Evaluation 1

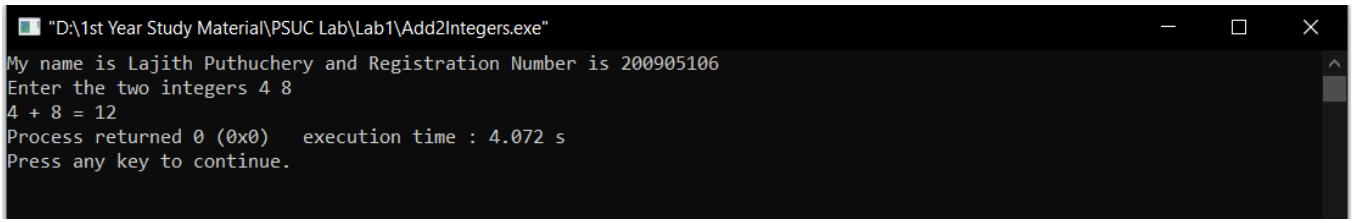
Simple C Programs - Lab 1

1.Write a C program to add two integers a and b read through the keyboard. Display the result using third variable sum.

Program:

```
#include <stdio.h>


int main()
{
   int sum,a,b;
   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
   printf("Enter the two integers");
   scanf("%d %d", &a, &b);
   sum = a + b;
   printf("%d + %d = %d ",a,b,sum);
   return 0;
}
```

Output:



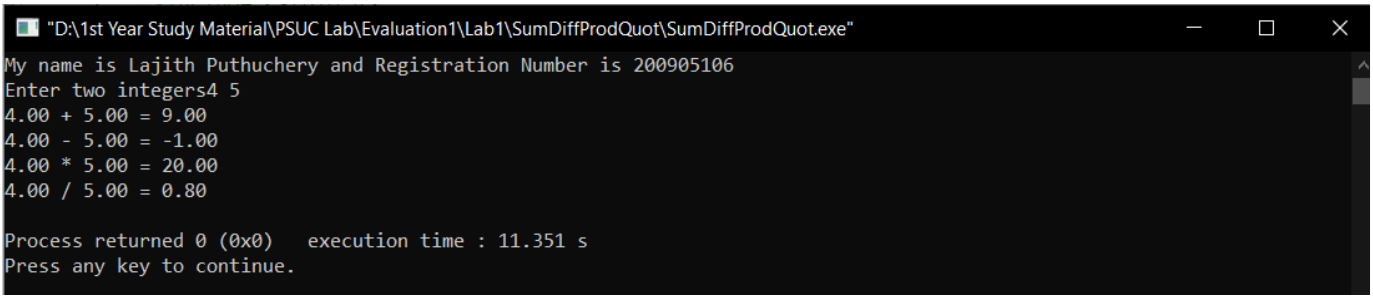
2.Write a C program to find the sum, difference, product and quotient of 2 numbers.

Program:

```
#include <stdio.h>


int main()
{
   float a,b,sum,diff,prod,quot;
   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
   printf("Enter two integers");
   scanf("%f %f",&a, &b);
   sum = a+b;
```

```
    printf("%.2f + %.2f = %.2f\n",a,b,sum);
    diff = a-b;
    printf("%.2f - %.2f = %.2f\n",a,b,diff);
    prod = a*b;
    printf("%.2f * %.2f = %.2f\n",a,b,prod);
    if(b == 0)
    {
        printf("Divison by 0 is not defined");
    }
    else
    {
        quot = a/b;
        printf("%.2f / %.2f = %.2f\n",a,b,quot);
    }
    return 0;
}
```

Output:

