

SD2 - Worksheet 1 - 6%



Student name:	Hussaina Hussain					
Student number:	3136381					
Faculty:	Computing Science					
Course:	BSCH/BSCO/EXCH			Stage/year:	2	
Subject:	Software Development 2					
Study Mode:	Full time	<input checked="" type="checkbox"/>		Part-time	<input type="checkbox"/>	
Lecturer Name:	Gemma Deery					
Assignment Title:	Worksheet 1					
Date due:	19/02/2025					
Date submitted:	19/02/2025					

Plagiarism disclaimer:

I understand that plagiarism is a serious offence and have read and understood the college policy on plagiarism. I also understand that I may receive a mark of zero if I have not identified and properly attributed sources which have been used, referred to, or have in any way influenced the preparation of this assignment, or if I have knowingly allowed others to plagiarise my work in this way.

I hereby certify that this assignment is my own work, based on my personal study and/or research, and that I have acknowledged all material and sources used in its preparation. I also certify that the assignment has not previously been submitted for assessment and that I have not copied in part or whole or otherwise plagiarised the work of anyone else, including other students.

Signed: Hussaina Hussain

Date: 19/02/2025

Please note: [Students MUST retain a hard / soft copy of ALL assignments as well as a receipt issued and signed by a member of Faculty as proof of submission.](#)

Contents

Task One	3
Part One:	3
Part Two:	6
Part Three:	8
Task 2.....	10
Part One:	10
Part Two:	12
Part Three:	13
Git Log:	15
Screenshot of Repository on GitHub	17

Link to GitHub:

<https://github.com/Anaissuh13/SD2-Assignments>

Task One

Part One:

- Created the class Grades.java under the package griffith and GradesTest.java under the package griffithTest.



- Stub methods added in Grades.java

```
package griffith;

public class Grades {
    // Returns the maximum grade from an array
    public int gradesMax(int[] grades) {
        return 0; // Placeholder return value
    }

    // Returns the total sum of grades in an array
    public int gradesTotal(int[] grades) {
        return 0; // Placeholder return value
    }

    // Returns the average of grades in an array
    public double gradesAverage(int[] grades) {
        return 0.0; // Placeholder return value
    }

    // Counts the number of grades below the minimum grade
    public int countFails(int[] grades, int minGrade) {
        return 0; // Placeholder return value
    }
}
```

SD2 - Worksheet 1 - 6%

- Stub methods added in GradesTest.java

```
class GradesTest {  
    @Test  
    public void testGradesMax() {  
        // Placeholder test  
    }  
  
    @Test  
    public void testGradesTotal() {  
        // Placeholder test  
    }  
  
    @Test  
    public void testGradesAverage() {  
        // Placeholder test  
    }  
  
    @Test  
    public void testCountFails() {  
        // Placeholder test  
    }  
    |  
    @Test  
    void test() {  
        fail("Not yet implemented");  
    }  
}
```

SD2 - Worksheet 1 - 6%

- Commits made and pushed

commit 89b0d6e11ce428f39fd98a1df7eae4b03d2d0b (master)

Author: Anaissuh13 <hussainah2407@gmail.com>

Date: Wed Feb 19 06:11:02 2025 +0000

Created the classed Grades.java under the package griffith and GradesTest.java under the package griffithTest. Added the stub methods in Grades.java. Modified the word document to include screenshots of the following.

commit 3d811f220bf0c98ac9855ff65ecf9ca3826ef6dc

Author: Anaissuh13 <hussainah2407@gmail.com>

Date: Tue Feb 18 21:37:31 2025 +0000

Created the Project in eclipse, named according to the assignment requirements. These commits are being made on a branch Assignment1.

commit 2b37128df3be87073c2e100b374d689aed43d94e

Author: Anaissuh13 <hussainah2407@gmail.com>

Date: Tue Feb 18 21:25:55 2025 +0000

Created the eclipse project, named according to the assignment requirements.

commit ec0cf262b09cc8f74e14659ee60a0424210c10ea

Author: Anaissuh13 <hussainah2407@gmail.com>

Date: Tue Feb 18 21:21:38 2025 +0000

Moved the word document template for assignment1 to the new repository.

commit 594f24e001a67043c74c546cb8c5ccd01948b6be

Author: Anaissuh13 <hussainah2407@gmail.com>

Date: Tue Feb 18 21:17:55 2025 +0000

Added the word template to the repository to make an initial commit

Merge pull request #1 from Anaissuh13/assignment1

Verified

8572490



Anaissuh13 authored 14 hours ago

Created the Project in eclipse, named according to the assignment requirements. These commits are being made on a branch Assignment1.

3d811f2



Anaissuh13 committed 14 hours ago

Created the eclipse project, named according to the assignment requirements.

