* **Code:**

#include <iostream>

#define PI 3.14159

using namespace std;

class shape{

protected:

double x, y;

public:

void getData(){

cout<<"Enter the value of x: ";

cin>>x;

cout<<"Enter the value of y: ";

cin>>y;

}

virtual void showArea()=0;

};

class triangle : public shape{

public:

void showArea(){

cout<<"\nThe Area of the triangle is "<<0.5\*x\*y<<endl;

}

};

class rectangle : public shape{

public:

void showArea(){

cout<<"\nThe Area of the Rectangle is "<<x\*y<<endl;

}

};

class circle : public shape{

public:

void showArea(){

cout<<"\nThe Area of the Circle(x taken as radius) is "<<PI\*x\*x<<endl;

cout<<"\nThe Area of the Circle(y taken as radius) is "<<PI\*y\*y<<endl;

}

};

int main(){

shape \*ptr[3];

triangle t;

rectangle r;

circle c;

while(true){

char choice;

cout<<"Enter your choice: A-Triangle/B-Rectangle/C-Circle "<<endl;

cin>>choice;

switch(choice){

case 'A':

ptr[0]=&t;

ptr[0]->getData();

ptr[0]->showArea();

break;

case 'B':

ptr[1]=&r;

ptr[1]->getData();

ptr[1]->showArea();

break;

case 'C':

ptr[2]=&c;

ptr[2]->getData();

ptr[2]->showArea();

break;

default:

cout<<"Invalid Choice!!"<<endl;

break;

}

char repeat;

cout<<"\nDo you want to repeat? Y/N"<<endl;

cin>>repeat;

if(repeat=='N'){

break;

}

}

}

* **Output:**

