CS 1101 – Introduction to Computer Science

Spring 2022

Lab 7- Birthdays/Generations

Due Date: Friday, March 11, end of the day (11:59pm).

Objective: The goal of this assignment is to get familiar with taking input using **Scanner**, processing **variables**, **conditions, loops, read files,** and **methods**.

Background:
You are to create a program that reads a text file, then calculates the number of years of each person, and then prints the corresponding generation.
Hint: *Think how you can implement the program using 2 methods besides the main method, read the steps described below.*

Assignment:

1. Main method: To begin, read the text file given("birthdays.txt") using *FileReader* and *Scanner.* The format of the text file is as follows:
   `BirthYear BirthMonth BirthDay Name`
   Hint: *Reminder to implement a while loop to read the file.*

   Extract the information of column1 (BirthYear), column 2(BirthMonth), column3 (BirthDay), and column4(Name).

2. Create a method called *yearsOfPerson* that takes one integer number(BirthYear),and returns the number of years of the person.
   In this method, calculate the number of years that the person has.
   `Age of a Person = GivenYear - BirthYear`

   Using the formula to calculate Ron's age:
   Age of a Person = GivenYear - BirthYear
   Ron's BirthYear = 1985
   Assume GivenYear = 2022
   Age of a Person = 2022 - 1985 = 37 years.

3. From your main method, call method *yearsOfPerson(BirthYear),* then save the output of this

method in an integer variable.

```
AgeOfPerson = yearsOfPerson(BirthYear)
```

4. Create a method called *yearGenerations* that takes one integer number (AgeOfPerson), and returns the corresponding generation of that person, according to the following:

   - <6 years: Generation Alpha
   - 6 – 21 years: Generation Z
   - 22 – 37 years: Millennials Generation
   - 38 – 53 years: Generation X
   - 54 – 72 years: Baby Boomers Generation
   - 73 – 90 years: Silent Generation
   - >90 years: Greatest Generation

5. From your main method, call method *yearGenerations(*AgeOfPerson*),* then save the output of this method in a String variable.

   ```
   generation = yearGeneration(years)
   ```

6. In your main method, print the following in a table format for every person in the text file:

   ```
   BirthYear BirthMonth BirthDay Name Years Generation
   1985 July 3 Ron 37 Millennials
   ```

Sample output:

Lab 7 - Birthdays/Generations					
Name	Year	Month	Day	Age	Generation
Luis	2005	7	12	17	Generation Z
Maria	1995	4	23	27	Millennials Generation
Jack	1965	5	9	57	Baby Boomers Generation
Elizabeth	1976	12	26	46	Generation X
Lucy	1845	9	5	177	Greatest Generation
Edgar	2010	7	2	12	Generation Z
Jose	1705	2	28	317	Greatest Generation
Thomas	2022	1	31	0	Generation Alpha
Alexandra	1897	3	4	125	Greatest Generation
Alicia	1998	6	8	24	Millennials Generation
Joe	2010	8	15	12	Generation Z
Miriam	1974	7	12	48	Generation X
Karina	1999	4	23	23	Millennials Generation
Louis	1888	5	9	134	Greatest Generation
Henry	1985	12	26	37	Millennials Generation
David	2001	9	5	21	Generation Z
Charly	2005	7	2	17	Generation Z
Victoria	1963	2	28	59	Baby Boomers Generation
Roberto	1974	1	31	48	Generation X
Alma	1987	3	4	35	Millennials Generation
Irma	1992	6	8	30	Millennials Generation
Miguel	1984	8	15	38	Generation X

Deliverables: You are expected to submit two files in Blackboard:

(i) Lab7_Lastname.doc--- containing the algorithm /pseudocode of your program, and
(ii) Lab7_Lastname.java --- the java file of your program.

Grading Criteria:

- [10 points] Algorithm.
  - Sequential, executable, finite, and correct.

- [87 points] Java program that is similar to the algorithm.
  - [10 pts] Program compiles and runs.
  - [30 pts] The program uses methods, file reader, conditional statements, and loops.
  - [10 pts] Correct types for each variable, correct naming conventions, and variables should

have meaningful variable names.
    - [25 pts] The program has correct logic and generates correct output.
    - [5 pts] The program is indented properly.
    - [5 pts] The program uses meaningful variable names.
    - [2 pts] The program has proper documentation.

- [3 points] The deliverables follow the proper name Lab7_LastName

- Late submission: [**-10**] points for every 24 hours after the deadline.

If you need any clarification, please ask your TA for further details.