2b37128



Anaissuh13 committed 14 hours ago

Moved the word document template for assignment1 to the new repository.

ec8cf26



Anaissuh13 committed 14 hours ago

Added the word template to the repository to make an initial commit

594f24e



Anaissuh13 committed 14 hours ago

SD2 - Worksheet 1 - 6%

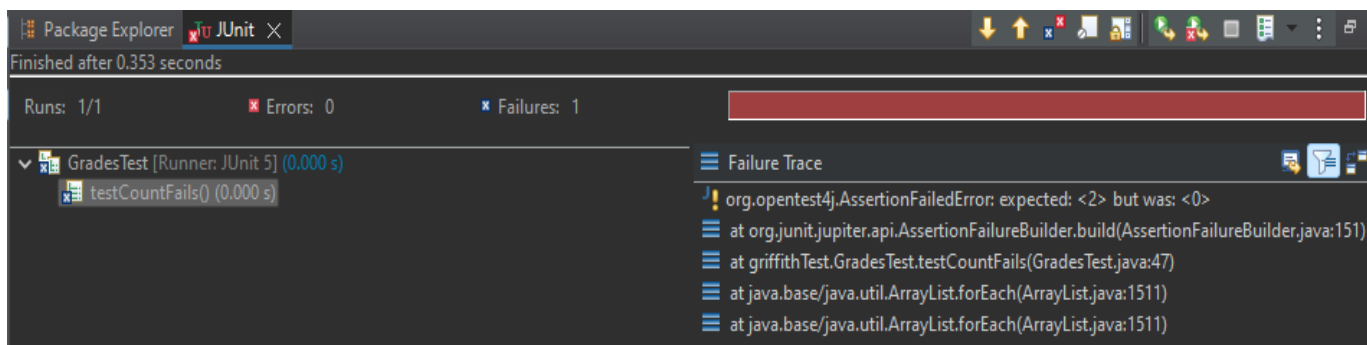
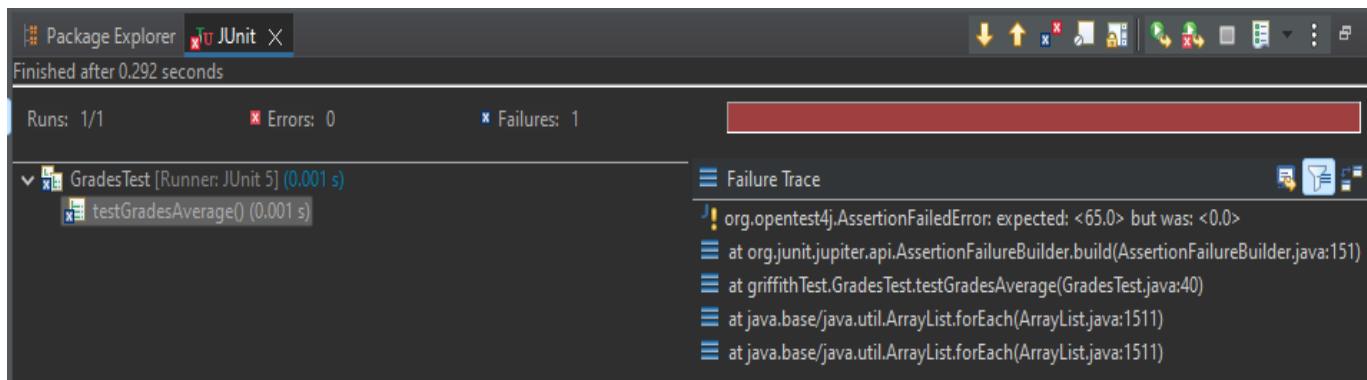
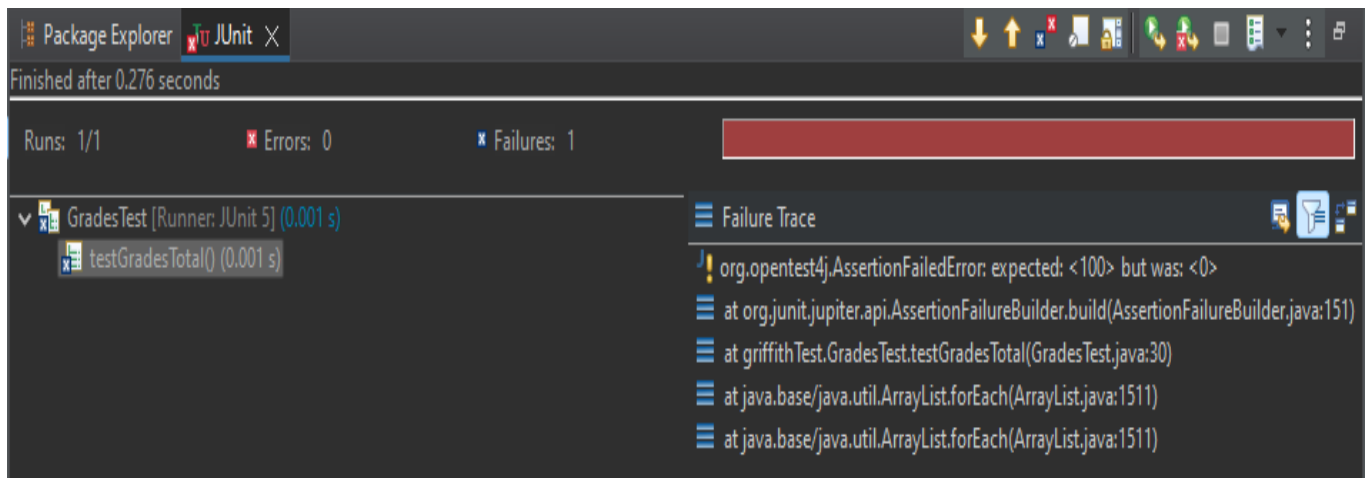
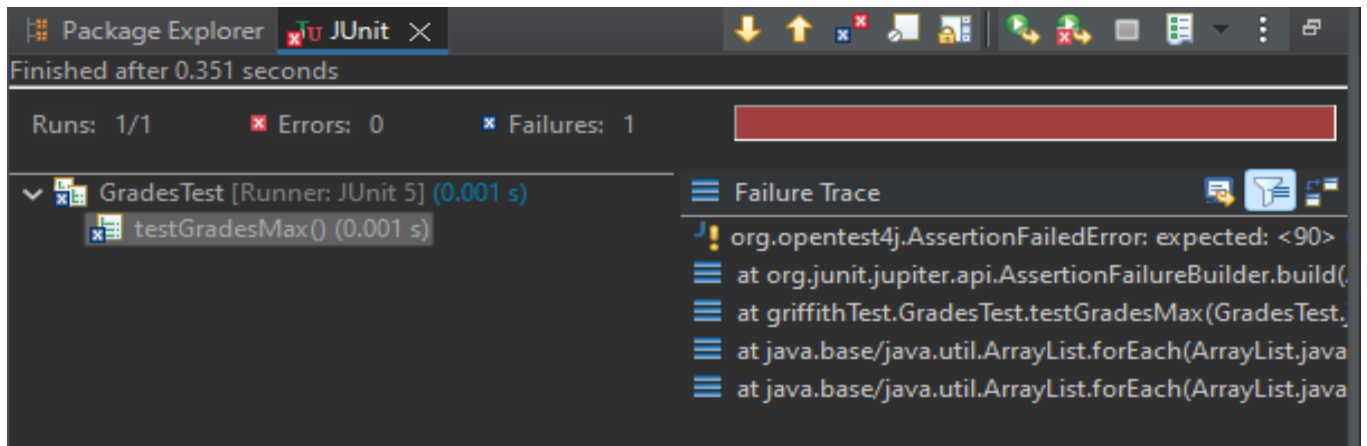
Part Two:

