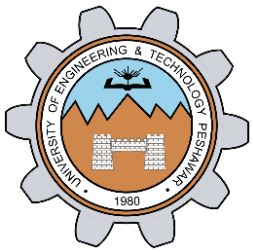
LAB # 01



Submitted by: **Naveed Ahmad**

Registration No: **22pwcse2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Mr. Abdullah Hamid

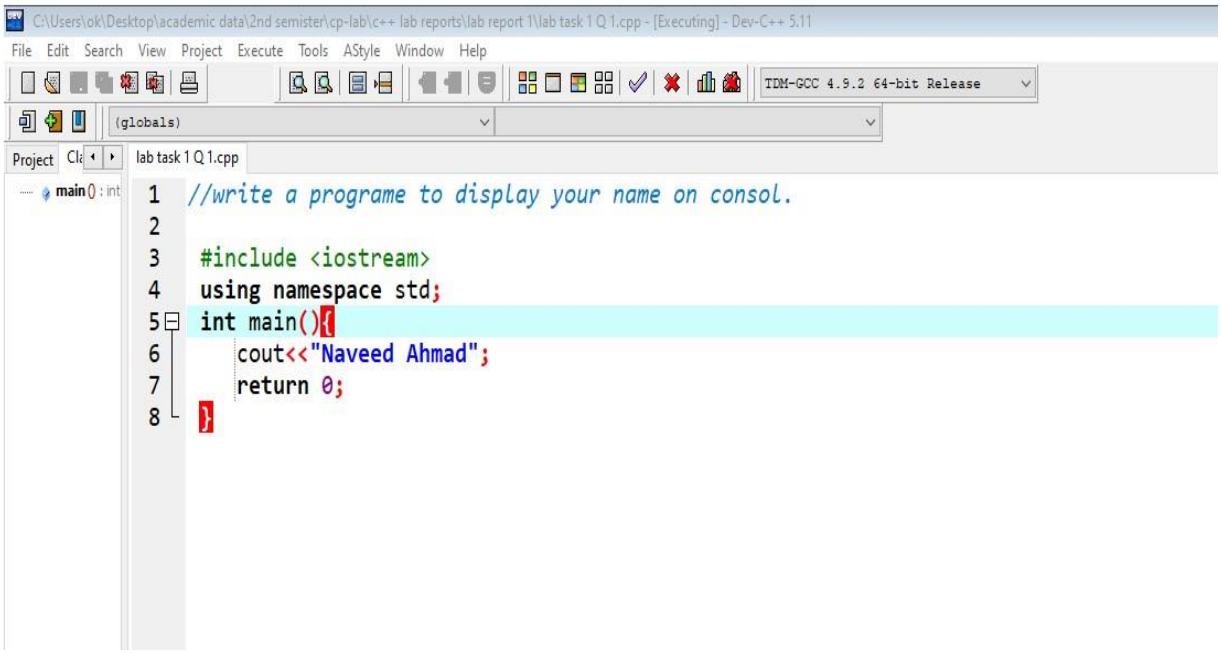
July 4, 2023

Department of Computer Systems Engineering

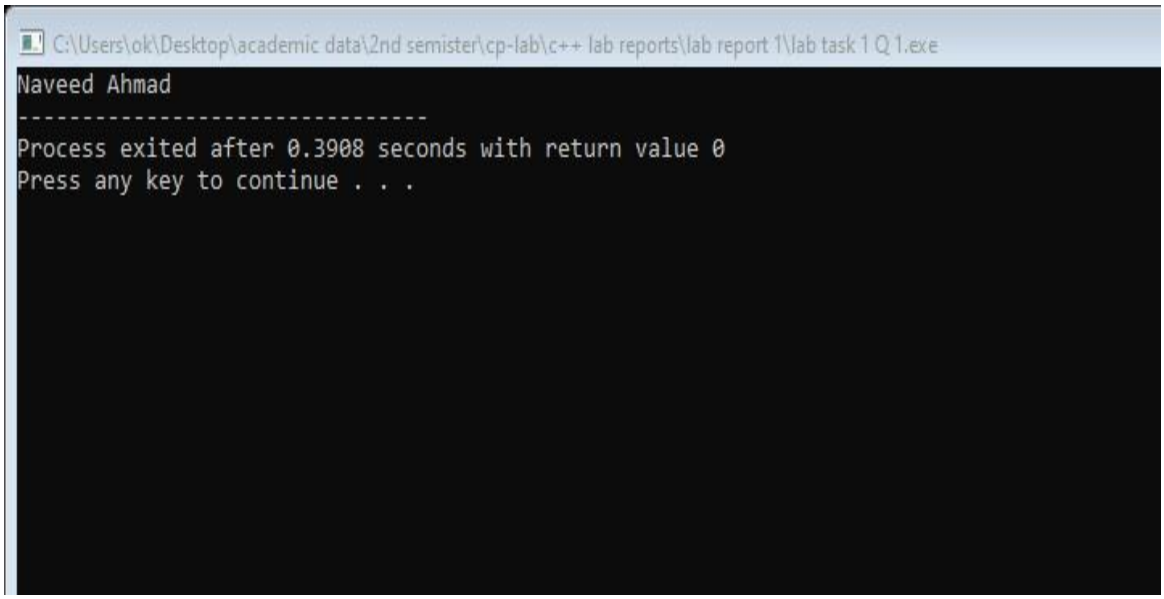
University of Engineering and Technology, Peshawar

Task 01:

Write a program to display your name on console.



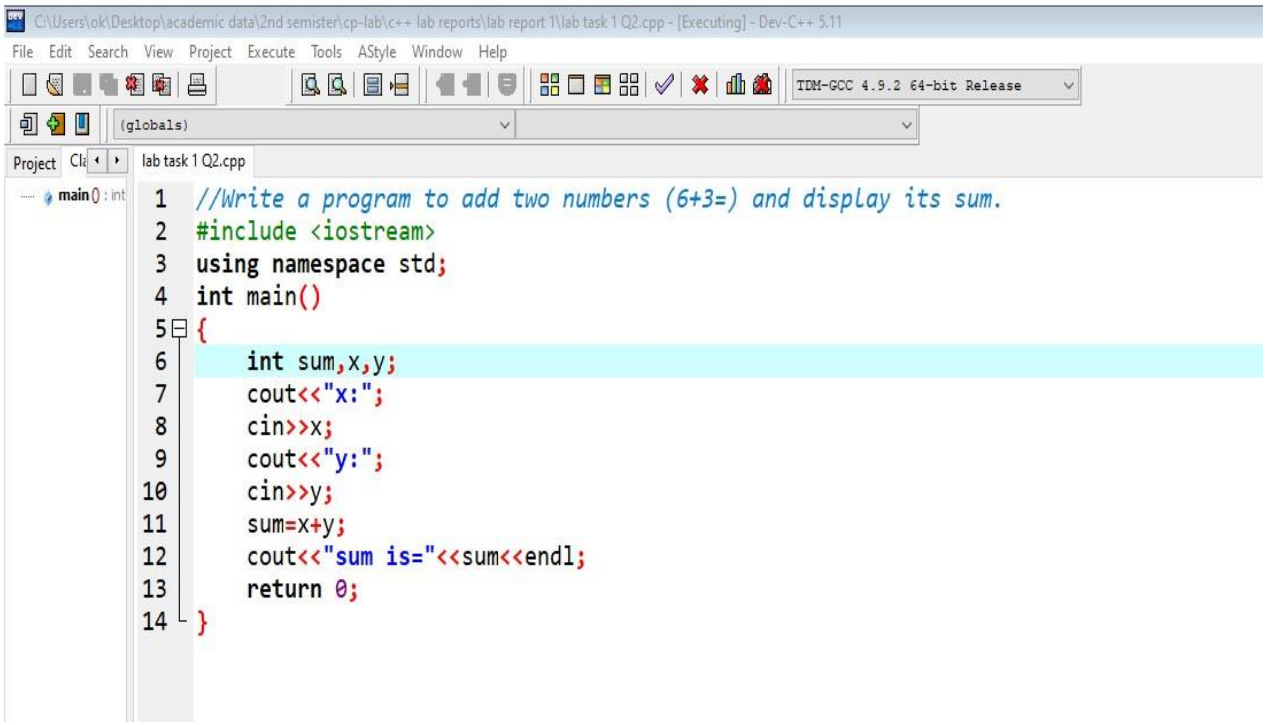
Task 1 code screenshot



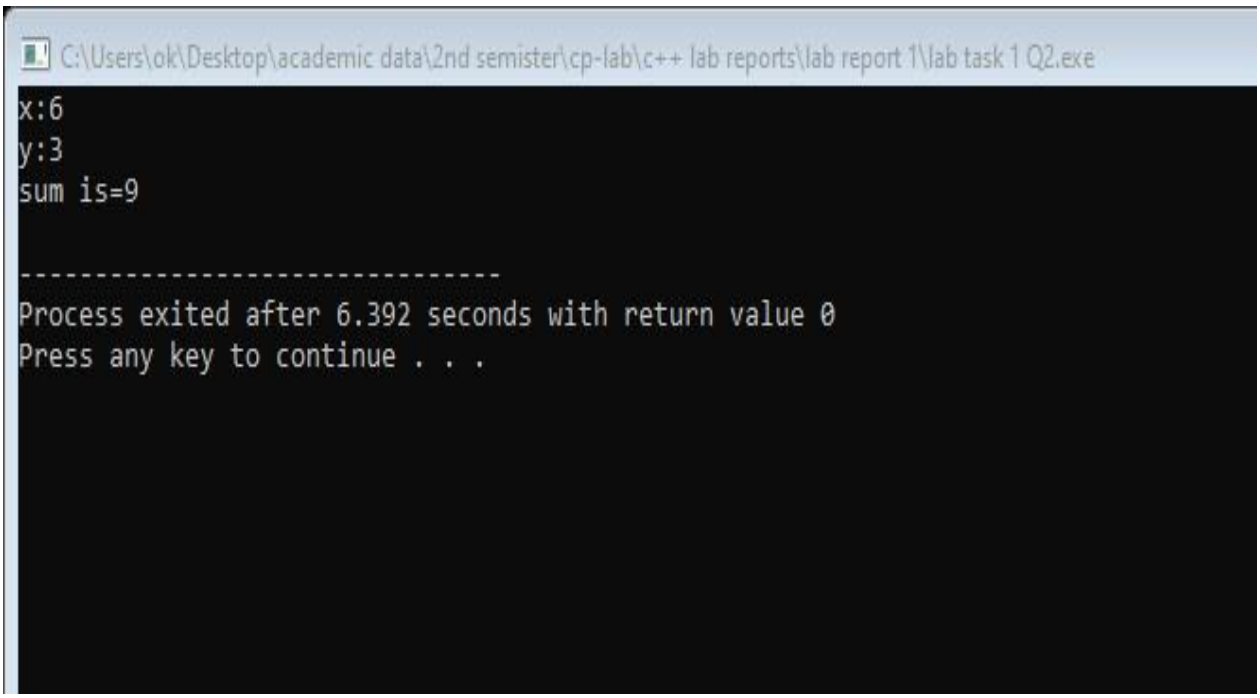
Output

Task 02:

Write a program to add two numbers (6+3=) and display its sum.



