

## PROGRAM:

```
#include<iostream>

using namespace std;

class DOB
{
    private:
        int dd,mm,yy;
    public:
        void show()
        {
            cout<<"enter date,month and year:";
            cin>>dd>>mm>>yy;
            cout<<dd<<"-"<<mm<<"-"<<yy;
        }
};

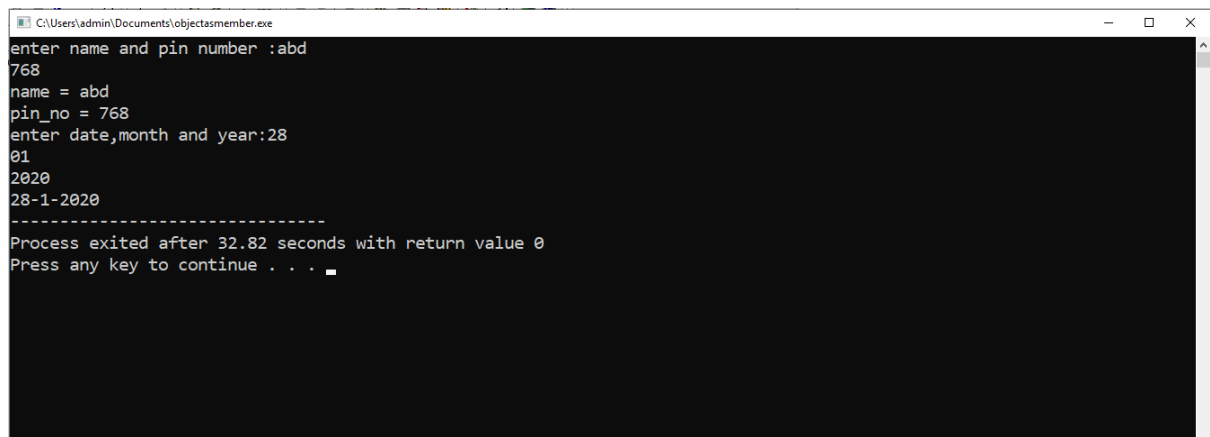
class student
{
    private:
        string name;
        int pin_no;
        DOB d;
    public:
        void display()
        {
            cout<<"enter name and pin number :";
            cin>>name>>pin_no;
            cout<<"name = "<<name<<endl;
            cout<<"pin_no = "<<pin_no<<endl;
            d.show();
        }
};
```

```
int main()
{
    student s;

    s.display();

    return 0;
}
```

## OUTPUT:



```
C:\Users\admin\Documents\objectasmember.exe
enter name and pin number :abd
768
name = abd
pin_no = 768
enter date,month and year:28
01
2020
28-1-2020
-----
Process exited after 32.82 seconds with return value 0
Press any key to continue . . .
```

## PROGRAM:

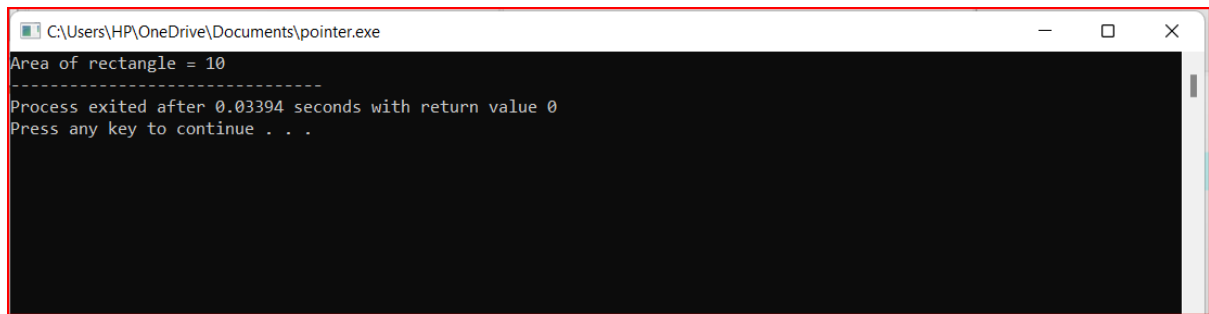
```
#include<iostream>

using namespace std;

class Rectangle
{
    private:
        int length,breadth;
    public:
        Rectangle(int l,int b)
        {
            length=l;
            breadth=b;
        }
        void getarea()
        {
            cout<<"Area of rectangle = "<<length*breadth;
        }
};

int main()
{
    Rectangle r(5,2),*rptr;
    rptr=&r;
    rptr->getarea();
    return 0;
}
```

