GEDIZUNIVERSITY

izmir

Faculty of Engineering and Architecture

Computer Engineering Department

COM 101 – INTRODUCTION TO PROGRAMMING

Homework #2

Academic Year :   Fall 2015-2016
Due Date :   November 12, 2015 hr.   5pm (Thursday)
Course Instructor : Inst. Gökhan Akyol
Course Assistants : Res.Asst. Arzum Karataş & Res. Asst. Feyza Galip

Question 1: (20 points)

In the following code, there may be/ may be not some logical and syntactic errors.
Please, remove the all errors inside of the code if there are any.

```c
#include <stdio.h>
#include <stdlib.h>
int main()
{
    float choice = 0;
    int number = 0;

    do
    {
        printf(" 1- Check a number whether it is odd or not\n 2- Check a number whether it is even or not\n"
        "3- Check a number whether it is prime or not\n-1- Exit\n");
        printf"Please enter a choice:\n");
        scanf("%d",&choice);

        switch(choice){
            case 1;
                printf("Please enter a number:\n");
                scanf("%d",&number);

                if(number / 2 == 0)
                    printf("%d is an odd number\n",number);
                else
                    printf("%d is not an odd number\n",number);


            case 2;
                printf("Please enter a number:\n");
                scanf("%d",&number);

                if(number / 2 == 1)
                    printf("%d is an even number\n",number);
                else
                    printf("%d is not an even number\n",number);
                break;
```

```
        case 3;
            printf("Please enter a number:\n");
            scanf("%d",&number);
            int i, flag=0;
            for(i=0;i<number;i++)
            {
                if(number%i != 0)
                {
                    flag = 1;
                    printf("%d is not a prime number.\n",number);
                    //you should add a statement here.
                }
            }
            if(flag == 0)
                printf("%d is a prime number.\n",number);
            break;

        case -1;
            printf("BYE BYE\n");
            break;

        default:
            printf("Please enter a valid choice!\n");
    }
}
while(choice == -1)
}
```

Question 2: (20 points)

Finding a Series elements :

Write a C program calculates and prints out the all elements of a series defined by the following formula up to an index number specified by the user. (Note that initially $F0 = 0$ and $F1=1$)

$$F_n = \begin{cases} 0 & \text{if } n = 0; \\ 1 & \text{if } n = 1; \\ F_{n-1} + F_{n-2} & \text{if } n > 1. \end{cases}$$

For illustrate,

F2 = F0 + F1 => F2 = 0+1 = 1
F3 = F1 + F2 => F3 = 1 + 1 = 2
F4 = F2 + F3 => F4 = 1 + 2 = 3
F5 = F3 + F4 => F5 = 2 + 3 = 5

...

If the user enters 4 as index number, your program must calculate and prints out the series of elements like in the following.

0 1 1 2 3 5

```
*****This program finds elements of a series.*****

Please enter the index number:
4
0 1 1 2 3 5

_____
Process exited after 2.504 seconds with return value 10
Devam etmek için bir tuşa basın . . .
```

Question 3: (30 points)

Temperature Converter :

Write a C program that converts the temperature specified by the user from one scale to another via a user menu. Note that your program continues unless the user terminates. Sample screenshot can be seen in the following figure.

***************** TEMPERATURE CONVERTER ******************
```
 1 - F to C
 2 - K to C
 3 - C to F
 4 - C to K
-1 - Exit
```

****

Hint: You can use the conversion table below.

From	To Fahrenheit	To Celsius	To Kelvin
Fahrenheit (F)	F	(F - 32) * 5/9	(F - 32) * 5/9 + 273.15
Celsius (C or °)	(C * 9/5) + 32	C	C + 273.15
Kelvin (K)	(K - 273.15) * 9/5 + 32	K - 273.15	K

Question 4: (30 points)

Write a C program that takes student lab grades specified by the lab instructor, then finds **best grade**, **worst grade** and **class average,** and **the number of grades entered**. Note that the grades can be accepted as long as the instructor continues to enter grades.

P.S.:
1. You are required to work alone. Teamwork is NOT allowed. Copy detection will done and it is punished strictly.

2. In your codes, you are expected to use good programming practices like naming conventions, indentations and comments. They will be graded, too.

3. Put your homework projects into **a** zipped folder(.zip or .rar are accepted). Do NOT send separate zip file for each question. Use the following convention for this folder.
   COM101_HmwX_StudentName.zip
   Ex: COM101_Hmw2_AliceBlack.zip

4. You should submit your homework to **gedizcom101lab@gmail.com**

5. Late submissions will be graded by using the formula $100 - 10*d^2$ where d is the number of late submission days.