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36.	// WAP to show the concept of Multilevel Inheritance.		
37.	// WAP to show the concept of Hierarchical Inheritance.		
38.	// WAP to show the concept of ~~multilevel~~ multiple inheritance.		
39.	// WAP to show the concept of hybrid Inheritance.		

S.No	Program list	Pages
40.	// WAP to show the concept of Derivation.	
41.	// WAP in C++ to show the concept of this Keyword or this pointer.	
42.	// WAP in C++ to show the concept of friend function.	
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~~46.~~	~~// WAP to show the concept of abstract class~~	

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PROGRAM I

```
//WAP to Print your Intro In C++
#Include <conio.h>
# Include< iostream.h>
void main()
{
clrscr();
cout<< "My Name Is Abhinav Kaushik"<<endl;
cout<< " I am 18th year Old Boy "<<endl;
cout<< "My father Name Is Anil Kumar Sharma"<<
                                        endl;
cout<< " He is a English lecturer "<<endl;
cout<< "My hobbies are Singing and many more"
                                    <<endl;
cout<< " like playing Cricket, badminton "<<endl;
cout<< " And motivate to all my followers.";
getch();
}
```

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Output -

My Name Is Abhinav Kaushik
I am 18th year old boy
My Father Name Is Anil Kumar Sharma
He is a English lecturer
My Hobbies are Singing and many more
like playing Cricket, Badminton
And motivate to all my followers.

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Program 2

//WAP to Print the Value using Variable

```
#include<iostream.h>
#include<conio.h>
  void main()
{
  clrscr();
  float a,b, sum;
  cout << "enter the Value of a";
  cin>>a;
  cout << "enter value is = "<<a<< endl;
  cout << "enter the value of b";
  cin >>b;
  cout<< "enter the value of b = "<<b<<endl;
  sum = a+b;
  cout << "the sum of a+b= " << sum;
  getch();
}
```

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Output -

enter the Value of a 5
enter value is = 5
enter the Value of b = 6
enter the Value is = 6
the Sum of a + b = 11

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Program 3

// WAP to calculate sum & avg of three number.

```
# include < iostream.h >
# include < conio.h >
 void main ( )
{
 clrscr( );
 float  a, b, c, sum, avg;
 cout << "enter  the Value of abc";
  cin >> a >> b >> c;
  cout << "enter the value of abc = "<< a << b << c << endl;
  sum = a+b+c;
 cout << " the sum of  a+b+c="<< sum << endl;
  avg = sum / 2;
  cout << " the avg of given no= " << avg;
  getch( );

}
```

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Output -

enter the value of abc
2
7
1
enter the Value of abc = 2 7 1
the sum of a + b + c = 10
the avg of given no = 5

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Program 4

//WAP to Calculate area of circle, rectangle, triangle.

```
# include <iostream.h>
# include <conio.h>
  void main()
{
  clrscr();
  float rad = 3, area;
  area = (3.14 * rad *rad);
  cout << "area of circle is " << area;
  getch();
}
```

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Output -

area of circle is 28.26

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Area of Rectangle

```
# include <iostream.h>
# include <conio.h>
void main()
{
clrscr();
int length, breadth, area;
cout<<"area of rectangle \n";
cout<<"\n enter the length of rectangle: ";
cin>>length;
cout<<"\n enter the breadth of rectangle: ";
cin >> breadth;
area = length * breadth;
cout<<"\n area of rectangle : "<<area;
getch();
}
```

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Output -

area of rectangle

enter the length of rectangle: 5
enter the breadth of rectangle : 4

area of rectangle : 20

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Area of triangle

```
# include <iostream.h>
# include <conio.h>
 void main()
{
 clrscr();
 float b,h,area;
 cout << "enter base length of triangle: ";
 cin >> b;
 cout << "enter height length of triangle: ";
 cin >> h;
 area = 0.5 * b * h;
 cout << " \n area = " << area;
 cout << endl;
 getch();
}
```

