Concordia University
Computer Science & Software Engineering
Faculty of Engineering and Computer Science

Concordia University
COMP 248 – Summer 2021
Assignment 1

Due Date:	By 11:55pm Wednesday May 26, 2021
Evaluation:	5% of final mark (see marking rubric at the end of handout)
Late Submission:	none accepted
Purpose:	The purpose of this assignment is to help you learn Java identifiers, assignments, input/output and if and if/else statements.
CEAB/CIPS Attributes:	Design/Problem analysis/Communication Skills

General Guidelines When Writing Programs:

Include the following comments at the top of your source codes

```
// -----------------------------------------------------
// Assignment (include number)
// Written by: (include your name and student id)
// For COMP 248 Section (your section) – Summer 2021
// -----------------------------------------------------
```

- In a comment, give a general explanation of what your program does. As the programming questions get more complex, the explanations will get lengthier.
- Include comments in your program describing the main steps in your program. Focus in your comments rather on the why than the how.
- Display a welcome message.
- Display clear prompts for users when you are expecting the user to enter data from the keyboard.
- All output should be displayed with clear messages and in an easy to read format.
- End your program with a closing message so that the user knows that the program has ended.

Question 1 - Display a message (2 pts)

Write a complete Java program that displays the following output exactly as in the sample output in Figure 1 below. You are to use a **single** *System.out.println()* statement to output the message. There is no need to declare any variables for this question and this question does not require a header before the message

```
Welcome to COMP248 Java programming!

Here is the evaluation scheme:
- 3 assignments (5% + 6% + 7%)
- 7 labs (12% – best 6 out of 7)
- term test (25%)
- final (45%)

Please note:
1. In order to pass the course, you must complete all components of the course.
2. There is no standard relationship between percentages and letter grades assigned.

Wish you have a great semester!
```

Figure 1 - Sample output screen for Question 1

Question 2 – String variables and use of String methods. (4 points)

Write a complete Java program which prompts the user for 3 words by using 3 strings. All the 3 words should follow the formats: *word_number* (for example: JAVA_3, programming_2, language_68). You can assume a perfect user who will enter the correct format. Then based on required sequence of the numbers, reorganize all 3 words into a new string, which has the 1st letter of the 3 words in upper case and all other letters in lower case and display the result.

Figure 2 is a sample output to illustrate the expected behaviour of your program. Your program should work for any input, not just the one in the sample below. The text in **green** is user input Please note the number could be any digits, which is not limited to 4 digits shown in the example.

```
\\++++++++++++++++++++++++++++++++\\
\\    String Converter Program    \\
\\++++++++++++++++++++++++++++++++\\

Enter the first word:
JAVA_1234
Enter the second word:
programming_89
Enter the third word:
LANGUAGE_12


Here is the result:
1234 Java 89 Programming 12 Language

Thank you for using this program!!
```

Figure 2 - Sample output for Question 2

Question 3 – Number Converter Program (8 points)

Write a complete Java program which prompts the user for a sequence of 8 digits. You can assume a perfect user who will enter valid inputs.

- Get the 1st, 2nd, 3rd and 4th digits and calculate it by the remainder of 20 as NUM1.
- Get the 5th and 6th digits and calculate the sum of these two digits as NUM2.
- Swap the 7th and 8th digits as NUM3.
- The output result should be the sum of NUM1+NUM2+NUM3.

For example, the input number is 12345678, then NUM1 = 1234%20, NUM2 =5+6, NUM3= 87 and the output value = 14 + 11 + 87 = 112.

Your program should declare a constant variable to save the value 20.

Following are a couple of screen shots to illustrate the expected behavior of your program. Your program should work for any input, not just the one in the sample below.

Note: Your program must display the same information and formatted the same.

```
\\-------------------------------\\
\\    Number Converter Program    \\
\\-------------------------------\\

Enter a number with 8 digits:
12345678
The output result is: 112

Thank you for using this program!!
```

Figure 3- Sample output for Question3

```
\\-------------------------------\\
\\    Number Converter Program    \\
\\-------------------------------\\

Enter a number with 8 digits:
00349087
The output result is: 101

Thank you for using this program!!
```

Figure 4- Sample output for Question3

Submitting Assignment 1

1. Compress the source codes (the .java file only please) of this assignment together into one file following the following naming convention:

   The zip file should be called *a#_studentID*, where # is the number of the assignment and *studentID* is your student ID number. For example, for the first assignment, student 123456 would submit a zip file named a1_123456.zip.
   You will have 3 .java files to submit for this assignment

2. **Upload** your compressed file using the appropriate assignment link in the Assessment page.

3. **The only compressed file format will be accepted is .ZIP. No .RAR files are accepted.**

   Please note: All the submissions will be checked for similarities. You are NOT allowed to post the assignment anywhere on the Internet. Intellectual Property rights are reserved. If any similar cases are found via your account or IP, your submission will NOT be considered and will be reported immediately.

Evaluation Criteria for Assignment 1 (20 points)

Source Code	
Comments for all 3 questions (3 pts.)	
Description of the program (authors, date, purpose)	1 pt.
Description of variables and constants	1 pt.
Description of the algorithm	1 pt.
Programming Style for all 3 questions (3 pts.)	
Use of significant names for identifiers	1 pt.
Indentation and readability	1 pt.
Welcome Banner or message/Closing message	1 pt.
Question 1 (2 pts.)	
Display text using a **SINGLE** System.out.println()	2 pts.
Question 2 (6 pts.)	
Read text into 3 words	1 pt.
Reorganize the 3 words	4 pts.
Display the new result	1 pts.
Question 3 (6 pts.)	
Read entered 10 digits number	1 pt.
Convert the number correctly	4 pts
Display the correct result	1 pts.
TOTAL	**20 pts.**