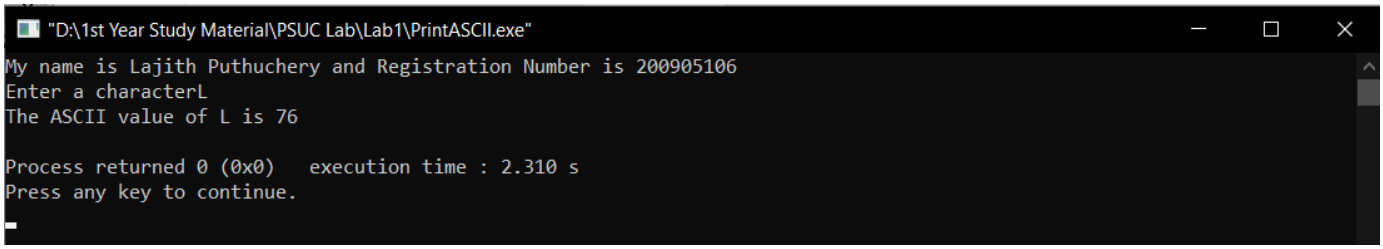


3.Write a C program to print the ASCII value of a character

Program:

```
#include <stdio.h>

int main()
{
    char c;
    printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
    printf("Enter a character");
    scanf("%c",&c);
    printf("The ASCII value of %c is %d\n",c,c);
    return 0;
}
```

Output:

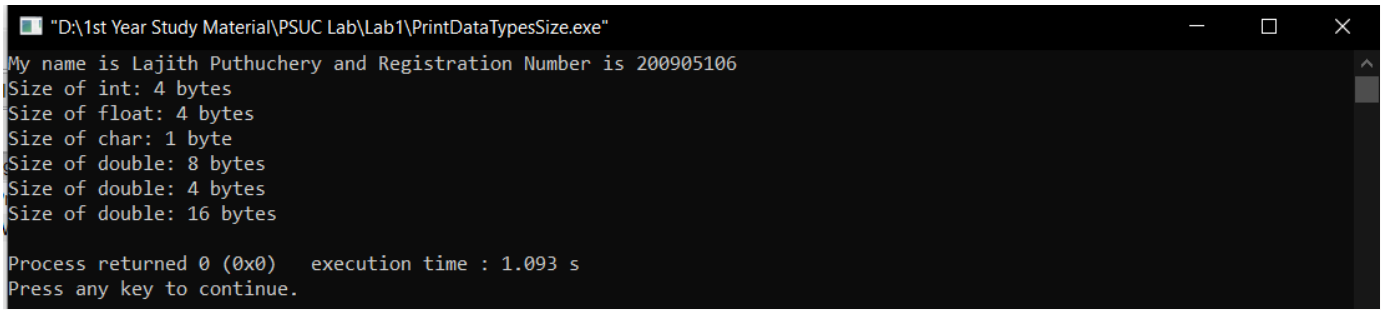


4.Write a C program to display the size of the data type int, char, float, double, long int and long double using size of ( ) operator.

Program:

```
#include <stdio.h>


int main()
{
   int intdata;
   float floatdata;
   char chardata;
   double doubledata;
   long int longint;
   long double longdouble;

   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");

   printf("Size of int: %zu bytes\n", sizeof(intdata));
   printf("Size of float: %zu bytes\n", sizeof(floatdata));
   printf("Size of char: %zu byte\n", sizeof(chardata));
   printf("Size of double: %zu bytes\n", sizeof(doubledata));
   printf("Size of double: %zu bytes\n", sizeof(longint));
   printf("Size of double: %zu bytes\n", sizeof(longdouble));


   return 0;
}
```

Output:



5.Input P, N and R to compute simple and compound interest. [Hint : SI = PNR/100, CI = P(1+R/100)^N-P]

Program:

```
#include <stdio.h>

#include <math.h>


int main()

{

   int n,r;

   float si,ci,p;

   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");

   printf("Enter the principal amount, time period and rate of interest respectively");

   scanf("%d %d %d",&p,&n,&r);

   si = (p*n*r)/100;

   ci = p*pow(1+r/100,n)-p;

   printf("The Simple Interest is %f\n",si);

   printf("The Compound Interest is %f",ci);


   return 0;

}
```