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Output -

enter base length of triangle : 2
enter height length of triangle : 6

area = 0

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Program 5

//WAP to print the basic detail of student using diff. data type in C++.

```
#Include<iostream.h>
#include<conio.h>
 void main()
{
 clrscr();
 char name[50];
 int rollno;
 float fee;
 char add[100];
 cout<< " the name of student = ";
 cin>>name;
 cout<< " the name is = "<<name<<endl;
 cout<< " enter the roll no = ";
 cin>> rollno;
 cout<< "rollno is = "<<rollno<<endl;
 cout<< "enter the fee = ";
 cin>> fee;
 cout<< " fee is = "<<fee<<endl;
 cout<< " enter the add = ";
 cin>> add;
 cout<< " add is = "<<add<<endl;
 getch();
}
```

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Output-

enter the name of student = abhinav
the name is = abhinav
enter the roll no = 362
roll no is = 362
enter the fee = 35,300
fee is = 35,300
enter the add = IP Bsn
add is = IP

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Program 6

//WAP to use Cin & Cout by using user-defined function.

```
#include<iostream.h>
#include<conio.h>
void marvel()
{
 cout << "Avengers Endgame";
}
 void main()
{
 clrscr();
 marvel();   //call
 getch();
}
```

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Output -

Avengers Endgame

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Program 7

//WAP to use Enum data type in C++.

```
#include< iostream.h>
#include < conio.h >
 enum week
{
 Sun,
 mon,
 Tue,
 Wed,
 thur,
 fri,
 Sat,
 };
void main()
{
 clrscr();
 week day;
 day = sun;
for (day = sun; day <= sat; day ++)
{
 cout << "day is " << day << endl;
}
  getch();
}
```

Output -

```
day is 0
day is 1
day is 2
day is 3
day is 4
day is 5
day is 6
```

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Program 8

//WAP to use new/delete operator in C++

```
#include<iostream.h>
#include<conio.h>
void main()
{
  clrscr();
  int*value= new int;
  char*alphabet = new char;
  float*point = new float;
  double*jyaada = new double;

*alphabet = 'A';
*value = 23;
*point = 12.5;
*jyaada = 2345.856463;

cout<<*alphabet<<endl;
cout<<*value<<endl;
cout<<*point<<endl;
cout<<*jyaada<<endl;

delete alphabet;
delete value;
delete point;
delete jyaada;

getch();
}
```

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Output -

A
23
12.5
2345.856463

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Program 9

//WAP to use of structure in C++.

```
#Include <iostream.h>
# include < conio.h>
  struct books
{
  char title [50];
  float price;
  int pages;
  char author [50];
  char sub [30];
};
  void main ()
{
  clrscr();
  books s1;    //instance
  cout << "enter title";
  cin >> s1. title;
  cout << "title is "<< s1.title << endl;
  cout << " enter price";
  cin >> s1.price;
  cout<<"price is "<< s1.price << endl;
  cout <<"enter pages";
  cin >> s1.pages;
  cout<< " pages is "<< s1.pages <<endl;
  cout << "enter the name of author"<<ends;
  cin>> s1.author;
  cout << "author is "<< s1.author << endl;
  cout << " enter sub";
  cin >> s1.sub;
  cout << " sub is "<< s1.sub << endl;
  getch();
}
```

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Output -

enter title hero
title is hero
enter price 230
price is 230
enter pages 40
pages is 40
enter the name of author sahani
author is sahani
enter sub War
Sub is War.

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PROGRAM - 10

//WAP to demonstrate use of reference variable.

```
#include <iostream.h>
#include <conio.h>
 void main()
{
 clrscr();
 int a = 20;
 int &Abhinav = a;
 cout<< "value of a = "<< Abhinav;
 getch();
}
```

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Output -

value of a = 20

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Program 11

//WAP to use scope resolution operator in C++

```
#include <iostream.h>
#include <conio.h>
 int abc = 30; //Global variable
 void main()
{
  clrscr();
  int abc = 20;
  cout << "local variable is = " << abc << endl;
  cout << "global variable is = " << ::abc;
  getch();
}
```

Output -

local Variable is = 20
global variable is = 30

Program 12

//WAP to accessing data members of class in C++

```
#include <iostream.h>
# include < conio.h>
 class section
{
  public:
 char name [50];
 int id;
 void input( )
{
 cout<< "enter your name ";
 cin>>name;
 cout<< " enter your id ";
 cin>> id;
 cout <<name <<endl;
 cout<< id;
}
};
void main ()
{
 clrscr ();
 section A;
 A.input ();        //function call

 getch ();

}
```

