**FOP 2 – Lab 3 Worksheet**

**PART A**

Type, compile and run all the programs, exercises and examples from the lecture notes (this should be done at home, before attending the lab where applicable).

**PART B**

1. Write a program that takes in an input for the grade and prints the corresponding range; the program should make use of a switch which includes the following options/cases:

A: 80 - 100

B+: 70 - 79

B: 60 - 69

C+: 50 - 59

C: 40 - 49

D: 35 – 39

F: 0 – 34

default: No such grade!

1. Write a program that uses while loops to print:

a. All squares less than n. For example, if n = 100, it should print 0 1 4 9 16 25 36 49 64 81.

b. All positive numbers that are divisible by 10 and less than n. For example, if n is 100, print 10 20 30 40 50 60 70 80 90

c. All powers of 2 less than n. For example, if n is 100, print 1 2 4 8 16 32 64.

You can assume that n is always positive.

1. Write a program that uses a while loop to read in only integer values repeatedly from the user and then outputs the largest of them all (HINT: use hasNextInt()).
2. Write a program that uses a do-while loop to read in only double values repeatedly from the user and then computes their average (HINT: use hasNextDouble()); if any other type of value is entered, the program should exit; in addition, the average should be displayed only if any double value was entered.
3. Write a program that uses for loops to compute and display (assume n > 0):

a. The sum of all even numbers between 0 and n (inclusive).

b. The sum of all squares between 0 and n (inclusive).

c. The factorial of n (**fact(n) = 1\*2\*3\*…\*n**).

1. Write a program that uses nested for loops to print the following pattern of asterisks:

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1. Write a program that displays a multiplication table for a given integer; for instance, if the user enters 4, the program should display:

\*1 \*2 \*3 \*4

1 2 3 4

2 4 6 8

3 6 9 12

4 8 12 16

(HINT: print the header and the actual values separately).