Computer Engineering Department

TED University

TED UNIVERSITY

CMPE 252 C Programming, Spring 2023

HOMEWORK 2

28.04.2023, Friday

Due Date: 17.05.2023, Wednesday, 23:59

Important Notes:

- **This is an individual work. No team work is allowed. Similarity check will be applied to submitted codes. Codes with high similarities ratios will be penalized with 0.**
- **For more input/outputs, you can check the related VPLs.**
- **To ask questions about this homework, you should use HW2 forum on the LMS Page. Questions related to this homework are not answered via e-mails.**
- **You are not allowed to use the functions of the String library.**

Q1 (40 points)

atof is a function in the **C** programming language that converts a string into a floating-point numerical representation. **atof** stands for ASCII to float.

In this part of the assignment, you are going to implement your own `atof` function

```
float myAtof(char* string, char* error)
```

that will convert an input read as a character array into a floating-point number. Here are the specifications:

- You should just fill in the missing function definition in the skeleton code for Q1 (`homework2q1.c`). The remaining part of the code (such as the main function) will stay as it is.
- Your `atof` function will get two inputs. One for the character array to convert and the other to check for the error. The output of the function will be a floating-point number.
- If the character array cannot be converted (it includes letters, special characters, etc.) the `error` will be 1, otherwise 0.
- If the numbers cannot be converted (`error = 1`), give an error message to the user as "`Error has been occurred due to inappropriate input!`"

Sample input/output:

```
> Enter a number:
6
Your number is: 6.00
```

Q2 (60 points)

In this part of the assignment, you will use your own `atof` function that you implement in the Q1 to extend arithmetic operations evaluation (`+`,`-`,`*`, `/`) to operate on floating-point numbers.

You will get a character array from the user with operation and print the result. Here are the specifications:

- You will use `gets()` function to get the character array with operation from the user. The maximum array size is 250.
- Notice that end of input is indicated by null character '`\0`'
- Numbers should be printed with two-digit precision after decimal point.
- If the user enters an invalid operation, give an error to the user as "`Error has been occurred due to inappropriate input!`"
- If the user enters an invalid operator, give an error to the user as "`Invalid operator type!`"
- If the user enters for a division by 0 operations, give an error to the user as "`Cannot divided into 0.`"

Sample input/output:

```
> Enter arithmetic operation:
3.7/3
3.70 / 3.00 = 1.23
```