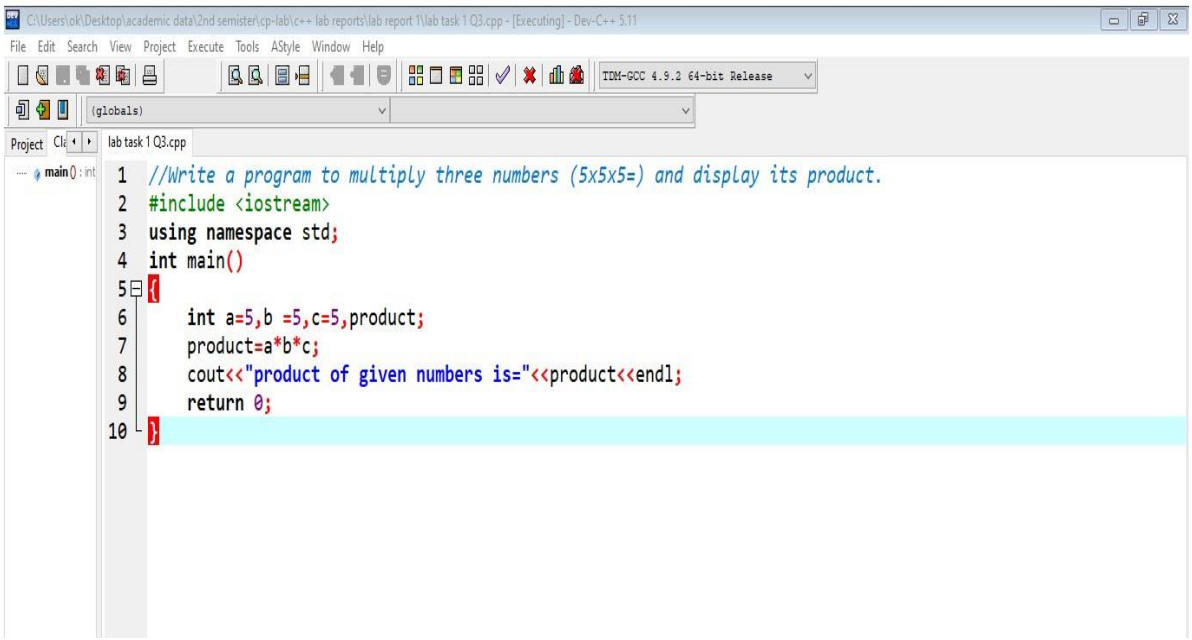
Task 02 code screenshot



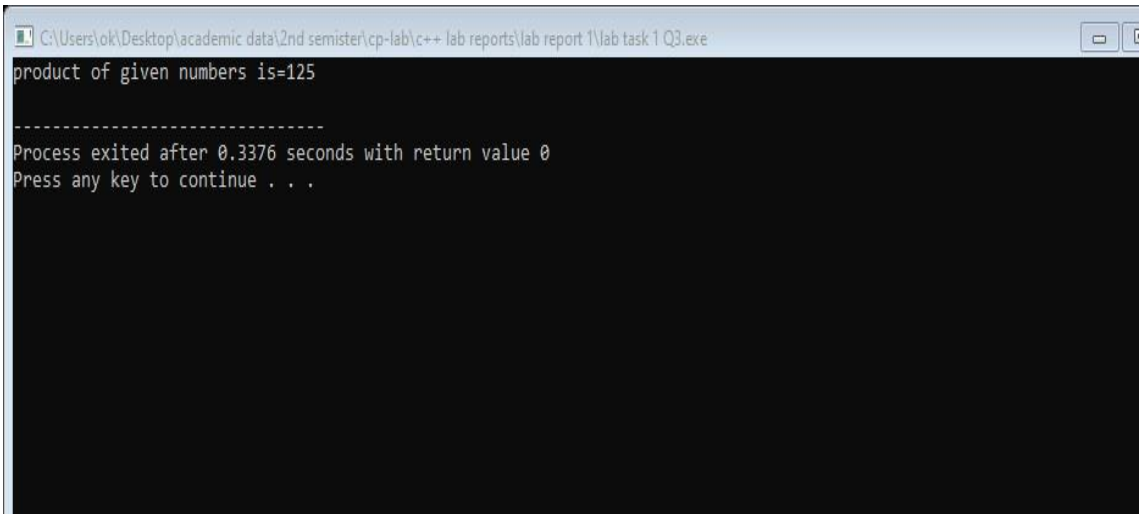
Output

Task 03:

Write a program to multiply three numbers (5x5x5=) and display its product.



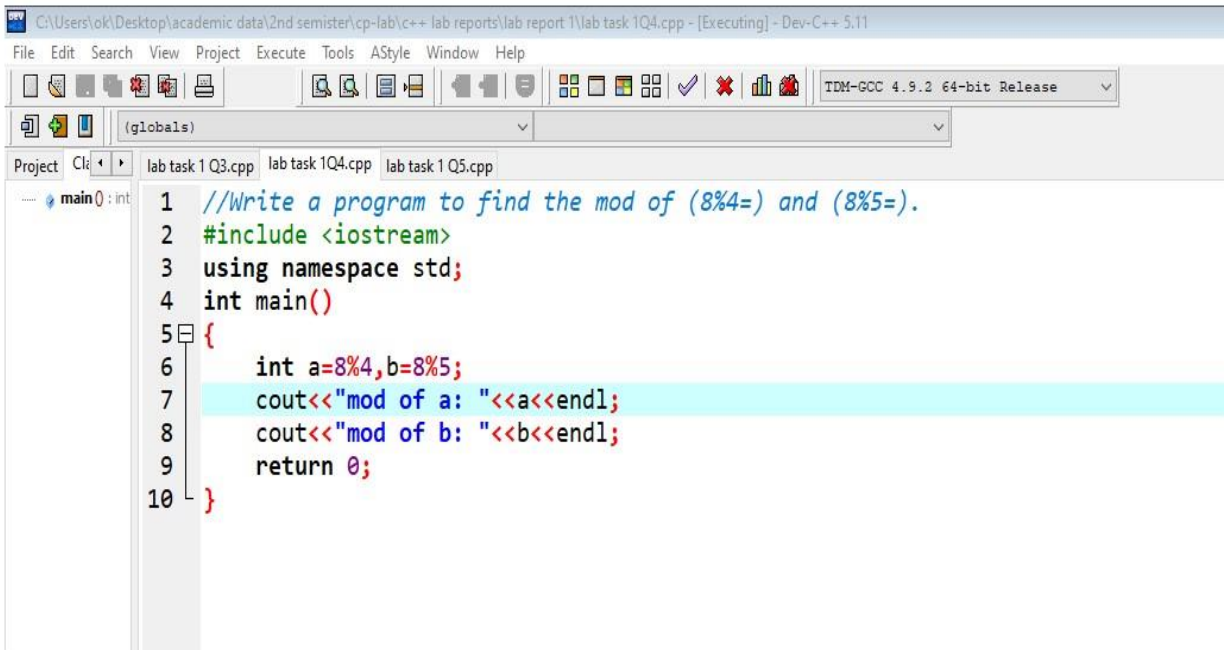
Task 03 screenshot



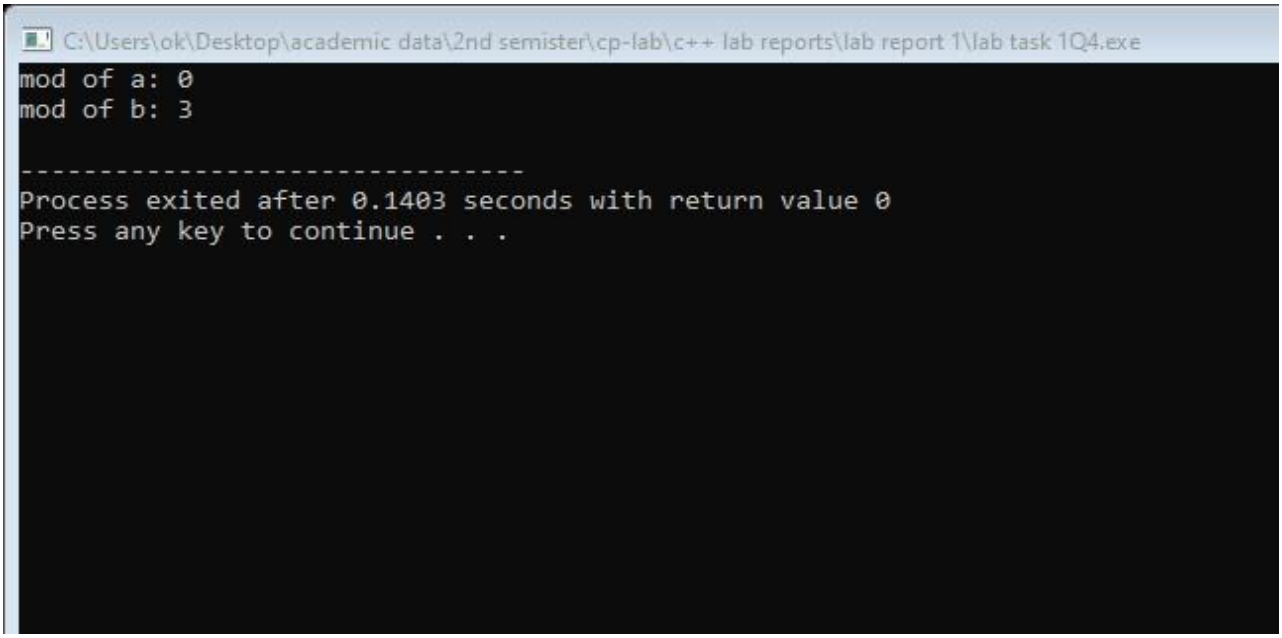
Output

Task 05:

Write a program to find the mod of (8%4=) and (8%5).



