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PRN - B24cCE1079

Subject - Object Oriented Programming

Assignment 5

PROGRAM

/*PROBLEM STATEMENT: Geometrical Shapes Area calculator

Define the base class Shape with two data members of any numeric type that are employed to compute the area of respective shape. Add member functions to input the data members values and display the area in base class only. Derive two classes from base class namely, Triangle & Rectangle. Take the display function as virtual in base class and redefine it in the derived classes. Using above classes , write a program to accept parameters for triangle or rectangle and display the area Using Virtual Functions.*/

```
#include <iostream>
using namespace std;

class shape {
protected:
    float x, y;
public:
    void getdata(float m, float n) {
        x = m;
        y = n;
    }
    virtual void display() {
        cout << "We are in base class" << endl;
    }
};

class triangle : public shape {
private:
    float a;
public:
    void display() override {
        a = 0.5 * x * y;
        cout << "Area of the triangle: " << a << endl;
    }
};

class rectangle : public shape {
private:
    float a;
public:
```

```

void display() override {
    a = x * y;
    cout << "Area of the rectangle: " << a << endl;
}
};

int main() {
    shape* ptr;
    triangle t;
    rectangle r;
    float b, h;

    cout << "Enter the base for triangle: ";
    cin >> b;
    cout << "Enter the height for the triangle: ";
    cin >> h;
    t.getdata(b, h);
    ptr = &t;
    ptr->display();

    cout << "Enter length of the rectangle: ";
    cin >> b;
    cout << "Enter breadth of the rectangle: ";
    cin >> h;
    r.getdata(b, h);
    ptr = &r;
    ptr->display();
    return 0;
}

```

OUTPUT

```

Enter the base for triangle: 2
Enter the height for the triangle: 4
Area of the triangle: 4
Enter length of the rectangle: 5
Enter breadth of the rectangle: 8
Area of the rectangle: 40

```