

1. Test Plan and Results

S.N.	Tests Explanation	Inputs	Expected Output	Actual Output	Pass/Fail
1.	Searching for student records	Input: 1 S02	Student record found	Student S02 record found: <S02,120,90,100, normal>	Yes
2.	Searching out of range records	Input: 1 S07	Student record not found	Student S07 record not found	Yes
3.	Validating map1 for below range	Input: 2 -5 100	Out of range error message	Map1 and Map2 should be in the range of 0-200	Yes
4.	Validating map2 for above range	Input: 2 80 220	Out of range error message	Map1 and Map2 should be in the range of 0-200	Yes
5.	Validating if map1 is greater than map2	Input: 2 100 40	First member is less than second member error message	Map2 should be greater than Map1	Yes
6.	Searching for records within map range	Input: 2 60 100	Records found if exists	4 record(s) found in the range 60-100: <S02,120,90,100, normal> <S03,110,60,76, normal> <S04,100,80,86, normal> <S05,80,70,73, normal>	Yes
7.	Searching for records out of range	Input: 2 120 140	No records found error message	No records in this range 120-140	Yes
8.	Searching records with map1 and map2 in same range	Input: 2 100 100	Records found if exists	1 record(s) found in the range 100-100: <S02,120,90,100, normal>	Yes
9.	Displaying statistics of MAP values in array	Input: 3	Minimum, maximum, and median MAP values	Array after sorting by MAP value in Ascending order: <S06,90,40,56, low> <S05,80,70,73, normal> <S03,110,60,76, normal> <S04,100,80,86, normal> <S02,120,90,100, normal> <S01,130,90,103, high> Lowest MAP is 56 Highest MAP is 103	Yes

				Median MAP is 81	
10.	Displaying help menu	Input: 0	Help menu	The following commands are recognised: Display this message > 0 Display a specific subject record: > 1 id Display records for all subjects within the range > 2 map1 map2 Display statistics (minimum, maximum, and median) > 3 Exit the application > 9	Yes
11.	Exiting the application	Input: 9	Terminate the program	Program terminated	Yes
12.	Displaying invalid input error message	Input: 7	Invalid input error message	Please, enter valid choice or type 0 for HELP menu	Yes
13.	Error handling	Input: 2 str1 str2	Show appropriate message	Program terminated with error	No

Test results Screenshots

1. Searching for student records

```

compile:
run:
The following commands are recognised:
Display this message                > 0
Display a specific subject record:  > 1 id
Display records for all subjects within the range > 2 map1 map2
Display statistics (minimum, maximum and median) > 3
Exit the application                > 9

Enter your choice:
1 S02

Student S02 record found:
<S02,120,90,100, normal>

```

2. Searching out of range records

```

Enter your choice:
1 S07

Student S07 record not found

```

3. Validating map1 for below range

```

Enter your choice:
2 -5 100

Map1 and Map2 should be in the range of 0-200

```

4. Validating map2 for above range

```

Enter your choice:
2 -5 100

Map1 and Map2 should be in the range of 0-200

```

5. Validating if map1 is greater than map2

```

Enter your choice:
2 100 40

Map2 should be greater than Map1

```

6. Searching for records within map range

```

Enter your choice:
2 60 100

4 record(s) found in the range 60-100:
<S02,120,90,100, normal>
<S03,110,60,76, normal>
<S04,100,80,86, normal>
<S05,80,70,73, normal>

```

7. Searching for records out of range

```
Enter your choice:
2 120 140

No records in this range 120-140
```

8. Searching records with map1 and map2 in same range

```
Enter your choice:
2 100 100

1 record(s) found in the range 100-100:
<S02,120,90,100, normal> |
```

9. Displaying statistics of MAP values in array

```
Enter your choice:
0
The following commands are recognised:
Display this message > 0
Display a specific subject record: > 1 id
Display records for all subjects within the range > 2 map1 map2
Display statistics (minimum, maximum and median) > 3
Exit the application > 9
```

10. Displaying help menu

```
Enter your choice:
0
The following commands are recognised:
Display this message > 0
Display a specific subject record: > 1 id
Display records for all subjects within the range > 2 map1 map2
Display statistics (minimum, maximum and median) > 3
Exit the application > 9
```

11. Exiting the application

```
Enter your choice:
9
BUILD SUCCESSFUL (total time: 3 minutes 1 second)
|
```

12. Displaying invalid input error message

```
Enter your choice:
7

Please, enter valid choice or type 0 for HELP menu
```

13. Error handling

```
Enter your choice:  
2 str1 str2
```

```
Exception in thread "main" java.util.InputMismatchException  
    at java.util.Scanner.throwFor (Scanner.java:864)  
    at java.util.Scanner.next (Scanner.java:1485)  
    at java.util.Scanner.nextInt (Scanner.java:2117)  
    at java.util.Scanner.nextInt (Scanner.java:2076)  
    at assignment2.View.commandLoop (View.java:59)  
    at assignment2.Assignment2.main (Assignment2.java:24)
```

```
C:\Users\acer.DESKTOP-KFCMA04\OneDrive\Documents\NetBeansProjects\Assignment2\nbproject\build-impl.xml:1040: The following error occurred while executing this line:  
C:\Users\acer.DESKTOP-KFCMA04\OneDrive\Documents\NetBeansProjects\Assignment2\nbproject\build-impl.xml:805: Java returned: 1  
BUILD FAILED (total time: 6 seconds)
```