1. cin and cout objects

AIM:- To write a C++ program using cin and cout objects.

Algorithm:-

Step1: start

Step2: Declare header file as #include<iostream.h> for cin and cout objects.

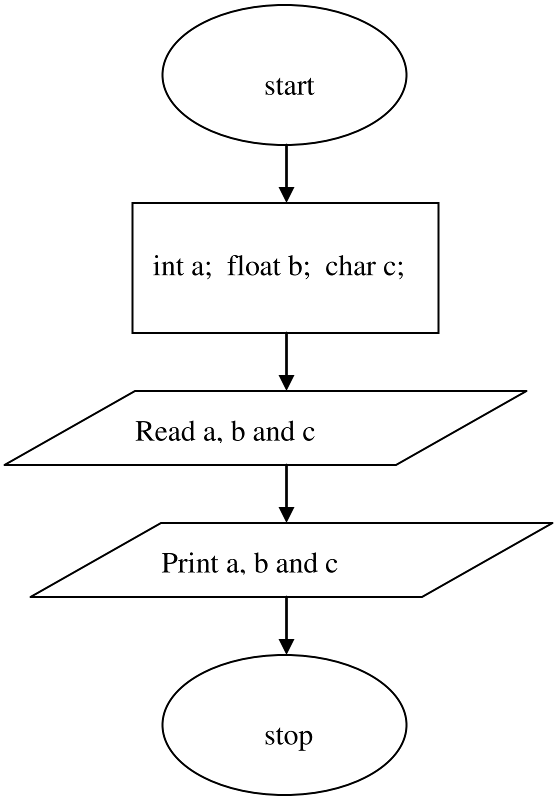
Step3: Declare ‘a’ as integer, ‘b’ as float and ‘c’ as character data type.

Step4: Read the values of a, b and c values using cin (input statement) object.

Step5: Display a, b and c values using cout (output statement) object.

Step6: stop

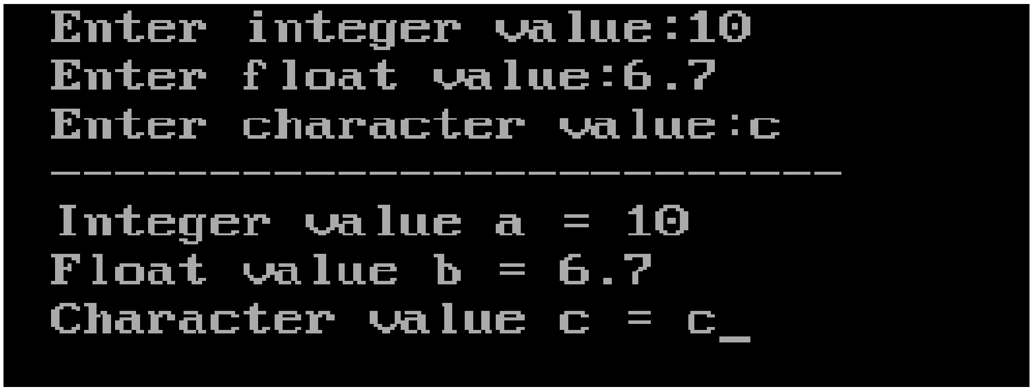
Flowchart:-



Source Code:-

```
#include<iostream.h>
#include<conio.h>
void main()
{
   int a;
   float b;
   char c;
   clrscr();
   cout<<"Enter integer value:";
   cin>>a;
   cout<<"Enter float value:";
   cin>>b;
   cout<<"Enter character value:";
   cin>>c;
   cout<<"-------------------------";
   cout<<"\nInteger value a = "<<a;
   cout<<"\nFloat value b = "<<b;
   cout<<endl<<"Character value c = "<<c;
   getch();
}
```

Output:-



```
Enter integer value:10
Enter float value:6.7
Enter character value:c
-------------------------
Integer value a = 10
Float value b = 6.7
Character value c = c_
```

Conclusion:- The Program has been successfully executed.

2. INLINE FUNCTION

Aim:

To Write a C++ program illustrating inline functions.

