CS23304 JAVA PROGRAMMING

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WEEK 6

Instruction:

- **Use meaningful variable names**
- **Consistent indentation**
- **Proper error handling**
- **Proper comment to follow the question requirement**

1. Write a program to show single inheritance

   Class LivingBeing
   Methods: Breath() and Response()
   Class Animal
   Methods: Walk() and NoOfLegs()
2. Write a program to show Multilevel inheritance
   Class LivingBeing

   Methods: Breath() and Response()
   Class Animal
   Methods: Walk() and NoOfLegs()
   Class Cat
   Methods: Meow()
   Class Dog
   Methods: Bark()
3. Write a program to show Hierarchical inheritance
   Class LivingBeing

   Methods: Breath() and Response()
   Class Animal
   Methods: Walk() and NoOfLegs()
   Class Cat
   Methods: Meow()
   Class Dog
   Methods: Bark()

4. Write a Java program with:

Animal base class with move() method and overloaded versions: move(String direction), move(int distance), move(String direction, int distance)

Dog, Cat, Bird classes extending Animal - override all move methods with specific behaviors

Main method that demonstrates:

Create Animal array with Dog, Cat, Bird objects

Loop through array calling move() - shows runtime polymorphism

Create one Dog object and call all 4 move methods - shows compile-time polymorphism .

Expected output should show different movement behaviors for each animal type.

5. Write a Java program to demonstrate Hierarchical inheritance:

Class LivingBeing (Constructor: takes String name Methods: breathe() and response())

Class LandAnimal extends LivingBeing (Constructor: takes String name - use super(name) Methods: walk() and numberOfLegs())

Class WaterAnimal extends LivingBeing(Constructor: takes String name - use super(name) Methods: swim() and waterType())

Class Dog extends LandAnimal (Constructor: takes String name - use super(name) Methods: bark())

Class Cat extends LandAnimal (Constructor: takes String name - use super(name) Methods: meow())

Create Dog and Cat objects. Call all inherited methods on each object. Show constructor chaining by printing messages in each constructor