

Arithmetic Statement

```
#include<stdio.h>

int main()
{
    int a=6,b=2,c;
    c=a+b;
    printf("Sum=%d\n",c);
    c=a-b;
    printf("Difference=%d\n",c);
    c=a*b;
    printf("Product=%d\n",c);
    c=a/b;
    printf("Division=%d\n",c);
    c=a%b;
    printf("Modulus=%d\n",c);
    return 0;
}
```

Output:

Sum=8
Difference=4
Product=12
Division=3
Modulus=0



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Simple If

```
#include<stdio.h>

int main()
{
    int num1,num2;
    printf("Enter the first integer\n");
    scanf("%d",&num1);
    printf("Enter the second integer\n");
    scanf("%d",&num2);
    if(num1==num2)
        printf("%d is equal to %d\n",num1,num2);
    return 0;
}
```

Output:

Enter the first integer

5

Enter the second integer

5

5 is equal to 5



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ifelse

```
#include<stdio.h>
int main()
{
    int n;
    printf("Please enter an integer\n");
    scanf("%d",&n);
    if(n%2!=0)
        printf("%d is odd\n",n);
    else
        printf("%d is even\n",n);
    return 0;
}
```

Output:

```
Please enter an integer
3
3 is odd
```



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Nested if-else

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

```
int main()
{
int a,b,c;
printf("Enter the three numbers:\n");
scanf("%d%d%d",&a,&b,&c);
if(a>=b && a>=c)
printf("%d is the largest number",a);
else if(b>=a && b>=c)
printf("%d is the largest number",b);
else printf("%d is the largest number",c);
return 0;
}
```

Output:

Enter the three numbers:

5

67

90

90 is the largest number



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While Loop

```
#include<stdio.h>

int main()
{
    int num,original,factorial=1;
    printf("Type a positive integer:\n");
    scanf("%d",&num);
    original=num;
    while(num>1)
    {
        factorial*=num;
        num--;
    }
    printf("Factorial of %d = %d\n",original,factorial);
    return 0;
}
```

Output:

Type a positive integer:

6

Factorial of 6 = 720

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Dowhile Loop

```
#include<stdio.h>
int main()
{
    int num,rev;
    printf("Enter the number to be reversed:\n");
    scanf("%d",&num);
    printf("Reverse number is:\n");
    do
    {
        rev=num%10;
        printf("%d",rev);
        num=num/10;
    }
    while(num!=0);
    return 0;
}
```