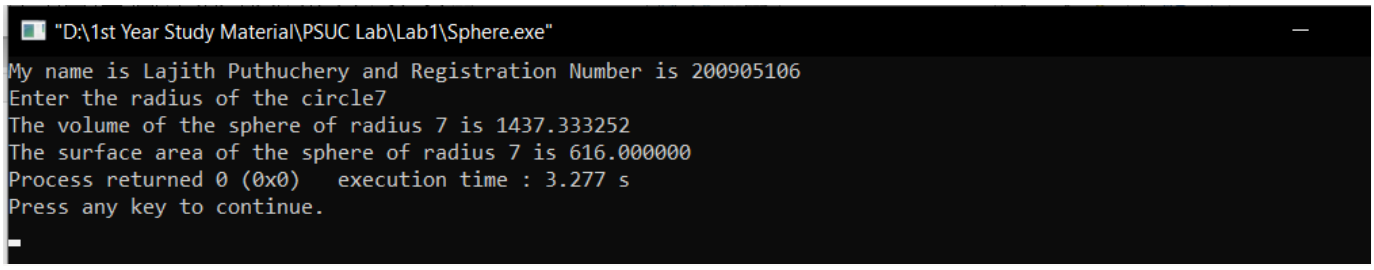
Output:

6.Input radius to find the volume and surface area of a sphere. [Hint: volume = (4πr3)/3, Area=4πr2]

Program:

```
#include <stdio.h>

#include <math.h>


#define PI 3.142857


int main()

{

   int r;

   float vol, area;

   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");

   printf("Enter the radius of the sphere");

   scanf("%d",&r);

   vol = (4*PI*pow(r,3))/3;

   area = 4*PI*pow(r,2);

   printf("The volume of the sphere of radius %d is %f\n",r,vol);

   printf("The surface area of the sphere of radius %d is %f",r,area);


   return 0;

}
```

Output:



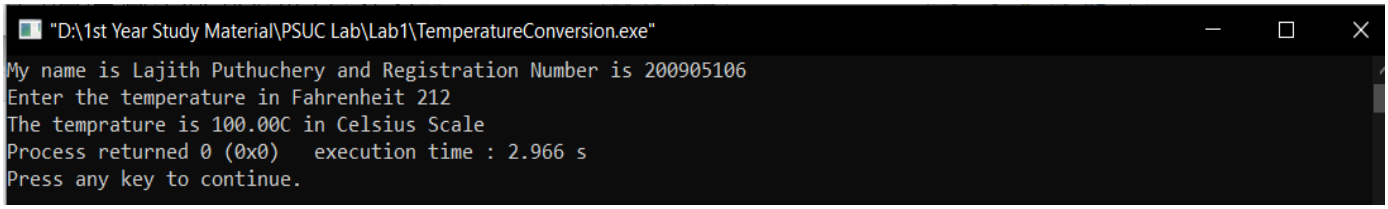
7.Convert the given temperature in Fahrenheit to Centigrade. [Hint:C=5/9(F-32)]

Program:

```
#include <stdio.h>


int main()

{
```

```
    float tempC, tempF;
    printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
    printf("Enter the temperature in Fahrenheit");
    scanf("%f",&tempF);
    tempC = (5.0/9.0)*(tempF-32);
    printf("The temprature is %.2fC in Celsius Scale",tempC);
    return 0;
}
```

Output:



8.Write a C program to evaluate the following expression for the values a = 30, b=10, c=5,d=15

