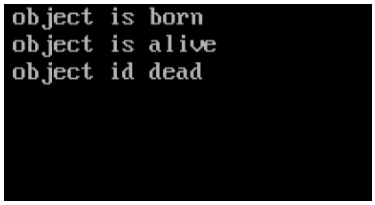
//Program No.1

/*Aim : Write a Program in C++ using Constructor and Destructor*/

```
#include<iostream.h>
#include<conio.h>
class Object
{
 public:
 Object()
 {cout<<"object is born"<<endl;
 }
void display()
 {cout<<"object is alive"<<endl;
 }
~Object()
 {cout<<"object id dead"<<endl;
 }
};
void main()
{
 clrscr();
 class Object o;
 o.display();
 getch();
}
```

//Output

//when Alt-F5 runs the program



// Program No.2

/* Aim : Write a Program in C++ To search a number using Binary Search*/

```
#include<iostream.h>
#include<conio.h>
Int bsearch(int a[],int n);
void main()
{
clrscr();
int a[10],i,k,n,loc;
cout<<"Enter 10 no's in ascending order:-";
for(i=0;i<10;i++)
     {cin>>a[i];
     }
cout<<"original no's are:-"<<endl;
for(i=0;i<10;i++)
  {cout<<a[i]<<endl;
  }
cout<<"Enter no. you want to search:-";
cin>>n;
loc = bsearch(a,n);
if(loc==0)
  {cout<<"Number not found";
}else
  {cout<<"The location of the no. is:-"<<loc;
  }
getch();
  }
int bsearch(int a[10],int n)
  {int mid,lb,ub;
lb=0;
ub=9;
while(ub>=lb)
  {mid=int((ub+lb)/2);
if(a[mid]==n)
   {return(mid+1);
   }
if(a[mid]>n)
   {ub=mid-1;
}else
   {lb=mid+1;
   }}
return(0);
}
```

//Output

```
Enter 10 no's in ascending order:-1
3
5
7
9
11
13
15
17
19
original no's are:-
1
3
5
7
9
11
13
15
17
19
Enter no. you want to search:-15
The location of the no. is:-8
```

//2nd output

```
Enter 10 no's in ascending order:-0
1
2
3
4
5
6
7
8
9
original no's are:-
0
1
2
3
4
5
6
7
8
9
Enter no. you want to search:-12
Number not found
```

// Program No.3

/* Aim : Write a Program in C++ to Sort No. using Bubble Sort*/

```
#include<iostream.h>
#include<conio.h>
void main()
{clrscr();
 int a[10],b,c;
 cout<<"Enter 10 no's"<<endl;
 for (b=0;b<10;b++)
 {cin>>a[b];
 }
 for (c=0;c<10;c++)
 { for(b=0;b<10-c;b++)
  {if (a[b] > a[b+1])
   {int temp;
    temp = a[b];
    a[b] = a[b+1];
    a[b+1] = temp;
   }
  }
 }
cout<<"Sorted Array"<<endl;
for(b=0;b<10;b++)
{cout<<a[b]<<endl;
}
getch();
}
```

// output

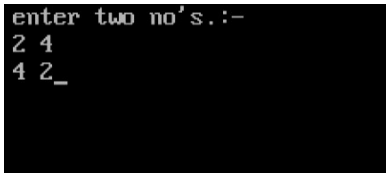
```
Enter 10 no's
45
67
95
30
20
77
99
1
0
999
Sorted Array
0
1
20
30
45
67
77
95
99
999
```

// Program No.4

/* Aim : Write a Program in C++ to Swap two numbers using Call By Reference*/

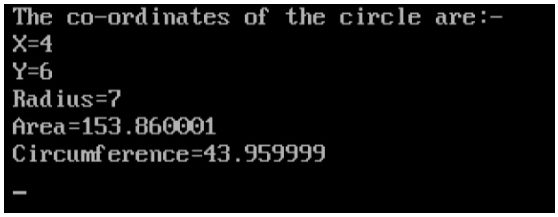
```
#include<iostream.h>
#include<conio.h>
#include<iomanip.h>
void swap(int&,int&);
void main()
{
 clrscr();
 int a,b;
 cout <<"enter two no's.:-"<<endl;
 cin>>a>>b;
 swap(a,b);
 cout<<a<<setw(2);
 cout<<b;
 getch();
}
void swap(int &a, int &b)
{
 int temp;
 temp=a;
 a=b;
 b=temp;
}
```

