

# **IT161 LAB REPORT**

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# EXPERIMENT-1

Objective :- write a c programme to calculate sum of 5 subjects and finding its percentage.

Software :- online GCC compiler.

Methodology :-

First we have to ask the maximum marks of each subject in the integer format and also marks obtained in each subject in integer format. Now we define sum as integer and store the sum of total obtained marks and define total\_marks as integer and we store sum of total maximum marks. Now to define percentage as float and we define percentage as  $(\text{sum} * 100 / \text{total\_marks})$ .

Algorithm :-

STEP-1:- START

STEP-2:- INPUT

MS1,MS2,MS3,MS4,MS5 STEP-3:-

INPUT MM1,MM2,MM3,MM4,MM5

STEP-4:-

$\text{SUM1} = \text{MS1} + \text{MS2} + \text{MS3} + \text{MS4} + \text{MS5}$

STEP-5:-

$\text{SUM2} = \text{MM1} + \text{MM2} + \text{MM3} + \text{MM4} + \text{MM5}$

STEP-6:-

$\text{PERCENTAGE} = 100 * \text{SUM1} / \text{SUM2}$

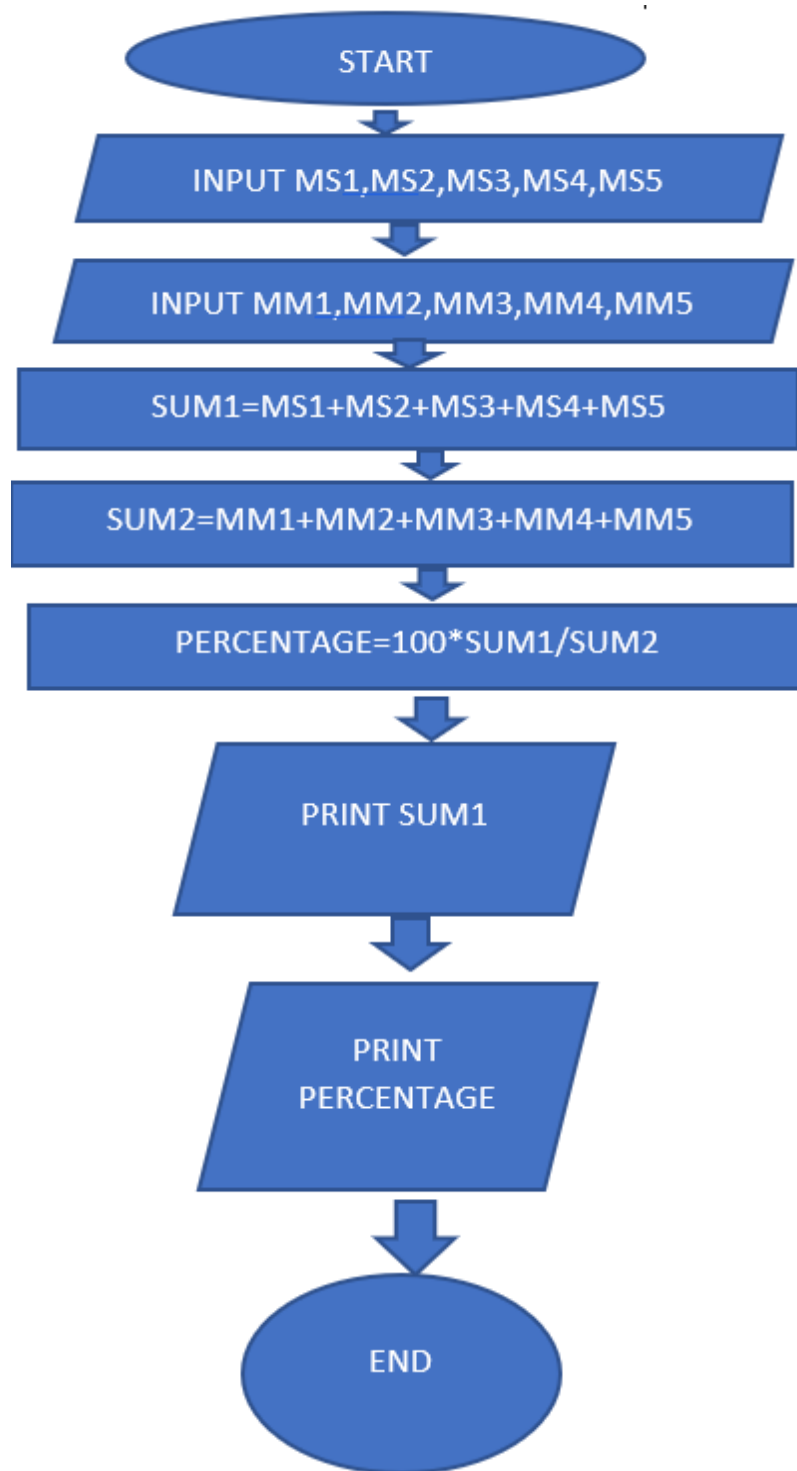
STEP-7:- PRINT SUM1

STEP-8:- PRINT

PERCENTAGE STEP-9:-

END

Flowchart :-



Code :-

```
#include <stdio.h> int main()
{
int MS1,MS2,MS3,MS4,MS5,MM1,MM2,MM3,MM4,MM5,SUM,TOTAL_MARKS;

float PERCENTAGE;

printf("\nEnter maximum marks in the 5 subjects : ");

scanf("%d%d%d%d%d", &MM1,&MM2,&MM3,&MM4,&MM5);

printf("\nEnter marks scored in the 5 subjects : ");
scanf("%d%d%d%d%d",&MS1,&MS2,&MS3,&MS4,&MS5);

TOTAL_MARKS = MM1+MM2+MM3+MM4+MM5;
SUM = MS1+MS2+MS3+MS4+MS5;

PERCENTAGE = (SUM*100/TOTAL_MARKS) ;

printf("\n sum of marks obtained is %d", SUM);

printf("\n percentage of marks obtained is %f", PERCENTAGE);

return 0;
}
```

## OUTPUT:

```
enter maximum marks in the 5 subjects :    100 100 100 100 100

enter marks scored in the 5 subjects :      87 58 56 63 41

sum of marks obtained is 305
percentage of marks obtained is 61.000000

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

## EXPERIMENT 2:

**Objective :** Program to show swap of two numbers without using a third variable.

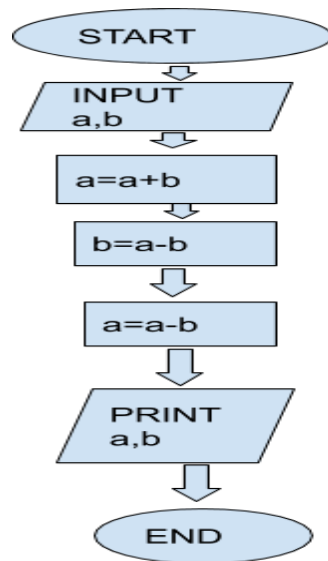
**Software :** Visual studio code for c and cpp

**Methodology :** in this program we take two numbers 'a' and 'b'. now we have two swap these numbers. Now the method is we are going to save value of 'a' in another variable using 'a' and 'b'. the steps are as follows and let a =10 , b=20

1.  $a = a + b;$     //a=30 (10+20)
2.  $b = a - b;$     //b=10 (30-20)
3.  $a = a - b;$     //a=20 (30-10)

hence the above concept is to swap two number using two variable.

Flowchart :-



CODE:

```
#include <stdio.h>
```

```
int main()
{
    int a , b;
    printf("Enter two numbers \n");
    scanf("%d%d", &a , &b);
    printf("\n Before swapping");
    printf("\n Number 1:%d",a);
    printf("\n Number 2:%d",b);
    a=a+b;
    b=a-b;
    a=a-b;
    printf("\n After swaping");
    printf("\n Number 1:%d",a);
    printf("\n Number 2:%d",b);
    return 0;
}
```

OUTPUT:

```
Enter the numbers : 5 3

swapped numbers are 3 5

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

## EXPERIMENT 3:

**Objective** : Program to reverse the digits of a given number.

**Software** : Visual studio code for c and cpp

**Methodology** : here we are going to use while loop for this program. In this program we take 'n' as input number and 'r' as a variable initiated from  $r = 0$ . Step 1- in the first iteration of loop r is multiplied by 10

Step 2- now the value of r is changed to the sum of r and remainder of n when divided by 10

Step 3- now the quotient of n is  $n/10$  and this new value of n is treated as new n in the second iteration of loop.

And so on until the value of become zero.

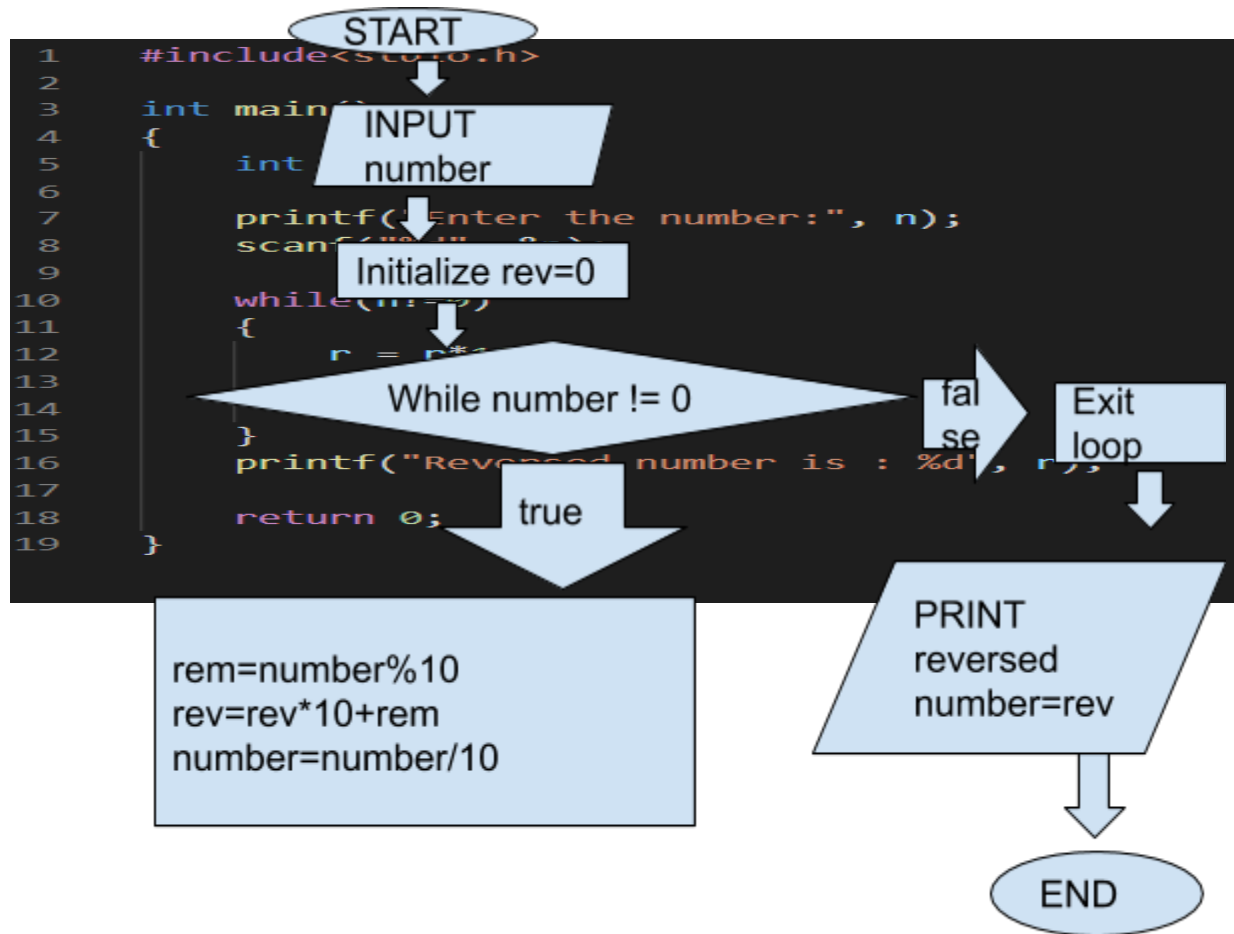
### Algorithm

1. Declare integer n;
2. r is initiated from zero;
3. initiating while with condition n is not equal to zero;
4. r is replaced by a value r multiplied 10;
5. again r is replaced by sum of new r and remainder of n when divided by 10;
6. now n is replaced by quotient of n when divided by 10;
7. print a and b

Flowchart:



CODE:



OUTPUT:

```
Input
Enter an integer: 456
Reversed number = 654

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

# EXPERIMENT 4:

**Objective** : Program to print a table of any number

**Software** : Visual studio code for c and cpp

**Methodology** : here we have to make a program for multiplication table . we are going to do that with while loop.

Here we take input from user end , let the number be 'n' and another variable 'i' initiated from 1.

Now using while loop with a constrain I is less than or equal to 10.

In first iteration of loop n is multiplied by i and i is post increment by 1.

And so on table can be constructed.

## Algorithm

1. start
2. initialize n and i=1
3. initiating while loop with condition i is less than or equal to 10
4. now i is multiplied by n
5. i get increment of 1
6. print the multiplied number
7. loop get terminated when i = 11  
end

Loop 1	Loop 2	Loop 3	Loop 4	Loop 5
--------	--------	--------	--------	--------

$i = 1$ $n = 10$ $n * i = 10$ $i = 1 + 1 = 2$	$i = 2$ $n = 10$ $n * i = 20$ $i = 2 + 1 = 3$	$i = 3$ $n = 10$ $n * i = 30$ $i = 3 + 1 = 4$	$i = 4$ $n = 10$ $n * i = 40$ $i = 4 + 1 = 5$	$i = 5$ $n = 10$ $n * i = 50$ $i = 5 + 1 = 6$
Loop 6	Loop 7	Loop 8	Loop 9	Loop 10
$i = 6$ $n = 10$ $n * i = 60$ $i = 6 + 1 = 7$	$i = 7$ $n = 10$ $n * i = 70$ $i = 7 + 1 = 8$	$i = 8$ $n = 10$ $n * i = 80$ $i = 8 + 1 = 9$	$i = 9$ $n = 10$ $n * i = 90$ $i = 9 + 1 = 10$	$i = 10$ $n = 10$ $n * i = 100$ $i = 10 + 1 = 11$

## CODE:

```
#include <stdio.h>
int main()

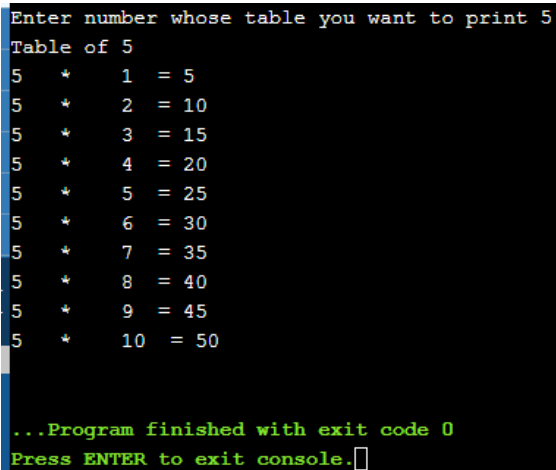
{

int n=1,number,x;
printf("\nEnter number : ");
scanf("%d", &number);
printf("\nEnter upto which multiplier you want to print the table : ");
scanf("%d",&x);
while( n<= x)

{
printf("\n%d * %d = %d", number,n,number*n);
n=n+1;
}
return (0);

}
```

## OUTPUT:



```
Enter number whose table you want to print 5
Table of 5
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50

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

## EXPERIMENT 5:

**Objective :** Program to find the greatest of three numbers.

**Software :** Visual studio code for c and cpp

**Methodology** : in this program we have to find greatest of three number that is input from user end. For this program we are going to use nested if-else statements.

So in this first we take three integer a, b and c.

First take a and compare with b and c, if it is greatest then print a. if a is not greatest then take b and compare with c, if it is greatest print b, if not then print c.

### **Algorithm**

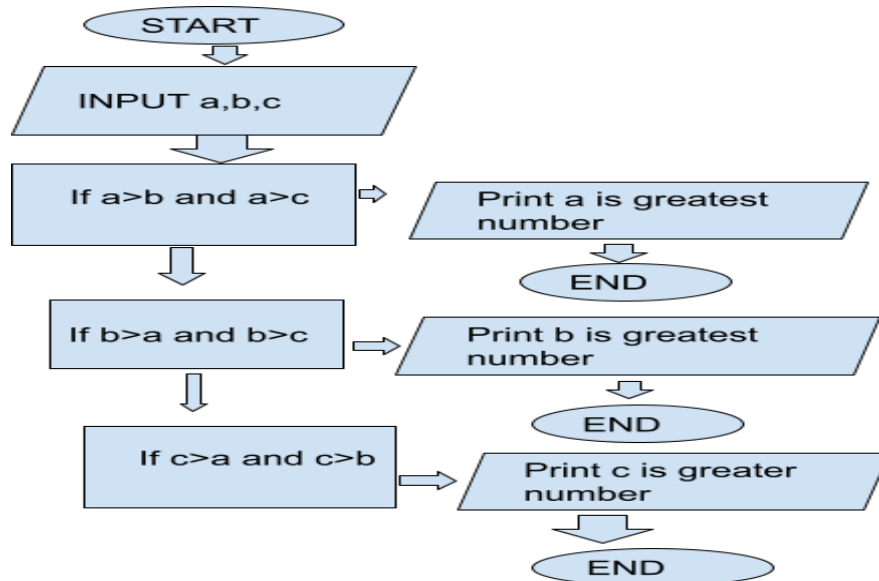
1. Start
2. Read the three numbers to be compared, as A, B and C.
3. Check if A is greater than B.

If true, then check if A is greater than C.  
If true, print 'A' as the greatest number.  
If false, print 'C' as the greatest number.

If false, then check if B is greater than C.  
If true, print 'B' as the greatest number.  
If false, print 'C' as the greatest number.

4. End

## FLOWCHART:



## CODE:

```
#include
<stdio.h> int
main()
{
    int a,b,c;

    printf("\nEnter the three numbers :
    ");
    scanf("%d %d %d", &a,&b,&c);

    if(a>b && a>c)
        printf("\n%d is the largest among three
        numbers",a); else if(b>a && b>c)
        printf("\n%d is the largest among three
        numbers",b); else if(c>a && c>b)
        printf("\n%d is the largest among three numbers",c);

    return 0;
```

```
}
```

## OUTPUT:



```
input
Enter the three numbers : 13 11 9
13 is the largest among three numbers
...Program finished with exit code 0
Press ENTER to exit console.
```

## EXPERIMENT-6

Objective :-

Write a c programme to find area and circumference of circle

SOFTWARE:Online GCC compiler

CODE:

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
float r,c,a,pi;
```

```
printf("\nEnter the radius of circle : ");
```

```
scanf("%f", &r);

pi=3.14;

a=pi*r*r;

c=2*pi*r;

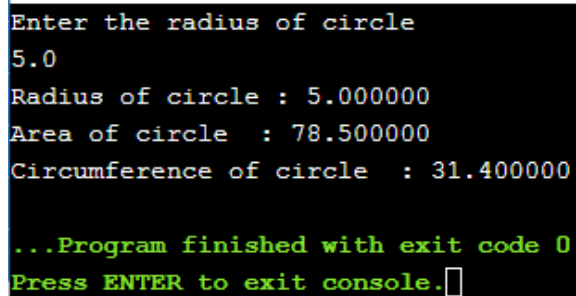
printf("\nthe value of area of circle is %f", a);

printf("\nthe value of circumference of circle is %f", c);

return 0;

}
```

OUTPUT:



```
Enter the radius of circle
5.0
Radius of circle : 5.000000
Area of circle : 78.500000
Circumference of circle : 31.400000

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

## EXPERIMENT-7

Objective :-

Write a c programme to convert temperature from centigrade to fahrenheit.

Software :-

Online GCC compiler.

Algorithm :-

STEP-1:- START



STEP-2:- INPUT CENTIGRADE

TEMPERATURE C STEP-3:-

$$F=(9*C/5)+32$$

STEP-4:-

PRINT F

STEP-5:- END

CODE:

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
float C,F;
```

```
printf("\nEnter the temperature in centigrade : ");
```

```
scanf("%f", &C);
```

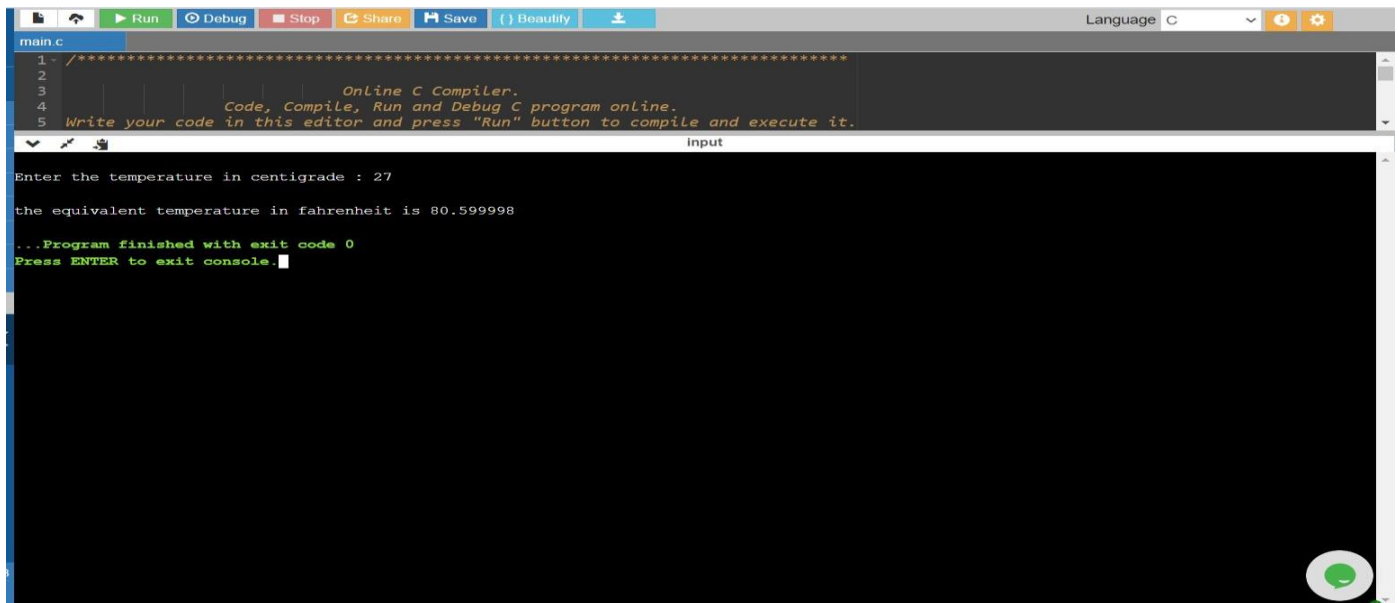
```
F=(9*C/5)+32;
```

```
printf("\nthe equivalent temperature in fahrenheit is %f", F);
```

```
return 0;
```

}

OUTPUT:



The screenshot shows an online C compiler interface. The top bar includes buttons for Run, Debug, Stop, Share, Save, and Beautify, along with a Language dropdown set to C. The code editor displays a C program for temperature conversion. The output console shows the program's execution: it prompts for a temperature in centigrade, receives the input 27, and outputs the equivalent temperature in fahrenheit as 80.599998. The program then finishes with exit code 0 and prompts the user to press ENTER to exit the console.

```
1 - /*****  
2  
3 Online C Compiler.  
4 Code, Compile, Run and Debug C program online.  
5 Write your code in this editor and press "Run" button to compile and execute it.  
*****/  
  
#include <stdio.h>  
  
int main()  
{  
    int yy;  
    printf("Enter the temperature in centigrade : ");  
    scanf("%d", &yy);  
    printf("the equivalent temperature in fahrenheit is %.5f", (yy * 9 / 5) + 32);  
    printf("\n...Program finished with exit code 0\nPress ENTER to exit console.");  
    return 0;  
}
```

Enter the temperature in centigrade : 27  
the equivalent temperature in fahrenheit is 80.599998  
...Program finished with exit code 0  
Press ENTER to exit console.

## EXPERIMENT-8

Write a program to find whether the entered year is leap year or not.

DATE OF EXPERIMENT: 6/1/2021

SOFTWARE:

Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

CODE:

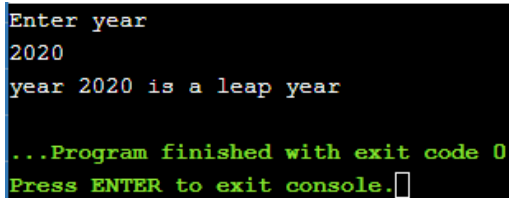
```
#include <stdio.h>
```

```
int main()  
{  
    int yy;  
    printf("Enter year\n");  
    scanf("%d", &yy);  
    if(yy%4==0)  
    {
```

```
if(yy%100==0)
{
if(yy%400==0)
printf(" year %d is a leap year",yy);
else
printf("year %d is not a leap year",yy);
}
else
printf("year %d is a leap year",yy);
}
else
printf( "year %d is not a leap year",yy);

return 0;
}
```

OUTPUT:



```
Enter year
2020
year 2020 is a leap year

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

## EXPERIMENT-9

Objective :-

Write a c programme to shift input data by two bits to the left.

Software :-

Online GCC compiler

CODE:

```
#include <stdio.h> int main()
{
int number;
```

```

printf("\nEnter the number : ");

scanf("%d", &number);
number = number << 2;
printf("\nthe shifted number is %d", number);

return 0;
}

```

## OUTPUT:

```

Enter the decimal number to left shift by two bits
72
Original number :72
Number after left shifting by two bits :288

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

```

## EXPERIMENT- 10

Write a program to display arithmetic operations on switch case.

### SOFTWARE:

Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

### CODE:

```

#include <stdio.h> int main()
{
int num1,num2,operator;

printf("\nselect 1 for addition"); printf("\nselect 2 for subtraction");
printf("\nselect 3 for division"); printf("\nselect 4 for multiplication");

printf("\nEnter the numbers (make sure that number1>number2): ");
scanf("%d %d", &num1,&num2);

printf("\nselect your choice : "); scanf("%d", &operator);

```

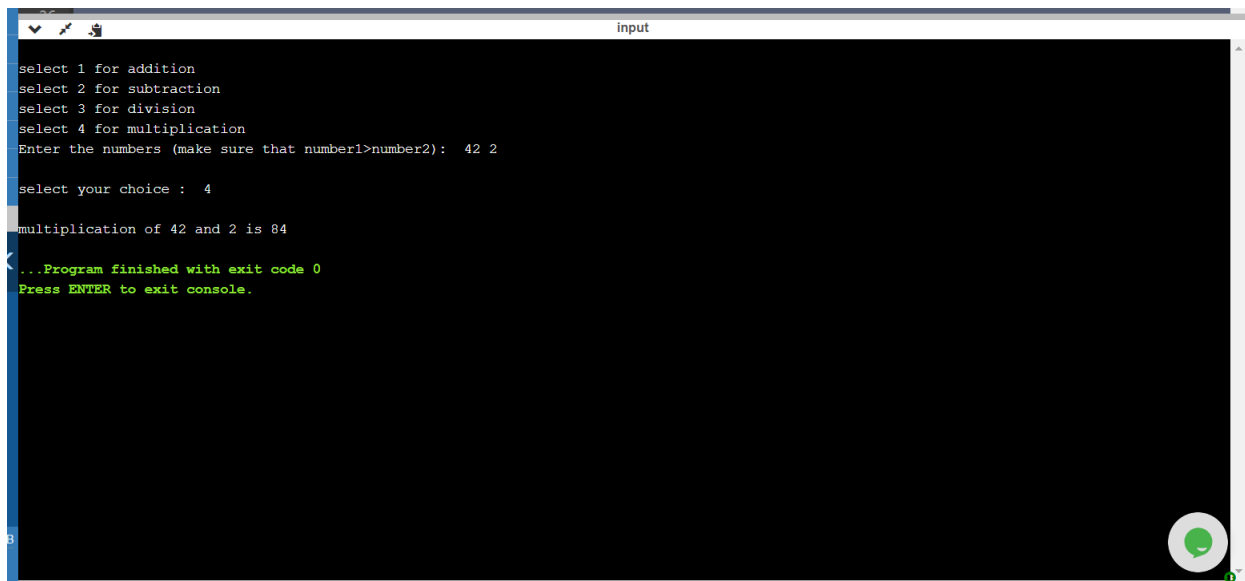
```

switch(operator)
{
case 1 :
printf("\nsum of %d and %d is %d", num1,num2,num1+num2);
break;
case 2 :
printf("\ndifference of %d and %d is %d", num1,num2,num1-num2);
break;
case 3 :
printf("\ndivision of %d and %d is %d", num1,num2,num1/num2);
break;
case 4 :
printf("\nmultiplication of %d and %d is %d", num1,num2,num1*num2);
break;
default :
printf("\nchoose a correct operator or you might have entered number 2 as 0");
}

return 0;
}

```

OUTPUT:



```

input
select 1 for addition
select 2 for subtraction
select 3 for division
select 4 for multiplication
Enter the numbers (make sure that number1>number2): 42 2

select your choice : 4

multiplication of 42 and 2 is 84

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

```

## EXPERIMENT- 11

Write a program to print stars sequence in

1.Right triangle

2.Isosceles triangle

DATE OF EXPERIMENT: 30/12/2020

SOFTWARE:

Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

1.RIGHT TRIANGLE

**CODE:**

```
#include <stdio.h>
```

```
int main()
```

```
{
```

```
int i,j,n;
```

```
printf("Enter number of rows\n");
```

```
scanf("%d",&n);
```

```
printf("number of rows :%d \n",n);
```

```
for(i=1;i<=n;i++)
```

```
{
```

```
for(j=1;j<=i;j++)
```

```
{
```

```
printf("* ");
```

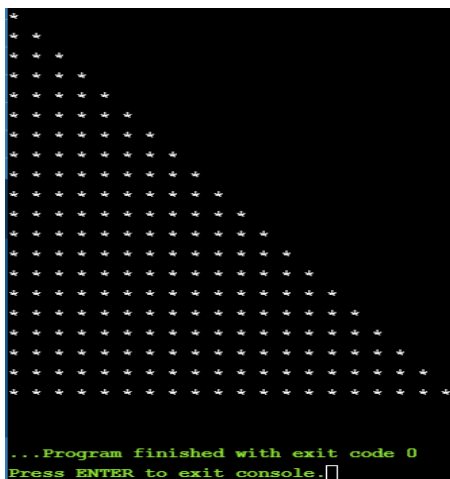
```
}
```

```
printf("\n");
```

```
}
```

```
return 0;
```

```
}
```



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

## 2. ISOSCELES TRIANGLE

### CODE:

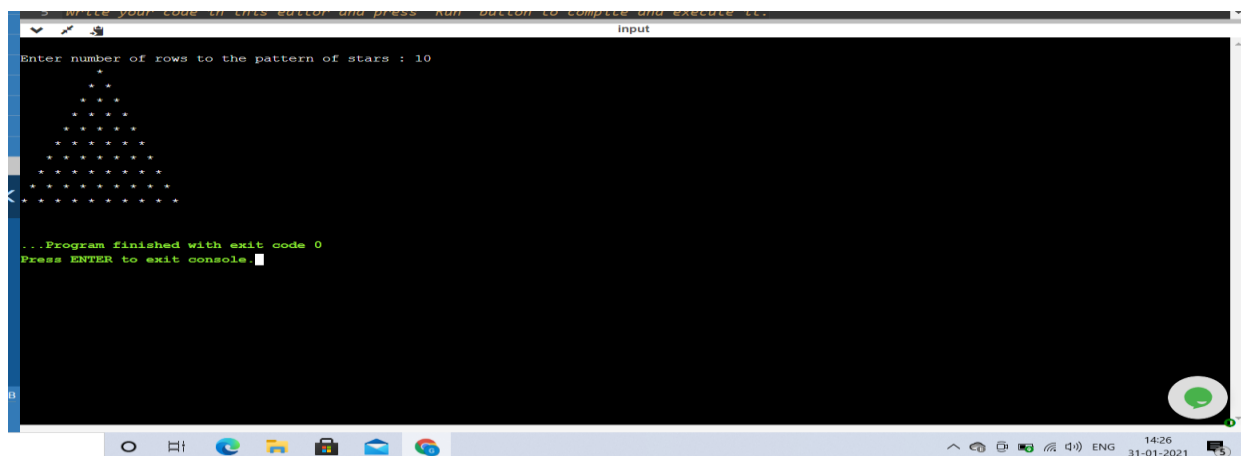
```
#include <stdio.h>
```

```
int main()
{
    int i,j,n;
    printf("Enter number of rows\n");
    scanf("%d",&n);
    printf("number of rows: %d \n",n);
    for(i=1;i<=n;i++)
    {
        for(j=1;j<=n-i;j++)
        {
            printf(" ");
        }
        for(j=1;j<=i;j++)
        {
            printf("* ");
        }
        printf("\n");
    }
}
```

```
return 0;
```

```
}
```

### OUTPUT:

A screenshot of a Windows command prompt window titled "input". The prompt displays the text "Enter number of rows to the pattern of stars : 10". Below this, an isosceles triangle is formed by asterisks. The first row has 1 star, the second has 3 stars, the third has 5 stars, and the fourth has 7 stars. The prompt then shows "...Program finished with exit code 0" and "Press ENTER to exit console." with a cursor. The Windows taskbar is visible at the bottom, showing the time as 14:26 on 31-01-2021.

## EXPERIMENT- 12

Write a program to print Fibonacci series upto 100 terms

DATE OF EXPERIMENT: 30/12/2020

SOFTWARE:

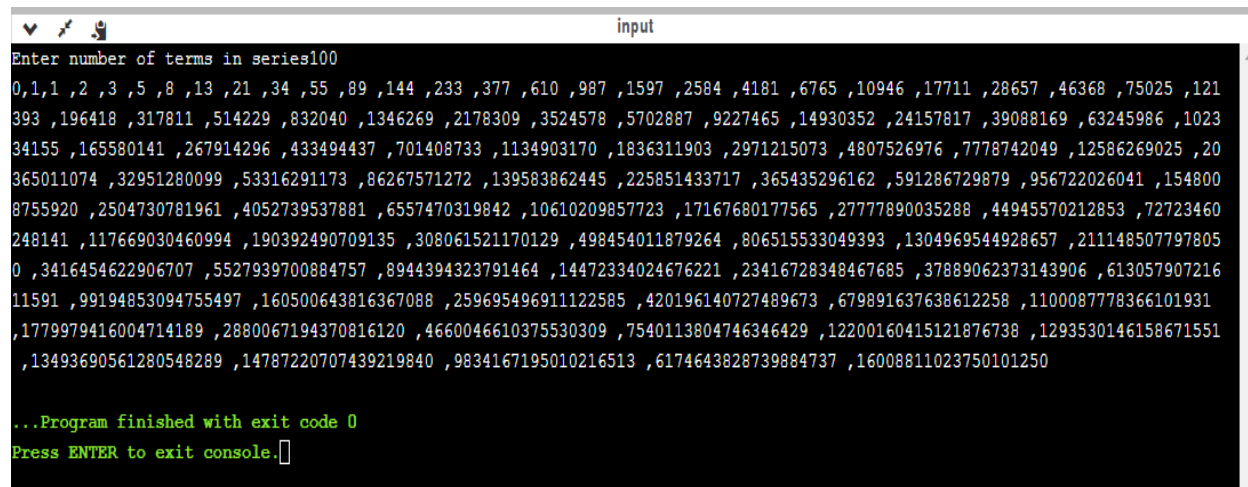
Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

**CODE:**

```
#include <stdio.h>
```

```
int main()
{
    unsigned long long int i,n,f1=0,f2=1,f3;
    printf("Enter number of terms in series\n");
    scanf("%llu",&n);
    printf("%llu,%llu",f1,f2);
    for(i=3;i<=n;i++)
    {
        f3=f1+f2;
        printf(",%llu ",f3);
        f1=f2;
        f2=f3;
    }
    return 0;
}
```

OUTPUT:



```
input
Enter number of terms in series100
0,1,1,2,3,5,8,13,21,34,55,89,144,233,377,610,987,1597,2584,4181,6765,10946,17711,28657,46368,75025,121
393,196418,317811,514229,832040,1346269,2178309,3524578,5702887,9227465,14930352,24157817,39088169,63245986,1023
34155,165580141,267914296,433494437,701408733,1134903170,1836311903,2971215073,4807526976,7778742049,12586269025,20
365011074,32951280099,53316291173,86267571272,139583862445,225851433717,365435296162,591286729879,956722026041,154800
8755920,2504730781961,4052739537881,6557470319842,10610209857723,17167680177565,27777890035288,44945570212853,72723460
248141,117669030460994,190392490709135,308061521170129,498454011879264,806515533049393,1304969544928657,211148507797805
0,3416454622906707,5527939700884757,8944394323791464,14472334024676221,23416728348467685,37889062373143906,613057907216
11591,99194853094755497,160500643816367088,259695496911122585,420196140727489673,679891637638612258,1100087778366101931
,1779979416004714189,2880067194370816120,4660046610375530309,7540113804746346429,12200160415121876738,1293530146158671551
,13493690561280548289,14787220707439219840,9834167195010216513,6174643828739884737,16008811023750101250

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

EXPERIMENT- 13



Write a program to find the factorial of a given number.

DATE OF EXPERIMENT: 30/12/2020

**SOFTWARE:**

Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

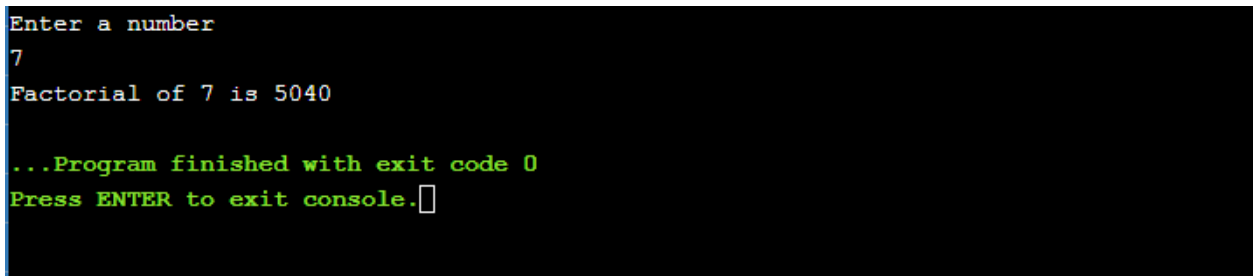
**CODE:**

```
#include <stdio.h>

int main()
{
    int i,num,f=1;
    printf("Enter a number\n");
    scanf("%d",&num);
    for(i=num;i>=1;i--)
    {
        f=f*i;
    }
    printf("Factorial of %d is %d",num,f);

    return 0;
}
```

**OUTPUT:**



```
Enter a number
7
Factorial of 7 is 5040

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

## EXPERIMENT- 14

Write a program to find whether a given number is prime or not.

DATE OF EXPERIMENT: 6/1/2021

**SOFTWARE:**

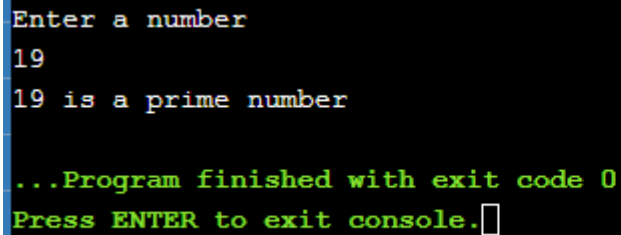
Online Compiler and Debugger for C and C++ (IDE) – C and CPP Compiler

**CODE:**

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

    return 0;
}
```

## OUTPUT:



```
Enter a number
19
19 is a prime number

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