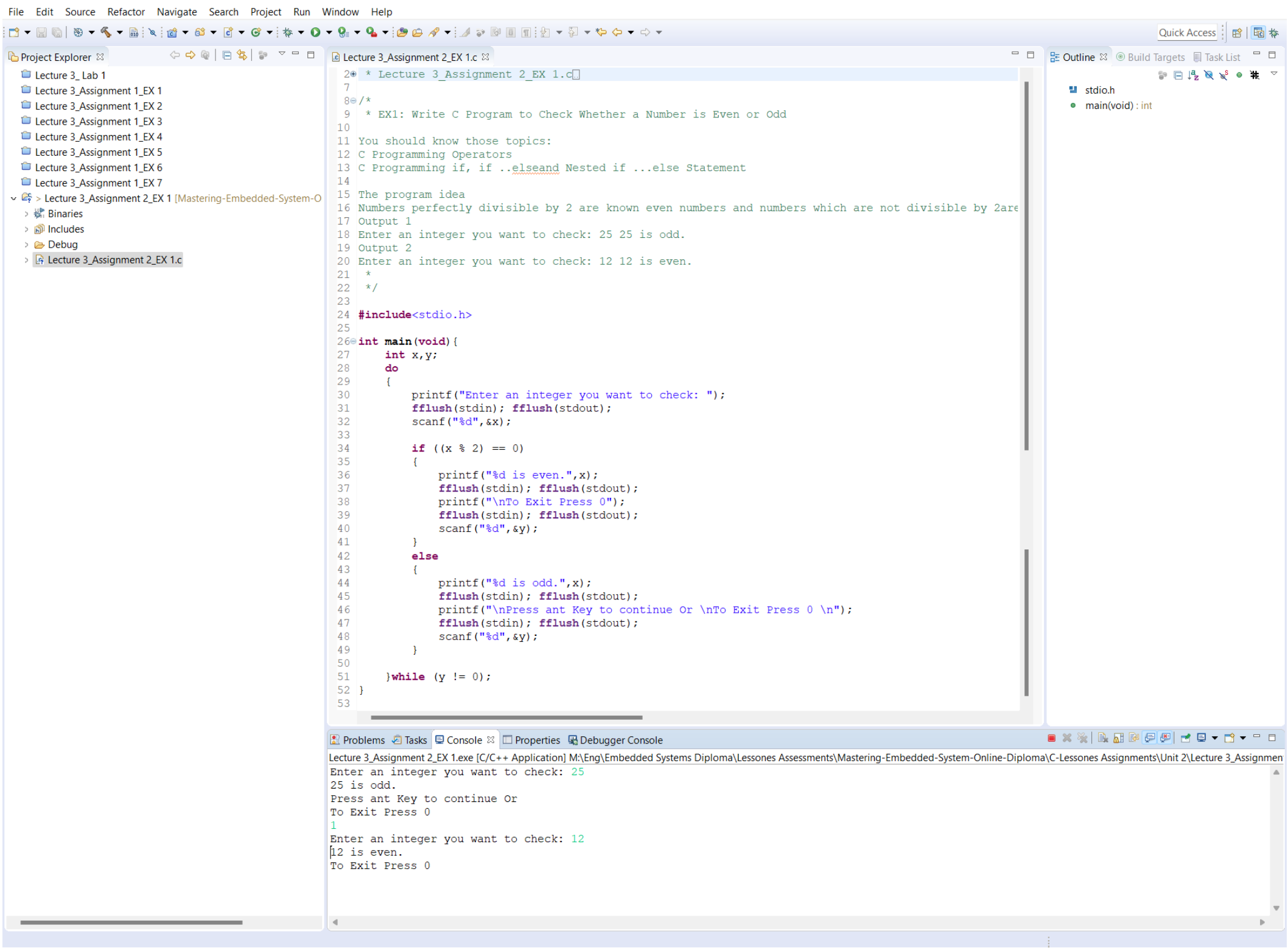
Assignments 2

EX 1



EX 2

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Lecture 3_Assignment 2_EX 2.c

```c
/*
 * Lecture 3_Assignment 2_EX 2.c
 *
 *  Created on: 28 Jul 2022
 *      Author: Muhammad Osama
 */


/*
 * EX2: C Program to Check Vowel or Consonant

Alphabets a, e, i, o and u are known as vowels and all alphabets except these characters are
known as consonants. This program asks user to enter a character
and checks whether that character is vowel or not.

Output 1
Enter an alphabet: i i is a vowel.

Output 2
Enter an alphabet: G G is  a consonant
 *
 */

#include<stdio.h>
int main(void){
    char x,y;
    do
    {
        printf("Enter an alphabet: ");
        fflush(stdin); fflush(stdout);
        scanf("%c",&x);

        if (x == 'i' || x == 'a' || x == 'e' || x == 'o' || x == 'u' || x == 'I' || x == 'A' || x == 'E' || x == 'O' || x == 'U' )
        {
            printf("%c is a vowel.",x);