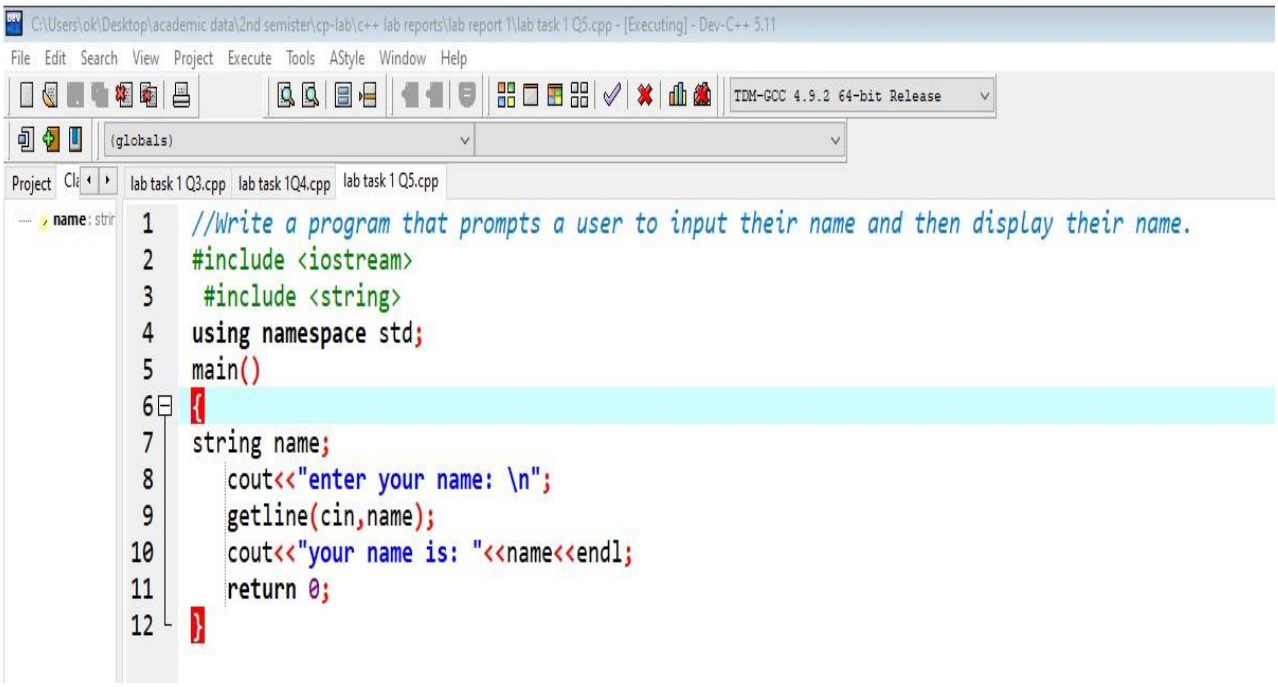
Task 04 screenshot



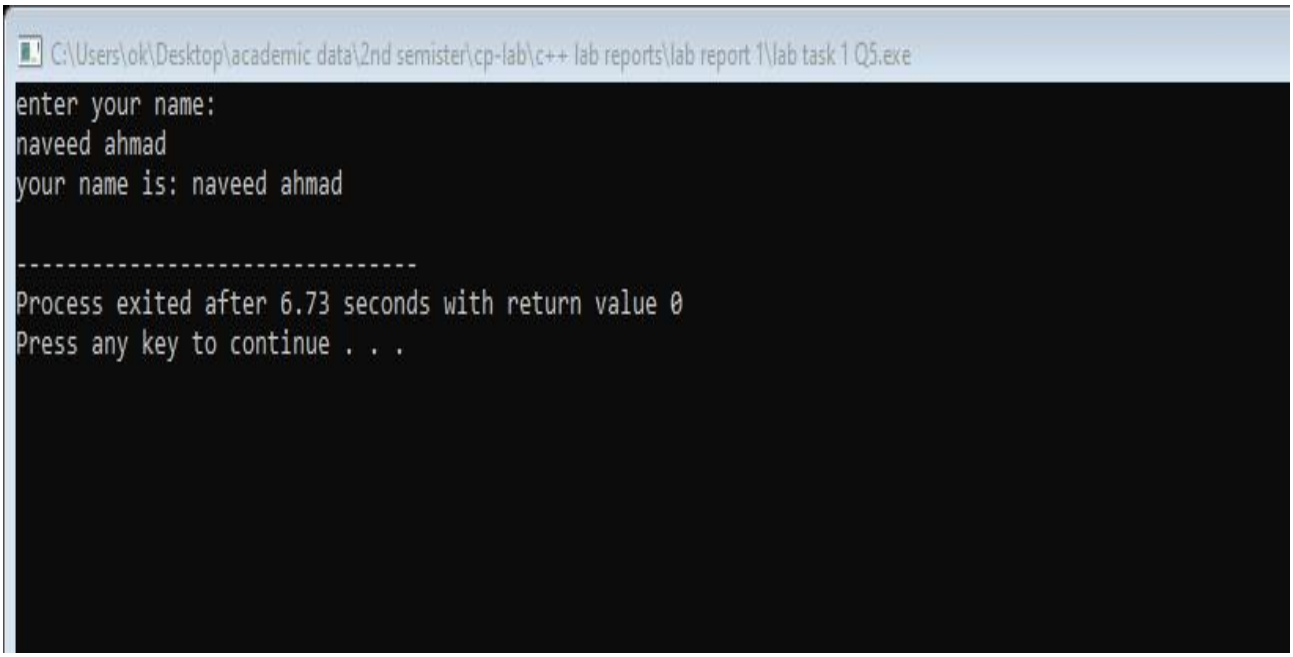
Output

Task 05:

Write a program that prompts a user to input their name and then display their name



Task 05 screenshot

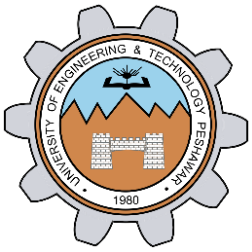


Output

LAB RUBRICS: (Circuits & Systems-I Lab)

Criteria & Point Assigned	**Outstanding 4**	**Acceptable 3**	**Considerable 2**	**Below Expectations 1**
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab
Equipment / Instruments Selection and Operation PLO1, PLO2, PLO3, PLO5,	Right selection and operation of appropriate equipment and instruments to perform experiment.	Right selection of appropriate equipment and instruments to perform experiment but with minor issues in operation	Needs guidance for right selection of appropriate equipment and instruments to perform experiment and to overcome errors in operation	Cannot appropriately select and operate equipment and instruments to perform experiment.
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well Formatted.	75% target has been Completed and well formatted.	50% target has Been completed but not well formatted.	None of the outputs are correct
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab and procedure followed	Has poor idea about the Lab and procedure followed
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e. in next day of lab., with proper Documentation.	Submission of Lab Report in proper time but not with proper Documentation.	Late Submission with proper Documentation.	Late Submission Very poor documentation

LAB # 02



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Lab 02

Task 1:

Write a program that takes the temperature in Fahrenheit from the user and convert it to Celsius And Kelvin.

K= C + 273

C = (F – 32) / 1.8

```
main()
{
    float f,c,k;
    cout<<"enter temperature in fehrinheit:";
    cin>>f;
    k=f+273;
    cout<<"temperature in kelvin="<<k<<endl;
    c=(f-32)/1.8;
    cout<<"temperature in clesius:"<<c;

}
```

```
enter temperature in fehrinheit:23
temperature in kelvin=296
temperature in clesius:-5
--------------------------------
Process exited after 4.969 seconds with return value 0
Press any key to continue . . .
```

Output

Task 2:

Write the C++ code that takes 5 numbers (a, b, c, d and e) from the user and display the output according to the following equation.

a3 + b – d / b a (b + c (e + a) / b) - 5

```
main()
{
    int a,b,c,d,e;
    cout<<"enter five numbers:";
    cin>>a>>b>>c>>d>>e;
    cout<<"calculate value is:"<<(((a*a*a+b-d))/b)/a*(b+c*(e+a)/b)-5;
}
```

```
enter five numbers:1
2
3
4
5
calculate value is:-5
--------------------------------
Process exited after 3.838 seconds with return value 0
Press any key to continue . . .
```

Output

Task 3:

Write a program to declare two integer and one float variables then initialize them to 10, 11, and 12.6. Also print the variable values on the screen.

```
main()
{
    int a,b;
    float c;
    a=10,b=11,c=12.6;
    cout<<"Intger value:"<<a<<endl;
    cout<<"Second intger:"<<b<<endl;
    cout<<"Float value:"<<c;
}
```

```
Intger value:10
Second intger:11
Float value:12.6
--------------------------------
Process exited after 0.03914 seconds with return value 0
Press any key to continue . . .
```

Output

Task 4:

Write a C++ program to prompt the user to input 3 integer values and print these values in forward and reversed order.

```
main()
{
    int a,b,c;
    cout<<"enter three integer:";
    cin>>a>>b>>c;
    cout<<"Forward order="<<a<<"  "<<b<<"  "<<c<<endl;
    cout<<"Reverse order="<<c<<"  "<<b<<"  "<<a;
}
```

```
enter three integer:1
2
3
Forward order=1  2  3
Reverse order=3  2  1
--------------------------------
Process exited after 4.116 seconds with return value 0
Press any key to continue . . .
```

Output:

Task 5:

Write a program to swap two variables values with and without using third variables.

