GRIFFITH COLLEGE DUBLIN

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Student number:	**3136381**
Faculty:	**Computing Science**
Course:	**BSCH/BSCO/EXCH**

Course:	**BSCH/BSCO/EXCH**		**Stage/year:**	**2**	
Subject:	**Software Development 2**				
Study Mode:	Full time	☑		Part-time	
Lecturer Name:	**Gemma Deery**				
Assignment Title:	**Worksheet 2**				
Date due:	**05/03/2025**				
Date submitted:	**05/03/2025**				

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: 05/03/2025**

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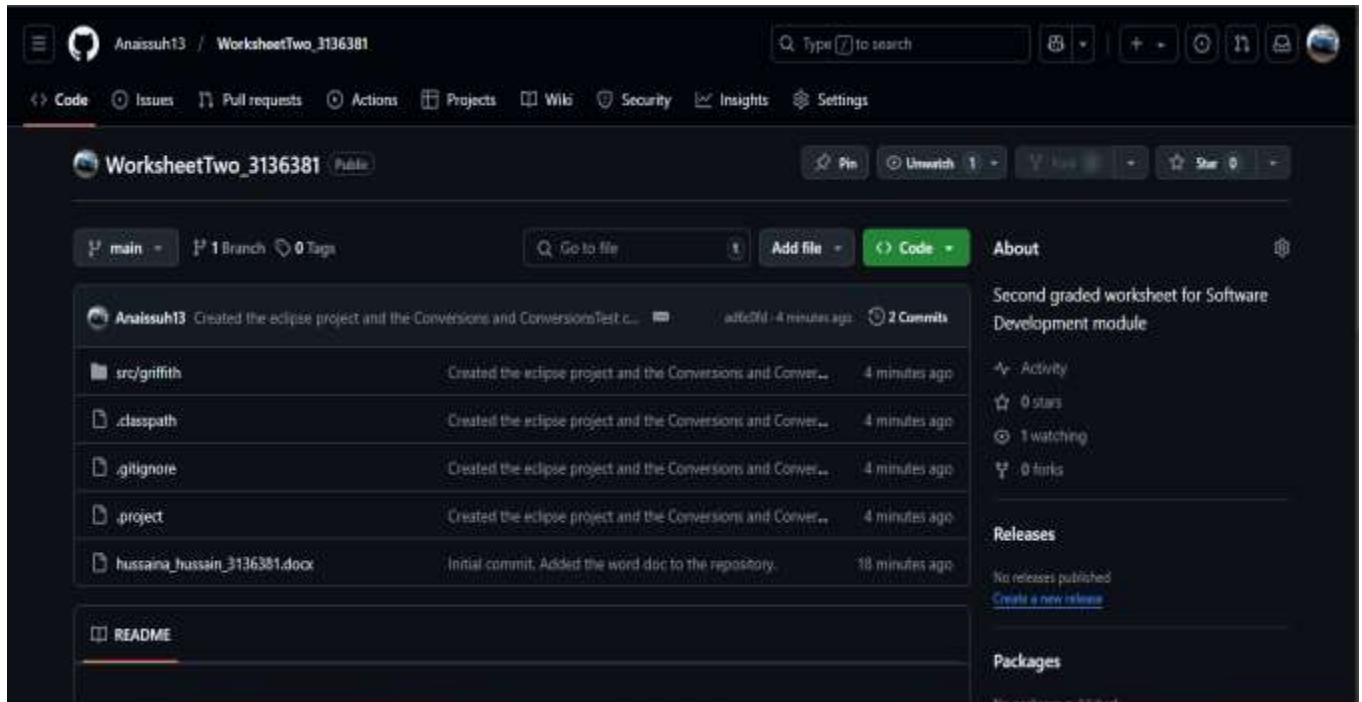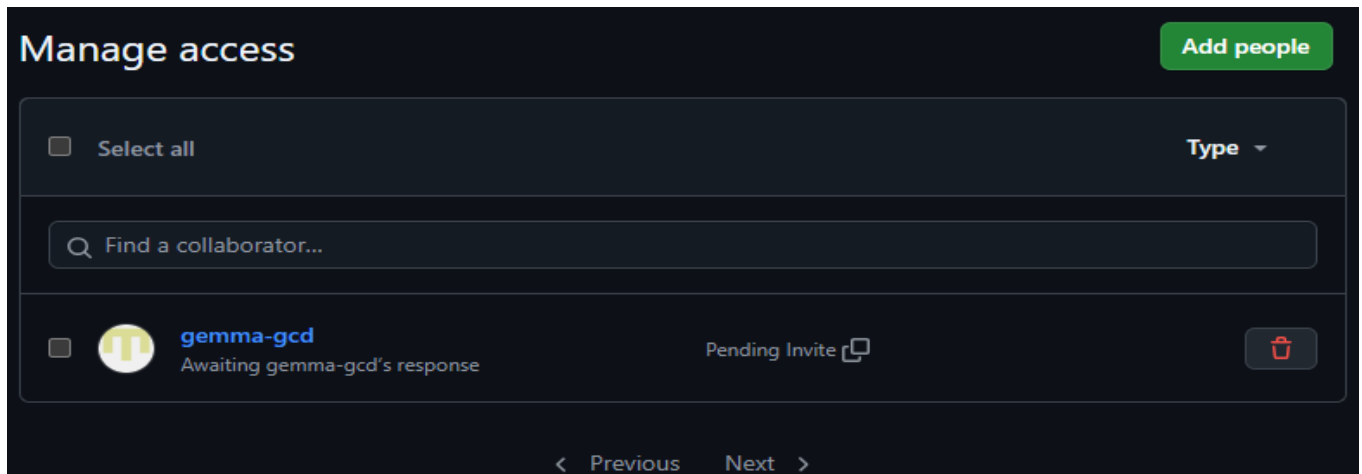**Repo Link:** https://github.com/Anaissuh13/WorksheetTwo_3136381