            fflush(stdin); fflush(stdout);
            printf("\nDo you want to input another alphabet? \n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&y);
        }
        else
        {
            printf("%c is a consonant.",x);
            fflush(stdin); fflush(stdout);
            printf("\nDo you want to input another alphabet? \n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&y);
        }
    }while (y == 'y' || y == 'Y');
}
```

Outline: stdio.h, main(void) : int

Problems Tasks Console Properties Debugger Console

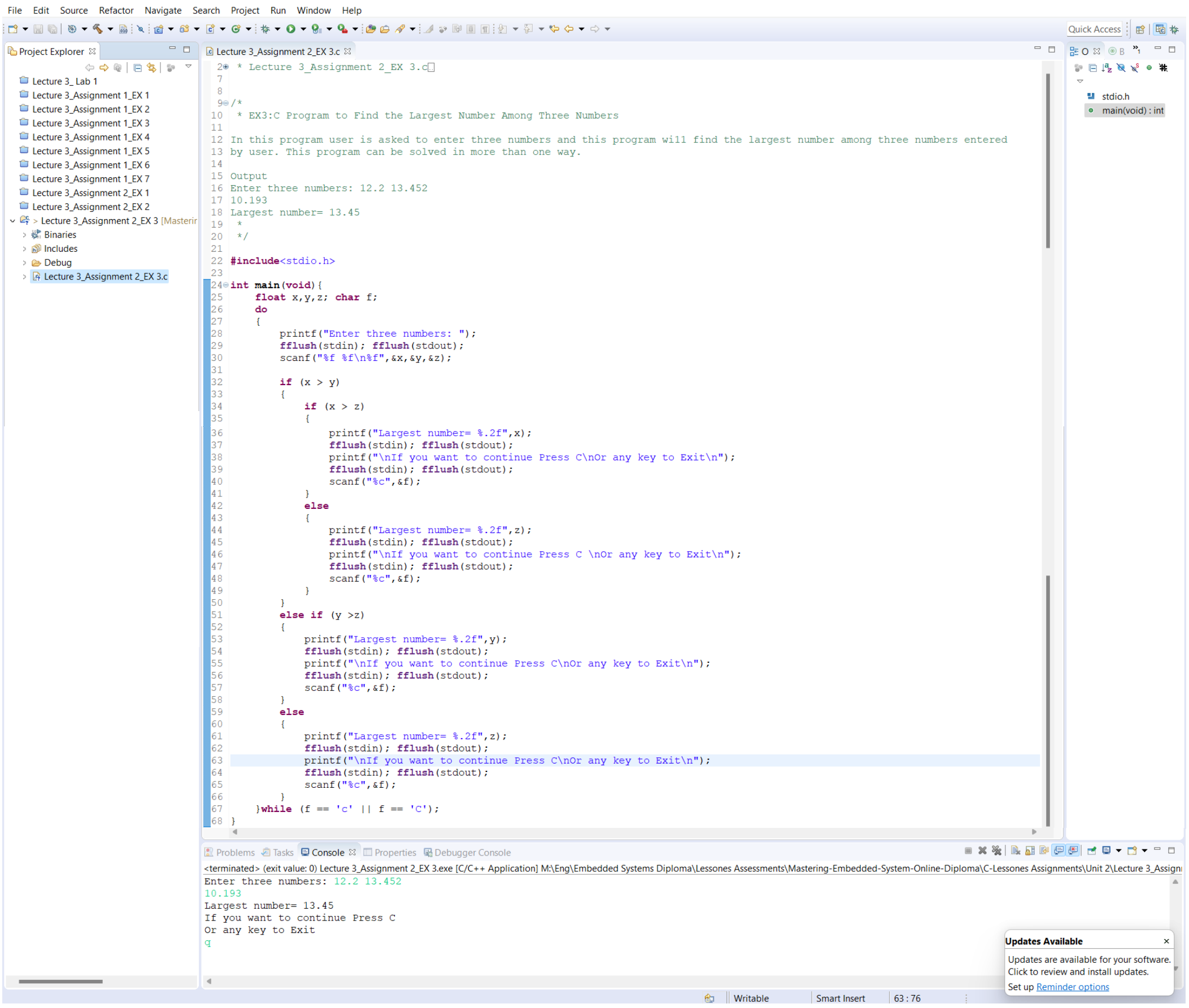
<terminated> (exit value: 0) Lecture 3_Assignment 2_EX 2.exe [C/C++ Application] M:\Eng\Embedded Systems Diploma\Lessones Assessments\Mastering-Embedded-System-Online-Diploma\C-Lessones Assignments\Unit 2\Lecture 3_Assign

```
Enter an alphabet: i
i is a vowel.
Do you want to input another alphabet?
y
Enter an alphabet: G
G is a consonant.
Do you want to input another alphabet?
n
```