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Output -

```
enter your name   ABHINAV
enter your id     362
ABHINAV
362
```

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Program 13

//WAP to adding two no. using class in C++.

```
#include <iostream.h>
#include <conio.h>
 class mathematics
{
 public:
 int a,b;
 void input()
{
 cout<<"input two numbers \n";
   cin>>a>>b;
}
   void add()
{
 cout <<" Result is: " <<a+b;
}
};
  void main()
{
   clrscr();
   mathematics A;
   A.input();
   A.add();
   getch();
}
```

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Output -

input two numbers
3
2
Result is : 5

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Program 14

//WAP to show the concepts of encapsulation using class in C++.

```
#include<iostream.h>
# include<conio.h>
 class encapsulation
{
  private:
  float radius;            // data member
  float area;
  public:
  void circle()            //member function.
{
    cout<<"enter a radius = ";
     cin>>radius;
     area = 3.14 * radius * radius;
     cout<<"area of circle = "<<area;

 }
};
   void main()
 {
  clrscr();
  encapsulation box;
  box.circle();
   getch();
}
```

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Output -

enter a radius
2
area of circle is = 12.56

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PROGRAM 15

//WAP to using multiple func. in class for mathe-
-matical operation.

```
#include <iostream.h>
#include <conio.h>
 class math
{
   public:
   int a,b,c;
   void add()
{
 cout<<"enter first number= ";
 cin>>a;
 cout<<"enter second number= ";
 cin>>b;
 c=a+b;
 cout<<"add of two numbers= "<<c<<endl;
}
 void sub()
{
 cout<<"enter first number= ";
 cin>>a;
 cout<<"enter second number= ";
 cin>>b;
 c=a-b;
 cout<<"sub of two numbers= "<<c;
}
};
   void main()
{
   clrscr();
```

```
math ar;
ar.add();
ar.sub();
getch();
}
```

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Output-

enter first number = 2
enter second number = 3
add of two number = 5
enter first number = 2
enter second number = 3
Sub of two number = -1

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Program 16

//WAP to show the concept of abstraction using math.h header file.

```
#include <iostream.h>
# include < conio.h>
# include < math.h>
 void main ()
{
  clrscr();
  int n, power, result;
  cout << " enter a no: ";
  cin>>n;
  cout << " enter power for given no. ";
  cin>> power;
  result= pow(n, power);
  cout<< " result " << result;
  getch();
}
```

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Output -

enter a no: 2
enter power for given no. 2
result 4

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PROGRAM 17

```
//WAP to show the concept of abstraction using math.h
 header file in class format.
# include <iostream.h>
# include < conio.h>
# include < math.h>
 class  math
{
 public:
 int n, power, result;
 void square()
{
 cout << "enter a no. ";
 cin>>n;
 cout<< "enter power ";
 cin >> power;
 result = pow( n, power);
 cout << " result "<< result;
 } };
 void main(){
 clrscr();
 math Ar;
 Ar.square();
 getch();
}
```

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Output -

enter a no. 3
enter power 3
result 27

Output -

```
enter your name = Abhinav
enter your id 362
Abhinav
362
```

Program 18

```
//WAP to show the concept of local class in C++.
#include <iostream.h>
#include <conio.h>
 void local()
 {
  ~~class~~ class student
 {
  public :
  int id;
  char name [50];
  void details ()
  {
   cout<< "enter your name=";
   cin>>name;
   cout<<" enter your id ";
   cin>>id;
   cout <<name <<endl<<id;
  }};
   student A1;
   A1.details();
 }
  void main()
 {
   clrscr();
   local();
   getch();
 }
```

Output-

enter a value = 4
value of a = 4

Program 19

```
// WAP to show the concept of nested class use of
   resolution operator in C++

#include <iostream.h>
#include <conio.h>
class A
{
 public:
 class B
 {
  public:
  int a;
  void marvel() {
  cout << "enter a value= ";
  cin>>a;
  cout << "value of a = " << a;
  } };          // class B
 };             // class A
void main() {
clrscr();
A::B obj;       // resolution operator
obj.marvel();
getch();
}
```