//Output



// Program No. 5
/* Aim : Write a Program in C++ To Reverse a String*/

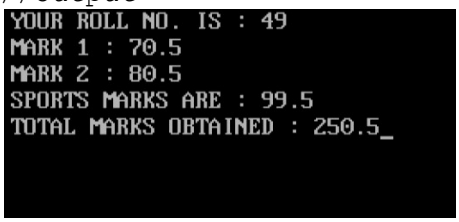
```
                              // Program No.6
/* Aim : Write a Program in C++ To calculate Area and Circumference of
                            Circle using Class*/
#include<iostream.h>
#include<conio.h>
class Circle
{
 private:
  float x,y,r,A,C;
 public:
  Circle()
  { cout<<"Enter X co-ordinate:-";endl;
    cin>>x;
    cout<<"Enter Y co-ordinate:-";endl;
    cin>>y;
    cout<<"Enter radius:-";endl;
    cin>>r;
    A=0.0;
    C=0.0;
  }
  void Area()
  { A=3.14*r*r;
  }
  void Circumference()
  { C=3.14*2*r;
  }
  void display();
 };
 void Circle::display()
 { clrscr();
   cout<<"The co-ordinates of the circle are:-"<<endl;
   cout<<"X="<<x<<endl;
   cout<<"Y="<<y<<endl;
   cout<<"Radius="<<r<<endl;
   cout<<"Area="<<A<<endl;
   cout<<"Circumference="<<C<<endl;
 }
 void main()
 { clrscr();
   class Circle o1;
   o1.Area();
   o1.Circumference();
   o1.display();
   getch();
}
//output
```


The co-ordinates of the circle are:-
X=4
Y=6
Radius=7
Area=153.860001
Circumference=43.959999

```
                                //Program No.7
      /* Aim : Write a Program in C++ using Class Inheritance */
#include<iostream.h>
#include<conio.h>
#include<stdlib.h>
class student
{ protected:
   int Rollno;
  public:
   void getrollno(int a)
   {Rollno = a;
 }
 void display()
 {cout<<"YOUR ROLL NO. IS : "<<Rollno<<endl;
  } };
  class marks: public student
  { protected:
     float m1,m2;
    public:
     void getmarks(float x,float y)
  {m1 = x;
   m2 = y;
  }
  void displaym()
  { cout<<"MARK 1 : "<<m1<<endl;
    cout<<"MARK 2 : "<<m2<<endl;
  } };
  class sports
  {protected:
    float s1;
   public:
    void getsports(float z)
    {s1 = z;
    }
   void displays()
    {cout<<"SPORTS MARKS ARE : "<<s1<<endl;
   } };
   class Rollno:public marks, public sports
   {protected:
     float total;
    public:
     void displayr()
    { total = m1+m2+s1;
     cout<<"TOTAL MARKS OBTAINED : "<<total;
    } };
    void main()
    {
    clrscr();
    int b;
    cout<<"ENTER YOUR ROLL NO.:";
    cin>>b;
    clrscr();
```

```
    class Rollno r;
    r.getrollno(b);
    r.getmarks(70.5,80.5);
    r.getsports(99.5);
    r.display();
    r.displaym();
    r.displays();
    r.displayr();
    getch();
    }
```

//output



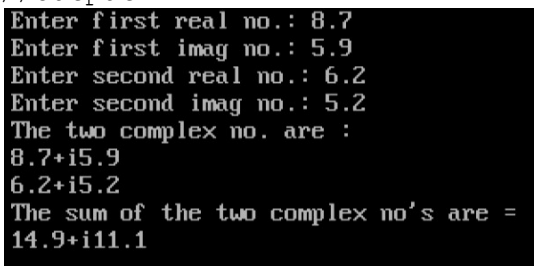
//Program No.8
/*Aim: Write a Program in C++ using Virtual Function*/

```
#include<iostream.h>
#include<conio.h>
class Base
{public:
 virtual void getdata()
 {cout<<"Base getdata"<<endl;
 }
 virtual void display()
 {cout<<"Base Display"<<endl;
 }
};
class Derived : public Base
{public:
 void getdata()
 {cout<<"Derived getdata"<<endl;
 }
 void display()
 {cout<<"Derived Display"<<endl;
 }
};
 void main()
 {clrscr();
  Base B;
  Base *ptr;
  Derived D;
  ptr=&B;
  ptr->getdata();
  ptr->display();
  ptr=&D;
  ptr->getdata();
  ptr->display();
  getch();
  }
```