Updates Available
Updates are available for your software.
Click to review and install updates.
Set up Reminder options

Lecture 3_Assignment 2_EX 1

EX 3




```c
/*
 * Lecture 3_Assignment 2_EX 3.c
 *
 *
/*
 * EX3:C Program to Find the Largest Number Among Three Numbers
 *
In this program user is asked to enter three numbers and this program will find the largest number among three numbers entered
by user. This program can be solved in more than one way.

Output
Enter three numbers: 12.2 13.452
10.193
Largest number= 13.45
 *
 */

#include<stdio.h>

int main(void){
    float x,y,z; char f;
    do
    {
        printf("Enter three numbers: ");
        fflush(stdin); fflush(stdout);
        scanf("%f %f\n%f",&x,&y,&z);

        if (x > y)
        {
            if (x > z)
            {
                printf("Largest number= %.2f",x);
                fflush(stdin); fflush(stdout);
                printf("\nIf you want to continue Press C\nOr any key to Exit\n");
                fflush(stdin); fflush(stdout);
                scanf("%c",&f);
            }
            else
            {
                printf("Largest number= %.2f",z);
                fflush(stdin); fflush(stdout);
                printf("\nIf you want to continue Press C \nOr any key to Exit\n");
                fflush(stdin); fflush(stdout);
                scanf("%c",&f);
            }
        }
        else if (y >z)
        {
            printf("Largest number= %.2f",y);
            fflush(stdin); fflush(stdout);
            printf("\nIf you want to continue Press C\nOr any key to Exit\n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&f);
        }
        else
        {
            printf("Largest number= %.2f",z);
            fflush(stdin); fflush(stdout);
            printf("\nIf you want to continue Press C\nOr any key to Exit\n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&f);
        }
    }while (f == 'c' || f == 'C');
}
```

EX 4

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Lecture 3_Assignment 2_EX 4.c

```c
/*
 * Lecture 3_Assignment 2_EX 4.c

/*
 * EX4: C Program to Check Whether a Number is Positive or Negative

This program takes a number from user and checks whether that number is either positive or negative or zero.

Output 1

Enter a number: 12.3
12.30 is positive.

Output 2

Enter a number: 0 You entered zero.
 *
 */

#include<stdio.h>
int main(void){
    float x; int y;
    do
    {
        printf("Enter a number: ");
        fflush(stdin); fflush(stdout);
        scanf("%f",&x);

        if (x < 0)
        {
            printf("%.2f is negative.",x);
            fflush(stdin); fflush(stdout);
            printf("\nPress 1 to continue\n");
            fflush(stdin); fflush(stdout);
            scanf("%d",&y);
        }
        else if (x > 0)
        {
            printf("%.2f is positive.",x);
            fflush(stdin); fflush(stdout);
            printf("\nPress 1 to continue\n");
            fflush(stdin); fflush(stdout);
            scanf("%d",&y);
        }
        else
        {
            printf("%.0f You entered zero.",x);
            fflush(stdin); fflush(stdout);
            printf("\nPress 1 to continue\n");
            fflush(stdin); fflush(stdout);
            scanf("%d",&y);
        }
    }while (y == 1);
}
```

