Seneca College

Applied Arts & Technology
SCHOOL OF COMPUTER STUDIES

JAC444   **Submission date:**   **Nov 24, 2021**

Workshop 8

Description:
The following workshop lets you practice basic java coding techniques, creating classes, methods, using arrays, Java I/O, inheritance, polymorphism, Exceptional Handling, JavaFx (GUI), Lambda expressions, Functional Interface, Collections.

For all the tasks in this workshop, students can choose how to design their input and output. One of the 3 tasks should be designed and implemented using JavaFX as its solution.

Task 1:
Write a program that inserts 25 random integers from 0 to 100 in order into a LinkedList object. The program should sort the elements, then calculate the sum of the elements and the floating-point average of the elements.

Task 2:
Write a program that takes a whole number input from a user and determines whether it's prime. If the number is not prime, display its unique prime factors. Remember that a prime number's factors are only 1 and the prime number itself. Every number that's not prime has a unique prime factorization. For example, consider the number 54. The prime factors of 54 are 2, 3, 3 and 3. When the values are multiplied together, the result is 54. For the number 54, the prime factors output should be 2 and 3. Use Sets as part of your solution.

Task 3:
 Assume that **25** countries and their capitals are stored in a map. Your program should prompt the user to enter a country and should display the capital for that country. Use Maps as part of your solution.

Workshop Header

```
/*********************************************
Workshop #
Course:<subject type> - Semester
Last Name:<student last name>
First Name:<student first name>
ID:<student ID>
Section:<section name>
This assignment represents my own work in accordance with Seneca Academic Policy.
Signature
Date:<submission date>
*********************************************/
```

Code Submission Criteria:

Please note that you should have:

- Appropriate indentation.
- Proper file structure
- Follow java naming convention
- Document all the classes properly
- Do Not have any debug/ useless code and/ or files in the assignment

Deliverables and Important Notes:

All these deliverables are supposed to be uploaded on the blackboard once done.

- You are supposed to create video/ record voice/ detailed document of your running solution.

(50%)

  - Screen Video captured file should state your last name and id, like Ali_123456.mp4 (or whatever the extension of the file is)
  - Detailed document should include screen shots of your output, have your name and id on the top of the file and save the file with your last name and id, like Ali_123456.docx (or whatever the extension of the file is)
- A word/ text file which will reflect on learning of your concepts in this workshop.

(30%)

  - Should state your Full name and Id on the top of the file and save the file with your last name and id, like Ali_123456.txt

- Submission of working code.

<mark>**(20%)**</mark>

  o Make sure your follow the "**Code Submission Criteria"** mentioned above.
  o You should zip your whole working project to a file named after your Last Name followed by the first 3 digits of your student ID. For example, **Ali123.**zip.
- Your marks will be deducted according to what is missing from the above-mentioned submission details.
- Late submissions would result in additional 10% penalties for each day or part of it.

Remember that you are encouraged to talk to each other, to the instructor, or to anyone else about any of the assignments, but the final solution may not be copied from any