Swapping using third variable:

```
main()
{
     //swaping using third variable
     int a,b,z;
     cout<<"enter two numbers:";
     cin>>a>>b;
     cout<<"value of a before swaping="<<a<<endl;
     cout<<"value of b before swaping="<<b<<endl;
     z=a;
     a=b;
     b=z;
     cout<<"value of a after swaping="<<a<<endl;
     cout<<"value of b after swaping="<<b;
}
```

```
enter two numbers:1
2
value of a before swaping=1
value of b before swaping=2
value of a after swaping=2
value of b after swaping=1
--------------------------------
Process exited after 1.729 seconds with return value 0
Press any key to continue . . .
```

Output

Swapping without using third variable:

```
main()
{

     //swaping without using third variable
     int a,b;
     cout<<"enter two numbers:";
     cin>>a>>b;
     cout<<"value of a before swaping="<<a<<endl;
     cout<<"value of b before swaping="<<b<<endl;
     a=a+b;
     b=a-b;
     a=a-b;
     cout<<"value of a after swaping="<<a<<endl;
     cout<<"value of b after swaping="<<b;
}
```

```
enter two numbers:3
4
value of a before swaping=3
value of b before swaping=4
value of a after swaping=4
value of b after swaping=3
--------------------------------
Process exited after 1.384 seconds with return value 0
Press any key to continue . . .
```

Output

Task 6:

Write a program to calculate area of a circle having its radius (ask user to input radius).

```
main()
{
    float area,r;
    cout<<"enter radius:";
    cin>>r;
    area=3.14*(r*r);
    cout<<"area of circle="<<area;
}
```

```
enter radius:4
area of circle=50.24
--------------------------------
Process exited after 1.624 seconds with return value 0
Press any key to continue . . .
```

Output

CSE 102L: Computer Programming Lab

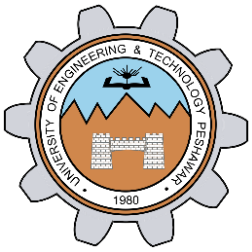
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 03



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

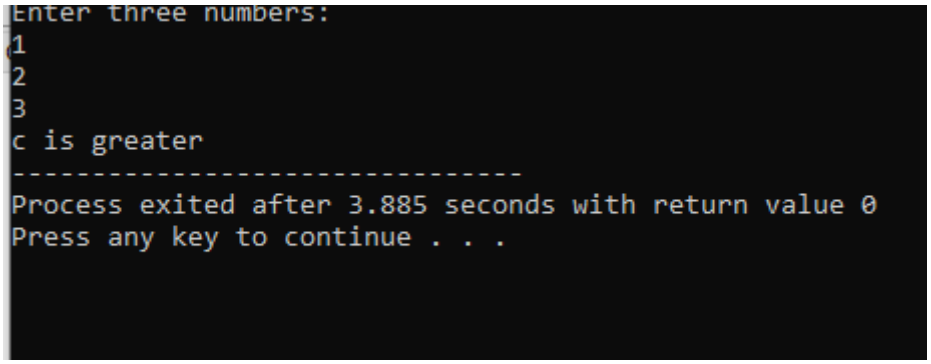
University of Engineering and Technology, Peshawar

Lab 03

Task 1:

Display the largest among three numbers using if else statement?

```
#include <iostream>
using namespace std;
main()
{
    int a,b,c;
    cout<<"Enter three numbers:"<<endl;
    cin>>a;
    cin>>b;
    cin>>c;
    if(a>b&&a>c)
    cout<<"a is greater"<<endl;
    else if(b>a&&b>c)
    cout<<"b is greater";
    else
    cout<<"c is greater";
}
```



Output

Task 2:

Check whether a number is even or odd?

```
main()
{
    int a;
    cout<<"enter a number:";
    cin>>a;
    if(a%2==0)
    {
        cout<<"number is even";
    }
    else
    {
        cout<<"number is odd";
    }
}
```

```
enter a number:2
number is even
--------------------------------
Process exited after 2.277 seconds with return value 0
Press any key to continue . . .
```

Output

Task 3:

Check the greater of two numbers using ternary operator?

```
main()
{
     int a,b,greater;
     cout<<"enter two numbers:";
     cin>>a>>b;
     greater=(a>b)?a:b;
     cout<<"greater number is:"<<greater;
}
```

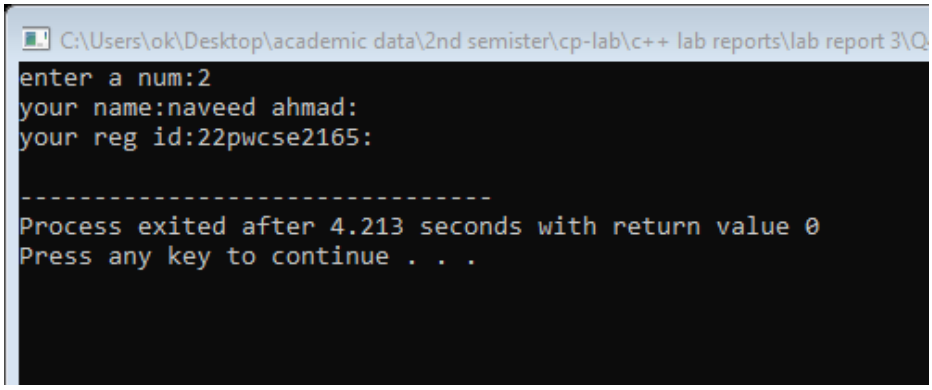
```
enter two numbers:1
2
greater number is:2
--------------------------------
Process exited after 3.24 seconds with return value 0
Press any key to continue . . .
```

Output

Task 4:

Write a program where you print you take a number from the user if the number is greater than 2 and then print your name and registration number 2 times or else print only 1 time.

```
4  main(){
5    int num;
6    cout<<"enter a num:";
7    cin>>num;
8    if(num>2){
9        cout<<"your name:naveed ahmad:"<<endl;
10       cout<<"your reg id:22pwcse2165:"<<endl;
11       cout<<"your name:naveed ahmad:"<<endl;
12       cout<<"your rer id:22pwcse2165:"<<endl;
13
14   }
15   else{
16       cout<<"your name:naveed ahmad:"<<endl;
17       cout<<"your reg id:22pwcse2165:"<<endl;
18   }
19   return 0;
20 }
```

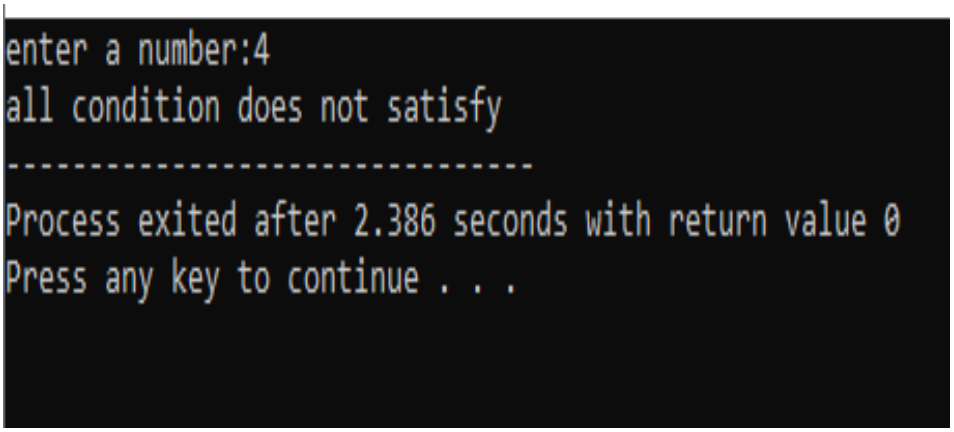


Output

Task 5:

Write a program that asks a number and test the number whether it is multiple of 5 or not, divisible by 7 but not by eleven. (All three conditions should match).

```
main()
{
    int a;
    cout<<"enter a number:";
    cin>>a;
    if(a%5==0&&a%7==0&&a%11==0)
    {
        cout<<"all condition satisfyed";
    }
    else{
        cout<<"all condition does not satisfy";
    }
}
```



Output

Task 6:

Check whether the entered character is vowel or consonant?

```
main()
{
    char a;
    cout<<"enter a character:";
    cin>>a;
    switch(a)
    {
        case 'a':
            cout<<"character is vowel";
            break;
        case 'e':
            cout<<"character is vowel";
            break;
        case 'i':
            cout<<"character is vowel";
            break;
        case 'o':
            cout<<"character is vowel";
            break;
        case 'u':
            cout<<"character is vowel";
            break;
        default:
            cout<<"charcter is not vowel";
    }
}
```

```
enter a character:e
character is vowel
--------------------------------
Process exited after 1.635 seconds with return value 0
Press any key to continue . . .
```

Output:

Task 7:

Write a program that takes the weekday number as input from user and print the day name of week E.g., Print Monday if weekday number is equal to 1. Similarly, check condition for all 7 days and print the corresponding day name. Print an error message if an invalid number is entered.

```
main()
{
    int a;
    cout<<"enter a day number:";
    cin>>a;
    if(a==1)
    {
        cout<<"Moday";
    }
    else if(a==2)
    {
        cout<<"Tuesday";
    }
    else if(a==3)
    {
        cout<<"Wednesday";
    }
    else if(a==4)
    {
        cout<<"Thursday";
    }
    else if(a==5)
    {
        cout<<"Friday";
    }
    else if(a==6)
    {
        cout<<"Saturday";
    }
    else if(a==7)
    {
        cout<<"Sunday";
    }
    else{
    cout<<"Invalid number";
}
}
```

```
enter a day number:4
Thursday
--------------------------------
Process exited after 3.156 seconds with return value 0
Press any key to continue . . .
```

8:

Output

Task 8:

Write a C++ program to enter month number between (1-12) and print number of days in month.

```
main()
{
    int a;
    cout<<"enter a number:";
    cin>>a;
    if(a==1||a==3||a==5||a==7||a==8||a==10||a==12)
    {
        cout<<"31 days";
    }
    else if(a==2)
    {
        cout<<"28 days";
    }
    else if(a==4||a==6||a==9||a==11)
    {
        cout<<"30 days";
    }
}
```

```
enter a number:4
30 days
--------------------------------
Process exited after 2.484 seconds with return value 0
Press any key to continue . . .
```

Task 9:

Write a program to calculate and print the Electricity bill of a given customer. The customer id and unit consumed by the user should be taken from the keyboard and display the total amount to pay to the customer.

```
main()
{
    int id,unit,charg;
    cout<<"enter customer id:"<<endl;
    cin>>id;
    cout<<"enter unit consumed"<<endl;
    cin>>unit;
    if(unit>=0&&unit<200)
    {
        charg=1.2*unit;
        cout<<"Amount charges: Rs.1.2 per unit:"<<charg<<endl;
        if(charg>400)
        {
            cout<<"Surcharge Applied!"<<endl;
            int surcharge=0.25*charg;
            cout<<"surcharge amount="<<surcharge<<endl;
            cout<<"Net amount paid by the customer="<<charg+surcharge;
            return 0;
                }
        cout<<"Net amount paid by the customer="<<charg;
    }
else if(unit>=200&&unit<400)
{
    charg=1.5*unit;
    cout<<"Amount charges: Rs.1.5 per unit:"<<charg<<endl;
    if(charg>400)
    {
        cout<<"Surcharge Applied!"<<endl;
        int surcharge=0.25*charg;
        cout<<"surcharge amount="<<surcharge<<endl;
        cout<<"Net amount paid by the customer="<<charg+surcharge;
        return 0;
    }
    cout<<"Net amount paid by the customer="<<charg;
}
else if(unit>=400&&unit<600)
{
    charg=1.8*unit;
    cout<<"Amount charges: Rs.1.8 per unit:"<<charg<<endl;
    if(charg>400)
    {
        cout<<"Surcharge Applied!"<<endl;
        int surcharge=0.25*charg;
        cout<<"surcharge amount="<<surcharge<<endl;
        cout<<"Net amount paid by the customer="<<charg+surcharge;
        return 0;
    }
    cout<<"Net amount paid by the customer="<<charg;
}
```

```
    else if(unit>=600)
    {
        charg=2*unit;
        cout<<"Amount charges: Rs.2.0 per unit:"<<charg<<endl;
        if(charg>400)
        {
            cout<<"Surcharge Applied!"<<endl;
            int surcharge=0.25*charg;
            cout<<"surcharge amount="<<surcharge<<endl;
            cout<<"Net amount paid by the customer="<<charg+surcharge;
            return 0;
        }
        cout<<"Net amount paid by the customer="<<charg;
    }
}
```

```
enter customer id:
450
enter unit consumed
480
Amount charges: Rs.1.8 per unit:864
Surcharge Applied!
surcharge amount=216
Net amount paid by the customer=1080
--------------------------------
Process exited after 9.196 seconds with return value 0
Press any key to continue . . .
```