Task One:

Part One:

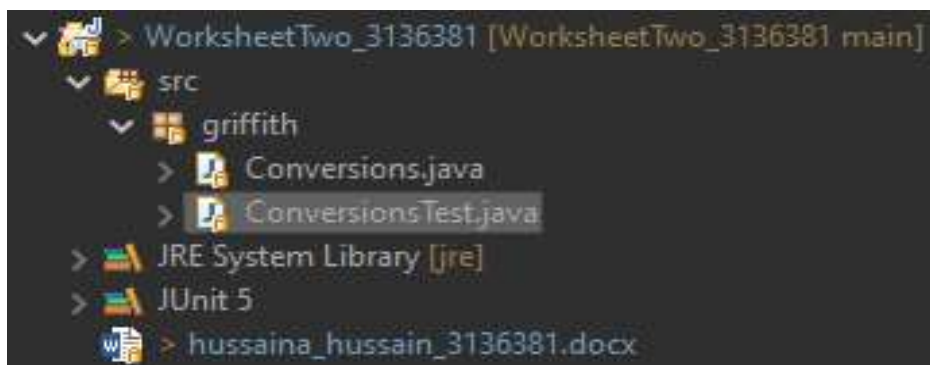- Creating the GitHub repository

- Granting Access

- Creating a new project in Eclipse along with the package and classes

Part Two:

- Adding the method stubs to the Conversions class

```java
1  package griffith;
2
3  public class Conversions {
4      // Converts Euro to Dollar
5      public double euroToDollar(double euro) {
6          return 0; // Stub
7      }
8
9      // Converts Dollar to Euro
10     public double dollarToEuro(double dollar) {
11         return 0; // Stub
12     }
13
14     // Converts String to Integer
15     public int stringToInteger(String val) {
16         return 0; // Stub
17     }
18
19     // Converts Integer to String
20     public String integerToString(int val) {
21         return null; // Stub
22     }
23
24     // Switches uppercase to lowercase and vice versa
25     public String switchCase(String input) {
26         return null; // Stub
27     }
28 }
29
```

- Committing it to repository

```
hussa@LAPTOP-MHOV7MQH MINGW64 ~/desktop/WorksheetTwo_3136381 (main)
$ git log
commit 90c8ec7ec1807f89f90998b4c0563e6a06e40800 (HEAD -> main, origin/main)
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:35:14 2025 +0000

    Added the method stubs in the Conversions class.

commit ad6c0fd9802793f8da54a39f05713701e3ee314f
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:20:06 2025 +0000

    Created the eclipse project and the Conversions and ConversionsTest classes
too.

commit ca21f258118a2f482ba5810673d747eaf62ab5a3
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:06:03 2025 +0000

    Initial commit. Added the word doc to the repository.
```

Part Three:

- Adding unit tests for each method.