Problems Tasks Console Properties Debugger Console

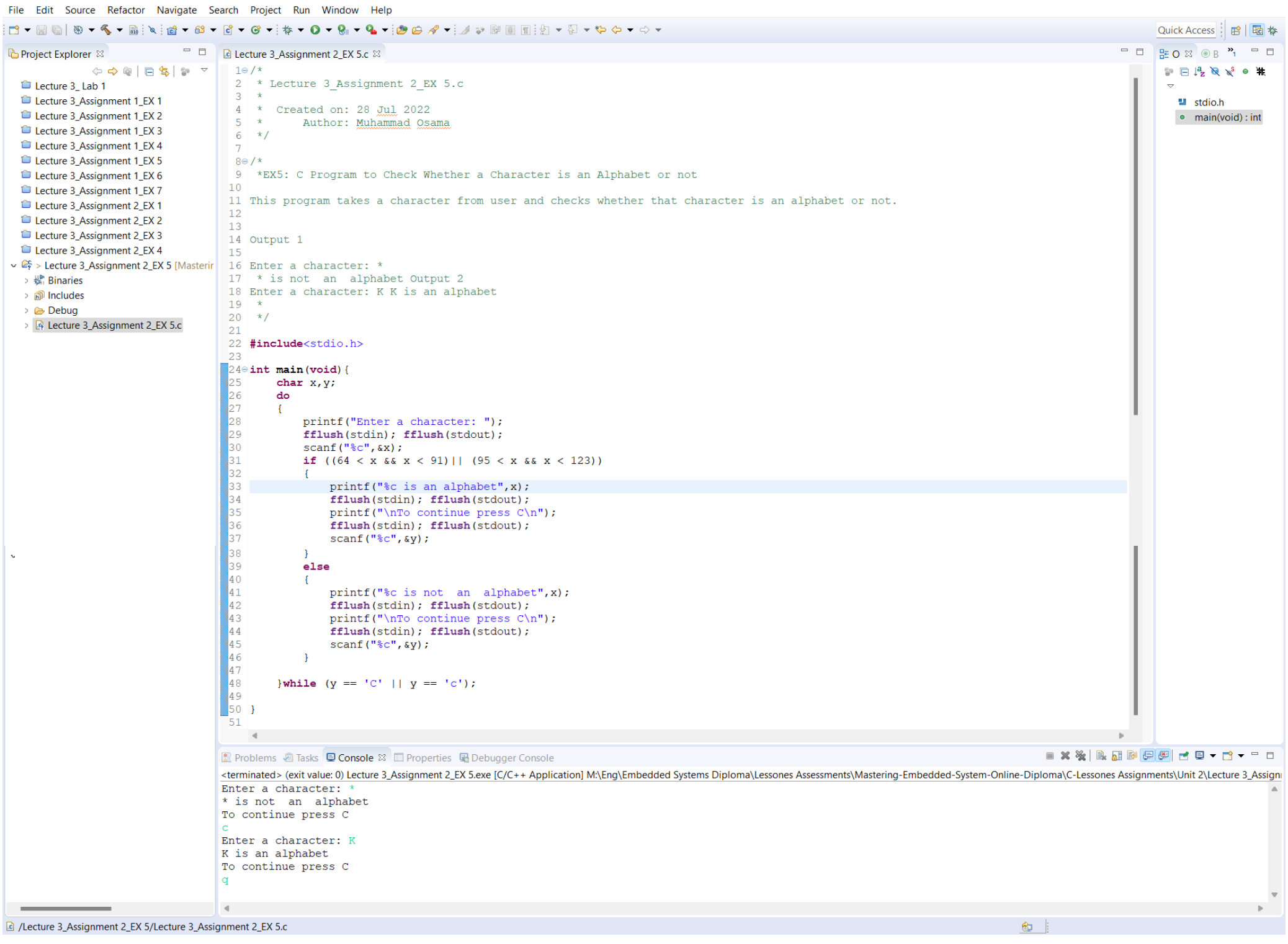
<terminated> (exit value: 0) Lecture 3_Assignment 2_EX 4.exe [C/C++ Application] M:\Eng\Embedded Systems Diploma\Lessones Assessments\Mastering-Embedded-System-Online-Diploma\C-Lessones Assignments\Unit 2\Lecture 3_Assign

```
Enter a number: 12.3
12.30 is positive.
Press 1 to continue
1
Enter a number: 0
0 You entered zero.
Press 1 to continue
1
Enter a number: -12.3
-12.30 is negative.
Press 1 to continue
2
```