## OUTPUT:



```
C:\Users\HP\OneDrive\Documents\pointer.exe
Area of rectangle = 10
-----
Process exited after 0.03394 seconds with return value 0
Press any key to continue . . .
```

## PROGRAM:

```
#include<iostream>

using namespace std;

class A
{
    public:
        void showA()
        {
            cout<<"method of class A"<<endl;
        }
};

class B:virtual public A
{
    public:
        void showB()
        {
            cout<<"method of class B"<<endl;
        }
};

class C:virtual public A
{
    public:
        void showC()
        {
            cout<<"method of class C"<<endl;
        }
};

class D:public B,public C
{
    public:
        void showD()
```

```

        {
            cout<<"method of class D"<<endl;
        }
};

int main()
{
    D d;
    d.showA();
    d.showB();
    d.showC();
    d.showD();
    return 0;
}

```

## OUTPUT:



```

C:\Users\HP\OneDrive\Documents\virtualbaseclass.exe
method of class A
method of class B
method of class C
method of class D

-----
Process exited after 0.07619 seconds with return value 0
Press any key to continue . . .

```

## PROGRAM:

```
#include <iostream>

using namespace std;

class base
{
    public:
        virtual void print()
        {
            cout << "print base class" << endl;
        }
        void show()
        {
            cout << "show base class" << endl;
        }
};

class derived : public base {
public:
    void print()
    {
        cout << "print derived class" << endl;
    }

    void show()
    {
        cout << "show derived class" << endl;
    }
};

int main()
{
    base* bptr;
    derived d;
```

```
bptr = &d;
```


```
bptr->print(); //virtual function
```

```
bptr->show(); // Non-virtual function
```

```
return 0;
```

```
}
```

## OUTPUT:



```
C:\Users\admin\Documents\virtualfunctions.exe
print derived class
show base class

-----
Process exited after 0.04558 seconds with return value 0
Press any key to continue . . .
```



## PROGRAM:

```
#include <iostream>

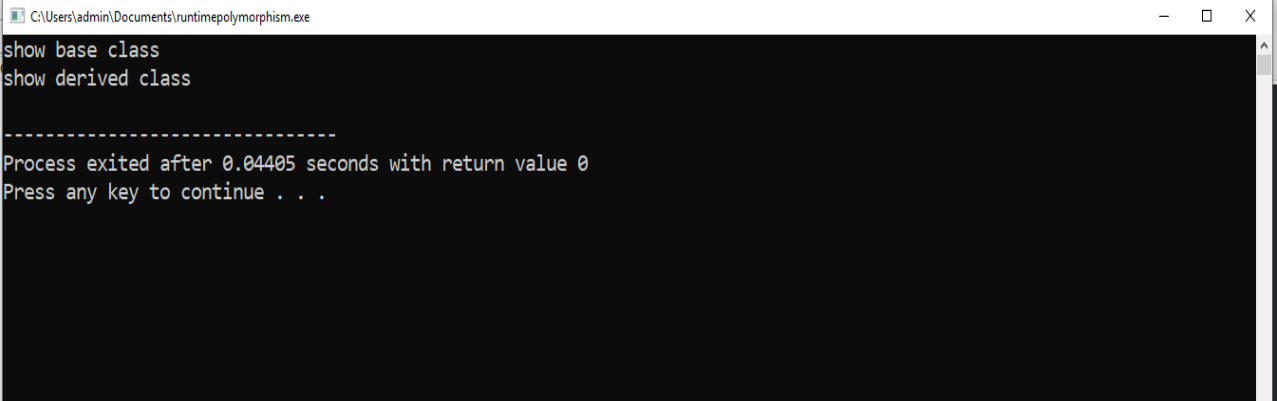
using namespace std;

class base {
public:
    virtual void show()
    {
        cout << "show base class" << endl;
    }
};

class derived : public base {
public:
    void show()
    {
        cout << "show derived class" << endl;
    }
};

int main()
{
    base b, *bptr;
    bptr = &b;
    bptr -> show();
    derived d, *dptr;
    bptr = &d;
    bptr -> show();
    return 0;
}
```

