female students is update if student is added or deleted	'5' '3' 'Michael B' '5'	The correct % of students who are male/female is calculated and displayed to the console	Program checks for students being added or deleted and calculates the gender ratio %	Pass
10	New Student can be stored where previously deleted student was stored in array.	'3' 'Jamie T' '2' 'Daniel M' '10/10/1999' '21 Small Lane' 'Male' '1'	The used should be able to enter new Student entry in previously existing student's position.	User can place new student entry into previously existing location.	Pass

Evidence of Test Completion

Test Case 1:

Test Case 2:

Test Case 3:

```
--------------------------------------------------
Enter Value of Menu Choice: 2
----------Enter New Student----------
Note: Blank entries are not accepted.

Please enter student name:
Empty entry. Please enter student name:
Empty entry. Please enter student name:
Empty entry. Please enter student name: Jimmy C

Please enter student date of birth: |
```

Test Case 4:

```
Please enter student gender ('male' or 'female'):
Empty entry. Please enter student gender: m
Empty entry. Please enter student gender: xdf
Empty entry. Please enter student gender: male

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------------
Enter Value of Menu Choice: |
```

Test Case 5:

```
--------------------------------------------
Enter Value of Menu Choice: 3
----------Delete Existing Student----------
Note: Select menu option 1 for list of possible names.
Note: Names entered are CASE SENSITIVE.

Please enter student name to be deleted: Jimmy C
The name Jimmy C has been removed

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
```

Test Case 6:

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Enter Value of Menu Choice: 4
----------Search Existing Student----------
Note: Select menu option 1 for list of possible names.
Note: Names entered are CASE SENSITIVE.

Please enter student name to display their details: Niall M

-----Student Details------
Name: Niall M
DOB: 18/12/1998
Address: 19 Manse Park
Gender: male

-----------The Enrolment Register-----------
---------------Menu Options----------------
1.) List Student Names
```

Test Case 7:

```
-----------The Enrolment Register-----------
-----------------Menu Options-----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
------------------------------------------------
Enter Value of Menu Choice: 6
Changes Saved. Exiting Program
BUILD SUCCESSFUL (total time: 1 second)
|
```

Test Case 8:

```
Enter Value of Menu Choice: 5

------Course Details------
Lecturer Name Mr. Steven Moore
Course Name: Computing Science
Male Percentage: 60.00%
Female Percentage: 40.00%
Total Students: 20.0

-----------The Enrolment Register-----------
---------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
------------------------------------------------
Enter Value of Menu Choice: 2
----------Enter New Student----------
Note: Blank entries are not accepted.

Please enter student name: Josh M

Please enter student date of birth: 12/09/2001

Please enter student address: 11 Small Ave

Please enter student gender ('male' or 'female'): male
Student register is full.

-----------The Enrolment Register-----------
---------------Menu Options----------------
1.) List Student Names
```

Test Case 9

```
Enter Value of Menu Choice: 5

------Course Details------
Lecturer Name Mr. Steven Moore
Course Name: Computing Science
Male Percentage: 57.89%
Female Percentage: 42.11%
Total Students: 19.0

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------
Enter Value of Menu Choice: 3
----------Delete Existing Student----------
Note: Select menu option 1 for list of possible names.
Note: Names entered are CASE SENSITIVE.

Please enter student name to be deleted: Michael B
The name Michael B has been removed

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------
Enter Value of Menu Choice: 5

------Course Details------
Lecturer Name Mr. Steven Moore
Course Name: Computing Science
Male Percentage: 55.56%
Female Percentage: 44.44%
Total Students: 18.0
```

Task Case 10

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Student Name: Jamie T
Student Name: Gemma T
Student Name: Jimmy C

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------
Enter Value of Menu Choice: 3
----------Delete Existing Student----------
Note: Select menu option 1 for list of possible names.
Note: Names entered are CASE SENSITIVE.

Please enter student name to be deleted: Jamie T
The name Jamie T has been removed
```

```
--------------------------------------------
Enter Value of Menu Choice: 2
----------Enter New Student----------
Note: Blank entries are not accepted.

Please enter student name: Daniel M

Please enter student date of birth: 10/10/1999

Please enter student address: 21 Small Lane

Please enter student gender ('male' or 'female'): male

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------
Enter Value of Menu Choice: 1

-----Student Names------
Student Name: Niall M
Student Name: Michael B
Student Name: Scarlet C
Student Name: Zayden R
Student Name: Dominik H
Student Name: Shannon V
Student Name: Lacie D
Student Name: Conor R
Student Name: Karl V
Student Name: Aleah C
Student Name: Milly D
Student Name: Niamh F
Student Name: Brendan N
Student Name: Georgia S
Student Name: Ryan S
Student Name: Jim T
Student Name: Conor P
Student Name: Daniel M
Student Name: Gemma T
Student Name: Jimmy C

-----------The Enrolment Register-----------
----------------Menu Options----------------
1.) List Student Names
2.) Add New Student
3.) Delete Existing Student
4.) Display Specific Student Details
5.) Display Report Details
6.) Save and Exit
--------------------------------------------
Enter Value of Menu Choice: |
```