Algorithm:

Step1: start

Step2: Read a,b value

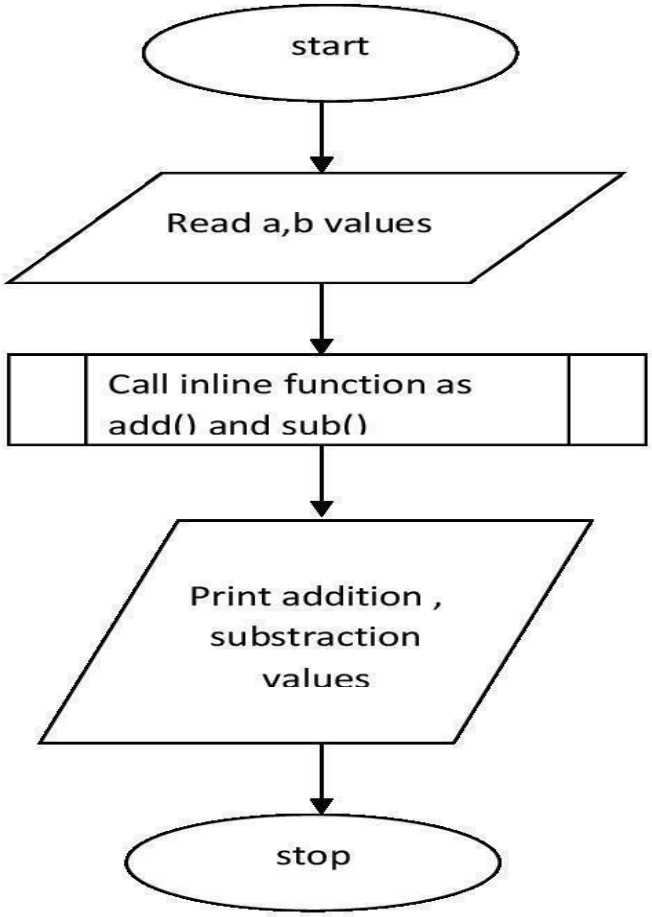
Step3: call an inline function add() to add and return the value of a+b

Step4: call an inline function sub() to substract and return the value of a-b

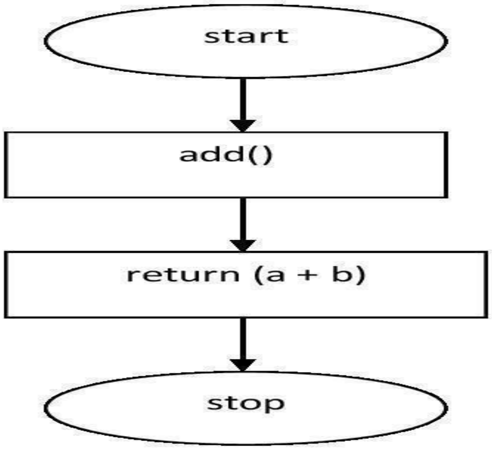
Step5: Print the result of addition and substraction values

Step6: stop

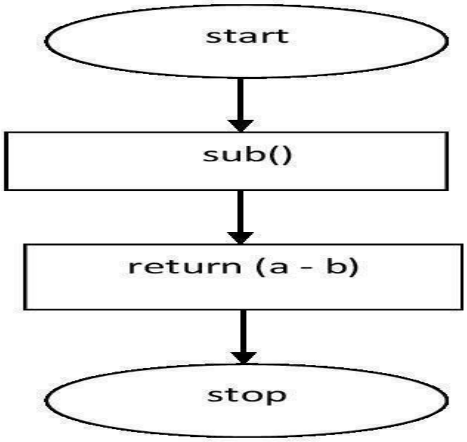
Flow chart:-


start
Read a,b values
Call inline function as add() and sub()
Print addition , substraction values
stop

Flow chart for add():-



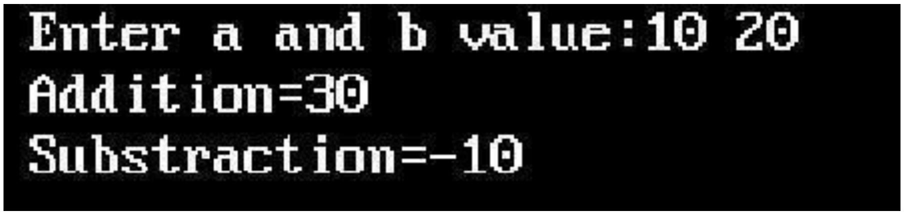
Flow Chart for sub(): -



Source code:-

```
#include<iostream.h>
#include<conio.h>

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

inline int sub(int a, int b)
{
 return(a-b);
}

void main()
{
 int a,b;
 clrscr();
 cout<<"Enter a and b value:";
 cin>>a>>b;
 cout<<"Addition="<<add(a,b)<<endl;
 cout<<"Substraction="<<sub(a,b)<<endl;
 getch();
}
```

Output:-



```
Enter a and b value:10 20
Addition=30
Substraction=-10
```

Conclusion:- The Program has been successfully executed.

