

CSE102 – Computer Programming

Homework #1

printf, scanf and if statements

Due Date: 12/03/2023 23:59

Hand in: A student with number 20180000001 should hand in a zip file named 20180000001.zip for this homework.

Homework Description: You will write a C program with the main function with three additional functions described below. Your program will start calling part1, part2, part3 and part4 functions in that order. For each part, you will receive the inputs from the user and print the output to the console. Details of the parts are further discussed below. Please pay attention to the output format. Any deviation from the shared format may be penalized regardless of the correct execution.

Part 1. [25pts] Your function will read two integers from the command prompt and calculate the greatest common divisor (GCD) of them using the Euclidean algorithm. You can find more information about the Euclidean algorithm at https://en.wikipedia.org/wiki/Euclidean_algorithm. Your program should print the GCD to the console.

Part 2. [25pts] Your function takes two numbers from the user and displays their sums as if the arithmetic is done on (as follows). You can assume that the input numbers will have at most 4 valid digits. See the following examples.

Ex1:

```
First number : 120
Second number: 23
Result:
      120
       23
      +
    -----
      143
```

Ex2:

```
First number : 85
Second number: 1853
Result:
       85
      1853
      +
    -----
      1938
```

Part 3. [30pts] Your function will take two numbers from the user and display their multiples as if done manually on paper (as follows). You can assume that the inputs will have at most 3 digits. See the following example:

```
First number : 120
Second number: 5
Result:
      420
       12
    *
  -----
     840
     420
    +
  -----
    5040
```

Part 4. [20pts] Your function prompts the user to enter an integer between 1 and 10 (inclusive). If the integer is greater than 5, the program prints "The integer you entered is greater than 5". If the integer is less than or equal to 5, the program prints "The integer you entered is less than or equal to 5". If the user enters a number outside the range of 1 to 10, the program should print "Invalid input". After printing the message, the program should terminate.

General Rules:

1. We do not give you any function prototypes. We expect that you are experienced enough to understand when to use methods and name them. These will also be graded.
2. The program must be developed on given version of OS and must be compiled with GCC compiler, any problem which rises due to using another OS or compiler won't be tolerated.
3. Note that if any part of your program is not working as expected, then you can get zero from the related part, even if it is working partially.
4. Zip your homework files before uploading them to MS Teams. The zip file must contain the C file with your solution and screenshots of the valid outputs of the program.
5. Put all the output screens in a pdf file by running your code.
6. You can ask any question about the homework by sending an email to zbilici@gtu.edu.tr or by using the homework channel on the MS Teams page of the course.