//output

```
                                //Program No.9
 /* Aim: Write a program in C++ for implementing binary operator using
                     operator overloading mechanism*/

#include<iostream.h>
#include<conio.h>
class complex
{float real,imag;
 public:
   complex()
   {}
   complex(float x,float y)
   { real = x;
     imag = y;
   }
  complex operator + (complex);
  void display();
  };

  complex complex::operator+(complex temp)
  {complex o1;
   o1.real = real + temp.real;
   o1.imag = imag + temp.imag;
   return(o1);
   }
   void complex::display()
   {cout<<real<<"+i"<<imag<<endl;
   }
   void main()
   {clrscr();
    float a,b,c,d;
    cout<<"Enter first real no.: ";
    cin>>a;
    cout<<"Enter first imag no.: ";
    cin>>b;
    cout<<"Enter second real no.: ";
    cin>>c;
    cout<<"Enter second imag no.: ";
    cin>>d;
    class complex c1,c2,c3;
    c1 = complex(a,b);
    c2 = complex(c,d);
    c3 = c1 + c2;
    cout<<"The two complex no. are :"<<endl;
    c1.display();
    c2.display();
    cout<<"The sum of the two complex no's are ="<<endl;
    c3.display();
    getch();
  }
```

//output

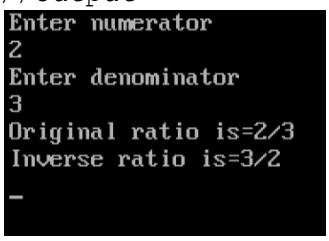

Enter first real no.: 8.7
Enter first imag no.: 5.9
Enter second real no.: 6.2
Enter second imag no.: 5.2
The two complex no. are :
8.7+i5.9
6.2+i5.2
The sum of the two complex no's are =
14.9+i11.1

//Project No.10

/* Aim : Write a program in C++ with a Ratio Class using Member fuction*/

```
#include<iostream.h>
#include<conio.h>
class ratio
{
  int num,den;
  public:
void assign();
double convert();
void invert();
void print();
 };
 void ratio::assign()
 {cout<<"Enter numerator"<<endl;
  cin>>num;
  cout<<"Enter denominator"<<endl;
  cin>>den;
 }
 double ratio::convert()
 {return (num/den);
 }
 void ratio::invert()
 {int temp;
  temp=num;
  num=den;
  den=temp;
 }
 void ratio::print()
 {cout<<num<<"/"<<den<<endl;
 }
 void main()
 {clrscr();
  ratio r;
  r.assign();
  cout<<"Original ratio is=";
  r.print();
  cout<<"Inverse ratio is=";
  r.convert();
  r.invert();
  r.print();
  getch();
  }
```

//output


Enter numerator
2
Enter denominator
3
Original ratio is=2/3
Inverse ratio is=3/2

```
                                //Program No.11
   /*Aim: Program  on Polar-Rectangle & Rectangle-Polar conversion*/

#include<iostream.h>
#include<conio.h>
#include<math.h>
class rectangle
{
 float x,y;
 public:void getdata1()
 {
  cout<<"Enter the rectangular coordinates";
  cout<<"\nx=";
  cin>>x;
  cout<<"\ny=";
  cin>>y;
 }
 void con_rec_pol()
 {
  float r,t;
  r=sqrt(x*x+y*y);
  t=atan(y/x)*180/3.14;
  cout<<"\nRectangle to polar conversion is";
  cout<<"\n r="<<r;
  cout<<"\n theta="<<t;
  }
 };
class polar
{
 float r,t;
 public:void getdata2()
{
 cout<<"\n\nEnter the polar coordinates";
 cout<<"\nr=";
 cin>>r;
 cout<<"\ntheta=";
 cin>>t;
}
void conv_pol_rec()
{
float x,y;
x=r*cos(t*3.14/180);
y=r*sin(t*3.14/180);
cout<<"\n\nPolar to Rectangle conversion is";
cout<<"\n x="<<x;
cout<<"\n y="<<y;
       }
};
void main()
{
clrscr();
rectangle rect1;
```

```
rect1.getdata1();
rect1.con_rec_pol();
polar pol1;
pol1.getdata2();
pol1.conv_pol_rec();
getch();
  }
```