/Lecture 3_Assignment 2_EX 4/Lecture 3_Assignment 2_EX 4.c

stdio.h
main(void) : int

EX 5




```c
/*
 * Lecture 3_Assignment 2_EX 5.c
 *
 *  Created on: 28 Jul 2022
 *      Author: Muhammad Osama
 */

/*
 *EX5: C Program to Check Whether a Character is an Alphabet or not

This program takes a character from user and checks whether that character is an alphabet or not.


Output 1

Enter a character: *
 * is not  an  alphabet Output 2
Enter a character: K K is an alphabet
 *
 */

#include<stdio.h>

int main(void){
    char x,y;
    do
    {
        printf("Enter a character: ");
        fflush(stdin); fflush(stdout);
        scanf("%c",&x);
        if ((64 < x && x < 91)|| (95 < x && x < 123))
        {
            printf("%c is an alphabet",x);
            fflush(stdin); fflush(stdout);
            printf("\nTo continue press C\n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&y);
        }
        else
        {
            printf("%c is not  an  alphabet",x);
            fflush(stdin); fflush(stdout);
            printf("\nTo continue press C\n");
            fflush(stdin); fflush(stdout);
            scanf("%c",&y);
        }

    }while (y == 'C' || y == 'c');

}
```

EX 6

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Lecture 3_Assignment 2_EX 6.c

```c
/* Lecture 3_Assignment 2_EX 6.c

/*
 *
EX6: C Program to Calculate Sum of Natural Numbers

Positive integers 1, 2, 3, 4... are known as natural numbers. This program takes a positive integer
from user( suppose user entered n) then, this program displays the value of 1+2+3+....n.

Output

Enter an integer: 100 Sum= 5050
 *
 */

#include<stdio.h>

int main(void){
    int x,y,z,sum;
    do
    {
        printf("Enter an integer: ");
        fflush(stdin); fflush(stdout);
        scanf("%d",&z);
        sum = 0;
        for (x = 1;x <= z;x++ )
        {
            sum = sum + x;
        }
        printf("Sum = %d\n",sum);
        fflush(stdin); fflush(stdout);
        printf("To continue Press 0\nOr Press any key to Exit");
        fflush(stdin); fflush(stdout);
        scanf("%d",&y);

    }while (y == 0);
}
```

Outline:
- stdio.h
- main(void) : int

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<terminated> (exit value: 0) Lecture 3_Assignment 2_EX 6.exe [C/C++ Application] M:\Eng\Embedded Systems Diploma\Lessones Assessments\Mastering-Embedded-System-Online-Diploma\C-Lessones Assignments\Unit 2\Lecture 3_Assign

```
Enter an integer: 100
Sum = 5050
To continue Press 0
Or Press any key to Exit0
Enter an integer: 20
Sum = 210
To continue Press 0
Or Press any key to Exit1
```