3. FUNCTION OVERLOADING

Aim:

Write a C++ program illustrating function overloading.

Algorithm:

Step1: start

Step2: Declare long add(long, long);

Step3: Declare float add(float, float);

Step4: Read the values s, l, b as integer

Step5: Read the values r, bs, ht as float

Step 6: Call the functions for area() for square, return as (a*a)

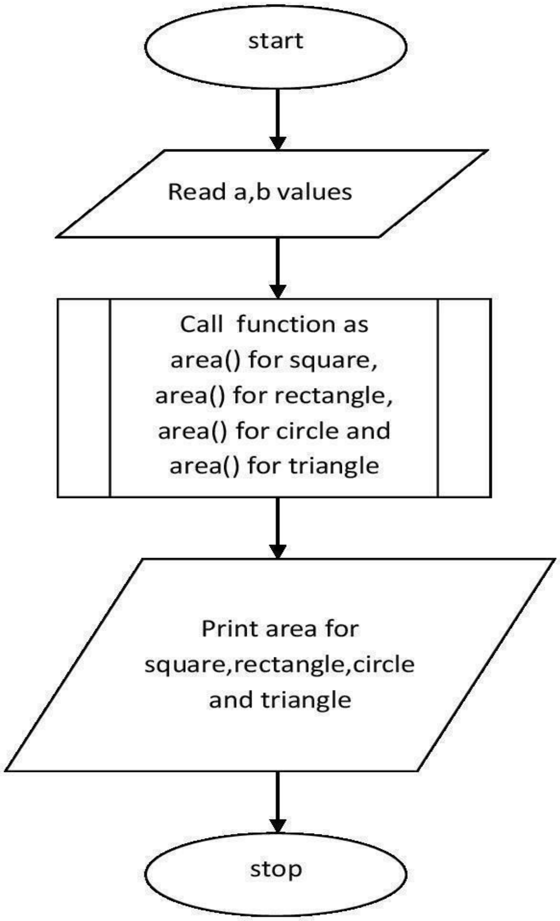
Step 7: Call the functions for area() for rectangle, return as (a*b)

Step 8: Call the functions for area() for circle, return as (3.14*a*a)

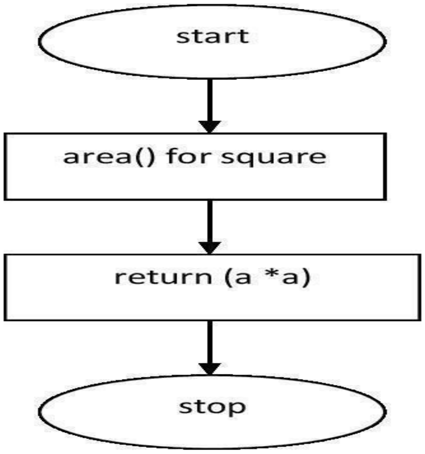
Step 9: Call the functions for area() for triangle, return as ((a*b)/2)

Step 10: Stop.