- Writing test cases for each of the unit test methods that call the appropriate methods in java file.

```
class GradesTest {  
    @Test  
    public void testGradesMax() {  
        Grades grade = new Grades();  
        int[] grades = {45, 78, 90, 32, 88};  
        assertEquals(90, grade.gradesMax(grades));  
  
        int[] negativeGrades = {-10, -5, -20, -3};  
        assertEquals(-3, grade.gradesMax(negativeGrades));  
  
        int[] singleElement = {50};  
        assertEquals(50, grade.gradesMax(singleElement));  
    }  
  
    @Test  
    public void testGradesTotal() {  
        Grades grade = new Grades();  
        int[] grades = {10, 20, 30, 40};  
        assertEquals(100, grade.gradesTotal(grades));  
  
        int[] emptyArray = {};  
        assertEquals(0, grade.gradesTotal(emptyArray));  
    }  
  
    @Test  
    public void testGradesAverage() {  
        Grades grade = new Grades();  
        int[] grades = {50, 60, 70, 80};  
        assertEquals(65.0, grade.gradesAverage(grades), 0.01);  
    }  
  
    @Test  
    public void testCountFails() {  
        Grades grade = new Grades();  
        int[] grades = {10, 20, 50, 70};  
        assertEquals(2, grade.countFails(grades, 40));  
    }  
}
```


SD2 - Worksheet 1 - 6%

- Failing tests:



SD2 - Worksheet 1 - 6%

- Commits made and pushed

```
commit adabd787c2f73752ec887d17f5f499a8be04c121
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Wed Feb 19 07:03:25 2025 +0000
```

Modified the comments in the Grades.java file to make the more precise. Added the code in the methods of the GradesTest.java class and tested them. Updated the word doc with the screenshots of the same along with the screenshots of the failed tests.

```
commit 7d21f376939d2f780db8c3a20211b048fb64bd8e
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Wed Feb 19 06:41:39 2025 +0000
```

Modified the file GradesTest.java, added the stub methods. Also modified the word doc to add screenshots of the same.

Modified the comments in the Grades.java file to make the more precise. Added the code in the methods of the GradesTest.java class and tested them. Updated the word doc with the screenshots of the ...

Anaissuh13 committed 5 hours ago

adabd78

Modified the file GradesTest.java, added the stub methods. Also modified the word doc to add screenshots of the same.

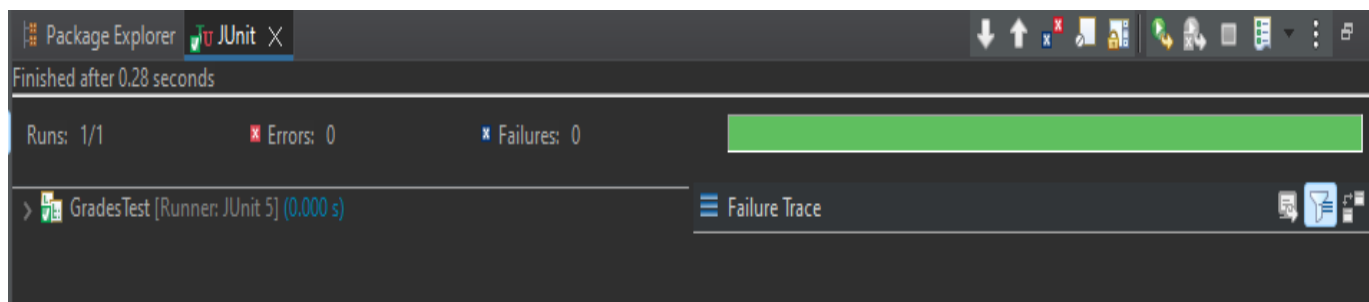
Anaissuh13 committed 5 hours ago

7d21f37

Part Three:

- Implementing and testing gradesMax method and testing it.

