**Programming Question 1**

**Create a class called point with data members to rep[resent the x and y coordinates and have a function to display the coordinates. Derive a class called Circle from Point with a data member to represent the radius.**

**Have a function called area() to calculate the area of the circle and also display the coordinates.**

**Derive a class Cylinder from Circle with a data member to represent the height of the cylinder.Have a function called Volume()to calculate the volume of the Cylinder.**

class Point {

double x;

double y;

Point(int a, int b)

{

this.x = a;

this.y = b;

}

void dis() {

System.out.println("Coordinate:(" + x + "," + y + ")");

}

}

class Circle extends Point {

double rad;

Circle(int x, int y) {

super(x, y);

rad = Math.sqrt((x \* x) + (y \* y));

}

void area() {

double area = Math.PI \* rad \* rad;

System.out.println("Area of Circle:" + area);

System.out.println("Coordinate: (" + x + "," + y + ")");

}

}

class Cylinder extends Circle {

int h;

Cylinder(int x, int y, int h) {

super(x, y);

this.h = h;

}

void volume() {

System.out.println("Volume of Cylinder: " + (Math.PI \* rad \* rad \* h));

}

}

public class Ques2 {

public static void main(String[] args) {

Point p = new Point(5, 12);

p.dis();

Circle c = new Circle(5, 12);

c.area();

Cylinder cyl = new Cylinder(5, 12, 10);

cyl.volume();

}

}

**OUTPUT:**

**Coordinate:(5.0,12.0)**

**Area of Circle:530.929158456675**

**Coordinate: (5.0,12.0)**

**Volume of Cylinder: 5309.29158456675**

**PROGRAMMING QUESTION 2**

**a) Create a class to hold information about books.Write a function to display information about the book.**

**Data members: Title,Author,cost,no\_of\_books**

**b) Create 3 instances of the above class and initialize the members of the class with the data accepted from the user.**

**c) Accept a title and the no\_of\_books required from the user. Find whether the book exists. If it exists, check if the no\_of\_books are sufficient and if so indicate the total cost of the books.**

import java.util.Scanner;

class Book {

String title;

String author;

double cost;

int no\_of\_books;

public Book(String title, String author, double cost, int no\_of\_books) {

this.title = title;

this.author = author;

this.cost = cost;

this.no\_of\_books = no\_of\_books;

}

void display() {

System.out.println("Title: " + title + ", Author: " + author);

System.out.println("Cost: " + cost);

}

}

public class Test1 {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Enter data for books.");

Book x[] = new Book[3];

for (int i = 0; i < 3; i++) {

System.out.print("Enter title: ");

String title = sc.next();

System.out.print("Enter author: ");

String author = sc.next();

System.out.print("Enter cost: ");

double cost = sc.nextDouble();

System.out.print("Enter no of books: ");

int no\_of\_books = sc.nextInt();

x[i] = new Book(title, author, cost, no\_of\_books);

}

System.out.print("\nEnter title to search: ");

String title = sc.next();

System.out.print("Enter no of books required: ");

int no\_of\_books = sc.nextInt();

boolean found = false;

for (int i = 0; i < 3; i++) {

if (title.equals(x[i].title) && (no\_of\_books <= x[i].no\_of\_books)) {

found = true;

x[i].display();

System.out.println("Books are sufficient.");

System.out.println("Total cost of books: " + (x[i].cost \* no\_of\_books));

}

}

if (found == false) {

System.out.println("No books found.");

}

}

}

**OUTPUT:**

**Enter data for books.**

**Enter title: As**

**Enter author: You**

**Enter cost: 200**

**Enter no of books: 4**

**Enter title: Like**

**Enter author: It**

**Enter cost: 300**

**Enter no of books: 2**

**Enter title: Round**

**Enter author: Trip**

**Enter cost: 100**

**Enter no of books: 2**

**Enter title to search: As**

**Enter no of books required: 2**

**Title: As, Author: You**

**Cost: 200.0**

**Books are sufficient.**

**Total cost of books: 400.0**