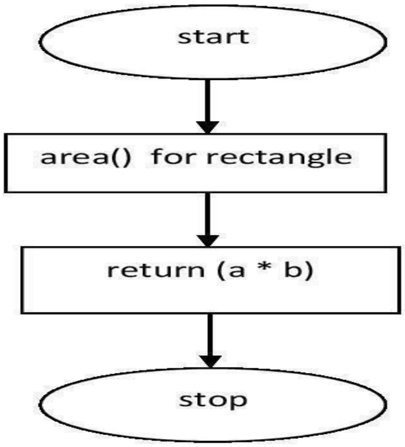
Flow chart:-



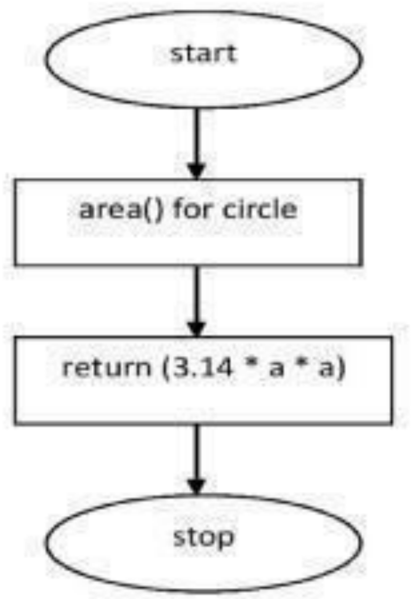
Flow chart for area() square:-



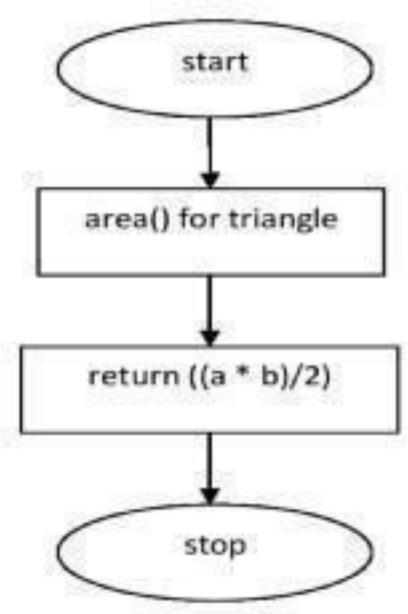
Flow chart for area() rectangle:-



Flow chart for area() circle:



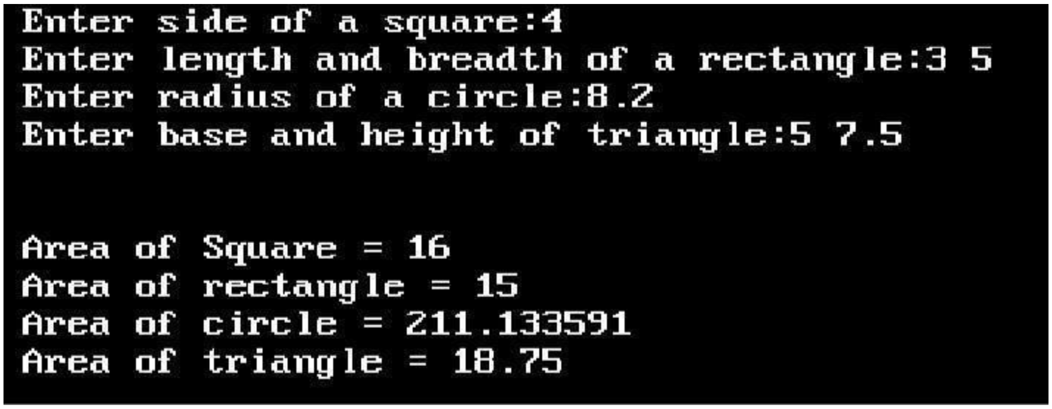
Flowchart for area() triangle:-



Source code:-

```
#include<iostream.h>
#include<conio.h>

int area(int a);
int area(int a,int b);
float area(float a);
float area(float a, float b);

void main()
{
 int s,l,b;
 float r,bs,ht;
 clrscr();
 cout<<"Enter side of a square:";
  cin>>s;
 cout<<"Enter length and breadth of a
  rectangle:"; cin>>l>>b;
 cout<<"Enter radius of a circle:";
 cin>>r;
 cout<<"Enter base and height of triangle:";
 cin>>bs>>ht;
 cout<<endl<<endl;
 cout<<"Area of Square = "<<area(s);
 cout<<"\nArea of rectangle = "<<area(l,b);
 cout<<"\nArea of circle = "<<area(r);
 cout<<"\nArea of triangle = "<<area(bs,ht);
 getch();
}

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

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

float area(float a)
{
 return(3.14*a*a);
}

float area(float a,float b)
{
 return((a*b)/2);
}
```

Output:-



```
Enter side of a square:4
Enter length and breadth of a rectangle:3 5
Enter radius of a circle:8.2
Enter base and height of triangle:5 7.5


Area of Square = 16
Area of rectangle = 15
Area of circle = 211.133591
Area of triangle = 18.75
```

Conclusion:- The Program has been successfully executed.