EX 7

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Lecture 3_Assignment 2_EX 7.c

```c
/*
 * Lecture 3_Assignment 2_EX 7.c
 *
 */
/*
 *
EX7: C Program to Find Factorial of a Number

For any positive number n, its factorial is given by: factorial= 1*2*3*4....n
If a number is negative, factorial does not exist and factorial of 0 is 1.
 *
This program takes an integer from a user. If user enters negative integer, this program will
display error message and if user enters non-negative integer, this program will display the
factorial of that number.


Output 1

Enter an integer: -5
Error!!! Factorial of negative number doesn't exist.

Output 2

Enter an integer: 10
Factorial= 3628800
 *
 */

#include<stdio.h>

int main(void){
    int x,y,z; long long int multi;
    do
    {
        printf("Enter an integer: ");
        fflush(stdin); fflush(stdout);
        scanf("%d",&z);
        multi = 1;
        if (z >= 0)
        {
            for (x = 1; x <= z; x++)
            {
                multi *= x;
            }
            printf("Factorial= %lli",multi);
            fflush(stdin); fflush(stdout);
            printf("\nTo continue press 0\nOr any key to Exit\n");
            fflush(stdin); fflush(stdout);
            scanf("%d",&y);
        }else
        {
            printf("Error!!! Factorial of negative number doesn't exist.");
            fflush(stdin); fflush(stdout);
            printf("\nTo continue press 0\nOr any key to Exit\n");
            fflush(stdin); fflush(stdout);
            scanf("%d",&y);
        }
    }while (y == 0);
}
```

Outline: stdio.h, main(void) : int

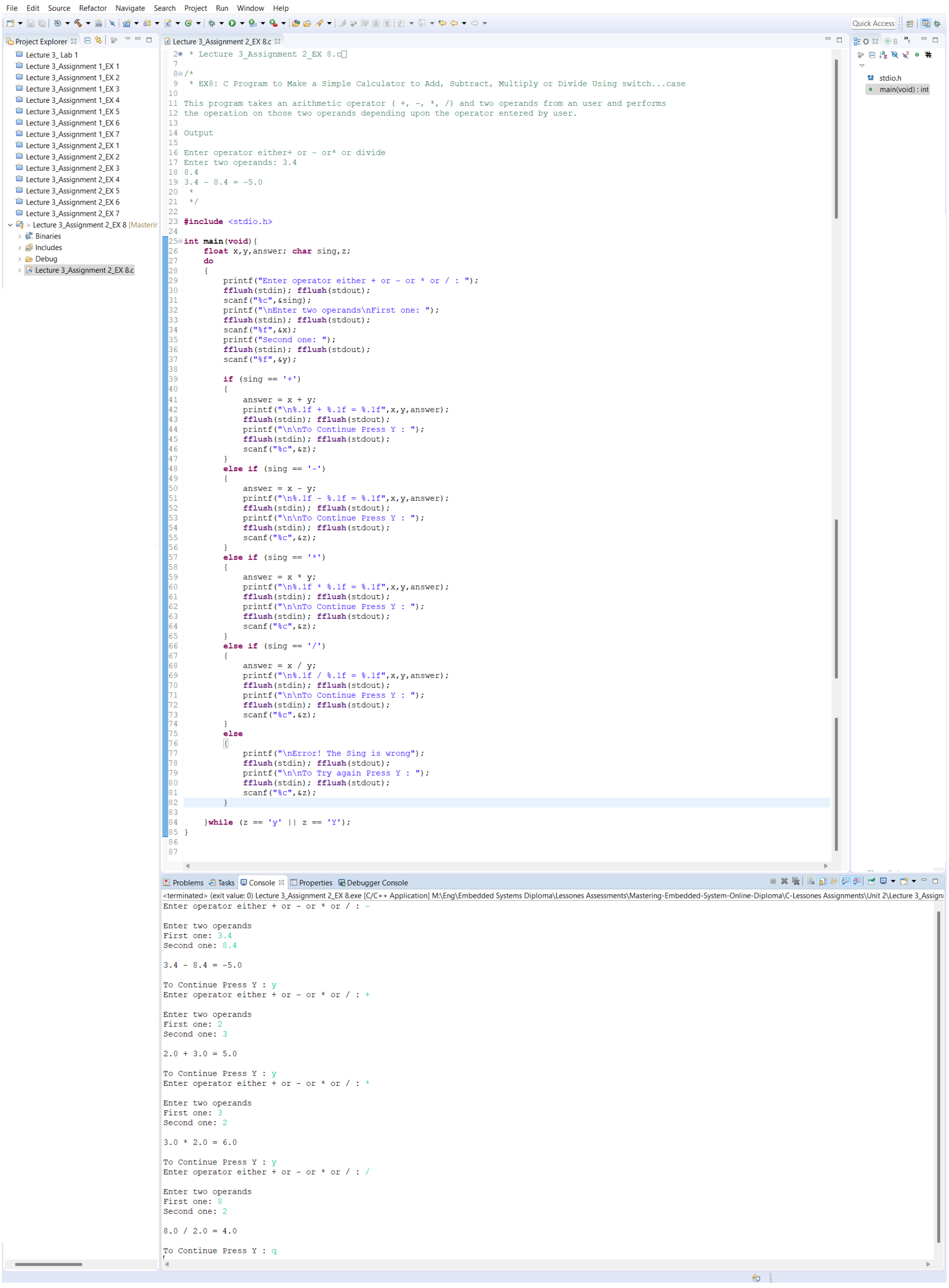
Problems Tasks Console Properties Debugger Console