Output -

```
enter two no. 2
2
22
```

Program 20

```
// WAP to print outside declaration of member
  function using class.
#include <iostream.h>
#include <conio.h>
class scalar
{
  public:
  int a,b;
  void input();
  void marvel();
};
void scalar:: input() {
  cout<< "enter two no. ";
  cin>>a>>b;
}
  void scalar:: marvel() {
  cout<< a<<b;
}
  void main() {
  clrscr();
  scalar S1;
  S1.input();
  S1.marvel();
  getch();
}
```

Output -

today's date is 27 7 2024

Program 21

```
//WAP to initalization of abstraction in C++.
#include< iostream.h>
#include < conio.h>
#include < math.h>
 class A
{
  public:
  int day;
  int month;
  int year;
  void date (int day1, int month1, int year1)
{
  day = day1;
  month = month1;
  year = year1;
}
   void marvel () {
  cout << day << "  "<< month << "  "<< year;
}};
  void main() {
  clrscr();
  A w;
  cout << " today's date is ";
  w.date (27, 07, 2024);
  w.marvel();
  getch();
}
```

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Output –

cube is = 125
multiplication is = 10

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Program 22:

```
//WAP to show the concept of Inline function
  without class in C++.

#include <iostream.h>
#include <conio.h>
inline int hulk (int a)
{
  return (a * a * a);
}
  inline double thor (int a, int b)
{
  return (a * b);
}
  void main()
{
   clrscr();
  cout << " cube is = " << hulk(5) << endl;
  cout << " multiplication = " <<
  thor (2, 5);
  getch();
}
```

Output -

```
enter two no.s 5 2
the sum is : 7
the sub is : 3
the multiply is : 10
the divide is : 2
```

Program 23

```
//WAP to show the concept of Inline function
  with the class in c++.
#include<iostream.h>
# include<conio.h>
class all {
private:
int a, b, sum, sub, mul, div;
public:
void getdata();
void add();
void subtract();
void multiply();
void division();
};
inline void all :: getdata () {
cout << "enter two no.s ";
cin >>a >>b; }
inline void all :: add () {
sum = a+b;
cout << " the sum is : " << sum << endl; }
inline void all :: subtract () {
sub = a-b;
cout << " the sub is : "<<sub << endl; }
inline void all :: multiply () {
mul = a*b;
cout << " the multiply is : "<<mul<<endl; }
inline void all : division () {
div= a/b;
cout << " the divide is: "<<div<<endl; }
void main ()
{
```

```
clrscr();
all ab;
ab.getdata();
ab.add();
ab.subtract();
ab.multiply();
ab.division();
getch();
}
```

Output -

3
7
3
3

Program 25

```
//WAP to demonstrate the concept of static
   data member and member function in C++.
#include <iostream.h>
#include <conio.h>
 class open
{
  int a,b;
  static int c;
  public:
  void input (int x, int y)
{
   a = x;
   b = y;
   c = c+1; }
static void print() {
 cout << c; }
void show() {
 cout << a << endl;
 cout << b << endl;
 cout << c << endl;
}};
 int open :: c;
 void main() {
 clrscr();
 open aa, bb, cc;
 aa.input (3,7);
 bb.input (9,11);
 cc.input (10,12);
 aa.show();
 open :: print();
 getch();
}
```

Output -

```
enter a no. 8
0
1
1
2
3
5
8
13
```

Program 24

```
//WAP to Print Fibonacci series in C++.

#include <iostream.h>
#include <conio.h>
void main()
{
  clrscr();
  int n, a=0, b=1, c;
  cout<<" enter a no. ";
  cin >>n;
  for( int i = 1; i<=n ; i++)
  {
    cout <<a<<endl;
    c = a+b;
    a= b;
    b =c;
  }
  getch ();
}
```

Output -

enter the name Abhinav
Abhinav

Program 26

```
//WAP to print Inside declaration of Constructor
  using class.

# include <iostream.h>
# include <conio.h>
  class bca
{
  private:
 char name [50];
 public:
  bca()
{
 cout << " enter the name ";
  cin>>name;
}
  void display()
{
   cout << name;
}
};
  void main()
{
   clrscr();
   bca sem;
   sem. display();
   getch();
}
```