## OUTPUT:



A screenshot of a Windows command prompt window. The title bar shows the file path "C:\Users\admin\Documents\runtimepolymorphism.exe". The window has standard Windows window controls (minimize, maximize, close) on the right. The command prompt is black with white text. The output shows two commands entered: "show base class" and "show derived class". After a separator line of dashes, it displays "Process exited after 0.04405 seconds with return value 0" and "Press any key to continue . . .".

```
C:\Users\admin\Documents\runtimepolymorphism.exe
show base class
show derived class

-----
Process exited after 0.04405 seconds with return value 0
Press any key to continue . . .
```

## PROGRAM:

```
#include<iostream>

using namespace std;

class Shapes
{
    public:
        virtual void Area(int x)=0;
};

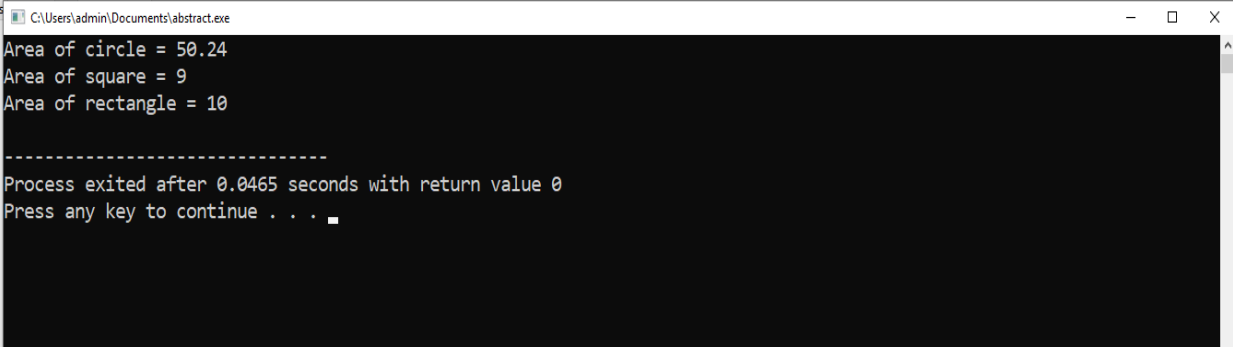
class Square:public Shapes
{
    public:
        void Area(int x)
        {
            cout<<"Area of square = "<<x*x<<endl;
        }
};

class circle:public Shapes
{
    public:
        void Area(int x)
        {
            cout<<"Area of circle = "<<3.14*x*x<<endl;
        }
};

class rectangle:public Shapes
{
    public:
        void Area(int x)
        {
            int b=2;
            cout<<"Area of rectangle = "<<x*b<<endl;
        }
};
```

```
        }  
};  
  
int main()  
{  
    circle c, *cptr;  
    cptr = &c;  
    cptr -> Area(4);  
    Square s, *sptr;  
    sptr = &s;  
    sptr -> Area(3);  
    rectangle r, *rptr;  
    rptr = &r;  
    rptr -> Area(5);  
    return 0;  
}
```

## OUTPUT:



```
C:\Users\admin\Documents\abstract.exe  
Area of circle = 50.24  
Area of square = 9  
Area of rectangle = 10  
  
-----  
Process exited after 0.0465 seconds with return value 0  
Press any key to continue . . .
```