Practical

PRACTICAL - 1

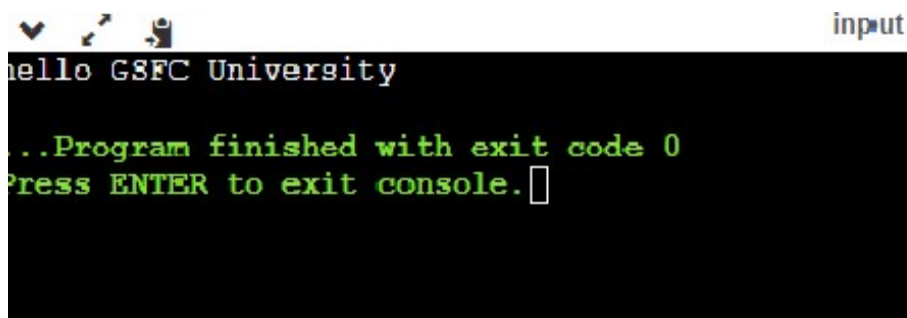**Aim** - To print *'Hello GSFC UNIVERSITY'*

Description - In C programming language, printf() function is used to print the ("character, string, float, integer, octal and hexadecimal values") onto the output screen.

- We use printf( ) function with %d format specifier to display the value of an integer variable.

```c
#include <stdio.h>
int main()
{
    printf("hello GSFC University");

    return 0;
}
```

PRACTICAL - 2

Aim - program to find sum of two numbers

Description - The scanf() function is used for input. It reads the input data from the console.
The scanf("%d",&number) statement reads integer number from the console and stores the given value in number variable. Now third variable is used to get sum of two variables.

```c
#include <stdio.h>
int main()
{
    int x,y,s;
    printf("enter two numbers:");
    scanf("%d %d",&x,&y);
    s=x+y;
    printf("the sum of numbers is %d",s);
    return 0;
}
```

```
enter two numbers:5
4
the sum of numbers is 9

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 3

Aim - To find area and circumference of circle

Description - Float is a datatype which is used to represent the floating point numbers. It is a 32-bit IEEE 754 single precision floating point number (1-bit for the sign, 8-bit for exponent, 23*-bit for the value. It has 6 decimal digits of precision.) Here, after getting values we have used formula to calculate area of circle

```c
#include <stdio.h>
int main()
{
    float r,c,a;
    printf("enter the radius:");
    scanf("%f",&r);
    c=2*3.14*r;
    a=3.14*r*r;
    printf("the circumference and area are %f %f",c,a);

    return 0;
}
```

```
                                                    input
enter the radius:2
the circumference and area are 12.560000 12.560000

...Program finished with exit code 0
Press ENTER to exit console.
```
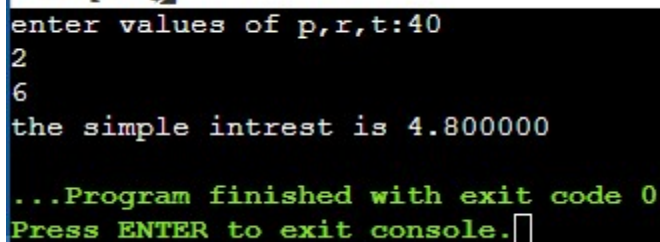
PRACTICAL - 4

Aim - To find simple interest

Description - Here we have used two functions printf and scanf functions and declared three variable and using 4th variable we have calculated the simple interest

- The scanf() function is used for input. It reads the input data from the console.

```c
#include <stdio.h>
int main()
{
    float s,p,r,t;
    printf("enter values of p,r,t:");
    scanf("%f %f %f",&p,&r,&t);
    s=(p*r*t)/100;
    printf("the simple intrest is %f",s);
    return 0;
}
```

```
enter values of p,r,t:40
2
6
the simple intrest is 4.800000

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 5

Aim - To convert degree Centigrade to Fahrenheit

Description - The scanf() function is used for input. It reads the input data from the console.
The scanf("%d",&number) statement reads integer number from the console and stores the given value in number variable.
Here we used formula to convert degree to fahrenheit
- We use printf() function with %d format specifier to display the value of an integer variable.

```c
#include <stdio.h>
int main()
{
    float c,f;
    printf("enter values of c:");
    scanf("%f",&c);
    f=9/5*c+32;
    printf("the farenheit is %f",f);
    return 0;
}
```

```
enter values of c:5
the farenheit is 37.000000

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 6

Aim - Program to calculate sum of 5 variables and print average

Description - Here we have used scanf function to take input of five variables and we have calculated sum and average of the numbers. Printf function is used to print the output of the sum and average.

