

The `final` Keyword in Java

1. Introduction

`final` keyword Java te use hoy **variables, methods, and classes** ke restrict korte.
Eta **inheritance er context** e khub important, karon `final` **child class er modification** ke control kore!

2. Uses of `final` Keyword

1. **Final Variable** – constant value declare korte
 2. **Final Method** – method override prevent korte
 3. **Final Class** – class ke extend prevent korte
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3. Final Variable

```
class TestFinalVariable {  
    final int MAX = 100;  
  
    void display() {  
        // MAX = 200; // Error: cannot assign a value to final variable  
        System.out.println("MAX = " + MAX);  
    }  
}  
  
public class DemoFinalVariable {  
    public static void main(String[] args) {  
        TestFinalVariable t = new TestFinalVariable();  
        t.display();  
    }  
}
```

Output:

```
MAX = 100
```

4. Final Method

```
class Parent {  
    final void show() {  
        System.out.println("This is a final method");  
    }  
}  
  
class Child extends Parent {  
    // void show() { // Error: cannot override final method  
    //     System.out.println("Trying to override");  
    // }  
}  
  
public class TestFinalMethod {  
    public static void main(String[] args) {  
        Child c = new Child();  
        c.show();  
    }  
}
```

Output:

```
This is a final method
```

5. Final Class

```
final class Vehicle {  
    void start() {  
        System.out.println("Vehicle starts");  
    }  
}  
  
// class Car extends Vehicle { // Error: cannot inherit from final Vehicle  
// }  
  
public class TestFinalClass {  
    public static void main(String[] args) {  
        Vehicle v = new Vehicle();  
        v.start();  
    }  
}
```

```
}
```

Output:

```
Vehicle starts
```

6. Summary Table

Feature	Description	Example
Final Variable	Value cannot change	<code>final int MAX = 100;</code>
Final Method	Cannot be overridden	<code>final void show()</code>
Final Class	Cannot be extended	<code>final class Vehicle</code>

7. Points to Remember

1. Final keyword **immutability and safety** ensure kore!
2. Final variable must be **initialized during declaration or in constructor!**
3. Final methods prevent **overriding**, final classes prevent **inheritance!**
4. Final members are widely used in **constants, utility classes, and API design!**