Lecture 3_Assignment 2_EX 7.exe [C/C++ Application] M:\Eng\Embedded Systems Diploma\Lessones Assessments\Mastering-Embedded-System-Online-Diploma\C-Lessones Assignments\Unit 2\Lecture 3_Assignment 2_EX 7\Debug\Lecture

```
Enter an integer: 10
Factorial= 3628800
To continue press 0
Or any key to Exit
0
Enter an integer: 20
Factorial= 2432902008176640000
To continue press 0
Or any key to Exit
0
Enter an integer: -1
Error!!! Factorial of negative number doesn't exist.
To continue press 0
Or any key to Exit
```

/Lecture 3_Assignment 2_EX 7/Lecture 3_Assignment 2_EX 7.c

Ex 8




```c
/*
 * Lecture 3_Assignment 2_EX 8.c
 */

/*
 * EX8: C Program to Make a Simple Calculator to Add, Subtract, Multiply or Divide Using switch...case

This program takes an arithmetic operator ( +, -, *, /) and two operands from an user and performs
the operation on those two operands depending upon the operator entered by user.

Output

Enter operator either+ or - or* or divide
Enter two operands: 3.4
8.4
3.4 - 8.4 = -5.0
 *
 */

#include <stdio.h>

int main(void){
    float x,y,answer; char sing,z;
    do
    {
        printf("Enter operator either + or - or * or / : ");
        fflush(stdin); fflush(stdout);
        scanf("%c",&sing);
        printf("\nEnter two operands\nFirst one: ");
        fflush(stdin); fflush(stdout);
        scanf("%f",&x);
        printf("Second one: ");
        fflush(stdin); fflush(stdout);
        scanf("%f",&y);

        if (sing == '+')
        {
            answer = x + y;
            printf("\n%.1f + %.1f = %.1f",x,y,answer);
            fflush(stdin); fflush(stdout);
            printf("\n\nTo Continue Press Y : ");
            fflush(stdin); fflush(stdout);
            scanf("%c",&z);
        }
        else if (sing == '-')
        {
            answer = x - y;
            printf("\n%.1f - %.1f = %.1f",x,y,answer);
            fflush(stdin); fflush(stdout);
            printf("\n\nTo Continue Press Y : ");
            fflush(stdin); fflush(stdout);
            scanf("%c",&z);
        }
        else if (sing == '*')
        {
            answer = x * y;
            printf("\n%.1f * %.1f = %.1f",x,y,answer);
            fflush(stdin); fflush(stdout);
            printf("\n\nTo Continue Press Y : ");
            fflush(stdin); fflush(stdout);
            scanf("%c",&z);
        }
        else if (sing == '/')
        {
            answer = x / y;
            printf("\n%.1f / %.1f = %.1f",x,y,answer);
            fflush(stdin); fflush(stdout);
            printf("\n\nTo Continue Press Y : ");
            fflush(stdin); fflush(stdout);
            scanf("%c",&z);
        }
        else
        {
            printf("\nError! The Sing is wrong");
            fflush(stdin); fflush(stdout);
            printf("\n\nTo Try again Press Y : ");
            fflush(stdin); fflush(stdout);
            scanf("%c",&z);
        }

    }while (z == 'y' || z == 'Y');
}
```