```c
#include <stdio.h>
int main()
{
    int x1,x2,x3,x4,x5,s,a;
    printf("enter 5 numbers:");
    scanf("%d%d%d%d%d",&x1,&x2,&x3,&x4,&x5);
    s=x1+x2+x3+x4+x5;
    a=x1+x2+x3+x4+x5/5;
    printf("the sum and average is %d %d",s,a);

    return 0;
}
```

```
enter 5 numbers:1
2
3
4
5
the sum and average is 15 11

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 7

Aim - Program to show swapping of 2 numbers without using third variable

Description - Here we took input of two variable using scanf function and then for swapping we have equalized the 2nd variable with third variable and the third variable with 1st variable and then we have printed the swapped value using printf function.

```c
#include <stdio.h>

int main()
{
    int x,y,t;
    printf("enter x and y:");
    scanf("%d%d",&x,&y);
    printf("before swapping x=%d,y=%d",x,y);
    t=x;
    x=y;
    y=t;
    printf("after swaapping x=%d,b=%d",x,y);
    return 0; }
```

```
enter x and y:1
2
before swapping x=1,y=2after swaapping x=2,b=1

...Program finished with exit code 0
Press ENTER to exit console.▯
```
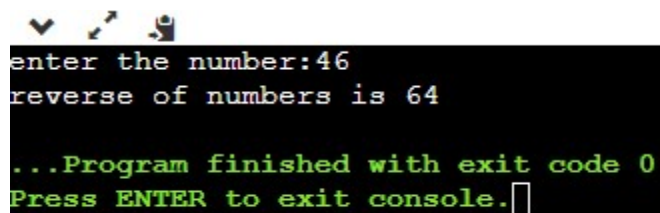
PRACTICAL - 9

Aim - Program to show reverse of given number

Description - The while loop evaluates the test expression inside the parentheses ().
- If test expression is true, statements inside the body of while loop are executed. Then, test expression is evaluated again.
- The process goes on until test expression is evaluated to false.
- If test expression is false, the loop terminates (ends).

```c
#include <stdio.h>
int main()
{   int n,r,s=0;
    printf("enter the number:");
    scanf("%d",&n);
    while(n!=0)
    {   r=n%10;
        n=n/10;
        s=s*10+r; }
    printf("reverse of numbers is %d",s);
    return 0; }
```

```
enter the number:46
reverse of numbers is 64

...Program finished with exit code 0
Press ENTER to exit console.
```
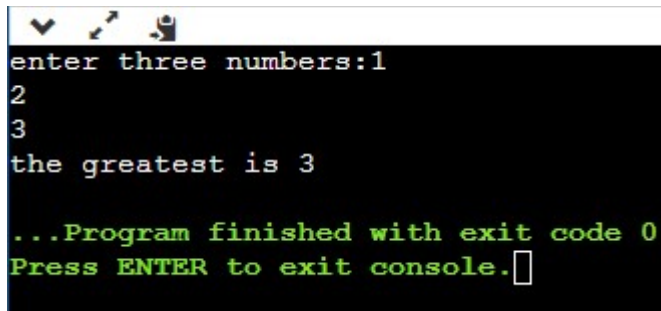
PRACTICAL - 10

Aim - Program to find greatest among three numbers

Description - Here we have used if...else loop, we took three input for numbers then compared every variable using if..else condition and then got output of which number is greatest using the printf() function

```c
#include <stdio.h>
int main()
{    int x,y,z;
    printf("enter three numbers:");
    scanf("%d%d%d",&x,&y,&z);
    if(x>y)
    {   if(x>z)
        printf("greatest number is %d",x);
        else
        printf("the greatest number is %d",z);}
    else
    {   if(y>z)
        printf("the greatest is %d",y);
        else
        printf("the greatest is %d",z); }
    return 0; }
```

```
enter three numbers:1
2
3
the greatest is 3

...Program finished with exit code 0
Press ENTER to exit console.
```
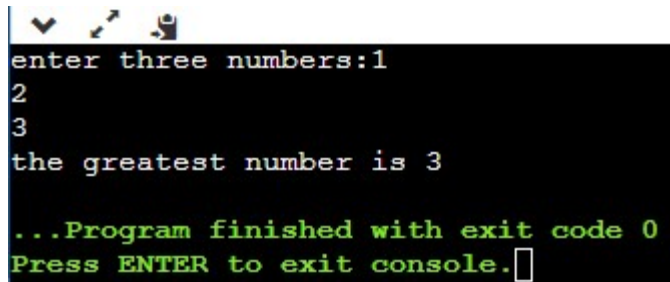
PRACTICAL - 11

