Fundamentals of Programming 1 5%
Exercise sheet 4

Question 1
Write a Java program that evaluates and prints the **truth** or **falsity** of the following expressions; <u>**you should assign the outcome of each expression to a Boolean variable**</u>. Name your program **Question1.java.**

```
  i.   2 * 3 == 6 && 4 < 5
 ii.   3 > 1 || 5 < 3
iii.   1 < 10 && 2 < 10 && 3 < 10
 iv.   !(3 > 10) && 5 != 4
  v.   (10 >= 10) && (11 >= 10)
```

```
2 * 3 == 6 && 4 < 5 is true
3 > 1 || 5 < 3 is true
1 < 10 && 2 < 10 && 3 < 10 is true
!(3 > 10) && 5 != 4 is true
(10 >= 10) && (11 >= 10) is true
```

Question 2
Write a program that uses the Scanner to <u>**read an integer**</u> from the keyboard and print one of *positive*, *negative* or *zero*. Your program should use an **<u>if</u>**, **<u>else if</u>** and an **<u>else</u>**. Name your program **Question2.java**.

```
Please enter an integer number: 100
positive
Please enter an integer number: -10
negative
Please enter an integer number: 0
zero
```
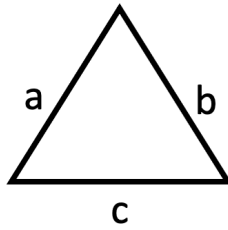
Question 3
Write a program that uses the Scanner to read in a student's grade (0 – 100) and prints the associated alphabetic grade. Use the table below in your answer and use the test cases below in your screenshots. Name your program **Question3.java**.

GRADE	PERCENTAGE BAND
A	80 – 100
B+	70 < 79
B	60 < 69
B-	55 < 59
C+	50 < 54
C	40 < 49
D	35 < 39
F	< 34

```
Please enter your grade (0-100): 81
A
Please enter your grade (0-100): 56
B-
Please enter your grade (0-100): 51
C+
Please enter your grade (0-100): 23
F
```
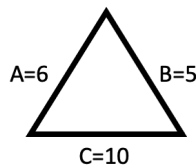
Question 4

Write a program that uses the Scanner to read the lengths of three sides of a triangle (**A**, **B** and **C**) and prints one of **TRIANGLE** or **NOT A TRIANGLE**. Name your program **Question4.java.**
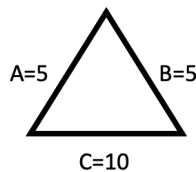
Triangle Inequality Theorem
The sum of the two shortest sides must be greater than the longest side.

C is the longest side so (6 + 5 > 10) == true ✔

C is the longest side but 5 + 5 > 10 == false ✗

NOTE: A, B or C could be the longest side.

```
Enter length of line A: 6
Enter length of line B: 5
Enter length of line C: 10
TRIANGLE
```

```
Enter length of line A: 5
Enter length of line B: 5
Enter length of line C: 10
NOT TRIANGLE
```

Deliverables

Place all your java source files in a folder called **Week4**. Zip the Week4 folder and upload the zip file using the Week4 upload link for your group on MOODLE.

NOTE: Double check the upload deadline for your group on MOODLE.

Plagiarism

This assessment should be an individual piece of work. Any evidence of plagiarism will result in a grade of zero for all parties involved and will trigger the Universities plagiarism policy 3AS08 (see course coordination page).