4. SWAPPING INTEGERS BY REFERENCE

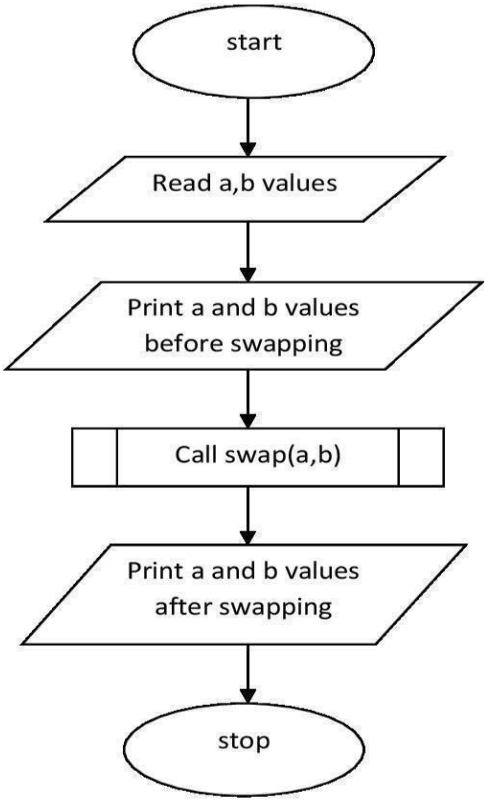
Aim:

Write a C++ program illustrating Swapping integer values by reference.

Algorithm:

```
Step1: Start
Step2: Use a=50, b=100
Step3: Print " Before swapping, values of a, b are "
Step4: Call function swap (a, b)
Step5: Print "After swapping, values of a, b are"
Step6: stop
```

Flow Chart:-


start
Read a,b values
Print a and b values before swapping
Call swap(a,b)
Print a and b values after swapping
stop

Algorithm for function swap(&x,&y):-

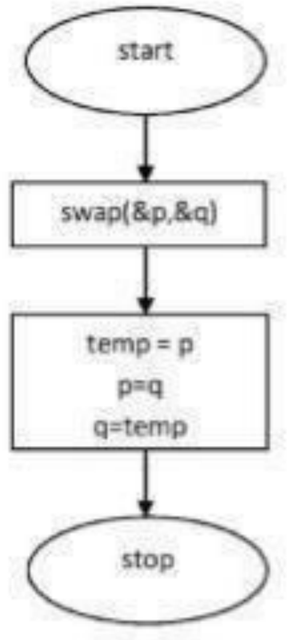
Step1: Use variable temp.

Step2: temp = p;

Step3: p = q;

Step4: q = temp;

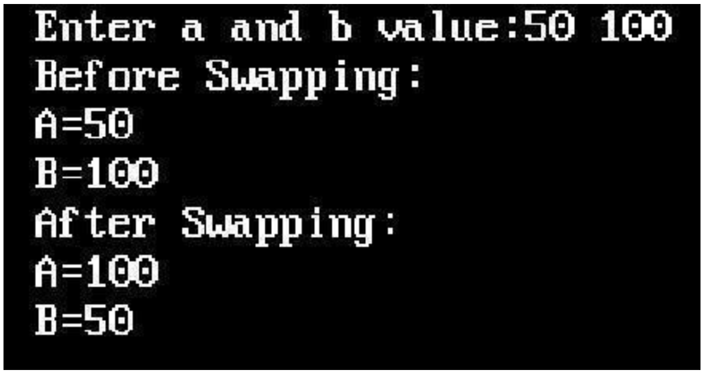
Flow chart:-



Source code:-

```
#include<iostream.h>
#include<conio.h>

int swap(int &p,int &q);

void main()
{
 int a,b;
 clrscr();
 cout<<"Enter a and b value:";
 cin>>a>>b;
 cout<<"Before Swapping:"<<endl;
 cout<<"A="<<a<<endl;
 cout<<"B="<<b<<endl;
 swap(a,b);
 cout<<"After Swapping:"<<endl;
 cout<<"A="<<a<<endl;
 cout<<"B="<<b<<endl;
 getch();
}

int swap(int &p,int &q)
{
 int temp;
 temp=p;
 p=q;
 q=temp;
}
```

<u>Output:-</u>



```
Enter a and b value:50 100
Before Swapping:
A=50
B=100
After Swapping:
A=100
B=50
```

<u>Conclusion:-</u> The Program has been successfully executed