Output -

enter id 362
362

Program 27

```
// WAP to print outside declaration of constru-
-ctor using class.
#include <iostream.h>
#include <conio.h>
class world
{
  private:
  int id;
  public:
  world();
  void display (); };
  world :: world ()        // scope resolution
  {
   cout << " enter id";
   cin >> id;
  }
   void world :: display()
   {
     cout << id;
   }
    void main()
    {
      clrscr();
      world s1;
     s1. display();
      getch();
}
```

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Program 28

//WAP to show the concept of default Constructor

```
#include <iostream.h>
#include <conio.h>
class ghar
{
  private:
double length;
 public:
 ghar()                    // default Constructor
{
  length = 5.8;
 cout << "my wall is created " << endl;
 cout << " my wall length = " << length;
}
};
 void main()
{
  clrscr();
  ghar room;               //invoked constructor
  getch();
}
```

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Output -

my wall is Created
my wall length = 5.8

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Program 29

```
//WAP to show the concept of parameterised Constructor
#include <iostream.h>
#include <conio.h>
class ghar
{
  private:
  double length, breadth, area;
  public:
  ghar(double l, double b).
{
   length = l;
   breadth = b;
}
   void calculate ()
{
   area = length * breadth;
   cout << " my wall area is = " << area;
}
};
    void main()
{
   clrscr();
  ghar w(7.9, 8.6); //initializing of object
  w.calculate();
   getch();
}
```

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Output =
my wall area is = 67.94

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Program 30

//WAP to show the concept of copy Constructor.

```
#include<iostream.h>
#include<conio.h>
class demo
{
  private:
  int a,b;
  public:
  demo(int x, int y)
  {
  a=x;
  b=y;
  }
  demo (demo & paste)
  {
    a = paste.a;
    b = paste.b;
  }
    void show()
  {
    cout << "value of a = " << a << endl;
    cout << "value of b = " << b << endl;
  }};
  void main ){
  clrscr();
  demo aa (7,8);
  aa.show ();
  demo bb = aa;
  getch ();
}
```

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Output :-

value of a = 7
value of b = 8

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Program 31

```
//WAP to show the concept of constructor overloading.
#include <iostream.h>
# include < conio.h >
  class size
{
  private:
  int area;
 public:
  size ()
{
  area = 0;
}
 size (int side)
{
 area = side * side;
}
size( int l, int b)
{
 area = l*b;
}
 size (float radius)
{
 area = 4 * 3.14 * radius * radius;
}
  void show()
{
  cout << area << endl;
}};
   void main ()
{
```

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```
clrscr();
cout<<"my initialize value of area is= "<<endl;
size aa;
aa.show();
cout<<" area of square = "<<endl;
size bb(5);
bb.show();
cout<<" area of a length= "<<endl;
size cc(5,9);
cc.show();
cout<<" area of a radius= "<<endl;
size dd(2,5);
dd.show();
getch();
}
```

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Output -

my initialize value of area is =
0
area of square =
25
area of a length =
45
area of a radius =
10

Program 32

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```
//WAP to show the concept of Dynamic Constructor.
#include <iostream.h>
#include <conio.h>
class Dynamic {
private:
int *p;
int size;
public:
Dynamic (int s);
void input ();
void output();
};
Dynamic :: Dynamic (int s) {
size = s;
p = new int [size]; }
void Dynamic :: input () {
cout << " enter values " << endl;
for (int i = 0; i < size; i++) {
cin >> p [i];
}}
void Dynamic :: output () {
cout << " my entered values are " << endl;
for (int i = 0; i < size; i++) {
cout << p [i];
}}
void main () {
clrscr ();
int n;
cout << " enter the size " << endl;
cin >> n;
Dynamic aa (n);
aa . input ();
aa . output ();
} getch ();
```

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Output -

```
enter the size
4
enter values
5
6
6
7
my entered value are
5667
```

Program 33

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```
//WAP to show the concept of Destructor in C++

#include <iostream.h>
#include<conio.h>
 class Abc
{
  public:
  Abc()          // constructor
  {
   cout << "constructor is invoked" << endl;
  }
 ~Abc()          // destructor
 {
  cout << "destructor is invoked". << endl;
 }};
  void main()
 {
   clrscr();
 {
  Abc aa;
 }
  getch();
 }
```

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Output =

Constructor is invoked
destructor is invoked

Program 34

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```
//WAP to show the concept of Default Parameter/argument.
#include <iostream.h>
#include <conio.h>
 class op
 {
   public:
 int sum (int x, int y, int z = 0)
 {
  return (x+y+z);
 }};
  void main()
 {
  clrscr();
  op obj;
 cout<<" sum = "<< obj.sum(3,4)<<endl;
 cout << "next sum= "<< obj.sum(4,4,4);
  getch();
 }
```

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Output -

Sum = 7
next sum = 12

Program 35

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```
// WAP to show the concept of Single Inheritance.