Output

CSE 102L: Computer Programming Lab

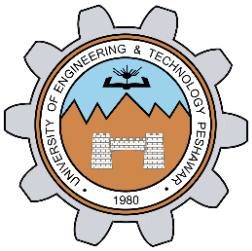
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 04



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

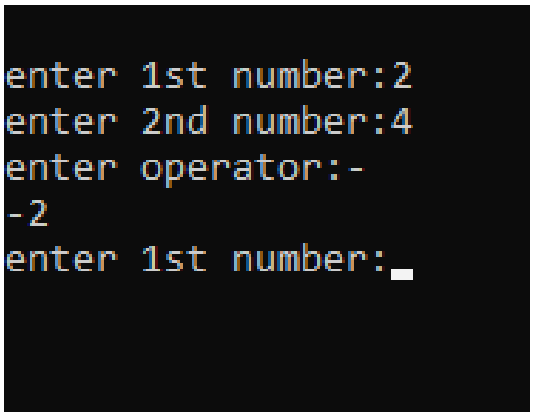
Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

Write a program to create Simple Calculator using switch case (the calculator must have a loop that it could keep on running and ask the user again for input after showing output from the previous inputs).

```
main()
{
    while(1)
    {
    int x,y;
    char opr;
    cout<<"\nenter 1st number:";
    cin>>x;
    cout<<"enter 2nd number:";
    cin>>y;
    cout<<"enter operator:";
    cin>>opr;
    switch(opr)
    {
        case '+':
            cout<<x+y;
            break;
        case '-':
            cout<<x-y;
            break;
        case '*':
            cout<<x*y;
            break;
        case '/':
            cout<<x/y;
            break;
        default:
            cout<<"invalid operator";
    }
    }
}
```



Output

Task 2:

Write a program that takes a number as input, checks it if it is between 1 and 10 and if it is in valid range your program should output a line containing that number of adjacent asterisks. On invalid input number, the program should end. For example, if your program input is 7, it should print *******.

```
main()
{
    int x;
    cout<<"enter a number:";
    cin>>x;
    if(x>1&&x<10)
    {
        if(x==2)
        {
            cout<<"**";
        }
        else if(x==3)
        {
            cout<<"***";
        }
        else if(x==4)
        {
            cout<<"****";
        }
        else if(x==5)
        {
            cout<<"*****";
        }
        else if(x==6)
        {
            cout<<"******";
        }
        else if(x==7)
        {
            cout<<"*******";
        }
        else if(x==8)
        {
            cout<<"********";
        }
        else if(x==9)
        {
            cout<<"*********";
        }
    }
    else {
        return 0;
    }
}
```

```
enter a number:4
****
--------------------------------
Process exited after 2.002 seconds with return value 0
Press any key to continue . . .
```

Output

Task 3:

Write a program to find Factorial of a number.

```
main()
{
    int z=1,f;
    cout<<"enter a number:";
    cin>>f;
    if(f==0||f==1)
    {
        cout<<1;
    }
    else
    {
    for(int i=1;i<=f;++i)
    {
        z*=i;
    }
    cout<<"factorial of number is:"<<z;
}
}
```

```
enter a number:5
factorial of number is:120
--------------------------------
Process exited after 2.117 seconds with return value 0
Press any key to continue . . .
```

Output

Task 4:

Write a program to print multiplication table of any number.

```
main()
{
        for(int i=1;i<=10;i++)
        {
            cout<<"5 "<<"X "<<i<<"="<<5*i<<endl;
        }
}
```

```
5 X 1=5
5 X 2=10
5 X 3=15
5 X 4=20
5 X 5=25
5 X 6=30
5 X 7=35
5 X 8=40
5 X 9=45
5 X 10=50

--------------------------------
Process exited after 0.02397 seconds with return value 0
Press any key to continue . . .
```

Output

Task 5:

Write a program to input two integer numbers and display the sum of even numbers between these two input numbers.

```
main()
{
    int x,y,sum=0;
    cout<<"enter first number:";
    cin>>x;
    cout<<"enter second number:";
    cin>>y;
    for(int i=x+1;i<y;i++)
    {
    if(i%2==0)
    {
        sum+=i;
    }

}
    cout<<sum;
}
```

```
enter first number:1
enter second number:5
6
--------------------------------
Process exited after 7.889 seconds with return value 0
Press any key to continue . . .
```

Output

Task 6:

Write a program that takes the base and exponent as input and display the result of power.

```
main()
{
    int base,exp;
    int power=1;
    cout<<"enter base:";
    cin>>base;
    cout<<"enter exp:";
    cin>>exp;
    for(int i=1;i<=exp;i++)
    {
        power*=base;
    }
    cout<<power;
}
```

```
enter base:4
enter exp:5
1024
--------------------------------
Process exited after 4.775 seconds with return value 0
Press any key to continue . . .
```

Output

Task 7:

Write a program that prints your name and registration number 10 times using loop and on the 5th iteration (run) of your loop it should skip and display this “Mid of loop” and then continue displaying your name and registration number.

```cpp
main()
{
    string name,reg;
    cout<<"enter your name:";
    cin>>name;
    cout<<"enter your reg:";
    cin>>reg;
    for(int i=0;i<=10;i++)
    {
        if(i==5)
        {
            cout<<"This is mid"<<endl;
            continue;
        }
        cout<<name<<"\n"<<reg<<endl;
    }
}
```

```
enter your name:Mohsin
enter your reg:2149
Mohsin
2149
Mohsin
2149
Mohsin
2149
Mohsin
2149
Mohsin
2149
This is mid
Mohsin
2149
Mohsin
2149
Mohsin
2149
Mohsin
2149
Mohsin
2149

--------------------------------
Process exited after 10.54 seconds with return value 0
Press any key to continue . . .
```

Task 8:

Write a program that performs a survey tally on beverages. The program should prompt for the next person until a sentinel value of –1 is entered to terminate the program. Each person participating in the survey should choose their favorite beverage from the following list:

1. Coffee 2. Tea 3. Coke 4. Orange Juice.

```
int main(){
    int bev,coffee=0,tea=0,coke=0,juice=0,k;
    do
    {
     cout<<"please input the favorite beverage of person from menu or -1 to exit program"<<endl;
        cin>>bev;
        switch(bev)
        {
        case 1:
           coffee++;
            break;
        case 2:
            tea++;
            break;
        case 3:
            coke++;
            break;
        case 4:
            juice++;
            break;
        case -1:
            cout<<"survey is complete"<<endl;
            break;
        default:
            cout<<"invalid number"<<endl;
            k++;}
            }
        while(bev!=-1);
        cout<<endl<<endl<<"    total number of people surveyed= "<<coffee+tea+coke+juice+k<<endl;
        cout<<"    beverge                "<<"number of votes"<<endl;
        cout<<"**************************************************"<<endl;
        cout<<"    coffee=              "<<coffee<<endl;
        cout<<"     tea=                "<<tea<<endl;
        cout<<"     coke=               "<<coke<<endl;
        cout<<"     juice=              "<<juice<<endl;
        cout<<"      invalid             "<<k<<endl;
    return 0;
}
```

```
please input the favorite beverage of person from menu or -1 to exit program
4
please input the favorite beverage of person from menu or -1 to exit program
1
please input the favorite beverage of person from menu or -1 to exit program
3
please input the favorite beverage of person from menu or -1 to exit program
1
please input the favorite beverage of person from menu or -1 to exit program
1
please input the favorite beverage of person from menu or -1 to exit program
-1
survey is complete


    total number of people surveyed= 5
    beverge                 number of votes
**************************************************
    coffee=              3
     tea=                0
     coke=               1
     juice=              1
      invalid             0

--------------------------------
Process exited after 30.96 seconds with return value 0
Press any key to continue . . .
```

CSE 102L: Computer Programming Lab

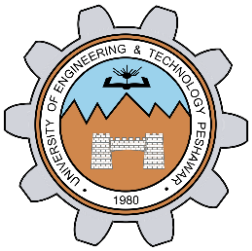
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 05



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

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Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

Write a program to input twelve numbers from user using array and display all values on console (3 values in a row) (use separate loops for input and output operation).

```
main()
{
    int arr[12];
    for(int i=0;i<12;i++)
    {
        cin>>arr[i];
    }
    for(int i=0;i<12;i++)
    {
        if(i%3==0)
        {
            cout<<endl;
        }
        cout<<arr[i];
    }
}
```

```
1
2
3
4
5
6
7
8
9
10
11
12

123
456
789
101112
--------------------------------
Process exited after 14.77 seconds with return value 0
Press any key to continue . . .
```

Task 2:

Write a program to input two arrays from user and find the sum of arrays (element by element).

```
main()
{
    int n;
    cout<<"enter the number of element:";
    cin>>n;
    int arr1[n],arr2[n],sum[n];
    cout<<"enter first array element:"<<endl;
    for(int i=0;i<n;i++)
    {
        cin>>arr1[i];
    }
    cout<<"enter second array element:"<<endl;
    for(int i=0;i<n;i++)
    {
        cin>>arr2[i];
    }
    for(int i=0;i<n;i++)
    {
        sum[i]=arr1[i]+arr2[i];
        cout<<sum[i];
    }
}
```

```
enter the number of element:5
enter first array element:
1
2
3
4
5
enter second array element:
1
2
3
4
5
246810
--------------------------------
Process exited after 17.48 seconds with return value 0
Press any key to continue . . .
```

Output

Task 3:

Write a program to input array from user and display the elements of array in reverse order (use separate loops for input and output operation).

```
main()
{
    int n;
    cout<<"enter size of array:";
    cin>>n;
    int a[n];
    for(int i=0;i<n;i++)
    {
        cin>>a[i];
    }
    cout<<"the reverse order of array:";
    {
        for(int i=n-1;i>=0;i--)
        {
            cout<<a[i]<<",";
        }
    }
}
```

```
enter size of array:4
1
2
3
4
the reverse order of array:4,3,2,1,
--------------------------------
```

