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① Write a java program to demonstrate the use of inheritance

(a) Single Inheritance

```
class Animal
{
  int noOfa = 10;
  void sound()
  {
    System.out.println("Animal sounds");
  }
}

class Dog extends Animal
{
  int nood = 5;
  void bark()
  {
    System.out.println("Dog Barks");
  }
}

public class SingleIn
{
  public static void main(String args[])
  {
    Dog d = new Dog();
    d.bark();
    System.out.println("no. of dogs: "+d.nood);
    d.sound();
    System.out.println("no. of animals: "+d.noa);
  }
}
```

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(b) Multilevel Inheritance

```
class Animal
{
  int noa=10;
  void sound()
  {
    System.out.println("Animal sounds");
  }
}

class Dog extends Animal
{
  int nod=6;
  void bark()
  {
    System.out.println("Dog Barks");
  }
}

class Puppy extends Dog
{
  int nop = 2;
  void cry()
  {
    System.out.println("Puppy cries");
  }
}
```

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```
class multiLevel
{
  public static void main(String args[])
  {
    Puppy p = new Puppy();
    p.cry();
    System.out.println("no of puppies:" + p.nop);
    p.bark();
    System.out.println("no of dogs:" + p.nod);
    p.sound();
    System.out.println("no of animals:" + p.noa);
  }
}
```

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Hierarchial Inheritance

```
class Animal
{
  int noa = 10;
  void sound()
  {
    System.out.println("Animal sounds");
  }
}

class Dog extends Animal
{
  int nod = 6;
  void bark()
  {
    System.out.println("Dog Barks");
  }
}

class Cat extends Animal
{
  int noc = 5;
  void meow()
  {
    System.out.println("Cat Meows");
  }
}
```

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```
public class Hierarchial
{
  public static void main (String args[])
  {
     Dog d = new Dog();
     d.bark();
     System.out.println("no of dogs:" + d.nod);
     d.sound();
     System.out.println("no of animals:" + d.noa);

     Cat c = new Cat();
     c.sound();
     System.out.println("no of animals:" + c.noa);
     c.meow();
     System.out.println("no of cats:" + c.noc);
  }
}
```

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② Write a java program to illustrate the use of super and final keywords

(a) super keyword

```
class Animal
{
  string name = "Dog";
  Animal();
  {
    System.out.println("Animal sounds in Animal()");
  }
  void sound()
  {
    System.out.println("Animal sounds in sound()");
  }
}
class Dog extends Animal
{
  string name = "Roger";
  Dog();
  {
    super();
    System.out.println("Dog Barks in Dog()");
  }
  void bark()
  {
    System.out.println("Dog Barks in Bark()");
  }
```

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```
void getName()
{
  System.out.println("Dog name:"+name);
  System.out.println("Animal name:"+super.name);
  }
}

public class superMain
{
 public static void main(String args[])
 {
   Dog d= new Dog();
   d.bark();
   d.getName();
 }

}
```

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(b) Final keyword

```
final class Animal
{
  final int count = 10;
  final void sound()
  {
    System.out.println("Animal sounds");
  }
}
class Finalkeyword
{
  public static void main(String args[])
  {
    Animal a = new Animal();
    System.out.println("Count of Animals is :" + a.count);
    a.sound();
  }
}
```