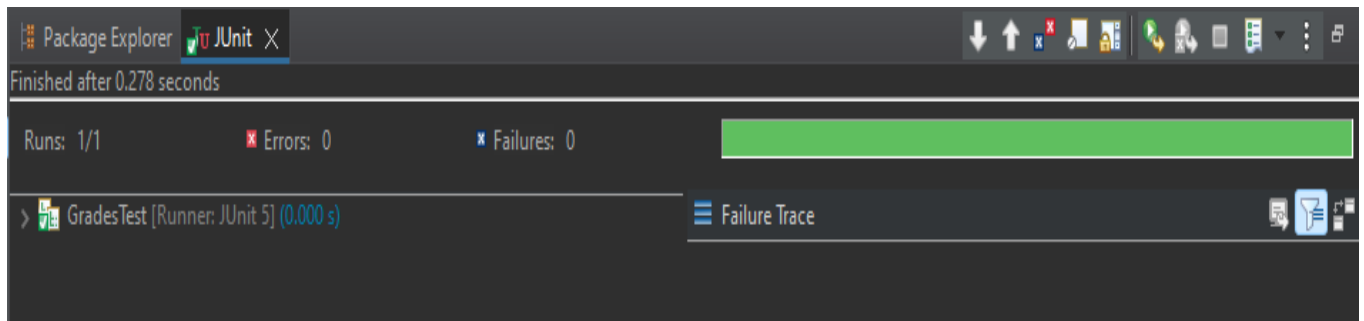
```
// Returns the maximum grade from an array.
public int gradesMax(int[] grades) {
    if (grades.length == 0) return Integer.MIN_VALUE;
    return Arrays.stream(grades).max().getAsInt();
}
```



- Implementing and testing gradesTotal method and testing it.

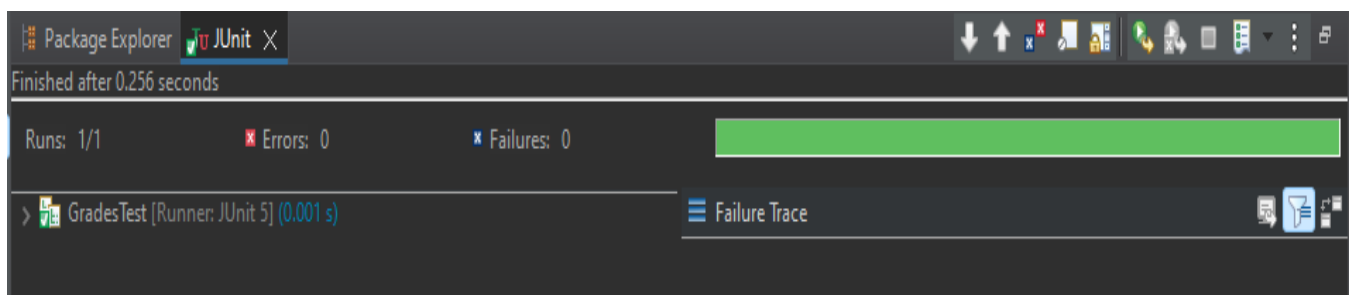
```
// Returns the sum of array.
public int gradesTotal(int[] grades) {
    return Arrays.stream(grades).sum();
}
```


SD2 - Worksheet 1 - 6%



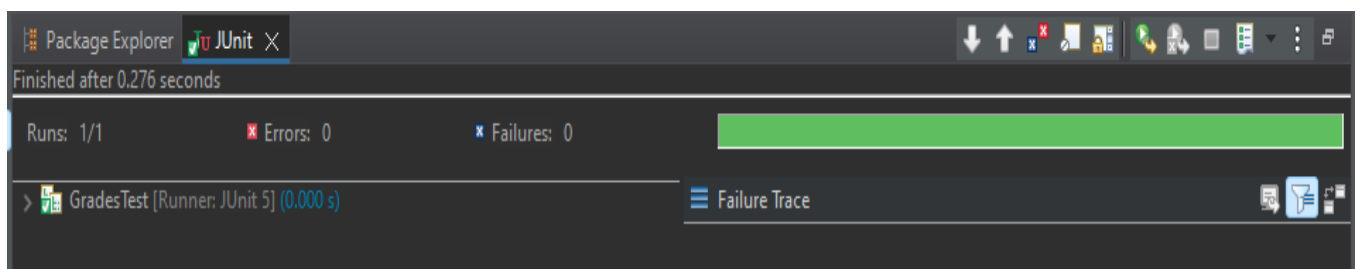
- Implementing and testing gradesAverage method and testing it.

```
// Returns the average of array.  
public double gradesAverage(int[] grades) {  
    if (grades.length == 0) return 0.0;  
    return (double) gradesTotal(grades) / grades.length;  
}
```



- Implementing and testing countFails method and testing it.

```
// Counts the number of grades below the minimum grade.  
public int countFails(int[] grades, int minGrade) {  
    return (int) Arrays.stream(grades).filter(g -> g < minGrade).count();  
}
```



SD2 - Worksheet 1 - 6%

- Commits made and pushed

```
commit d35796fa7a09c0fe2331adca708b96b1f08d14ef
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Wed Feb 19 08:36:20 2025 +0000
```

Added the code to all the methods in Grades.java class one method at a time and conducted the unit testing. The methods were modified until the unit test was passed. Word documents was updated with screenshots of the same.

Added the code to all the methods in Grades.java class one method at a time and conducted the unit testing. The methods were modified until the unit test was passed. Word documents was updated with...