Aim - Repeat 10 with conditional operator

Description - The same problem as above in question11 but this is solved using conditional operators where we declared a variable called "m" and then compare three variable using "m" to get the greatest number. And output shown using printf() function.

```c
#include <stdio.h>

int main()
{
    int x,y,z,m;
    printf("enter three numbers:");
    scanf("%d%d%d",&x,&y,&z);
    m=x>y?(x>z?x:z):(y>z?y:z);
    printf("the greatest number is %d",m);

    return 0;
}
```

```
enter three numbers:1
2
3
the greatest number is 3

...Program finished with exit code 0
Press ENTER to exit console.
```
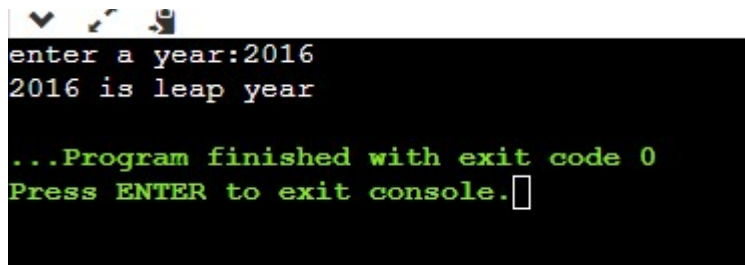
PRACTICAL - 12

Aim - Program to find that entered year is leap year or not

Description - Here we used if..else condition to check if a year is leap year or not. We first took an input and then found the mod of the year and if it is equal to "0" then the year is leap.

➢ If the test expression is evaluated to true,

- statements inside the body of if are executed.
- statements inside the body of else are skipped from execution.

➢ If the test expression is evaluated to false,

- statements inside the body of if are skipped from execution.
- statements inside the body of else are executed.

```c
#include <stdio.h>
int main()
{int y;
printf("enter a year:");
scanf("%d",&y);
if(y%4==0)
printf("%d is leap year",y);
else
printf("it is not a leap year" );
return 0;}
```

```
enter a year:2016
2016 is leap year

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 13

Aim - Program to find given number is odd or even

Description - First we have to take a variable x. After that we take any value of x from the user. If a number is exactly divisible by 2 then it's an even number else it is an odd number.

```c
#include <stdio.h>

int main()
{
    int x;
    printf("enter a number:");
    scanf("%d",&x);
    if(x%2 !=0)
        printf("%d is odd",x);
    else
        printf("%d is even",x);

    return 0;
}
```
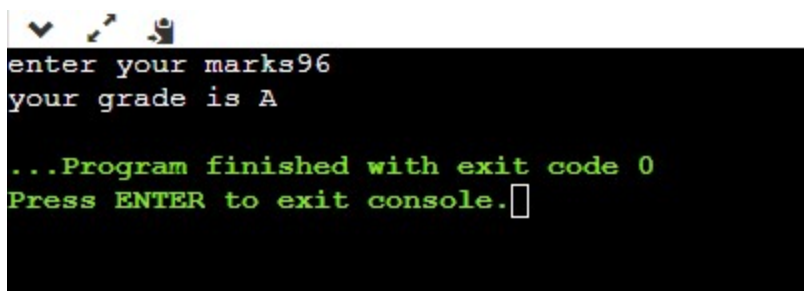
```
enter a number:46
46 is even

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 14

Aim - Switch statement, display percentage of student

Description - We will use a switch statement to display the percentage of students. And it will display the percentage according to marks of students using printf() statement.

```c
#include <stdio.h>
int main()
{   int n;
    printf("enter your marks");
    scanf("%d",&n);
    switch(n)
    {   case 90 ... 100 : printf("your grade is A");
        break;
        case 75 ... 89 : printf("your grade is B");
        break;
        case 65 ... 74 : printf("your grade is C");
        break;
        case 45 ... 64 : printf("your grade is D");
        break;
        default : printf("sorry you have failed");
        break;} return 0;}
```



```
enter your marks96
your grade is A

...Program finished with exit code 0
Press ENTER to exit console.
```

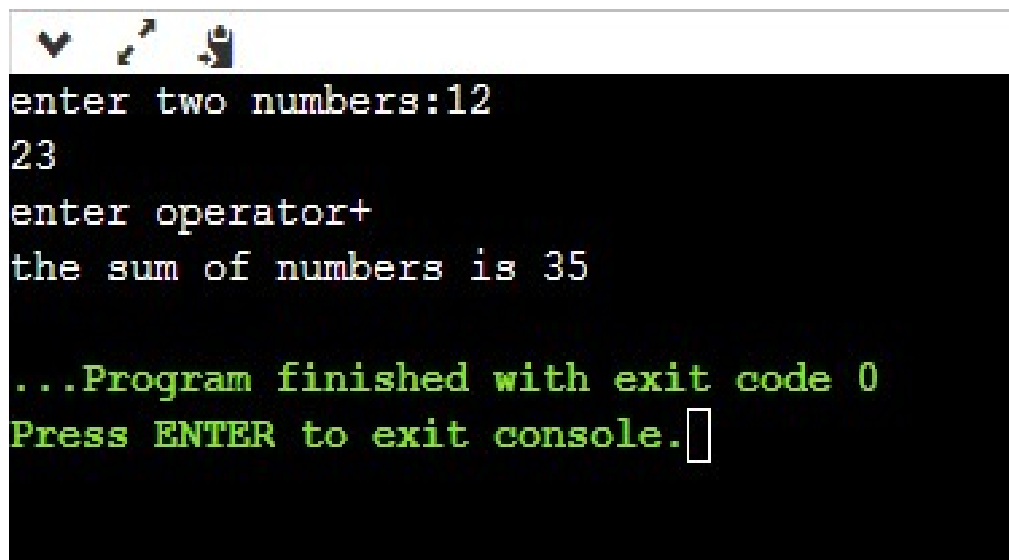**Aim** - Program to display arithmetic operation using switch statement