*(i) (a + b) * c/ d*

*(ii) ((a + b) * c) /d*

*(iii) a + (b * c)/ d*

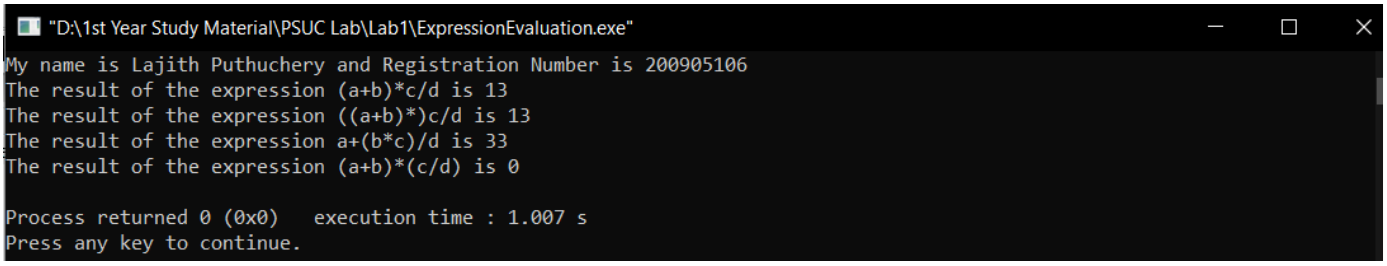
*(iv) (a + b) * (c / d)*

Program:

```
#include <stdio.h>


int main()
{
    printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
    int a=30, b=10, c=5, d=15;
    int exp1, exp2, exp3, exp4;
    exp1 = (a+b)*c/d;
    printf("The result of the expression (a+b)*c/d is %d\n",exp1);
    exp2 = ((a+b)*c)/d;
    printf("The result of the expression ((a+b)*)c/d is %d\n",exp2);
    exp3 = a + (b*c)/d;
    printf("The result of the expression a+(b*c)/d is %d\n",exp3);
```

```
    exp4 = (a+b)*(c/d);
    printf("The result of the expression (a+b)*(c/d) is %d\n",exp4);

    return 0;
}
```

Output:



Branching Control Structures - Lab 2

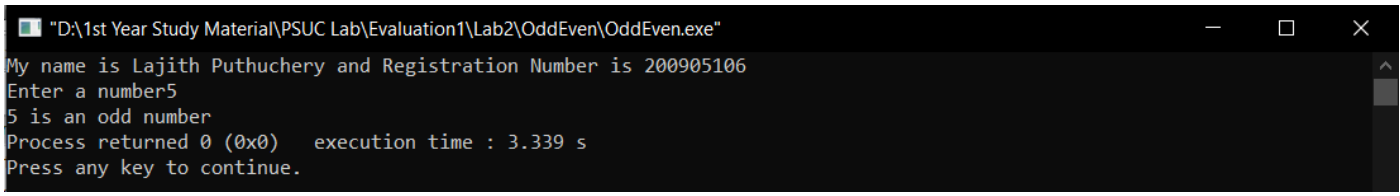
1.Check whether the given number is odd or even.

Program:

```
#include <stdio.h>

int main()
{
    int num;
    printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
    printf("Enter a number");
    scanf("%d",&num);
    if(num % 2 ==0)
    {
        printf("%d is an even number",num);
    }
    else
    {
        printf("%d is an odd number",num);
    }
```

```
    return 0;
}
```

Output:



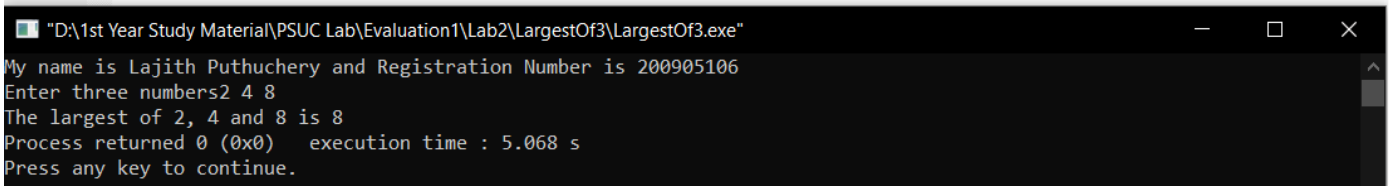
2.Find the largest among given 3 numbers.

