

1. Review the Java code below then Re-write the whole program to improve the source code.

```
public class Factorial  
{  
    public static void main(String[] args)  
    { final int NUM = 100;  
      for(int i = 0; i < NUM; i++)  
        System.out.println( i + "! is " + factorial(i));  
    }
```



```
    public static int factorial(int n)  
    { int result = 1;  
      for(int i = 2; i <= n; i++)  
        result *= i;  
      return result;  
    }  
}
```



```
public class Factorial {

    private static final int NUM = 100;

    public static void main(String[] args) {
        for (int i = 0; i < NUM; i++) {
            System.out.println(i + "! = " + factorial(i));
        }
    }

    public static long factorial(int n) {

        if (n == 0 || n == 1) {
            return 1;
        }

        long result = 1;
        for (int i = 2; i <= n; i++) {
            result *= i;
        }
        return result;
    }
}
```