euroToDollar

```java
@Test
public void testEuroToDollar() {
    assertEquals(1.08, conv.euroToDollar(1), 0.01); // Example exchange rate
    assertEquals(0, conv.euroToDollar(0), 0.01);
    assertEquals(10.8, conv.euroToDollar(10), 0.01);
}
```

```
Finished after 0.479 seconds

Runs: 2/2          ☒ Errors: 0          ☒ Failures: 2

∨ ☒ ConversionsTest [Runner: JUnit 5] (0.006 s)     ≡ Failure Trace
    ☒ testEuroToDollar() (0.004 s)                   J! org.opentest4j.AssertionFailedError: expected: <1.08> but was: <0.0>
    ☒ test() (0.000 s)                               ≡ at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:151)
                                                     ≡ at griffith.ConversionsTest.testEuroToDollar(ConversionsTest.java:17)
                                                     ≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
                                                     ≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
```

dollarToEuro

```java
// Test dollarToEuro
@Test
public void testDollarToEuro() {
    assertEquals(9.26, conv.dollarToEuro(10), 0.01); // Expected 1 USD = 0.926 EUR
    assertEquals(0.0, conv.dollarToEuro(0), 0.01);
    assertEquals(-9.26, conv.dollarToEuro(-10), 0.01);
}
```

```
Finished after 0.326 seconds

Runs: 1/1          ☒ Errors: 0          ☒ Failures: 1

∨ ☒ ConversionsTest [Runner: JUnit 5] (0.000 s)     ≡ Failure Trace
    ☒ testDollarToEuro() (0.000 s)                   J! org.opentest4j.AssertionFailedError: expected: <9.26> but was: <0.0>
                                                     ≡ at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:151)
                                                     ≡ at griffith.ConversionsTest.testDollarToEuro(ConversionsTest.java:25)
                                                     ≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
                                                     ≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
```

stringToInteger

```java
// Test stringToInteger
@Test
public void testStringToInteger() {
    assertEquals(123, conv.stringToInteger("123"));
    assertEquals(-456, conv.stringToInteger("-456"));
    assertThrows(NumberFormatException.class, () -> conv.stringToInteger("abc"));
}
```

Finished after 0.317 seconds

Runs: 1/1   ✖ Errors: 0   ✖ Failures: 1

ConversionsTest [Runner: JUnit 5] (0.003 s)
    testStringToInteger() (0.002 s)

Failure Trace

! org.opentest4j.AssertionFailedError: expected: <123> but was: <0>
≡ at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:151)
≡ at griffith.ConversionsTest.testStringToInteger(ConversionsTest.java:33)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)

integerToString

```java
// Test integerToString
@Test
public void testIntegerToString() {
    assertEquals("123", conv.integerToString(123));
    assertEquals("-456", conv.integerToString(-456));
    assertEquals("0", conv.integerToString(0));
}
```

Finished after 0.305 seconds

Runs: 1/1   ✖ Errors: 0   ✖ Failures: 1

ConversionsTest [Runner: JUnit 5] (0.000 s)
    testIntegerToString() (0.000 s)

Failure Trace

! org.opentest4j.AssertionFailedError: expected: <123> but was: <null>
≡ at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:151)
≡ at griffith.ConversionsTest.testIntegerToString(ConversionsTest.java:41)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)

switchCase

```java
// Test switchCase
@Test
public void testSwitchCase() {
    assertEquals("hELLO wORLD", conv.switchCase("Hello World"));
    assertEquals("tEsT123", conv.switchCase("TeSt123"));
    assertEquals("", conv.switchCase("")); // Edge case: empty string
}
```

Finished after 0.305 seconds

Runs: 1/1   ✖ Errors: 0   ✖ Failures: 1

ConversionsTest [Runner: JUnit 5] (0.000 s)
    testSwitchCase() (0.000 s)

Failure Trace

! org.opentest4j.AssertionFailedError: expected: <hELLO wORLD> but was: <null>
≡ at org.junit.jupiter.api.AssertionFailureBuilder.build(AssertionFailureBuilder.java:151)
≡ at griffith.ConversionsTest.testSwitchCase(ConversionsTest.java:49)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)
≡ at java.base/java.util.ArrayList.forEach(ArrayList.java:1511)

- Implementing the methods in Conversions.java and making sure the unit test passes before moving on.