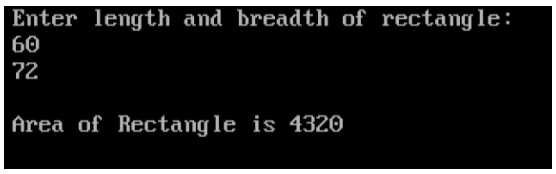
//output

```
Enter the rectangular coordinates
x=2

y=4

Rectangle to polar conversion is
 r=4.472136
 theta=63.467125

Enter the polar coordinates
r=4.472136

theta=63.467125


Polar to Rectangle conversion is
 x=2
 y=4
```

//Program No.12
/*Aim: Write a program in C++ to calculate and display area of rectangle using class*/

```
#include<iostream.h>
#include<conio.h>
class shape
{protected:int length,breadth;
public:
void get_data()
{cout<<"Enter length and breadth of rectangle:\n";
cin>>length>>breadth;}
};
class rectangle:public shape
{public:void area()
{int area=length*breadth;
cout<<"Area of Rectangle is "<<area;} };
void main()
{clrscr();
rectangle r;
r.get_data();
cout<<endl;
r.area();
getch();
}
```

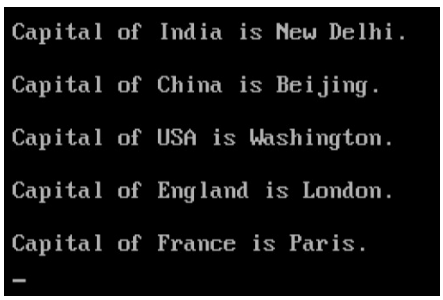
//output



//Program No.13
/*Aim: Write a program in C++ to use files.*/

```
#include<iostream.h>
#include<conio.h>
#include<fstream.h>
void main()
{clrscr();
char  cname[80],cap[80];
ofstream outf1,outf2;
outf1.open("country.txt");
outf1<<"India\n";
outf1<<"China\n";
outf1<<"USA\n";
outf1<<"England\n";
outf1<<"France\n";
outf1.close();
outf2.open("capital.txt");
outf2<<"New Delhi\n";
outf2<<"Beijing\n";
outf2<<"Washington\n";
outf2<<"London\n";
outf2<<"Paris";
outf2.close();
ifstream inf1,inf2;
inf1.open("country.txt");
inf2.open("capital.txt");
while(!inf1.eof() && !inf2.eof())
{inf1.getline(cname,80);
 inf2.getline(cap,80);
  cout<<"\nCapital of "<<cname<<" is "<<cap<<".\n";}
   inf1.close();
   inf2.close();
getch();
}
```

//output

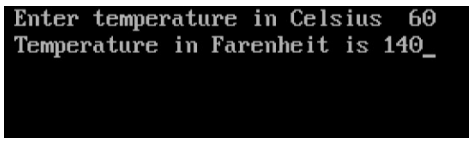


//Program No.14

/*Aim: Write a program in C++ to convert Celsius to Farenheit*/

```
#include<iostream.h>
#include<conio.h>
class temperature
{
private:float F,C;
public: temperature()
{cout<<"Enter temperature in Celsius  ";
cin>>C; }
void convert()
{
 F=9*(C/5)+32;
}
void print()
{
cout<<"Temperature in Farenheit is "<<F;
}
};
void main()
{
clrscr();
temperature t;
t.convert();
t.print();
getch();
}
```

//output



//Program No.15
/*Aim: Write a program in C++ to add numbers of an array using pointers*/

```
#include<iostream.h>
#include<conio.h>
void main()
{
float a[]={10.2,3.9,4.6,5.5,6.9};
float *ptr,sum=0;
ptr=a;
clrscr();
cout<<"\nstarting address \tsize \tending address \tvalue of sum";
for(int i=0;i<5;i++)
{sum=sum + *ptr;
cout<<"\n"<<ptr<<"\t\t"<<sizeof(*ptr)<<"\t";
ptr=ptr+1;
cout<<ptr<<"\t"<<sum;
}
getch();
}
```

//output