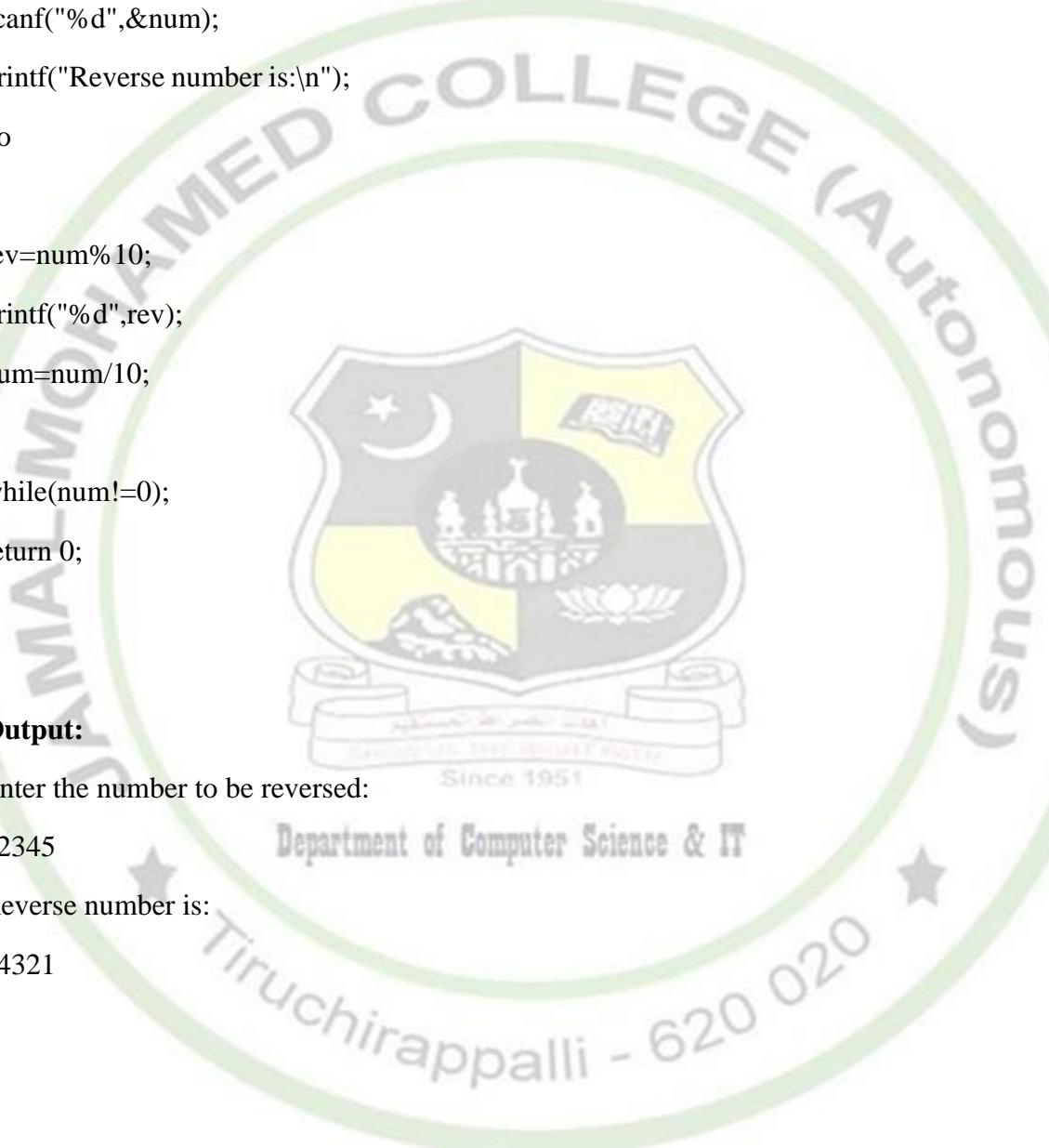
Output:

Enter the number to be reversed:

12345

Reverse number is:

54321



For Loop

```
#include<stdio.h>

int main()
{
    int low,i,high,sum=0;
    printf("Please type the lower bound:\n");
    scanf("%d",&low);
    printf("Please type the higher bound:\n");
    scanf("%d",&high);
    for(i=low;i<=high;i++)
        sum+=i;
    printf("The sum of the integer from %d to %d is %d\n",low,high,sum);
    return 0;
}
```

Output:

Please type the lower bound:

5

Please type the higher bound:

9

The sum of the integer from 5 to 9 is 35

Case Control

```
#include<stdio.h>

int main()
{
    float value1,value2;
    char oper;
    printf("Type an expression:");
    scanf("%f%c%f",&value1,&oper,&value2);
    switch(oper)
    {
        case '+':
            printf("%2f\n",value1+value2);
            break;
        case '-':
            printf("%2f\n",value1-value2);
            break;
        case '*':
            printf("%2f\n",value1*value2);
            break;
        case '/':
            if(value2==0)
                printf("Divisible by 2==0\n");
            else
                printf("%2f\n",value1/value2);
            break;
        default:
            printf("Unknown operator\n");
    }
    return 0;
}
```

Output: Type an expression:2+3 : 5.000000

Array-one dimensional array

```
#include<stdio.h>
void main()
{
int arr[10];
int i,n,sum=0;
printf("Enter the size of the array:");
scanf("%d",&n);
printf("Enter the %d elements in the array:",n);
for(i=0;i<n;i++)
{
scanf("%d",&arr[i]);
}
for(i=0;i<n;i++)
{
sum=sum+arr[i];
}
printf("Sum of all elements of array=%d",sum);
}
```

Output:

Enter the size of the array:3

Enter the 3 elements in the array:5

6

7

Sum of all elements of array=18

Array-two dimensional array

```
include<stdio.h>

void main()
{
int a[2][2],b[2][2],c[2][2];

int row,col;

printf("Enter elements in matrix A of size2*2;\n");

for(row=0;row<2;row++)
{
for(col=0;col<2;col++)
{
scanf("%d",&a[row][col]);
}

printf("\nEnter elements in matrix B of size2*2;\n");

for(row=0;row<2;row++)
{
for(col=0;col<2;col++)
{
scanf("%d",&b[row][col]);
}

for(row=0;row<2;row++)
{
for(col=0;col<2;col++)
{
c[row][col]=a[row][col]+b[row][col];
}

printf("\nSum of matrices A+B=\n");

for(row=0;row<2;row++)
```

```
{  
for(col=0;col<2;col++)  
{  
printf("%d",c[row][col]);  
}  
printf("\n");  
}  
}
```

