```
}
```

```cpp
/*
Program-39
*/
#include <iostream>
using namespace std;

class base{
public:
 void display(){
cout<<"Base class display called\n";
}
};

class derv1 : public base{
public:
void display(){
cout<<"Derv1's display called\n";
}
};

class derv2 : public base {
public :
void display(){
cout<<"Derv2's display called\n";
}
};


int main(){
base *ptr; // pointer to base class

derv1 d1; // derived (derv1) object

derv2 d2;

ptr =&d1; // address of d1 to base pointer

ptr->display();

ptr=&d2; // address of d2 to base pointer

ptr->display();
return 0;
}
```

Output :

```
Base class display called

Base class display called
```

```
}


/*
PRogram-40
*/
#include <iostream>
using namespace std;

class base{
public:
 virtual void display(){
cout<<"Base class display called\n";
}
};

class derv1 : public base{
public:
void display(){
cout<<"Derv1's display called\n";
}
};

class derv2 : public base {
public :
void display(){
cout<<"Derv2's display called\n";
}
};


int main(){
base *ptr; // pointer to base class

derv1 d1; // derived (derv1) object

derv2 d2;

ptr =&d1; // address of d1 to base pointer

ptr->display();

ptr=&d2; // address of d2 to base pointer

ptr->display();
return 0;
}
```

Output :

```
Derv1's display called

Derv2's display called
```

```cpp
/*
Program-41
Exception handling : Rethrow an exception
*/
#include<iostream>
#include<conio.h>
using namespace std;

void funchandler(){
    try{
        throw 10;
    }
        catch(int i){
            cout << "Caught Exception inside function\n";
            throw; //rethrow
        }
    }
int main(){
    cout << "Start of main() \n";
    try {
        funchandler();
    }
    catch(int i){
        cout << "Rethrown exception caught in main()\n";
    }
    cout << "End of main()";
    return 0;
}
```

Output :

```
Start of main()

Caught Exception inside function

Rethrown exception caught in main()

End of main()
```

```
/*
Program-42
Exception handling : Program to check whether a person is eligible to vote or not
*/
#include<iostream>
#include<conio.h>
using namespace std;

int main(){
    int age;
    cout << "Enter age for voting(18 to 120) : ";
    cin>> age;
    try{
        if(age>0 && age<18){
            throw 0 ;
        }
        else if(age>120){
            throw 'v';
        }
        else if(age<0){
            throw 2.8;
        }
        cout << "Eligible for voting";
    }
    catch(int i){
        cout << "Exception : Valid age but not eligible for voting";
    }
    catch(...){
        cout << "exception : Invalid age for voting";
    }
    return 0;
}
```

Output :

```
Enter age for voting(18 to 120) : 12

Exception : Valid age but not eligible for voting
```

```cpp
/*
Program-43
Exception handling : To calculate square root
*/
#include<iostream>
#include<math.h>
using namespace std;

int main(){
    int num;
    double res;
    cout << "Enter a number : ";
    cin >> num;
    try {
        if(num<0)
            throw 10;
        else if(num>0)
            throw 'E';
        cout << "Square root of " << num << " is " << sqrt(num);
    }
    catch(int){
        cout << "Exception handling : out of range \n ";
    }
    catch(char){
        cout << "Exception : square root of negative number doesn't exist";
    }
    return 0;
}
```

Output :

```
Enter a number : -1

Exception handling : out of range
```

```
/*
Program-44
Exception handling
*/
#include<iostream>
using namespace std;

int main(){
    int x,y;
    cout << "Enter numerator (x) and denominator (y)  = ";
    cin >> x >> y;
    try{
        if(y==0)
        throw 10;
        cout << "x / y = " << x / y;
    }
    catch(int i){
        cout << "Exception : Division by 0 not allowed";
    }
    return 0;
}
```

Output :

```
Enter numerator (x) and denominator (y)  = 12

0

Exception : Division by 0 not allowed
```