Program:

```
#include <stdio.h>


int main()
{
    printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
    int a,b,c, largest;
    printf("Enter three numbers");
    scanf("%d %d %d",&a,&b,&c);
    if(a > b)
    {
        if(a>c)
        {
            largest = a;
        }
        else
        {
            largest = c;
        }
    }
    else
    {
        if(b >c)
        {
            largest = b;
```

```
    }
    else
    {
        largest = c;
    }
  }
  printf("The largest of %d, %d and %d is %d",a,b,c,largest);
  return 0;
}
```

Output:

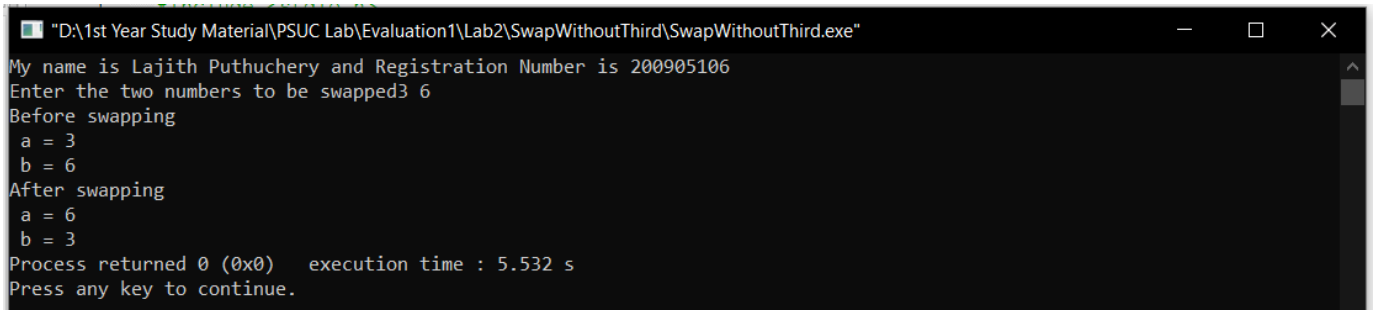


3. Swap two numbers without using third variable.

Program:

```
#include <stdio.h>


int main()
{
  int a,b;
  printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
  printf("Enter the two numbers to be swapped");
  scanf("%d %d",&a,&b);
  printf("Before swapping\n a = %d\n b = %d\n",a,b);
  a = a + b;
  b = a - b;
  a = a - b;
  printf("After swapping\n a = %d\n b = %d",a,b);
return 0;
}
```

Output:



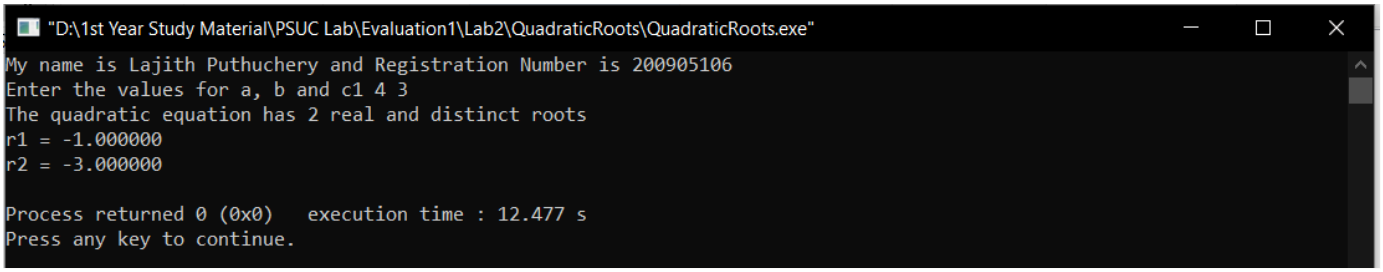
4. Compute all the roots of a quadratic equation using switch case statement. [Hint: x = (-b +/-sqrt(b^2-4ac))/2a]