Output:

Enter elements in matrix A of size2*2;

```
3  
4  
5  
6  
7  
8  
9  
3
```



Enter elements in matrix B of size2*2;

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Sum of matrices A+B=

```
1012  
149
```

Call By Value

```
#include<stdio.h>

void no_swap(int x,int y);

int main()

{

int a=1,b=999;

printf("a=%d\n,b=%d\n",a,b);

no_swap(a,b);

printf("a=%d\n,b=%d\n",a,b);

return 0;

}

void no_swap(int x,int y)

{

int temp;

temp=x;

x=y;

y=temp;

}

Output:

a=1

,b=999

a=1

,b=999
```



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Call By Reference

```
#include<stdio.h>

void swap(int*p1,int*p2);

int main()

{

int a=1,b=999;

printf("a=%d\n,b=%d\n",a,b);

swap(&a,&b);

printf("a=%d\n,b=%d\n",a,b);

return 0;

}

void swap(int*px,int*py)

{

int temp;

temp=*px;

*px=*py;

*py=temp;

}
```

Output:

```
a=1
,b=999
a=999
,b=1
```



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Class and Object

```
#include<iostream>
using namespace std;

class Room
{
public:
    double length;
    double breadth;
    double height;
    double calculateArea()
    {
        return length*breadth;
    }
    double calculatevolume()
    {
        return length*breadth*height;
    }
};

int main()
{
    Room room1;
    room1.length=42.5;
    room1.breadth=30.8;
    room1.height=19.2;
    cout<<"Area of Room="<<room1.calculateArea()<<endl;
    cout<<"Volume of Room="<<room1.calculatevolume()<<endl;
    return 0;
}
```

Output:

Area of Room=1309

Volume of Room=25132.8

Inline Function

```
#include<iostream>
using namespace std;

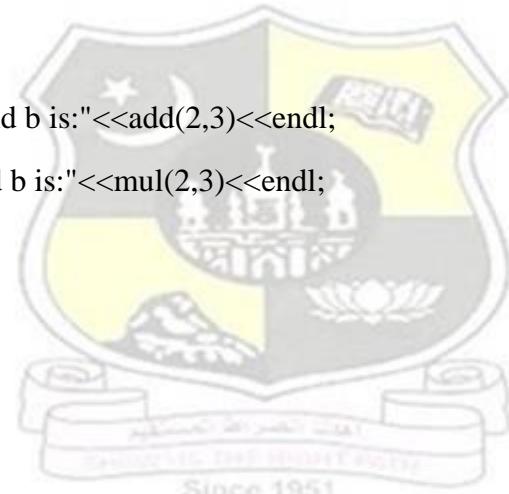
inline int add(int a,int b)
{
    return(a+b);
}

inline int mul(int a,int b)
{
    return(a*b);
}

int main()
{
    cout<<"Addition of a and b is:"<<add(2,3)<<endl;
    cout<<"Product of a and b is:"<<mul(2,3)<<endl;
    return 0;
}
```

Output:

```
Addition of a and b is:5
Product of a and b is:6
```



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Friend Function

```
#include<iostream>
using namespace std;
class math
{
private:
int x,y;
public:
friend int sum(math z);
void setdata(int a,int b);
};
void math::setdata(int a,int b)
{
x=a;
y=b;
}
int sum(math z)
{
return(z.x+z.y);
}
int main()
{
math a;
a.setdata(10,10);
cout<<"Sum of x and y is:"<<sum(a);
return 0;
}
```

Output:

Sum of x and y is:20

Function Overloading

```
#include<iostream>
using namespace std;

int area(int a)
{
    return(a*a);
}

int area(int a,int b)
{
    return(a*b);
}

int main()
{
    int a,w,l;
    cout<<"Enter the values:";

    cin>>a>>w>>l;
    cout<<"Area of square:<<area(a)<<"\n";
    cout<<"Area of rectangle:<<area(w,l)<<"\n";
    return 0;
}
```

Output:

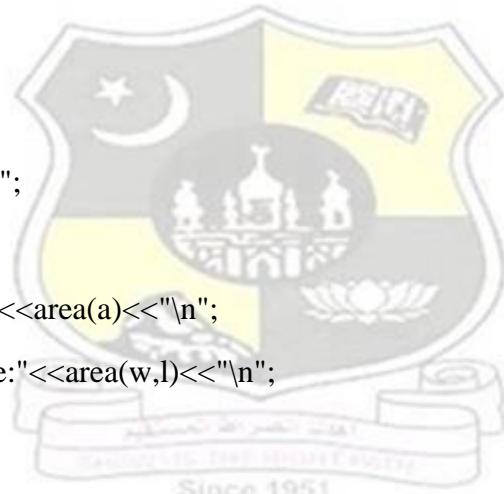
Enter the values:5

6

8

Area of square:25

Area of rectangle:48



Array Of Objects

```
#include<iostream>
using namespace std;

class employee
{
    char name[30];
    float age;

public:
    void getdata(void);
    void putdata(void);
};

void employee::getdata(void)
{
    cout<<"Enter name:";
    cin>>name;
    cout<<"Enter age:";
    cin>>age;
}

void employee::putdata(void)
{
    cout<<"name:"<<name<<"\n";
    cout<<"age:"<<age<<"\n";
}

const int size=3;

int main()
{
    employee manager[size];
    for(int i=0;i<size;i++)
    {
        cout<<"\nDetail of manager"<<i+1<<"\n";
        manager[i].getdata();
    }
}
```

```
}

cout<<"\n";

for(int i=0;i<size;i++)

{

cout<<"\nmanager"<<i+1<<"\n";

manager[i].putdata();

}

return 0;

}
```

Output:

Detail of manager1

Enter name:Raja

Enter age:23

Detail of manager2

Enter name:Ramu

Enter age:34

Detail of manager3

Enter name:Kani

Enter age:26



Unary Operator Overloading

```
#include<iostream>

using namespace std;

class unaryoverload

{
    int hr,min;

public:
void in()
{
    cout<<"\nEnter the hour:";

    cin>>hr;

    cout<<"\nEnter the minute:";

    cin>>min;
}

void operator++(int)
{
    hr++;

    min++;
}

void out()
{
    cout<<"\nTime is\t"<<hr<<"hr"<<min<<"min";

}

};

int main()
{
    unaryoverload ob;

    ob.in();

    ob++;

    cout<<"\n\nAfter incrementing:\n";
}
```

```
    ob.out();  
    return 0;  
}
```

Output:

Enter the hour:5

Enter the minute:30

After incrementing:

Time is 6hr31min



Single Inheritance

```
#include<iostream>

using namespace std;

class base

{

public:

int x;

void getdata()

{

cout<<"Enter the value of x=";

cin>>x;

}

};

class derive : public base

{

private:

int y;

public:

void readdata()

{

cout<<"Enter the value of y=";

cin>>y;

}

void product()

{

cout<<"Product=<<x*y;

}

};

int main()

{
```