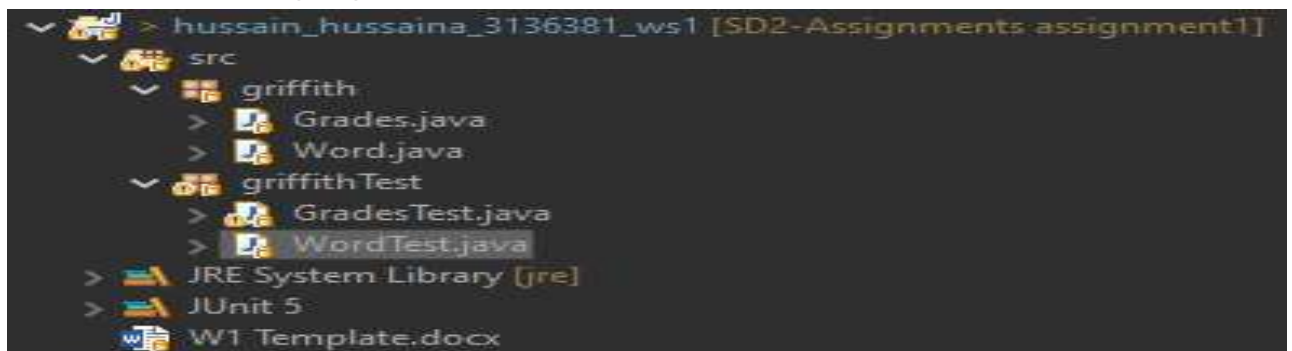
Anaissuh13 committed 3 hours ago

d35796f

Task 2

Part One:

- Created the class Word.java under the package griffith and WordTest.java under the package griffithTest.



- Updated the Word.java file with the stub methods.

```
package griffith;

public class Word {
    private char[] letters;

    public Word(char[] letters) {
        this.letters = letters;
    }

    public boolean contains(char symbol) {
        return false; // Placeholder
    }

    public int length() {
        return 0; // Placeholder
    }

    public char[] getLetters() {
        return letters; // Placeholder
    }
}
```

SD2 - Worksheet 1 - 6%

- Updated the WordTest.java file with the stub methods.

```
package griffithTest;

import static org.junit.jupiter.api.Assertions.*;

class WordTest {

    @Test
    public void testContains() {
        // Placeholder test
    }

    @Test
    public void testLength() {
        // Placeholder test
    }

    @Test
    public void testNotNull() {
        // Placeholder test
    }

    @Test
    void test() {
        fail("Not yet implemented");
    }

}
```


- Commits made and pushed

```
commit b4a2561f62b10ba0877cb331f5244e4872c33c80
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Wed Feb 19 09:15:13 2025 +0000



    Added the code in the WordTest.java class and unit tested them. Everything is a fail as expected. Word doc was updated with the screenshots of the same.

commit 7434df5fb35953547b5201c7966b2398b2cb4fae
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Wed Feb 19 08:50:58 2025 +0000

    Created and updated the Word.java and WordTest.java classes with the stub methods and updated the Word doc with the screenshots of the same.
```

Added the code in the WordTest.java class and unit tested them. Everything is a fail as expected. Word doc was updated with the screenshots of the same. b4a2561  

Anaissuh13 committed 3 hours ago

Created and updated the Word.java and WordTest.java classes with the stub methods and updated the Word doc with the screenshots of the same. 7434df5  

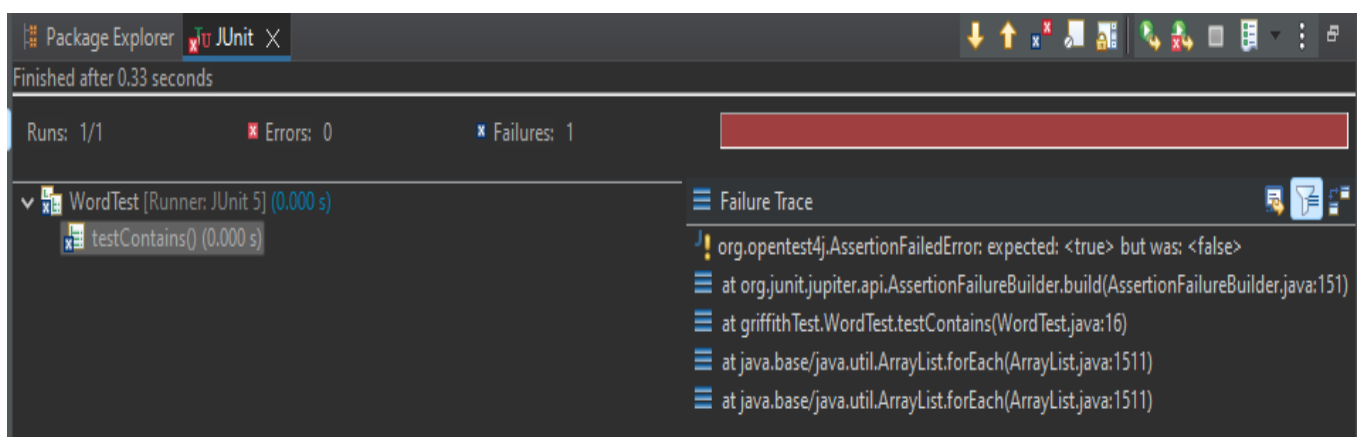
Anaissuh13 committed 4 hours ago

Part Two:

