420-AP1-AS - ALGORITHMS AND PROGRAMMING – COMPUTER SCIENCE TECHNOLOGY – PROGRAMMING
Section 07218

ASSIGNMENT 6 – Looping Instructions 2

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For the following exercises:

- This assignment should be done in groups (see last page).
- Create a new project called “Assignment6” into your solution “AP1_2023”
- Write the code in C#.
- Create a menu and a corresponding switch or conditional statement that allows the user to select any of the questions below. Each question should correspond to one case in the switch statement. Wrap your entire program in a while loop (or do-while loop) that allows the user to run it multiple times if they so choose.
- Write the code in C#.
- Send the whole project in a “.rar” or “.zip” file by Lea
- You have to use looping instructions for each exercise.

Exercises:

1. Write a program that ask to the user for a number (n), then the program must to reads n numbers and determines the largest and the smallest. n number must be >=1
2. Write a program that ask to the user for a number (n), then the program calculates and displays the product of all the odd numbers between 1 to n, inclusively. n number must be >=1
3. Write a C++ program that prints out the following output on the screen

```
@
@@
@@@
@@@@
@@@@@
@@@@
@@@
@@
@
```

4. Write a program that ask to the user for a positive integer (n) and convert it into binary.
5. Write a program that prints 10 by 10 multiplication table. Expected output:

```
1  2  3  4  5  6  7  8  9 10
2  4  6  8 10 12 14 16 18 20
3  6  9 12 15 18 21 24 27 30
4  8 12 16 20 24 28 32 36 40
5 10 15 20 25 30 35 40 45 50
6 12 18 24 30 36 42 48 54 60
7 14 21 28 35 42 49 56 63 70
8 16 24 32 40 48 56 64 72 80
9 18 27 36 45 54 63 72 81 90
10 20 30 40 50 60 70 80 90 100
```

6. Write a program that reads 10 numbers, and returns if there are three adjacent numbers where the second is greater by 1 than the first one and the third is greater by 1 than the second one.
   Example:

   Numbers: 45, 23, 44, 68, 65, 70, 80, 81, 82, 5. Output: true

   Numbers: 45, 23, 44, 68, 7, 3, 5, 8, 9, 3 Output: false

7. Prime number is a number that is greater than 1 and divided by 1 or itself. In other words, prime numbers can't be divided by other numbers than itself or 1. Write a program that displays all prime numbers between 1 and n (read by console).
8. Create a C# program to draw a parallelogram, with the width and height requested from the user.
   Example:
   width: 10, height: 7,

```
**********
 **********
  **********
   **********
    **********
     **********
      **********
```