Description - Here we will use the 'switch' statement, it is a selection control structure that selects a choice from the set of available choices. Every case is designated different operators , so selecting a operator print the output.

```c
#include <stdio.h>

int main()
{
    char op;
    int x,y;
    printf("enter two numbers:");
    scanf("%d%d",&x,&y);
    scanf("%c",&op);
    printf("enter operator");
    scanf("%c",&op);
    switch(op)
    {
     case '+' :  printf("the sum of numbers is %d",x+y);
     break;
     case '-' :  printf("the subtraction is %d",x-y);
     break;
     case '*' :  printf("the product is %d",x*y);
     break;
```

```
        case '/' :  printf("the division is %d",x/y);
        break;
        default  :("invalid operator");
        break;
    }

    return 0;

}
```

```
enter two numbers:12
23
enter operator+
the sum of numbers is 35

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 16

Aim - To print first 15 natural numbers and their sum

Description - Here we will use loop to print 15 natural numbers and their sum. Using "for" loop will print the numbers.

```c
#include <stdio.h>
int main ()
{
    int i,s=0;
    for(i=1;i<=15;i++)
    {
        printf("\n %d",i);
        s=s+i;
    }
    printf("the sum of numbers is %d",s);
    return 0;
}
```

Aim - Print a pattern

Description - We will use for loop two times to print the pattern.

```c
#include <stdio.h>
int main()
{
    int i,j;
    for(i=1;i<=4;i++)
    {
        for(j=1;j<=i;j++)
        {
            printf("*");

        }
        printf("\n");
    }
    return 0;
}
```

PRACTICAL - 18

Aim - To print fibonacci series till 40

Description - We will print the pattern by first declaring the value of three variables and then initializing for loop to get output of desired pattern

```c
#include<stdio.h>
int main()
{
 int n1=0,n2=1,n3,i,number;
 printf("Enter the number of elements:");
 scanf("%d",&number);
 printf("\n%d %d",n1,n2);
 for(i=2;i<number;++i)
 {
  n3=n1+n2;
  printf(" %d",n3);
  n1=n2;
  n2=n3;
 }
 return 0;
}
```

```
Enter the number of elements:40

0 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 10946 17711 28657 46368 75025 121393 196418 317811
 514229 832040 1346269 2178309 3524578 5702887 9227465 14930352 24157817 39088169 63245986

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 19

Aim - To find factorial of given number

Description - We will use a for loop to find the factorial of a given number. Its syntax is (initialization; condition; increment) and then we will print the factorial using printf function

```c
#include <stdio.h>

int main()
{
    int i,n,s=1;
    printf("enter a number");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        s=s*i;
    }
    printf("the factorial of number is %d",s);
    return 0;
}
```

```
enter a number3
the factorial of number is 6

...Program finished with exit code 0
Press ENTER to exit console.
```

PRACTICAL - 20

Aim - To find whether number is prime or not

Description - Declare a variable. Initialize the variable. To check whether the number is prime or not, use a for loop that iterate from 2 to i/2.Declare the count and initialize it to 0.If the number is divisible by any of the numbers in between the loop then increment the count. If the count is not equal to 0 then, it is not a prime number. If the count is equal to 0, then it is a prime number.

```c
#include <stdio.h>
int main()
{ int n, i, c = 0;
  printf("Enter any number n:");
  scanf("%d", &n);
  for (i = 1; i <= n; i++)
  { if (n % i == 0)
   { c++;}}
  if (c == 2)
  { printf("n is a Prime number");}
  else
  { printf("n is not a Prime number"); }
  return 0;}
```

OR

```c
#include<stdio.h>
int main()
{   int i,n;
    printf("enter a number:");
    scanf("%d",&n);
    for(i=2;i<n;i++)
    {   if(n%i==0)
        { printf("the number is not prime");
        break; }}
    if(i==n)
    printf("the number is prime");
    return 0; }
```

```
Enter any number n:17
n is a Prime number

...Program finished with exit code 0
Press ENTER to exit console.
```