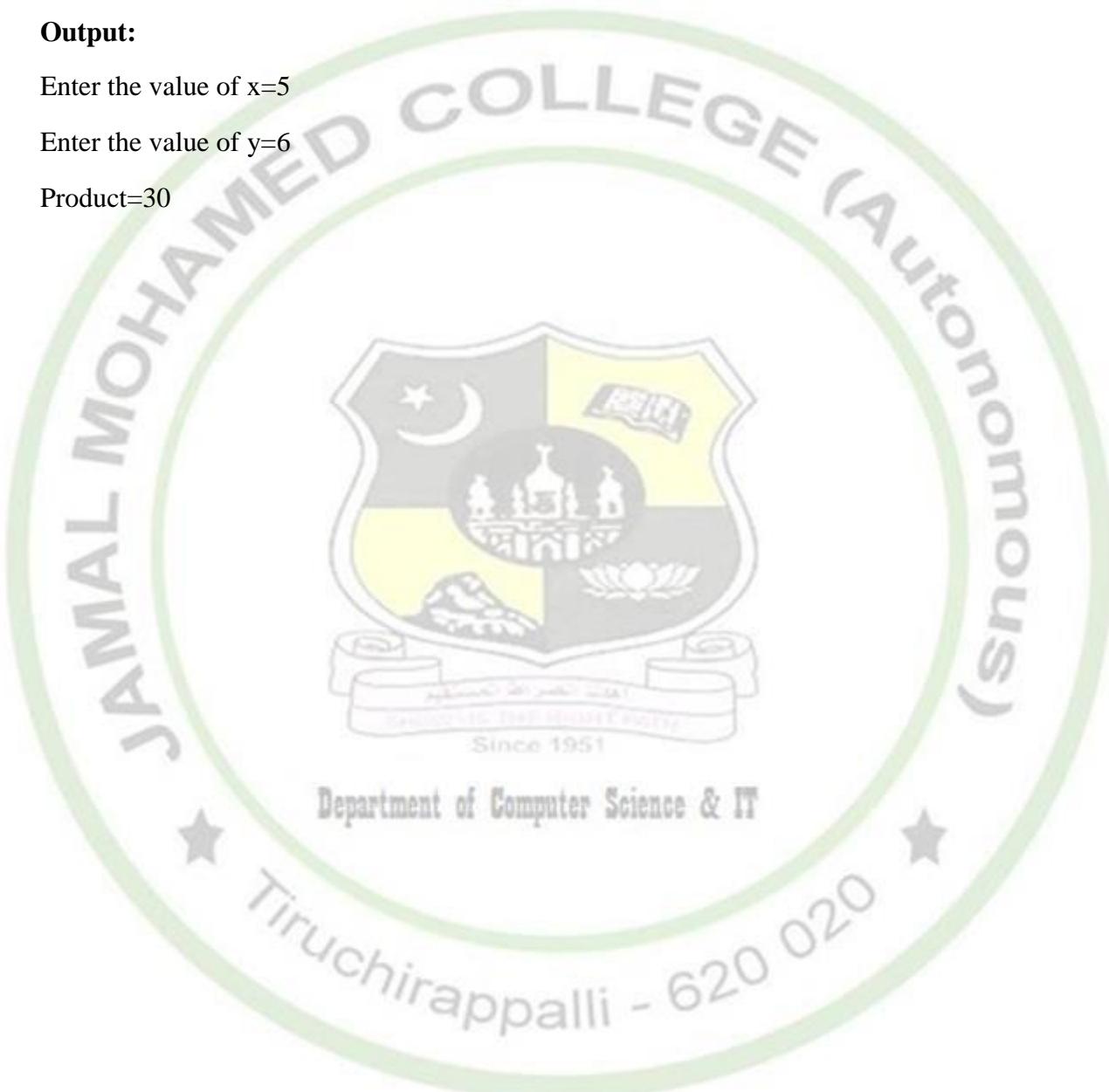
```
derive a;  
a.getdata();  
a.readdata();  
a.product();  
return 0;  
}
```

Output:

Enter the value of x=5

Enter the value of y=6

Product=30



File

```
#include<iostream>
#include<fstream>
using namespace std;
int main()
{
    int rno,fee;
    char name[50];
    cout<<"Enter the Roll Number:";
    cin>>rno;
    cout<<"\nEnter the Name:";
    cin>>name;
    cout<<"\nEnter the Fee:";
    cin>>fee;
    ofstream fout("/home/studentg/I B.Sc(CS)-D/a.txt");
    fout<<rno<<"\t"<<name<<"\t"<<fee;
    fout.close();
    ifstream fin("/home/studentg/I B.Sc(CS)-D/a.txt");
    fin>>rno>>name>>fee;
    fin.close();
    cout<<endl<<rno<<"\t"<<name<<"\t"<<fee;
    return 0;
}
```

Output:

Enter the Roll Number:35

Enter the Name:Vijay

Enter the Fee:16000

35 Vijay 16000

36 Vijay 16000

Constructor

```
#include<iostream>
using namespace std;

class MyClass

{

public:

int myValue;

MyClass(int value)

{

myValue = value;

cout<<"Constructor called with value:"<<myValue<<std::endl;

}

};

int main()

{

int n;

cout<<"Enter the value for n:";

cin>>n;

MyClass obj(n);

return 0;

}
```

Output:

```
Enter the value for n:5
Constructor called with value:5
```

Pointers

```
#include<bits/stdc++.h>
using namespace std;

void point()

{
    int var = 20;

    int*ptr;
    ptr = &var;

    cout<<"Value at ptr="<<ptr<<"\n";
    cout<<"Value at var="<<var<<"\n";
    cout<<"Value at *ptr="<<*ptr<<"\n";
}

int main()
{
    point();
    return 0;
}
```

Output:

Value at ptr=0x7ffc89fbc70c

Value at var=20

Value at *ptr=20

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