St.Mary's University
Faculty of computing
Department of computer science
Rapid Development Application

Worksheet 1

1. Write a console application that **prints your first and last name** on the console.
2. Write a program that **prints the following numbers** on the console 1, 101, 1001, each on a new line.
3. Write a program that prints on the console the **current date and time**.
4. Write a program that prints the **square root of 12345**.
5. Write a program that prints the first 100 members of the **sequence** 2, - 3, 4, -5, 6, -7, 8.
6. Write a program that reads your age from the console and prints your **age after 10 years**.
7. Describe the difference between **C#** and the **.NET Framework?**
8. A company dealing with marketing wants to keep a data record of its **employees**. Each record should have the following characteristic – first name, last name, age, gender ('m' or 'f') and unique employee number (27560000 to 27569999). **Declare appropriate variables** needed to maintain the information for an employee by using the appropriate data types and attribute names.
9. Write a Boolean expression that checks whether a given integer is **divisible by both 5 and 7**, without a remainder.
10. Write an expression that looks for a given integer if its **third digit** (right to left) is 7.
11. The gravitational field of the Moon is approximately 17% of that on the Earth. Write a program that calculates the **weight of a man on the moon** by a given weight on the Earth.
12. Write a program that takes as input a **four-digit number** in format **abcd** (e.g. 2011) and performs the following actions:
    a. Calculates the sum of the digits (in our example 2+0+1+1 = 4).
    b. Prints on the console the number in reversed order: **dcba** (in our example 1102).
    c. Puts the last digit in the first position: **dabc** (in our example 1201).
    d. Exchanges the second and the third digits: **acbd** (in our example 2101).
13. Write a program that checks if a given number **n** (1 < **n** < 100) is a **prime number** (i.e. it is divisible without remainder only to itself and 1).

14. Write a program that reads from the console two integer numbers (**int**) and prints how many numbers between them exist, such that **the remainder of their division by 5 is 0**. Example: in the range (14, 25) there are 3 such numbers: 15, 20 and 25.
15. Write a program that prints on the console the first 100 numbers in the **Fibonacci sequence**: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, …
16. Write a program that applies **bonus points** to given scores in the range [1…9] by the following rules:
    a. If the score is between 1 and 3, the program multiplies it by 10.
    b. If the score is between 4 and 6, the program multiplies it by 100.
    c. If the score is between 7 and 9, the program multiplies it by 1000.
    d. If the score is 0 or more than 9, the program prints an error message.
17. Write a program that prints **all possible cards from a standard deck** of cards, without jokers (there are 52 cards: 4 suits of 13 cards).
18. Write a program that counts, in a given array of integers, **the number of occurrences of each integer**. Example: array = {3, 4, 4, 2, 3, 3, 4, 3, 2}

    2 →2 times 3 →4 times 4 →3 times
19. Define a static and instance member of a class, Constructor with no parameter and with parameter. Give one example code. With Student class.
20. Give one example that shows the implementation of Encapsulation, Inheritance and Polymorphism.
21. What is Interface means? Write one example code that supports your idea.
22. What is List in C#. Give one example code.
23. What is Dictionary in C#. Give one example code.
24. What is Stack in C#. Give one example code.
25. What is Queue in C#. Give one example code.

Instruction:

1. All the answer of the question should be written in hand.
2. The word Example in the whole worksheet is means writing a code.
3. Cheating is illegal.
4. It is individual Assignment.

Final Submission Date is: April 30, 2022