University Institute of Engineering

Lab File

Subject Name: COMPUTER PROGRAMMING AND UTILIZATION LAB

Subject Code: UCP-145

Batch: 2017 -2021

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CPU LAB INDEX

Student Name: Rishav Shahi	**UID: 17BCS4169**
Subject Name: Computer Programming and Utilization	**Subject Code: UCP-145**
Branch & Section: CSE IBM CC2	**Group: 2**

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EXPERIMENT 1.1:

Aim: Write a program which finds the roots of a quadratic equation. Get values of multipliers a, b and c from user input.

Program:

```
#include<stdio.h>

#include<math.h>

void main()

{  float a,b,c,p,q,d;

        printf("Quadratic equation is ax^2 + bx + c=0\n");

        printf("a is coefficient of x^2 and b is coefficient of x and c is constant\n");

        printf("\na=");

        scanf("%f",&a);

        printf("\nb=");

        scanf("%f",&b);

        printf("\nc=");

        scanf("%f",&c);

        p=((+sqrt(b*b-4*a*c)-b)/2*a);

        q=((-sqrt(b*b-4*a*c)-b)/2*a);

        d=(b*b-4*a*c);

        if(d>0)

        { if(d=0)

        printf("Roots are equal and they are %f and %d",p,q);

        else

        printf("%f and %f are the root of the quadratic equation",p,q);

        }

        else

        printf("Roots are Imaginary");

}
```

Input and Output:

```
Quadratic equation is ax^2 + bx + c=0
a is coefficient of x^2 and b is coefficient of x and c is constant

a=1

b=9

c=5
-0.594875 and -8.405125 are the root of the quadratic equation
--------------------------------
Process exited after 2.801 seconds with return value 62
Press any key to continue . . .
```

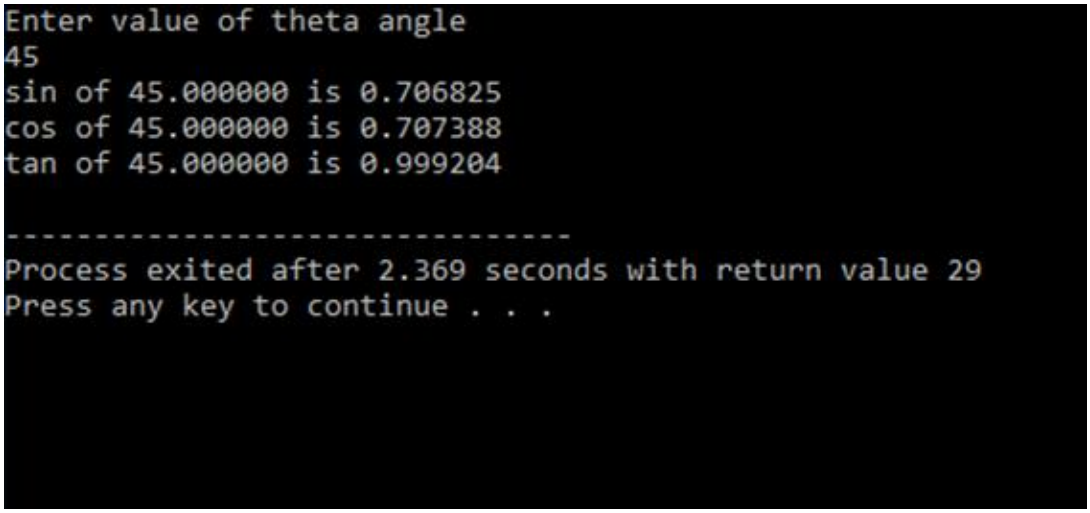
EXPERIMENT- 1.2

Aim: Write a program to find cos, sin and tan of a given angle.

Program:

```
#include<stdio.h>

#include<math.h>

void main()

{

        float a,b,c,pi=3.14,x;

        printf("Enter value of theta angle\n");

        scanf("%f",&x);


        a=sin(x*pi/180);

        b=cos(x*pi/180);

        c=tan(x*pi/180);

        printf("sin of %f is %f\n",x,a);

        printf("cos of %f is %f\n",x,b);

        printf("tan of %f is %f\n",x,c);

}
```

Input and Output:



EXPERIMENT 2.1:

Aim: Write a program to get an integer number (4 digit) as an input and display all digits of that number separate on each line with its individual weightage. For example, if input is 8921, the display should be:

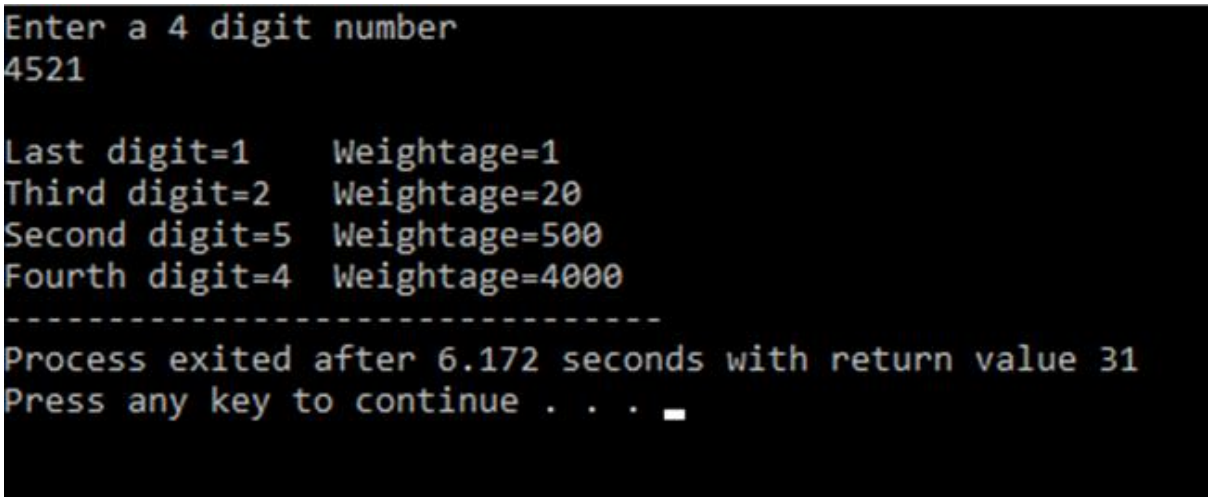
Last digit = 1 having weightage = 1
Next digit = 2 having weightage = 20
Next digit = 9 having weightage = 900
Next digit = 8 having weightage = 8000

Program:

```
#include<stdio.h>

void main()

{

int a,b,c,d,x,e,f,g,h,i,j,k;

printf("Enter a 4 digit number\n");

scanf("%d",&x);

a=x/1000;

b=x%1000;

c=x%100;

d=x%10;

e=c/10;

f=b/100;

g=j*10;

h=f*100;

i=a*1000;
```

```
j=c/10;
k=j*10;
printf("\nLast digit=%d \tWeightage=%d",d,d);
printf("\nThird digit=%d \tWeightage=%d",e,k);
printf("\nSecond digit=%d \tWeightage=%d",f,h);
printf("\nFourth digit=%d \tWeightage=%d",a,i);
}
```

Input and Output:



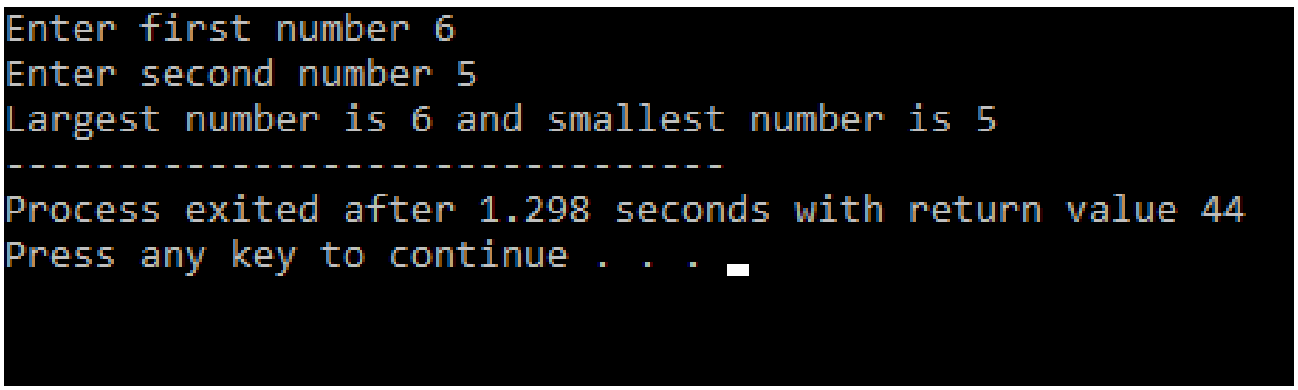
EXPERIMENT 2.2:

Aim: Write a program to find largest number and smallest number out of 2 numbers given as input. Use Conditional operator for this program.

Program:

```
#include<stdio.h>

void main()

{

int a,b,c,d;

printf("Enter first number ");

scanf("%d",&a);

printf("Enter second number ");

scanf("%d",&b);

c=a>b?a:b;

d=a<b?a:b;

printf("Largest number is %d and smallest number is %d",c,d);

}
```

Input and Output:



EXPERIMENT 3.2:

Aim: Write a program that accepts a character from keyboard and checks as follows:

- Whether the input character is a digit
- Whether the input character is a lower case letter
- Whether the input character is an upper case letter
- Whether the input character is a punctuation mark
- Whether the input character is a white space character

Program:

```
#include<stdio.h>
void main()
{ char c;
printf("Enter something\n");
scanf("%c",&c);
if(c>= 'a' && c<='z')
printf("\nGiven input is an lower case Alphabet");
else if(c>='A' && c<='Z')
printf("\nGiven input is an upper case Alphabet");
else if(c>='0' && c<='9')
printf("\nGiven input is a Number");
else if(c==' ')
printf("\nGiven input is a white space character");
else
printf("\nGiven input is a symbol");
}
```

Input and Output: