What is a blank final field in Java ?

* If we declare a **non static field** with **final modifier and not initializing this variable at the time of declaration then it is called blank final field.**

```
public class Test
{
    final int i ;  // Non static field + final modifier + not initialized at the time of declaration
```

* A blank final field cannot be initialized by default constructor OR non static method as shown below.

```
Case 1 :
class LIC
    {
        final double installment;  //Blank final field

    }
public class BlankFinalFieldDemo1
    {
        public static void main(String[] args)
        {
            LIC lic = new LIC();
        lic.provide(lic.installment);
        }
    }
```

Note : We will get compilation error

```
Case 2 :
class LIC
    {
        final double installment;  //Blank final field

        public void pay(double amt)
        {
            installment = 25000.89;
        }

    }
public class BlankFinalFieldDemo2
    {
        public static void main(String[] args)
        {
            LIC lic = new LIC();
            lic.pay(installment);
        }
    }
```

Error : Cannot initialized blank final field inside non static method

* A blank final field must be initialized by **developer explicitly in the following two places only :**

a) Inside the non static block

OR

b) Inside Constructor body

* So, the conclusion is, A blank final field must be initialized by **developer explicitly** till the completion of object creation OR till constructor body execution.

```
class LIC
    {
        final double installment;  //Blank final field

        {
            installment = 25000.89;
        }

    }
public class BlankFinalMethodDemo1
    {
        public static void main(String[] args)
        {
            LIC lic = new LIC();
            lic.provide(lic.installment);
        }
    }
```

* The main purpose of blank final filed is **force the developer** to provide explicit user defined value only one time.

```
package com.ravi.blank_final_field;

public class BlankFinalFieldDemo2 {

    public static void main(String[] args)
    {
        Car car = new Car("Jaguar", 2021);
        SOP.println(car);

    }

}

class Engine
{
    private String engineType;
    private int horsePower;

    public Engine(String engineType, int horsePower)
    {
        super();
        this.engineType = engineType;
        this.horsePower = horsePower;
    }

    @Override
    public String toString()
    {
        return "Engine [engineType=" + engineType + ", horsePower=" + horsePower +
"]";
    }

}

class Car
{
    private String carName;
    private int carModel;
    private final Engine engine;  //Blank final field

    public Car(String carName, int carModel)
    {
        super();
        this.carName = carName;
        this.carModel = carModel;
        this.engine = new Engine("Petrol", 1000);
        //this.engine = new Engine("CNG", 900);
    }

    @Override
    public String toString()
    {
        return "Car [carName=" + carName + ", carModel=" + carModel + ", engine="
+ engine + "]";
    }

}
```

* A blank final field also having **default value** provided by new keyword.

```
package com.ravi.blank_final_field;

public class BlankFinalFieldDemo3
{
    public static void main(String[] args)
    {
        Test t1 = new Test();
        SOP.println("Your value is : "+t1.x);
    }
}
class Test
{
    final int x;//blank final field

    {
        printValue();
        x = 100;
    }

    public void printValue()
    {
        SOP.println("Default Value :"+x);
    }
}
```

* A blank final field **must be initialized by the developer in all the constructors available in the class.**

```
package com.ravi.blank_final_field;

class Employee
{
    int id;
    final double salary;

    public Employee()
    {
        id = 111;
        salary = 12000;
    }

    public Employee(int id, double salary)
    {
        this.id = id;
        this.salary = salary;
    }

    @Override
    public String toString() {
        return "Employee [id=" + id + ", salary=" + salary + "]";
    }
}

public class BlankFinalFieldDemo4 {

    public static void main(String[] args)
    {
        Employee e1 = new Employee();
        SOP.println(e1);

        Employee e2 = new Employee(222, 23456);
        SOP.println(e2);

    }

}
```

```
package com.ravi.blank_final_field;

class Employee
{
    int id;
    final double salary;

    {
        id = 111;
        salary = 12000;
    }

    public Employee()
    {
    }

    public Employee(int id, double salary)
    {
    }

    @Override
    public String toString() {
        return "Employee [id=" + id + ", salary=" + salary + "]";
    }
}

public class BlankFinalFieldDemo4 {

    public static void main(String[] args)
    {
        Employee e1 = new Employee();
        SOP.println(e1);

        Employee e2 = new Employee(222, 23456);
        SOP.println(e2);

    }

}
```