

C++ Program for Shape Volume Calculation:

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

const double PI = 3.141592653589793;

class Shape {
public:
    virtual void display() const = 0;
    virtual double volume() const = 0;
    virtual ~Shape() {}
};

class Sphere : public Shape {
private:
    double radius;
public:
    Sphere(double r) : radius(r) {}
    void display() const override {
        cout << "Sphere with radius = " << radius << endl;
    }
    double volume() const override {
        return (4.0 / 3.0) * PI * pow(radius, 3);
    }
};

class Cuboid : public Shape {
protected:
    double length, width, height;
public:
    Cuboid(double l, double w, double h) : length(l), width(w), height(h) {}
    void display() const override {
        cout << "Cuboid with length = " << length << ", width = " << width << ", height = " << height << endl;
    }
    double volume() const override {
        return length * width * height;
    }
};

class Cube : public Cuboid {
public:
    Cube(double side) : Cuboid(side, side, side) {}
    void display() const override {
        cout << "Cube with side = " << length << endl;
    }
};

int main() {
    Shape* shapes[3];
```

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shapes[0] = new Sphere(3);
shapes[1] = new Cuboid(2, 3, 4);
shapes[2] = new Cube(5);

double totalVolume = 0.0;

for (int i = 0; i < 3; ++i) {
    shapes[i]->display();
    totalVolume += shapes[i]->volume();
    delete shapes[i];
}

cout << "Total volume of all shapes: " << totalVolume << endl;
return 0;
}
```

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