SD2 - Worksheet 2 - 6%

euroToDollar

```java
// Converts Euro to Dollar
public double euroToDollar(double euro) {
    return euro * 1.08; // Example exchange rate
}
```

Finished after 1.649 seconds

Runs: 1/1	Errors: 0	Failures: 0

ConversionsTest [Runner: JUnit 5] (0.851 s)   ≡ Failure Trace

dollarToEuro

```java
// Converts Dollar to Euro
public double dollarToEuro(double dollar) {
    return dollar * 0.926; // Assuming 1 USD = 0.926 EUR
}
```

Finished after 0.262 seconds

Runs: 1/1	Errors: 0	Failures: 0

ConversionsTest [Runner: JUnit 5] (0.000 s)   ≡ Failure Trace

stringToInteger

```java
// Converts String to Integer
public int stringToInteger(String val) {
    return Integer.parseInt(val);
}
```

Finished after 0.246 seconds

Runs: 1/1	Errors: 0	Failures: 0

ConversionsTest [Runner: JUnit 5] (0.000 s)   ≡ Failure Trace

integerToString

```java
// Converts Integer to String
public String integerToString(int val) {
    return String.valueOf(val);
}
```

Finished after 0.259 seconds

Runs: 1/1	Errors: 0	Failures: 0

ConversionsTest [Runner: JUnit 5] (0.000 s)   ≡ Failure Trace

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switchCase

```java
// Switches uppercase to lowercase and vice versa
public String switchCase(String input) {
    StringBuilder result = new StringBuilder();
    for (char c : input.toCharArray()) {
        if (Character.isUpperCase(c)) {
            result.append(Character.toLowerCase(c));
        } else if (Character.isLowerCase(c)) {
            result.append(Character.toUpperCase(c));
        } else {
            result.append(c);
        }
    }
    return result.toString();
}
```

Finished after 0.266 seconds

Runs: 1/1   ✗ Errors: 0   ✗ Failures: 0

> ConversionsTest [Runner: JUnit 5] (0.001 s)   ☰ Failure Trace

- Git Log**:**

```
hussa@LAPTOP-MHOV7MQH MINGW64 ~/desktop/WorksheetTwo_3136381 (main)
commit 90e47850f423a918dfa55da1ac3f1b3458a2e6b4 (HEAD -> main, origin/main)
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:25:45 2025 +0000

    Implemented the integerToString method in Conversions.java class and modified it till the unit test passes.

commit 2f8785727a4a4c5a6da58893d0d50795cd173ce1
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:20:29 2025 +0000

    Implemented the stringToInteger method in Conversions.java class and modified it till the unit test passes.

commit 6224f29778f3932b36f5c1b9a6a68de0f7cf3572
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:18:08 2025 +0000

    Implemented the dollarToEuro method in Conversions.java class. Modified it till the unit test passes.

commit 341a4474e8a4544c8f1756c5ffb619a63b417ffa
Author: Anaissuh13 <hussainah2407@gmail.com>
:...skipping...
commit 90e47850f423a918dfa55da1ac3f1b3458a2e6b4 (HEAD -> main, origin/main)
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:25:45 2025 +0000

    Implemented the integerToString method in Conversions.java class and modified it till the unit test passes.
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commit 2f8785727a4a4c5a6da58893d0d50795cd173ce1
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:20:29 2025 +0000

    Implemented the stringToInteger method in Conversions.java class and modified it till the unit test passes.

commit 6224f29778f3932b36f5c1b9a6a68de0f7cf3572
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:18:08 2025 +0000

    Implemented the dollarToEuro method in Conversions.java class. Modified it till the unit test passes.

commit 341a4474e8a4544c8f1756c5ffb619a63b417ffa
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:15:53 2025 +0000

    Implemented the euroToDollar method in Conversions class. Modified it till the unit test passes.
```

```
commit b4ba10a5e9ac9dff1e1ce9cf85cb25853e88ecec
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 16:10:38 2025 +0000

    Added the failing unit tests for each method and uploaded the word doc with the screenshots of the same.

commit f7007cb218ffdd96ca3717df0ff0e9fa71683dd1
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:49:23 2025 +0000

    Added unit test for the testEuroToDollar method, which is failing right now.

commit 90c8ec7ec1807f89f90998b4c0563e6a06e40800
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:35:14 2025 +0000

    Added the method stubs in the Conversions class.

commit ad6c0fd9802793f8da54a39f05713701e3ee314f
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:20:06 2025 +0000

    Created the eclipse project and the Conversions and ConversionsTest classes too.

commit ca21f258118a2f482ba5810673d747eaf62ab5a3
Author: Anaissuh13 <hussainah2407@gmail.com>
Date:   Mon Mar 3 15:06:03 2025 +0000

    Initial commit. Added the word doc to the repository.
```