Task 4:

Write a program that creates a dynamic array (ask user for its size and its values) and ask user to input a key number, compare it with values entered by the user (in array), if the key gets matched to any of the values in array, display the index number of array where values matches also output “value matched”, if not matched with any of the values simply output “value not matched” (use separate iteration statements for input operation and calculation).

```cpp
main()
{
    int n,i,index=-1;
    cout<<"enter size of array:";
    cin>>n;
    int a[n];
    for(i=0;i<n;i++)
    {
        cin>>a[i];
    }
    int x;
    cout<<"enter key number:";
    cin>>x;
    for(int i=0;i<n;i++)
    {
    if(x==a[i])
    {
        index=i;
        break;
    }
    }
    if(index!=-1)
    {
        cout<<"match found:"<<index;
    }
    else{
        cout<<"match not found:";
    }
}
```

```
enter size of array:5
1
2
3
4
5
enter key number:2
match found:1
--------------------------------
Process exited after 7.595 seconds with return value 0
Press any key to continue . . .
```

Task 5:

Write a program in which you ask the user for the size of array and values for the array (dynamic array, pointer method), find min, max and average of all the values entered by the user in the array (use separate iteration statements for input operations and calculation).

```
main()
{
    int n;
    cout<<"enter the size of array:";
    cin>>n;
    int* arr=new int[n];
    cout<<"enter array elements:"<<endl;
    for(int i=0;i<n;i++)
    {
        cin>>arr[i];
    }
    int max=arr[0];
    int min=arr[0];
    int sum=arr[0];
    for(int i=0;i<n;i++)
    {
        if(min>arr[i])
        {
            min=arr[i];
        }
        if(max<arr[i])
        {
            max=arr[i];
        }
        sum+=arr[i];
    }
    cout<<"minimum="<<min<<endl;
    cout<<"maximum="<<max<<endl;
    double average = (double)(sum) / n;
    cout<<"average="<<average;
}
```

```
enter the size of array:4
enter array elements:
1
2
3
4
minimum=1
maximum=4
average=2.75
--------------------------------
Process exited after 5.97 seconds with return value 0
Press any key to continue . . .
```

Output

CSE 102L: Computer Programming Lab

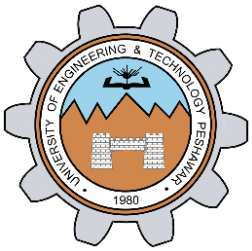
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 06



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

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Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Lab 06

Task 1:

Write a program that takes marks and your name as input and then displays your grade using a function that calculates your grade based on your entered marks.

```
int grade(int marks)
{
    if(marks>=80&&marks<=100)
    {
        return 'A';
    }
    else if(marks>=70&&marks<80)
    {
        return 'B';
    }
    else if(marks>=60&&marks<70)
    {
        return 'C';
    }
    else{
        return 'F';
    }
}
main()
{
    int marks;
    string name;
    cout<<"enter you name:"<<endl;
    cin>>name;
    cout<<"enter your marks=";
    cin>>marks;
    char g;
    g=grade(marks);
    cout<<"Your grade is:"<<g;

}
```

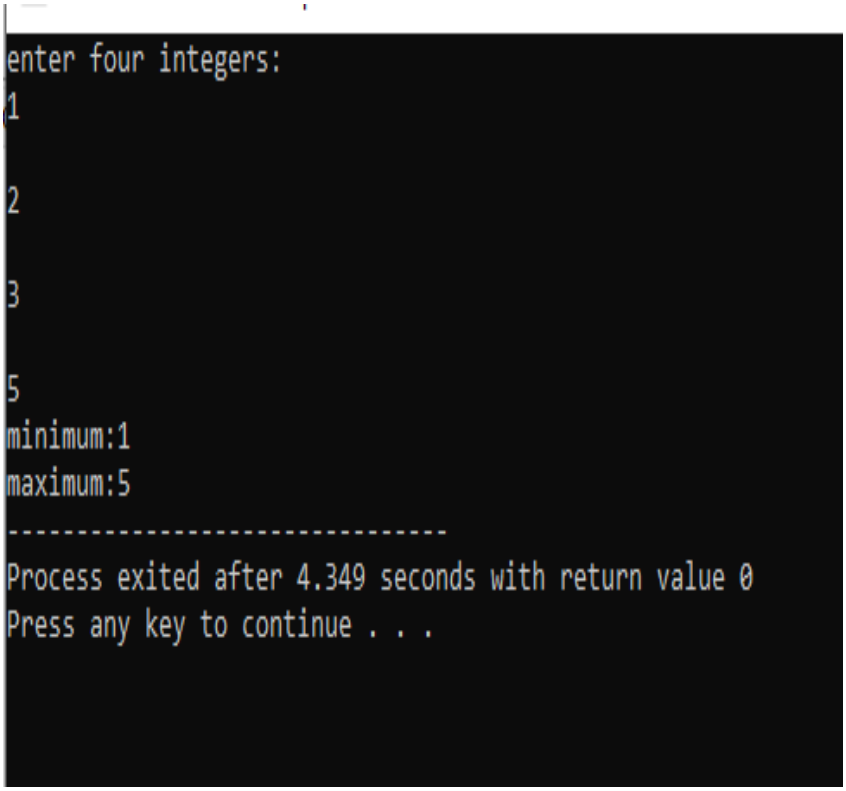
```
enter you name:
Mohsin
enter your marks=89
Your grade is:A
--------------------------------
Process exited after 9.746 seconds with return value 0
Press any key to continue . . .
```

Task 2:

Write a function minmax () that takes four integers as input and display the minimum and maximum number

```
int minmax(int a,int b,int c,int d)
{
    int minimum=a;
    int maximum=a;
    if(b<minimum)
    {
        minimum=b;
    }
    if(c<minimum)
    {
        minimum=c;
    }
    if(d<minimum)
    {
        minimum=d;
    }
    if(b>maximum)
    {
        maximum=b;
    }
    if(c>maximum)
    {
        maximum=c;
    }
    if(d>maximum)
    {
        maximum=d;
    }
    cout<<"minimum:"<<minimum<<endl;
    cout<<"maximum:"<<maximum;
}
main()
{
    int d,e,f,g;
    cout<<"enter four integers:"<<endl;
    cin>>d;
    cout<<endl;
    cin>>e;
    cout<<endl;
    cin>>f;
    cout<<endl;
    cin>>g;
    minmax(d,e,f,g);

}
```



Output

Task 3:

Create a function named ‘prime’ which accepts an integer and return a Boolean (a true if the number is prime and false otherwise).

```
bool prime(int number)
{
    if(number<=1)
    {
        return false;
    }
for(int i=2;i<number;i++)
    if(number%i==0)
    {
        return false;
    }
    return true;
}
using namespace std;
int main()
{
    int x;
    cout<<"Enter a number: ";
    cin>>x;
    if(prime(x))
    {
        cout<<"The above is a prime number";
    }
    else
    {
        cout<<"The above number is not a prime number";
    }
    return 0;
}
```

```
Enter a number: 7
The above is a prime number
------------------------------
```

Output

Task 4:

Write a program to find a factorial of number entered by the user. Use function to find factorial.

```
int fact(int f)
{
    int z=1;
    for(int i=1;i<=f;++i)
    {
        z*=i;
    }
    return z;
}
main()
{
    int x;
    cout<<"enter a number:";
    cin>>x;
    cout<<fact(x);
}
```

```
enter a number:6
720
--------------------------------
```

Output

Task 5:

Write a program to find the roots of a quadratic equation of type a.x2 +b.x+c where the value of a, b, c is to be entered by the user inside main(). Make sure value of a must be non-zero, if it is complete the program. There must be two function one called roots() (non-return type) the other called deter() (return type).

```
int a,b,c;
void roots(int d)
{
    if(d>0)
    {
        cout<<"root one:"<<(-b + sqrt(d)) / (2*a)<<endl;
        cout<<"root two"<<(-b - sqrt(d)) / (2*a);
    }
    else if(d==0){
        cout<<"r1 and r2 are equal:"<<-b/(2*a);
    }
    else{
        cout<<"roots are imaginary:"<<endl;
        cout<<"real rooot:"<<-b/(2*a)<<"\n";
        cout<<"imaginary root:"<<sqrt(-d)/(2*a);
    }

}
int deter(int a,int b,int c)
{
    int d=b*b-4*a*c;
    return d;
}

main()
{
    cout<<"enter 1st number:";
    cin>>a;
    cout<<"enter 2nd number:";
    cin>>b;
    cout<<"enter 3rd number:";
    cin>>c;
    int d=deter(a,b,c);
    roots(d);
}
```

```
enter 1st number:2
enter 2nd number:3
enter 3rd number:5
roots are imaginary:
real rooot:0
imaginary root:1.39194
--------------------------------
```

Output

CSE 102L: Computer Programming Lab

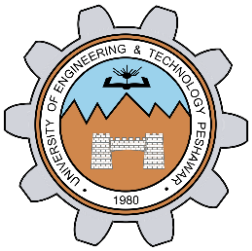
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 07



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

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Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

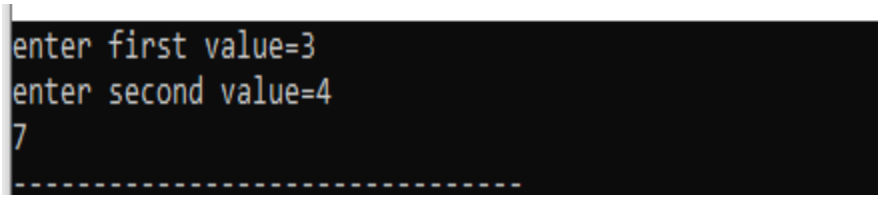
Task 2:

Write a C++ program where you take two values from user if the user enters one or two of the values zero instead of passing the zero values to the function let the function calculate default values if user enters values other than zero pass them to function and calculate their sum.

```
void abd(int x=2,int y=3)
{
    cout<<x+y;

}
main()
{
    int a,b;
    cout<<"enter first value=";
    cin>>a;
    cout<<"enter second value=";
    cin>>b;
    if(a!=0&&b!=0)
    {
        abd(a,b);
    }
    else{
        abd();
    }

}
```



Output

Task 3:

Create a function template that can change its return type and parameters type according to the data entered by the user (first ask the user for the type of data that will be entered float, int or double then ask for two numbers, using the type information call the function template).

```
template<class abd>
abd func(abd x,abd y)
{
    return x+y;
}
main()
{
    string datatype;
    cout<<"enter datatype"<<endl;
    cin>>datatype;
    if(datatype=="int")
    {
        cout<<func(3,5);
    }
    else if(datatype=="float")
    {
        cout<<func(3.4f,3.4f);
    }
    else{
        cout<<func(4.44,3.44);
    }
}
```

```
enter datatype
float
6.8
--------------------------------
Process exited after 3.864 seconds with return value 0
Press any key to continue . . .
```

Task 4:

Calculate the sum of odd natural numbers 1+3+5+7+……. + n using Recursion. Take n as input from user.

```
int func(int x)
{
    if(x==1)
    {
        return 1;
    }
    else
    {
        if(x%2==0)
        {
            x--;
        }
        return x+func(x-2);

    }
}
main()
{
    int n;
    cout<<"enter a number"<<endl;
    cin>>n;
    cout<<func(n);
  }
```

```
enter a number
7
16
--------------------------------
Process exited after 1.909 seconds with return value 0
Press any key to continue . . .
```

Output

Task 5:

Overload three functions with name “grade”, the first grade function should be nonreturning void type with no parameter, void grade(), the second should have integer parameter and return type float, float grade(int marks) the third function should have float parameter and its return type should be char, char grade(float percentage). Your main() should only call the first function, the first function will prompt the user to enter marks then it will pass the marks to the second function where it will calculate the percentage and return the percentage to the first function, then the first function will send the

percentage to the third function where it will calculate the grade based on the percentage will return the grade to first function in the form of char. Finally, the first function will display the grade as well as the marks and the percentage. Consider total marks = 150.

```
float grade(int marks)
{
    float percentage=marks*100/100;
    return percentage;

}
char grade(float percentage)
{
    if(percentage>=80&&percentage<100)
    {
        return 'A';
    }
    else if(percentage>=70&&percentage<80)
    {
        return 'B';
    }
    else if(percentage>=60&&percentage<70){
        return 'C';
    }
    else{
        return 'F';
    }
}
void grade()
{
    int marks;
    float percentage;
    char g;

    cout<<"enter marks=";
    cin>>marks;
    percentage=grade(marks);
    g=grade(percentage);
    cout<<"marks="<<marks<<endl;
    cout<<"percentage="<<percentage<<"%"<<endl;
    cout<<"grade="<<g;
}
main()
{
    grade();
}
```

```
enter marks=78
marks=78
percentage=78%
grade=B
--------------------------------
Process exited after 3.701 seconds with return value 0
Press any key to continue . . .
```

Output

Task 6:

Write a C++ Program to Find Factorial of a Number Using Recursion.

```
int rec(int n)
{
    if(n==0)
    {
        return 1;
    }
    else
    {
        return n*rec(n-1);
    }
}
main()
{
    int x;
    cout<<"enter a number=";
    cin>>x;
    cout<<rec(x);
}
```

```
enter a number=4
24
--------------------------------
Process exited after 3.086 seconds with return value 0
Press any key to continue . . .
```

Output

Task 7:

C++ program to calculate power of a number using recursion.

```
int rec(int base,int power)
{
    if(power==0)
    {
        return 1;
    }
    else{
        return base*rec(base,power-1);
    }
}
main()
{
    int base,power;
    cout<<"enter base=";
    cin>>base;
    cout<<"enter power=";
    cin>>power;
    cout<<rec(base,power);
}
```

```
enter base=4
enter power=5
1024
--------------------------------
Process exited after 2.614 seconds with return value 0
Press any key to continue . . .
```

Output

CSE 102L: Computer Programming Lab

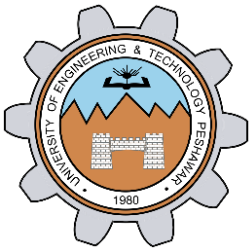
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 8&9



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

Write a C++ program where you take two values in two variables from user, add the values of the two variables and put it into a third variable using a pointer. you must you only one pointer.

```
main()
{
    int x,y,sum,t;
    cout<<"enter first variable:"<<endl;
    cin>>x;
    cout<<"enter second value:"<<endl;
    cin>>y;
    sum=x+y;
    int *z;
    z=&sum;
    cout<<*z;
}
```

\

```
enter first variable:
2
enter second value:
3
5
--------------------------------
Process exited after 3.998 seconds with return value 0
Press any key to continue . . .
```

Output

Task 2:

Create a string array of size 2, in the first element enter your name and in the second element enter your registration number, using a pointer, now pass the array address to function called display(), which has a string pointer as a parameter, the function will display both elements of the array.

```
void display(string *x,string *y)
{
    cout<<*x<<endl;
    cout<<*y;
}
main()
{
    string arr[2];
    string *n,*r;
    n=arr;
    r=arr+1;
    cout<<"enter your name:"<<endl;
    cin>>*n;
    cout<<"enter your registration number:"<<endl;
    cin>>*r;
    display(arr,arr+1);
}
```

```
enter your name:
Mohsin
enter your registration number:
2149
Mohsin
2149
--------------------------------
Process exited after 6.771 seconds with return value 0
Press any key to continue . . .
```

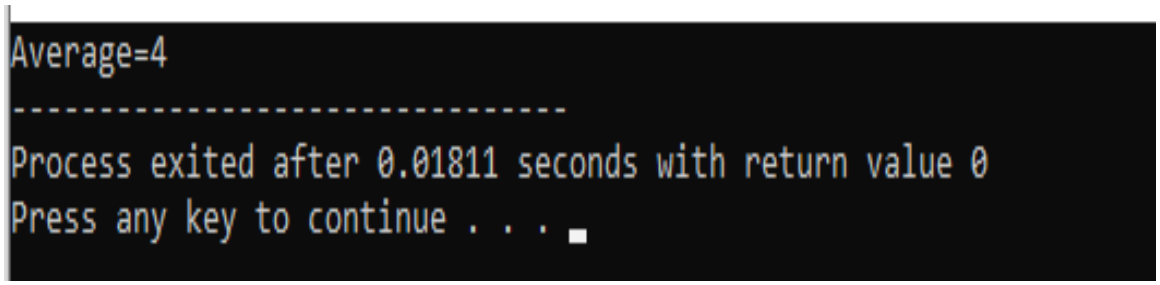
Output

Task 3:

Write a program which calculates the average of an array of 5 elements (initialize the values of the array during declaration) the average should be calculated in a function called average(), this function will

have a pointer parameter (array must be passed here) and an integer parameter (which is the size of array) i.e., average(int *arr , int size).

```
int avrg(int *arr,int size)
{
    int sum=0;
    for(int i=0;i<size;i++)
    {
        sum+=arr[i];
    }
    return sum/size;
}
main()
{
    int arr[5]={1,2,3,4,10};
    int size=5;
    avrg(arr,size);
    int average=avrg(arr,size);
    cout<<"Average="<<average;
}
```



Output

Task 4:

Write a C++ program where you create 2 functions (percentage, GPA) and a 3rd function called caller, the caller will have one integer and a pointer to function as parameters. In the main function you must prompt the user to enter marks, then prompt him again to ask what he wants to find out, GPA (assume 90-100 marks = A = 4.0 GPA and so on) based on marks or percentage based on marks. Then call the caller function accordingly.

```
float percentage(int marks)
{
    return (marks*100)/100;
}
float GPA(int marks)
{
    if(marks>=90&&marks<=100)
    {
        return 4.0;
    }
    else if(marks>=80&&marks<=90)
    {
        return 3.7;
    }
    else if(marks>=70&marks<80)
    {
        return 3.2;
    }
    else if(marks>=60&&marks<70)
    {
        return 2.8;
    }
    else if(marks>=50&&marks<60)
    {
        return 2.2;
    }
    else if(marks>=40&&marks<50)
    {
        return 1.8;
    }
    else if(marks>=30&&marks<40)
    {
        return 1.0;
    }
    else if(marks>=40&&marks<50)
    {
        return 0.5;
    }
    else
    {
        return 0.0;
    }
}
int caller(int marks,float(*p)(int))
{
    float percentage=(*p)(marks);
    return percentage;
    float gpa=(*p)(marks);
    return gpa;
}
main()
{
    int marks;
    string f;
    cout<<"enter your marks:";
    cin>>marks;
    cout<<"what you want to find out\nPercentage Or GPA:\n";
    cin>>f;
    if(f=="percentage")
    {
        cout<<"percentage="<<caller(marks,percentage)<<"%";
    }
    else{

        cout<<"GPA:"<<caller(marks,GPA);
        }
    }
```

```
enter your marks:89
what you want to find out
Percentage Or GPA:
percentage
percentage=89%
--------------------------------
Process exited after 5.426 seconds with return value 0
Press any key to continue . . .
```

Output

Task 5:

Write a C++ program where you declare an array of 5 elements, create a pointer that points to the array, then ask the user to input 4 values in the array using pointer (keep the last index value 0), now to declare two separate integers that will act as the indexes of the array, ask the user to input values in them (if the user enters 3,2 so arr+2, arr+1). Now finally send the two array indexes values to a function, the function must have two pointers as parameters. The function will add the two values on index locations and put them back in the fifth index/element of the array replacing the 0. Display the updated fifth index of array in main().

```
void func(int *a,int*b,int *c)
{
   *c=*a+*b;
}
main()
{
    int arr[5];
    int *p;
    p = arr;
    for(int i=0;i<4;i++)
    {
        cin>>*(p+i);
    }
    arr[4] = 0;
    int x,y;
    cout<<"enter 1st index:"<<endl;
    cin>>x;
    cout<<"enter 2nd index:";
    cin>>y;
    func(arr+x,arr+y,arr+4);
    cout<<arr[4];

}
```


4
5
6
7
enter 1st index:
1
enter 2nd index:4
5

Process exited after 13.18 seconds with return value 0
Press any key to continue . . .