#include <iostream.h>
#include <conio.h>
 class Father
{
  Public:
 void house()
{
 cout << "Have own 2BHK House." << endl;
}
};
 class son : Public Father
{
 public:
 void car()
{
 cout << "Have own Audi Car." << endl;
}
};
  void main()
{
   clrscr();
   son a1;
   a1.house();
   a1.car();
   getch();
}
```

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Output:-

Have own 2BHK House.
Have own Audi Car.

Program 36

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```
//WAP to show the concept of Multilevel Inheritance..

#include <iostream.h>
# include <conio.h>
class Animal
{
public :
void shoot()
{
cout<< "\n all the animals are dead "<<endl;
}
void eat()
{
cout << "\n But they are some deadly "<< endl;
};
class tiger : public Animal
{
public:
void show1()
{
cout << "\n I am tiger "<< endl;
};
class cub : public tiger
{
Public:
void show2()
{
cout<< "\n I am cub "<<endl;
};
void main ()
{
```

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```
clrscr();
cub c;
c.shoot();
c.eat();
c.show1();
c.show2();
getch();
}
```

// functions call

Output :-

all the animals are dead
But they are some deadly
I am tiger
I am cub

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Program 37

```
// WAP in C to show the concept of Hierarchical Inherit.
#include<iostream.h>
#include<conio.h>
 class Data
{
  protected:
  int a,b;
  public:
  void getdata()
{
 cout<<"value of a and b = "<<endl;
  cin>>a>>b;
}};
 class add : public Data
{
  public:
  void show1()
{
  int c;
  c=a+b;
  cout<<"\n sum= "<<c<<endl;
}};
 class sub : public Data
{
  public:
  void show2()
{
  int d;
  d=a-b;
  cout<<"\n subtraction = "<<d<<endl;
}};
  void main()
```

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```
{
 clrscr();
 add a1;
 a1.getdata();
 a1.show1();
 sub s1;
 s1.getdata();
 s1.show2();
  getch();
}
```

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Output :-

value of a and b =
3
2
Sum = 5

value of a and b =
4
2
Subtraction = 2

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Program 38

```
//WAP to show the concept of Multiple Inheritance.
#include <iostream.h>
#include <conio.h>
class A
{
private:
int a, b;
public:
void getdata1()
{
cout<< "\n enter the values a and b = ";
cin >>a>>b;
}
void sum()
{
int c;
c=a+b;
cout<< "\n sum= "<<c;
}};
class B
{
private:
int c,d;
public:
void get data2()
{
cout<< "\n enter the values c and d = ";
cin>>c>>d;
}
void sub()
{
int s;
```

```
s = c-d;
cout << "\n subtraction = " << s;
}};
class C : public A , public B
{
 public:
 void show()
{
 cout << "\n I am derived class";
}};
 void main()
{
 clrscr();
 C obj;
 obj.show();
 obj.getdata1();
 obj.getdata2();
 obj.sum();
 obj.sub();
 getch();
}
```

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Output :-

I am derived class
enter the values a and b = 5
3
enter the values c and d = 4
1

Sum = 8
Subtraction = 3

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Program 39

```
//WAP to show the concept of hybrid Inheritance in C++.
#include<iostream.h>
#include<conio.h>
class details
{
  protected:
  char roll[100], name[100];
  void get()
  {
    cout<<"\n Enter Roll No:";
    cin>>roll;
    cout<<"\n Enter Name :";
    cin>>name;
  }};
  class marks
{
  protected:
    int a,b,c,d,e;
    void getmark()
  {
    cout<<"\n Enter 5 marks :";
    cin>>a>>b>>c>>d>>e;
  }};
    class students : details, marks
{   int tot;
  public: float avg;
    void display()
{
      cout<<"\n Roll no :"<<roll;
      cout<<"\n Name :"<<name;
      tot=a+b+c+d+e;
      avg=tot/5;
```