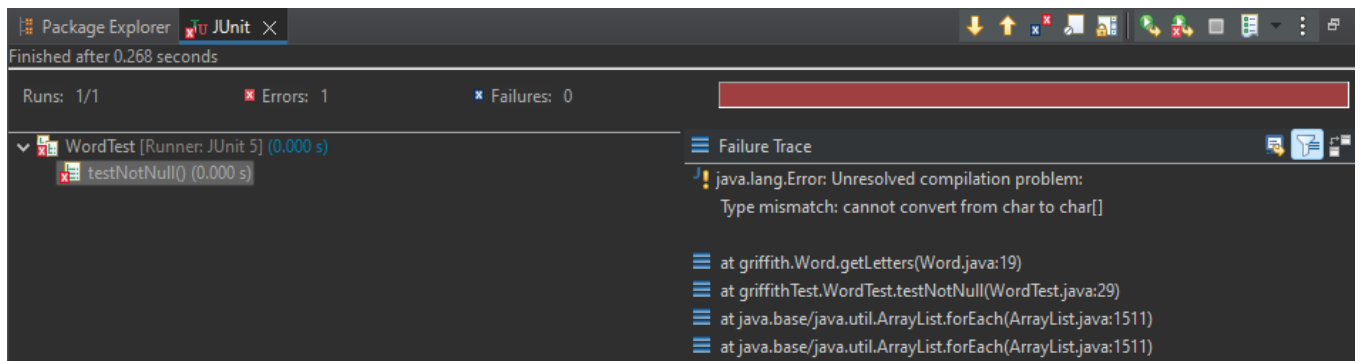
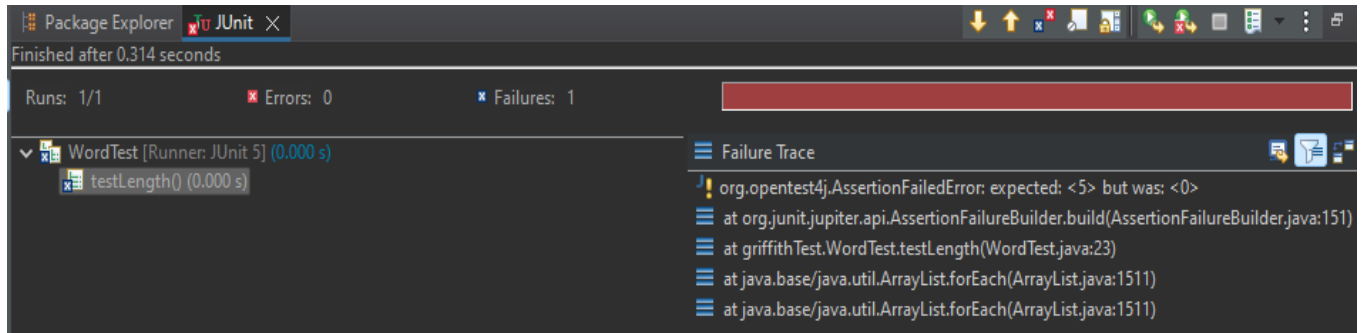
- Writing test cases for each of the unit test methods that call the appropriate methods in java file.

```
class WordTest {  
  
    @Test  
    public void testContains() {  
        Word word = new Word(new char[]{'h', 'e', 'l', 'l', 'o'});  
        assertTrue(word.contains('h'));  
        assertFalse(word.contains('z'));  
    }  
  
    @Test  
    public void testLength() {  
        Word word = new Word(new char[]{'h', 'e', 'l', 'l', 'o'});  
        assertEquals(5, word.length());  
    }  
  
    @Test  
    public void testNotNull() {  
        Word word = new Word(new char[]{'h', 'e', 'l', 'l', 'o'});  
        assertNotNull(word.getLetters());  
    }  
  
    @Test  
    void test() {  
        fail("Not yet implemented");  
    }  
}
```

- Failing tests:



SD2 - Worksheet 1 - 6%



- Commits made and pushed

```
commit b4a2561f62b10ba0877cb331f5244e4872c33c80
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Wed Feb 19 09:15:13 2025 +0000
```

Added the code in the `WordTest.java` class and unit tested them. Everything is a fail as expected. Word doc was updated with the screenshots of the same.

Added the code in the `WordTest.java` class and unit tested them. Everything is a fail as expected. Word doc was updated with the screenshots of the same.

b4a2561

Anaissuh13 committed 3 hours ago

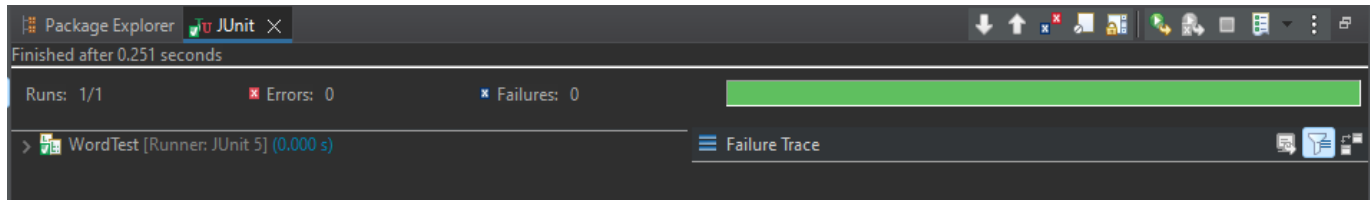
Part Three:

- Implementing and testing `testContains` method and testing it.

```
public Word(char[] letters) {
    this.letters = (letters != null) ? letters : new char[]{};
}

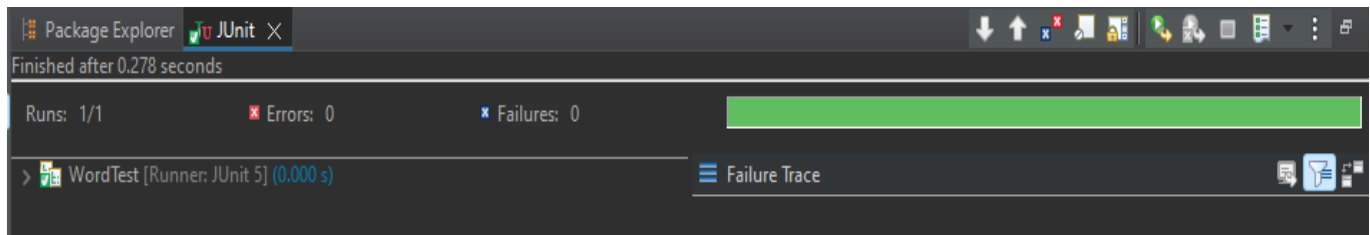
public boolean contains(char symbol) {
    for (char c : letters) {
        if (c == symbol) return true;
    }
    return false;
}
```

SD2 - Worksheet 1 - 6%



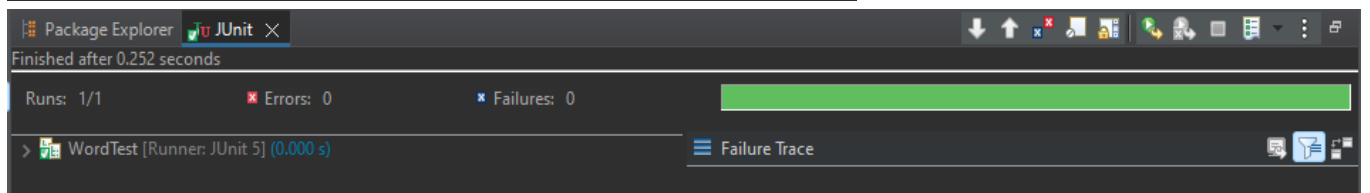
- Implementing and testing testLength method and testing it

```
public int length() {  
    return letters.length;  
}
```

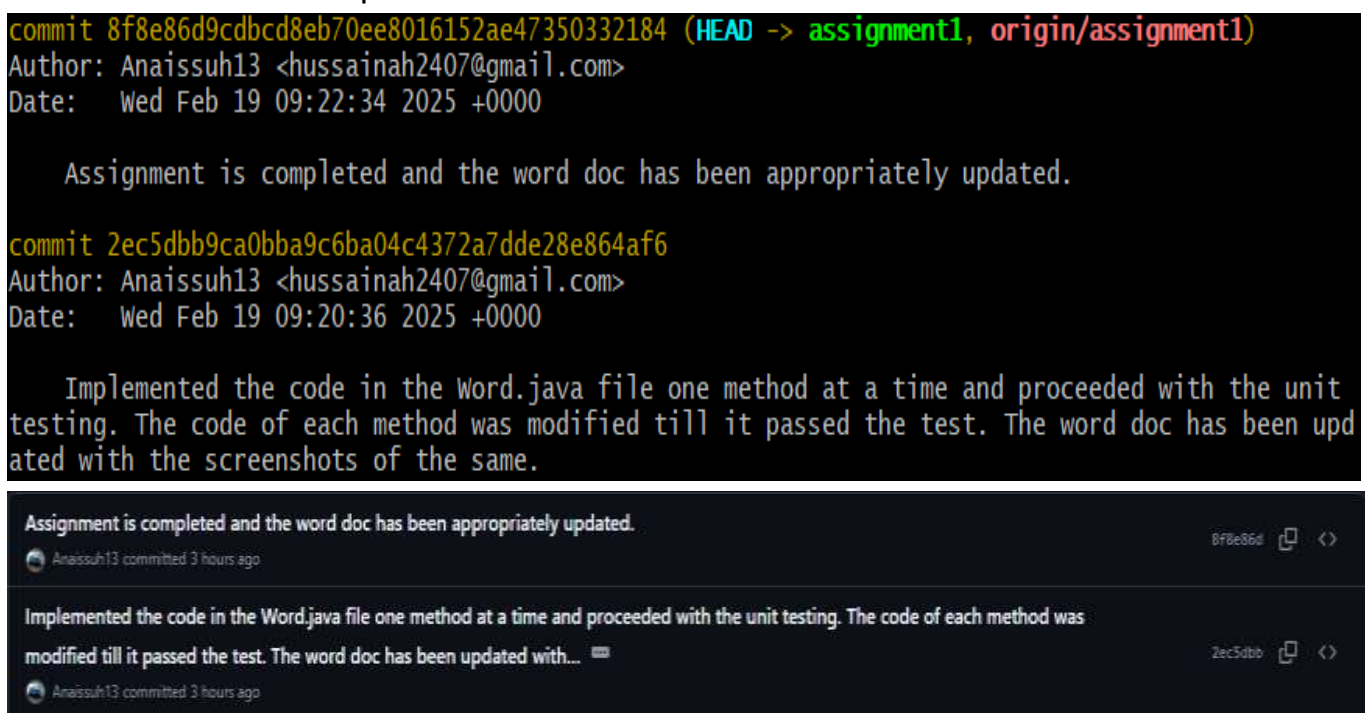


- Implementing and testing testNotNull method and testing it

```
public char[] getLetters() {  
    return letters;  
}
```



- Commits made and pushed



SD2 - Worksheet 1 - 6%

Git Log:

```
hussa@LAPTOP-MH0V7MQH MINGW64 ~/desktop/SD2-Assignments/hussain_hussaina_3136381_ws1 (assignment1)
```

```
$ git log
```

```
commit 8f8e86d9cdbc8eb70ee8016152ae47350332184 (HEAD -> assignment1, origin/assignment1)
```

```
Author: Anaissuh13 <hussainah2407@gmail.com>
```

```
Date: Wed Feb 19 09:22:34 2025 +0000
```