Output

CSE 102L: Computer Programming Lab

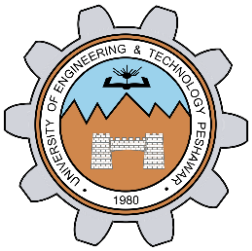
LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
Capability of attempting a task PLO1, PLO2, PLO3, PLO5,	Right attempt/ no redundancies and well formatted	Right attempt/ no redundancies but not well formatted	Right attempt/ minor redundancies and not well formatted	Wrong attempt	
Result or Output/ Completion of target in Lab PLO9,	100% target has been completed and well formatted.	75% target has been completed and well formatted.	50% target has been completed but not well formatted.	None of the Information is correct	
Overall, Knowledge PLO10,	Demonstrates excellent knowledge of lab	Demonstrates good knowledge of lab	Has partial idea about the Lab Topic	Has poor idea about the Lab Topic	
Attention to Lab Report PLO4,	Submission of Lab Report in Proper Time i.e., in next day of lab., with proper documentation.	Submission of Lab Report in proper time but not with proper documentation.	Late Submission with proper documentation.	Late Submission Very poor documentation	

Instructor:

Name: _____ Signature: _____

LAB # 10&11



Spring 2023

Submitted by: **Naveed Ahmad**

Registration No: **22pwsce2165**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engineer. Abdullah Hamid

July 4 2023

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

A phone number such is (091) 767-8900 can be thought of as having three parts: the area code (091), exchange (767) and number 8900. Write a program that uses structure to store these 3 parts of a phone number separately. Assume name of the structure is 'phone'. Create two objects of type 'phone', initialize one object and take the other one from the user. Display both numbers. Sample Run:

Enter you Area code, exchange, and number: 091 767 8900

My number is (042) 867-4982

Your number is (091) 767-890

```
struct phone
{
    string area_code;
    string exchange;
    string number;

};
main()
{
    phone obj1,obj2;
    obj1.area_code="042";
    obj1.exchange="867";
    obj1.number="4982";
    cout<<"Enter your Area code,exchange,and number:";
    cin>>obj2.area_code;
    cout<<endl;
    cin>>obj2.exchange;
    cout<<endl;
    cin>>obj2.number;
    cout<<"My number is:"<<"("<<obj1.area_code<<")"<<obj1.exchange<<"-"<<obj1.number<<endl;
    cout<<"Your number is:"<<"("<<obj2.area_code<<")"<<obj2.exchange<<"-"<<obj2.number;


}
```

```
Enter your Area code,exchange,and number:091 345 654


My number is:(042)867-4982
Your number is:(091)345-654
--------------------------------
Process exited after 7.185 seconds with return value 0
```

Output

Task 2:

A point on a two-dimensional space has two numbers: an 'X' coordinate and a 'Y' coordinate such as (4, 5). Write a program that uses a structure called 'point' to model a point and draw a rectangle of '*' based on the entered height and width of the rectangle. Sample Run:

Enter the point coordinates: (x, y) 3 2

Enter width of the rectangle: 3

Enter Height of the rectangle: 2

* * *

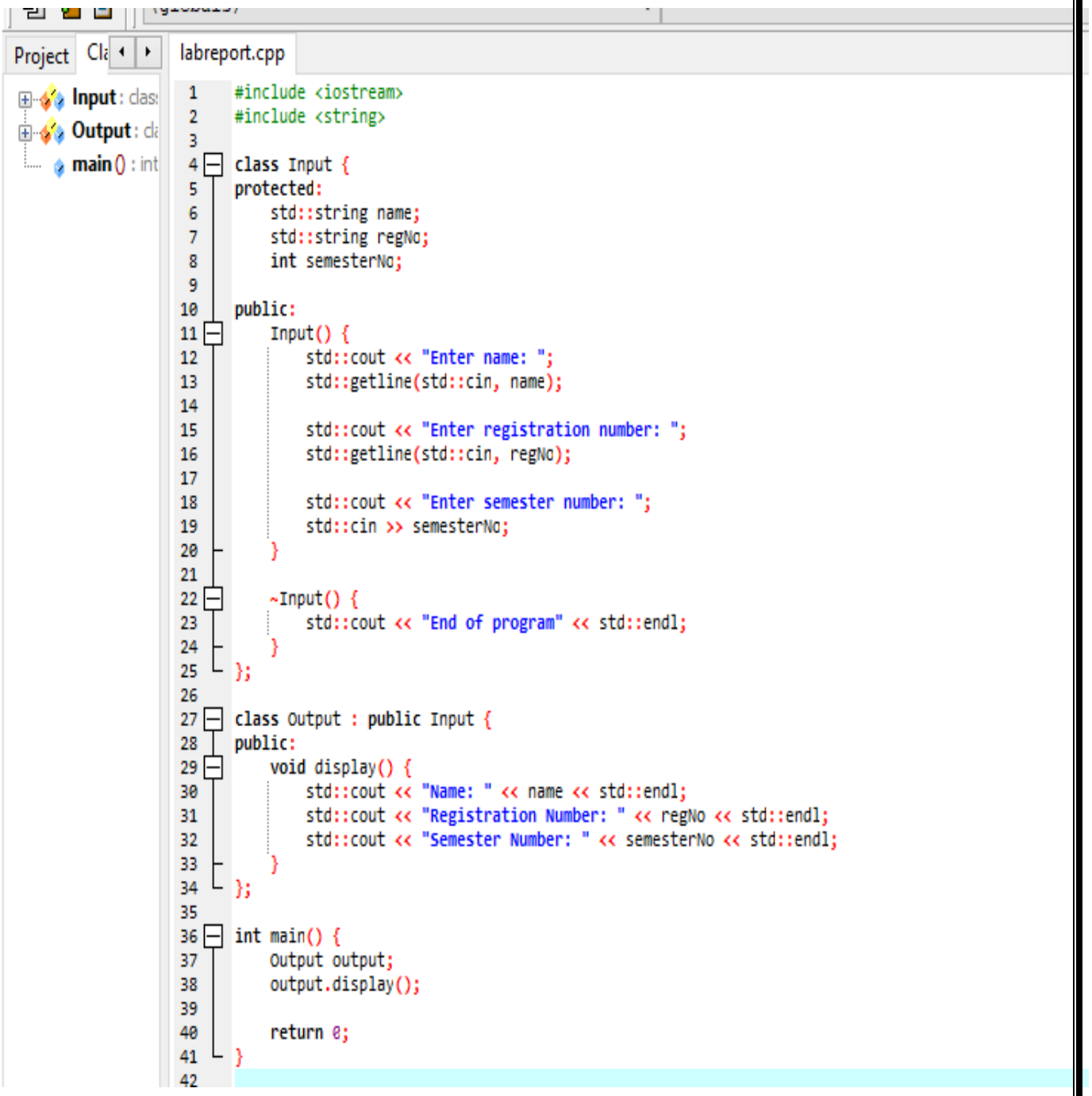
* * *

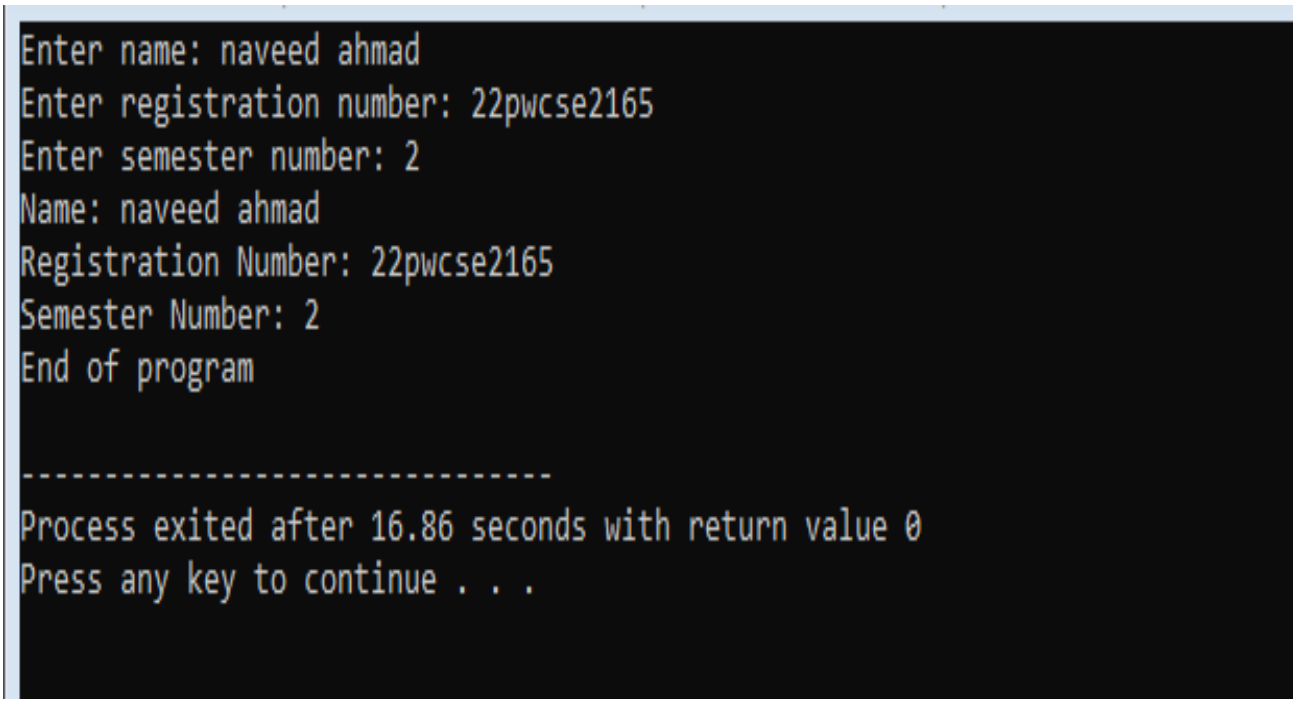
```
struct point
{
    int a,b;

};
main()
{
    point obj;
    obj.a;
    obj.b;
    cout<<"Enter the point cordinate:";
    cin>>obj.a;
    cout<<" ";
    cin>>obj.b;
    cout<<"Enter width of the rectangel:";
    cin>>obj.a;
    cout<<"Enter height of the rectangle:";
    cin>>obj.b;
    for(int i=0;i<obj.a;i++)
    {
        for(int j=0;j<obj.b;j++)
        {
            cout<<"*";
        }
        cout<<endl;
    }
}
```

Task 3:

Make a C++ Program that will have base class called input, the input class should have 3 data members name (string), reg no (string), semesterNo (int) and 2 special member functions, constructor, and destructor. The constructor must prompt the user to enter data into the three data members and the destructor should only output a simple phrase like “end of program”. Now make a second inherited class called output which will only have 1 member function called display(), this function will display the values of the data members of the input class.




Enter name: naveed ahmad
Enter registration number: 22pwcse2165
Enter semester number: 2
Name: naveed ahmad
Registration Number: 22pwcse2165
Semester Number: 2
End of program

Process exited after 16.86 seconds with return value 0
Press any key to continue . . .

Output

CSE 102L: Computer Programming Lab

LAB ASSESSMENT RUBRICS

Criteria & Point Assigned	Outstanding 2	Acceptable 1.5	Considerable 1	Below Expectations 0.5	Score
Attendance and Attentiveness in Lab PLO10	Attended in proper Time and attentive in Lab	Attended in proper Time but not attentive in Lab	Attended late but attentive in Lab	Attended late not attentive in Lab	
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Instructor:

Name: _____ Signature: _____