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S22-94

Experiment No. 11

Aim: To implement program using super and final keyword.

Theory:

The **super** keyword: The **super** keyword in Java is a reference variable which is used to refer immediate parent class object.
Whenever you create the instance of subclass, an instance of parent class is created implicitly which is referred by super reference variable.
It is majorly used in the following contexts:

- Use of super with variables
- Use of super with methods
- Use of super with constructors

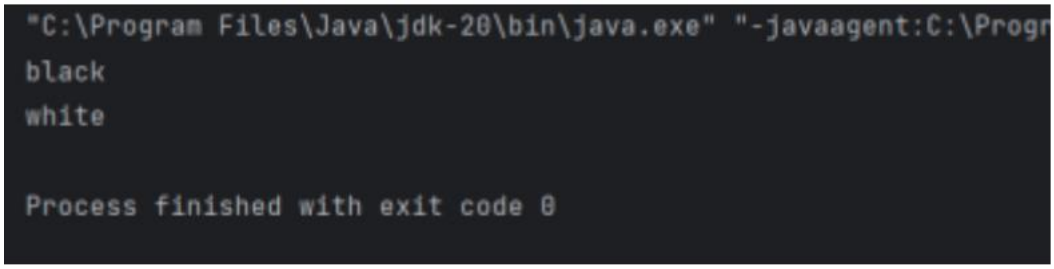
It is used to call superclass methods, and to access the superclass constructor.
The most common use of the super keyword is to eliminate the confusion between superclasses and subclasses that have methods with the same name.

Code-01: super is used to refer immediate parent class instance variable.

```
class Animal{
String color="white";
}
class Dog extends Animal{
String color="black";
void printColor(){
System.out.println(color);//prints color of Dog class
System.out.println(super.color);//prints color of Animal class
}
}
class TestSuper1{
public static void main(String args[]){
Dog d=new Dog();
d.printColor();
}
```

}

Output:



Code-02: super can be used to invoke parent class method

```
class Animal
{
void eat(){System.out.println("eating...");
}
}
class Dog extends Animal{
void eat(){System.out.println("eating bread...");
}
void bark(){System.out.println("barking...");
}
void work(){
super.eat();
bark();
}
}
class TestSuper2{
public static void main(String args[])
{
Dog d=new Dog();
d.work();
}
}
```

Output:

Code-03: super is used to invoke parent class constructor.

```
class Animal

{
Animal(){System.out.println("animal is created");
}
}
class Dog extends Animal
{
Dog()
{
super();
System.out.println("dog is created");
}
}
class TestSuper3
{
public static void main(String args[])
{
Dog d=new Dog();
}
}
```

Output:

The **final keyword:**

The **final keyword** in java is used to restrict the user. The java final keyword can be used in many context.
final is a non-access modifier applicable only to a variable, a method, or a class.
In Java, the final keyword is used to denote constants. It can be used with variables, methods, and classes.
Once any entity (variable, method or class) is declared final, it can be assigned only once.

Code-01:

```
class Bike9
{
 final int speedlimit=90;//final variable
 void run(){
  speedlimit=400;
 }
 public static void main(String args[])
{
 Bike9 obj=new  Bike9();
 obj.run();
 }
}//end of class
```

Output:

Code-02:

```
class Bike
{
  final void run(){System.out.println("running");
}
}

class Honda extends Bike
{
   void run(){System.out.println("running safely with 100kmph");
}

   public static void main(String args[])
{
   Honda honda= new Honda();
```

```
    honda.run();
    }
}
```

Output:

Conclusion: In conclusion, the study and implementation of programs using the super and final keywords in programming serve essential purposes in the development of robust and maintainable software.