Program:

```
#include <stdio.h>

#include <math.h>


int main()

{

   int z;

   float a,b,c,disc, root1, root2,x,img,real;

   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");

   printf("Enter the values for a, b and c");

   scanf("%f %f %f",&a,&b,&c);

   disc = b*b - 4*a*c;

   x = sqrt(fabs(disc));

   if(disc > 0)

   {

      z=1;

   }

   else if (disc == 0)

   {

      z=2;

   }

   else

   {

      z=3;

   }
```

```
    switch(z)
    {
        case 1:
            printf("The quadratic equation has 2 real and distinct roots\n");
            root1 = -b/(2*a) + x/(2*a);
            root2 = -b/(2*a) - x/(2*a);
            printf("r1 = %f\nr2 = %f\n",root1,root2);
            break;
        case 2:
            printf("The quadratic equation has 2 real and equal roots\n");
            root1 = -b/(2*a);
            root2 = root1;
            printf("r1 = %f\nr2 = %f\n",root1,root2);
            break;
        case 3:
            printf("The quadratic equation has 2 imaginary roots\n");
            real = -b/(2*a);
            img = x/(2*a);
            printf("r1 = %f + i%f\nr2 = %f - i%f\n",real,img,real,img);
            break;
        default:
            break;
    }
    return 0;
}
```

Output:



5. Write a program that will read the value of x and evaluate the following function.

Y = 1 if x>0,

0 if x=0,

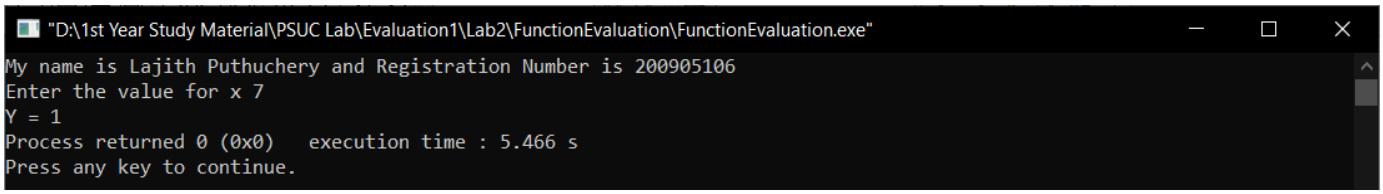
-1 if x<0

Use else if statements & Print the result (‘Y’ value).

Program:

```
#include <stdio.h>


int main()
{
   int x,y;
   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
   printf("Enter the value for x");
   scanf("%d",&x);
   if(x>0)
   {
      y=1;
   }
   else if (x==0)
   {
      y=0;
   }
   else
   {
      y=-1;
   }
   printf("Y = %d",y);
   return 0;


}
```

Output:

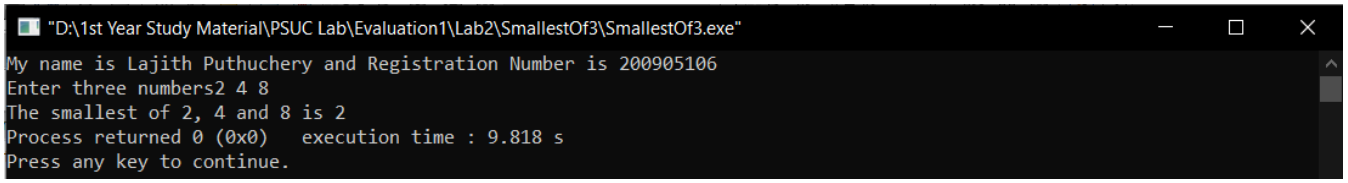


6. Find the smallest among three numbers using conditional operator.

Program:

```
#include <stdio.h>


int main()
{
   printf("My name is Lajith Puthuchery and Registration Number is 200905106\n");
   int a,b,c, smallest;
   printf("Enter three numbers");
   scanf("%d %d %d",&a,&b,&c);
   if(a < b)
   {
      if(a<c)
      {
         smallest = a;
      }
      else
      {
         smallest = c;
      }
   }
   else
   {
      if(b < c)
      {
         smallest = b;
      }
      else
      {
         smallest = c;
      }
   }
   printf("The smallest of %d, %d and %d is %d",a,b,c,smallest);
   return 0;
}
```

Output:


"D:\1st Year Study Material\PSUC Lab\Evaluation1\Lab2\SmallestOf3\SmallestOf3.exe"
My name is Lajith Puthuchery and Registration Number is 200905106
Enter three numbers2 4 8
The smallest of 2, 4 and 8 is 2
Process returned 0 (0x0)   execution time : 9.818 s
Press any key to continue.