S.No: 2	Exp. Name: ***Java Program to Model a Dog with Inheritance and Abstraction***	Date:2025-08-17

Aim:

Create a Java program to model a **dog** using object-oriented principles with inheritance and abstraction.

Class Structure:

Abstract Class Animal:

- Attributes: $name$ (String), $color$ (String), age (int).
- A constructor to initialize these attributes.
- Concrete method to **eat()** to simulate eating behavior.
- Abstract method **sleep()**, which needs to be implemented by subclasses.

Subclass Dog extending Animal:

- Inherits attributes and methods from **Animal**.
- Additional attribute $breed$ (String) specific to dogs.
- Constructor to initialize all attributes, including $breed$.
- Method **bark()** to simulate barking behavior.
- Implementation of the abstract method sleep() to display "[Name] is sleeping" behavior.

Input Format:

- Prompt the user to enter the following details for the dog:

```
Name (String)
Color (String)
Age (Integer)
Breed (String)
```

Output Format:

- The program should display the details and behaviors of the dog as follows:

```
Dog Details:
Name: [Name]
Color: [Color]
Age: [Age]
Breed: [Breed]
[Name] is eating
[Name] is barking
[Name] is sleeping
```

Note:

- Refer to sample test cases for better understanding.

Source Code:

q35747/Animalclass.java

```
package q35747;
import java.util.Scanner;
abstract class Animal {
```

```
   String name;
   String color;
   int age;
   Animal(String n, String c, int a){
      name = n;
      color = c;
      age = a;
   }

   public void eat(){
      System.out.println(name + " is eating");
   }
    abstract void sleep();

}

class Dog extends Animal {
    String breed;
   Dog(String n , String c , int a, String b){
      super(n,c,a);
      breed = b;
   }
   public void bark(){
      System.out.println(name + " is barking");
   }
   public void sleep(){
      System.out.println(name + " is sleeping");
   }




    //Type your content here




}

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

        System.out.print("Name: ");
        String name = scanner.nextLine();
        System.out.print("Color: ");
        String color = scanner.nextLine();
        System.out.print("Age: ");
        int age = scanner.nextInt();
        scanner.nextLine();
        System.out.print("Breed: ");
        String breed = scanner.nextLine();

        Dog dog = new Dog(name, color, age, breed);

        System.out.println("Dog Details:");
```

```
        System.out.println("Name: " + dog.name);
        System.out.println("Color: " + dog.color);
        System.out.println("Age: " + dog.age);
        System.out.println("Breed: " + dog.breed);
        dog.eat();
        dog.bark();
        dog.sleep();

        scanner.close();
    }
}
```


Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Name: Rocky
Color: Black
Age: 2
Breed: Labrador
Dog Details:
Name: Rocky
Color: Black
Age: 2
Breed: Labrador
Rocky is eating
Rocky is barking
Rocky is sleeping

Test Case - 2
User Output
Name: Daisy
Color: Gold
Age: 3
Breed: Golden Retriever
Dog Details:
Name: Daisy
Color: Gold
Age: 3
Breed: Golden Retriever
Daisy is eating
Daisy is barking
Daisy is sleeping