Assignment is completed and the word doc has been appropriately updated.

```
commit 2ec5dbb9ca0bba9c6ba04c4372a7dde28e864af6
```

```
Author: Anaissuh13 <hussainah2407@gmail.com>
```

```
Date: Wed Feb 19 09:20:36 2025 +0000
```

Implemented the code in the Word.java file one method at a time and proceeded with the unit testing. The code of each method was modified till it passed the test. The word doc has been updated with the screenshots of the same.

```
commit b4a2561f62b10ba0877cb331f5244e4872c33c80
```

```
Author: Anaissuh13 <hussainah2407@gmail.com>
```

```
Date: Wed Feb 19 09:15:13 2025 +0000
```

Added the code in the WordTest.java class and unit tested them. Everything is a fail as expected. Word doc was updated with the screenshots of the same.

```
commit 7434df5fb35953547b5201c7966b2398b2cb4fae
```

```
Author: Anaissuh13 <hussainah2407@gmail.com>
```

```
Date: Wed Feb 19 08:50:58 2025 +0000
```

Created and updated the Word.java and WordTest.java classes with the stub methods and updated the Word doc with the screenshots of the same.

```
commit d35796fa7a09c0fe2331adca708b96b1f08d14ef
```

```
Author: Anaissuh13 <hussainah2407@gmail.com>
```

```
Date: Wed Feb 19 08:36:20 2025 +0000
```

Added the code to all the methods in Grades.java class one method at a time and conducted the unit testing. The methods were modified until the unit test was passed. Word documents were updated with screenshots of the same.

SD2 - Worksheet 1 - 6%

```
commit adabd787c2f73752ec887d17f5f499a8be04c121
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Wed Feb 19 07:03:25 2025 +0000
```

Modified the comments in the Grades.java file to make the more precise. Added the code in the methods of the GradesTest.java class and tested them. Updated the word doc with the screenshots of the same along with the screenshots of the failed tests.

```
commit 7d21f376939d2f780db8c3a20211b048fb64bd8e
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Wed Feb 19 06:41:39 2025 +0000
```

Modified the file GradesTest.java, added the stub methods. Also modified the word doc to add screenshots of the same.

```
commit e224b247ee4413884ee6dfd74d10e7644d73bcbc
Merge: 89b0d6e 3d811f2
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Wed Feb 19 06:28:55 2025 +0000
```

Merge branch 'assignment1' of <https://github.com/Anaissuh13/SD2-Assignments> into assignment1

"This commit is necessary to fix the issue of unconnected local and remote branches and making sure there are no merge conflicts in the future."

```
commit 89b0d6e11ce428f39fd98a1df7eae4b03d2d0b (master)
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Wed Feb 19 06:11:02 2025 +0000
```

Created the classed Grades.java under the package griffith and GradesTest.java under the package griffithTest. Added the stub methods in Grades.java. Modified the word document to include screenshots of the following.

```
commit 3d811f220bf0c98ac9855ff65ecf9ca3826ef6dc
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Tue Feb 18 21:37:31 2025 +0000
```

Created the Project in eclipse, named according to the assignment requirements. These commits are being made on a branch Assignment1.

SD2 - Worksheet 1 - 6%

```
commit 2b37128df3be87073c2e100b374d689aed43d94e
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Tue Feb 18 21:25:55 2025 +0000
```

Created the eclipse project, named according to the assignment requirements.

```
commit ec0cf262b09cc8f74e14659ee60a0424210c10ea
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Tue Feb 18 21:21:38 2025 +0000
```

Moved the word document template for assignment1 to the new repository.

```
commit 594f24e001a67043c74c546cb8c5ccd01948b6be
Author: Anaissuh13 <hussainah2407@gmail.com>
Date: Tue Feb 18 21:17:55 2025 +0000
```

Added the word template to the repository to make an initial commit

Screenshot of Repository on GitHub

The screenshot shows the GitHub repository page for 'SD2-Assignments' by user 'Anaissuh13'. The repository is public and has 2 branches and 0 tags. The current branch is 'assignment1', which is 4 commits ahead of and 3 commits behind the 'main' branch. The repository contains several files and folders, including 'hussain_hussaina_3136381_ws1', 'src', '.classpath', '.gitignore', '.project', and 'W1 Template.docx'. The commit history shows that the assignment is completed and the word document has been appropriately updated. The repository also has 13 commits, 0 stars, 1 watching, and 0 forks. The right sidebar shows the 'About' section, stating that all graded practicals of SD2 will be stored within this repository. There are also sections for 'Releases' and 'Packages', both of which are currently empty.

SD2-Assignments Public

assignment1 2 Branches 0 Tags

This branch is 4 commits ahead of, 3 commits behind main.

Contribute

File/Folder	Description	Time Ago
hussain_hussaina_3136381_ws1	Created the Project in eclipse, named according to the assign...	15 hours ago
src	Implemented the code in the Word.java file one method at a...	3 hours ago
.classpath	Created the classed Grades.java under the package gniffith a...	6 hours ago
.gitignore	Created the eclipse project, named according to the assign...	15 hours ago
.project	Created the eclipse project, named according to the assign...	15 hours ago
W1 Template.docx	Assignment is completed and the word doc has been appro...	3 hours ago

Activity

0 stars

1 watching

0 forks

Releases

No releases published. [Create a new release](#)

Packages

No packages published