Department of Computer Engineering
Department of Software Engineering

CENG113 / SENG113 - Computer Programming 1
Fall 2021 - 2022

Lab Guide #2 – Week 3

OBJECTIVE : To get acquainted with the IDE
You will learn how to:
1. Correct errors on a given program.
2. Develop thinking of algorithms of given questions.
3. Code simple Arithmetic Operations.

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1. Write a C program which uses 4 memory cells to find and display the average and sum of 4 values.

Declare 2 constant values and get input for the other 2 values from the user. Write 2 versions of this program:

a) For integer values, assume that constant values are 3, 5

```
Example Run:
Enter third number: 6
Enter fourth number: 12
Sum is: 26
Average is: 6
```

Project Name: LabGuide2_1a
File Name: Question_1a.cpp

b) For double values, assume that constant values are 4.3, 5.7

```
Example Run:
Enter third number: 7.1
Enter fourth number: 9.4
Sum is: 26.500000
Average is: 6.625000
```

Project Name: LabGuide2_1b
File Name: Question_1b.cpp

2. Write a program that calculates the following operation:

$$\big((k*p)+(r*t)+7\big)/z$$

k = 2
p = 3
r = 7
t = 2.2
z = 1.4

The variable names and their values are given above. Write the output statement to see the result on the screen.

After you write the program, please compile, and run it. Then do Next Line debugging as you learnt. Use watch window to see your variables and their values.

```
Example Run:
Result is 20.285714
```

Project Name: LabGuide2_2
File Name: Question_2.cpp

3. Write a C program that gets one side of a square and calculates its perimeter and area.

```
Example Run:
Enter one side of a square:5.2
The area of the square is 27.040000
The perimeter of the square is 20.800000
```

Project Name: LabGuide2_3
File Name: Question_3.cpp

4. Correct the errors of the C program given below, and then execute it to see the result.

```
include (stdio.h)
int
main(void)
{
        double num1,2ndnum;

        character ch1,ch2

        printf("Enter two double numbers:");
        scanf("%c %c",num1,2ndnum);"

        printf(Enter two characters);
        printf("%d\t%d",&ch1,&ch2);

        avg = num1 - 2ndnum \ 2;

        printf("Average is:",&avg);

        printf("Two characters are %d %d",&ch1,&ch2);
```

Example Run:
```
Enter two double numbers: 4.5 6.7
Enter two characters: c b
Average is 5.60
Two characters are c b
```

Project Name: LabGuide2_4
File Name: Question_4.cpp

5. Write a C Program that calculates the following operation, given the values of variables as input and displays the result. (Use minimum number of parentheses.)

$$\frac{a + \dfrac{c + \dfrac{1}{e}}{b * \dfrac{t}{a}}}{\dfrac{c * e}{\dfrac{b + 1}{b}}} = ?$$

a) Initialize the values of the variables as **a** = 6, **b** = 9, **c** = 10, **e** = 4.5, **t** = 8.7 calculate and display the result.
Example Run:
```
Result is 0.15
```

Project Name: LabGuide2_5a
File Name: Question_5a.cpp

b) Take values of variables from user; calculate and display the result.

Example Run:
```
Enter the values of a, b and c: 4 3 2
Enter the values of e and t: 6 1.5
Result is 0.494
```

Project Name: LabGuide2_5b
File Name: Question_5b.cpp

6. Write a C program that will display the value 92.715892 in the formats given below.

Example Run:
```
92.716
 92.7159
93
  92.71589
   92.7
 92.71589200
    93
```

Project Name: LabGuide2_6
File Name: Question_6.cpp