```
import java.util.Scanner;

abstract class Shape {
   double a, b;
   abstract void printAr1ea();
}

class Rectangle extends Shape {
   void printArea() {
      System.out.println("Area of rectangle is " + (a * b));
   }
}

class Triangle extends Shape {
   void printArea() {
      System.out.println("Area of triangle is " + (0.5 * a * b));
   }
}

class Circle extends Shape {
   void printArea() {
      System.out.println("Area of circle is " + (3.14 * a * a));
   }
}
class abstract1 {
   public static void main(String args[]) {
      int n;
      Rectangle r = new Rectangle();
```

```
Triangle t = new Triangle();
Circle c = new Circle();
Scanner s1 = new Scanner(System.in);

while (true) {
  System.out.println("\nMAIN MENU");
  System.out.println("1. Rectangle");
  System.out.println("2. Triangle");
  System.out.println("3. Circle");
  System.out.print("Enter choice: ");
  n = s1.nextInt();

  switch (n) {
    case 1:
      System.out.print("Enter length: ");
      r.a = s1.nextDouble();
      System.out.print("Enter breadth: ");
      r.b = s1.nextDouble();
      r.printArea();
      break;

    case 2:
      System.out.print("Enter base: ");
      t.a = s1.nextDouble();
      System.out.print("Enter height: ");
      t.b = s1.nextDouble();
      t.printArea();
      break;
```

```
            case 3:
               System.out.print("Enter radius: ");
               c.a = s1.nextDouble();
               c.printArea();
               break;

            default:
               System.out.println("Invalid input");
         }
      }
   }
}
```

2.

```
import java.util.Scanner;

class Book {
   String name;
   String author;
   double price;
   int numPages;

   Book(String name, String author, double price, int numPages) {
      this.name = name;
      this.author = author;
      this.price = price;
      this.numPages = numPages;
   }

   void setDetails(Scanner scanner) {
      scanner.nextLine();

      System.out.print("Enter book name: ");
      this.name = scanner.nextLine();

      System.out.print("Enter author name: ");
      this.author = scanner.nextLine();

      System.out.print("Enter price: ");
      this.price = scanner.nextDouble();
```

```
        System.out.print("Enter number of pages: ");
        this.numPages = scanner.nextInt();
    }

    void getDetails() {
        System.out.println("Book Name:"+ name);
        System.out.printf("Author:"+ author);
        System.out.printf("price: Rs"+ price);
        System.out.printf("Number of Pages:"+ numPages);
    }


    public String toString() {
        return "Book Details:\n" +
        "Name:" + name + "\n" +
        "Author:" + author + "\n" +
        "price:" + price + "\n" +
        "Number of pages:" + numPages;
    }
}

public class Books {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the number of books: ");
        int n = scanner.nextInt();
```

```
        Book[] books = new Book[n];

        for (int i = 0; i < n; i++) {
            System.out.println("\nEnter details for Book " + (i + 1) + ":");
            books[i] = new Book("", "", 0.0, 0);
            books[i].setDetails(scanner);
        }

        System.out.println("\nDetails of all books:");
        for (int i = 0; i < n; i++) {
            System.out.println("\nBook " + (i + 1) + ":");
            books[i].getDetails();
        }

        System.out.println("\nComplete details of all books (using toString):");
        for (int i = 0; i < n; i++) {
            System.out.println("\nBook " + (i + 1) + ":\n" + books[i]);
        }

        scanner.close();
    }
}
```

Output

```
Enter the number of books: 2

Enter details for Book 1:
Enter book name: Harry potter
Enter author name: james
Enter price: 20
Enter number of pages: 200

Enter details for Book 2:
Enter book name: rich dad
Enter author name: kiyosaki
Enter price: 30
Enter number of pages: 100

Details of all books:

Book 1:
Book Name:Harry potter
Author:jamesprice: Rs20.0Number of Pages:200
Book 2:
Book Name:rich dad
Author:kiyosakiprice: Rs30.0Number of Pages:100
Complete details of all books (using toString):

Book 1:
Book Details:
Name:Harry potter
Author:james
price:20.0
Number of pages:200

Book 2:
Book Details:
Name:rich dad
Author:kiyosaki
price:30.0
Number of pages:100
PS C:\Users\student\1BM24CS326>
```