BIRZEIT UNIVERSITY

COMP1331 – COMPUTER AND PROGRAMMING

Assignment # 2

Objectives:

1. To understand basic problem solving techniques using Java Programming Language
2. To declare Java primitive data types. In addition, to obtain input and display output.
3. To be able to use arithmetic and use different control structures.
4. To describe what a recursive method is and the benefits of using recursion.
5. To develop recursive methods for recursive mathematical functions.
6. Create Classes and Objects.

Specification

Submission: **Online through ITC**.

What to submit: Your **own** **well-structured** and **well-commented** JAVA files (**.java**) and PDF file

Deadline: **12/8/2022** by 8pm. (The online submission will be disabled after this time).

Important

- Academic **honesty**:
    - o This is an individual assignment. Individual assignments must be each student's own work.
    - o Copying 1 line from a friend or the internet will be considered cheating.
    - o Cheating will result in an official university disciplinary review and the University regulations will be strictly enforced.

Task1: Twin Primes

Twin primes are any pair of prime numbers with a difference of two, such as (5 and 7) or (41 and 43).

Write a program to display all the twin prime numbers less than 1000.

Note: **you are not allowed to use any iterative loop** (for, while, or do-while).

This means you need to use **recursion** to solve this question.

Task2: Passenger Class

A **Passenger** class has the following attributes:

- First name
- Last name
- Age
- Gender (M/F)
- Passport number (consists of 7-digits)
- Nationality (default Palestinian)
- A static parameter for the number of created passenger objects. Every time a passenger object is created, this parameter in incremented.

And the following behaviours:

- Setters and getters to all the above class attributes
- One constructor using all the instance attributes.
- One method called **printPassengerInfo** to print the passenger information.

1. Draw the UML diagram for the Passenger class. (use any free online tool to draw UML and save it as a PDF file. e.g. https://www.draw.io/)
2. Implement the class.
3. Write a driver class to create 3 passengers. Read the passengers information from the user. Print out the passengers' information sorted by age.

Good Luck!