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```
    cout << "\n Toatl : " << tot ;
    cout << "\n Average : " << avg ;
}};
    void main()
{
    clrscr();
    students o;
    o.display();
    getch();
}
```

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Output:

Enter Roll no : 123
Enter Name : Abhinav

Enter 5 marks : 98
76
56
67
78

Roll No : 123
Name : Abhinav
Toatl : 375
Average : 75

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Program 40

```
// WAP to show the concept of Derivation in C++
#include <iostream.h>
# include< conio.h>
 class Data
{
 private:
  int a;
  public:
 int b;
 protected;
};
 class DBMS : public Data
{
 public:
  void show()
{
 b=20;  c=30;
 cout<< " value of b= " << b << endl;
 cout<< "value of c = " << c << endl;
}};
  void main( )
{
  clrscr();
   DBMS d1;
 d1.show();
 getch();
}
```

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Output :-

value of b = 20
value of c = 30

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Program 41

```
//WAP in C++ to show the concept of this Keyword or pointer.
#include <iostream.h>
#include <conio.h>
 class Demo
{
  private :
  int a, b, c;
 public:
 Demo(int a, int b, int c)
{
  this -> a = a;
  this -> b = b;
  this -> c = c;
}
  void show()
{
 cout << " the value of a= " << a << endl;
 cout << " the value of b = " << b << endl;
 cout << " the value of c = " << c << endl;
}};
 void main()
{
 clrscr();
 Demo aa(4,5,6);
 aa.show();
  getch();
}
```

Output :-

The value of a = 4
The value of b = 5
the value of c = 6

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Program 42

```
//WAP to show the concept of friend function.
#include <iostream.h>
#include <conio.h>
 class BCA
{
   private:
   int money, money1;
   public:
   void set (int a, int b)
 {
  money = a;
  money1 = b;
}
   void show() {
  cout << money << endl << money1 << endl; }
  friend void fun (BCA); //friend function...
  };
  void fun ( BCA c1)
{ cout << "sum = " << endl << c1.money + c1.money1;
}
  void main()
{
  clrscr();
  BCA aa;
  aa.set (5,7);
 aa.show ( );
 fun (aa);
 getch ();
}
```

Output=

5
7

Sum =
12

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Program 43

```
//WAP in C++ to concept of function overloading
#include<iostream.h>
#include<conio.h>
class Intro
{
 public:
 void detail(char a[20], int b)
{
  cout<<"my name is = "<<a<<endl;
  cout<<"my roll no is = "<<b<<endl;
}
 void detail(char a[40])
{ cout<<"I currently studied in "<<a<<endl;
}
 void detail( char b[40], char c[30])
{ cout<<"And i want to become an "<<b<<endl;
};
 void main()
{
 clrscr();
 Intro a1;
a1.detail("Abhinav", 362);
a1.detail("BCA", "AK");
a1.detail("Software engineer");
 getch();
}
```

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Output:-

my name is = Abhinav
my roll no is = 362
And i want to become an BCA
I currently studied in software engineer

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Program 44

```
//WAP to show the concept of function overriding.
#include <iostream.h>
#include< conio.h>
 class Animal
{
  public:
 void show()
{
 cout<<"Animal is Eating"<<endl;
};
 class Dog : public Animal
{
 public:
  void show()
{
 cout<<"Dog is eating"<<endl;
};
  void main()
{
  clrscr();
 Dog obj;
obj. show();
obj. Animal :: show();
 getch();
}
```

Output:-

Dog is eating

Animal is eating

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Program 45

```
//WAP to show the concept of virtual function.
#include <iostream.h>
#include <conio.h>
class Demo
{
  public:
virtual void show()          virtual func...
{
 cout << " Base class" << endl;
}};
class Extra : public Demo
{
   Public:
   voidshow()
{
  cout << " Derived class";
}};
  void main()
{
  clrscr();
  Demo * p;
  Extra obj;
  p = & obj;
  p -> show();
  getch();
}
```

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Output:-

Base class
Derived Class