

Question 3

**Explain what is main method
in Java?**



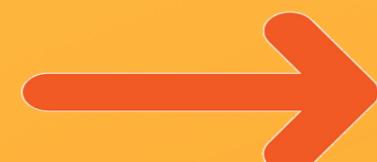
Master Java with Suraz Ghimire

- 12 years of experience in the Industry
- Mentoring Data Engineers since 2014

3 must know points about Main Method

-  **Main method is the entry point of any java application.**
-  **Every Java Program should have at least 1 main method if you wish to execute it.**
-  **The complete signature of main method is:-**

public static void main(String args[])

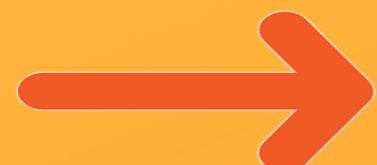


**Here are some very interesting
"Questions" on Main Method**



Why is the main method public?

- ✓ JVM is a piece of code that calls the main method of a Class.
- ✓ That class is loaded in the memory before it is been executed by JVM.
- ✓ JVM will be able to locate the main method if and only if it is public.
- ✓ If you don't write public, then by default main() will take <default> specifier and hence it will fail to execute the main method.





```
class HelloWorld1{  
    static void main(String[] args) {  
        System.out.println("Hello World");  
    }  
}
```



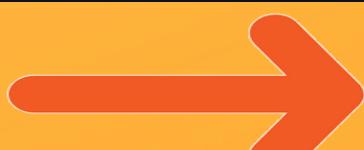
```
javac HelloWorld1.java  
java HelloWorld1
```



ERROR!!!



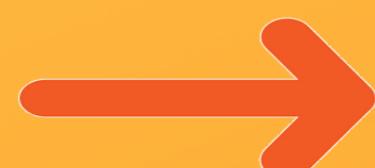
```
Main method not found in class HelloWorld1,please define the main method as:  
public static void main(String[] args)
```



2

Why is the main method static?

- ✓ JVM is a piece of code that is Programmed to call main methods using the class name of the class, where it is defined.
- ✓ If main is not defined as static then JVM cannot call it directly using the class name and will have to create the object of the class instead.
- ✓ To ease that operation, main is expected to be declared as static so that it can be called directly.





```
class HelloWorld1{  
    public void main(String[] args) {  
        System.out.println("Hello World");  
    }  
}
```



```
javac HelloWorld1.java  
java HelloWorld1
```



ERROR!!!

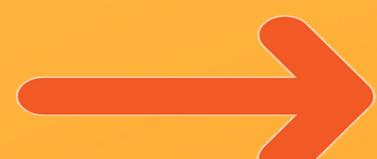


Main method is not static in class HelloWorld1, please define the main method as:
public static void main(String[] args)



What is String args[]?

- ✓ Java allows programmers to pass some external parameters from command line while executing the java Program, Hence it has given String args[]. args is just a variable name.
- ✓ We can use any variable name (not just args)
- ✓ All the command line parameters will be available as String object and you can use various approach to convert it to other types.

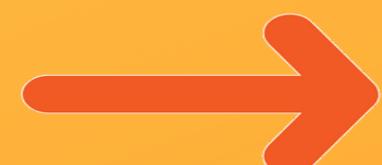




```
class HelloWorld1{
    public static void main(String[] args) {
        System.out.println("Hello World: "+args[0]+" "+args[1]);
    }
}
```



```
>javac HelloWorld1.java
>java HelloWorld1 OLC Suraz
Hello World: OLC Suraz
```



What is the value of args[] when you don't pass any parameter?

- ✓ By default, JVM creates an empty array and passes it while calling main(). Hence you don't get NullPointerException while trying to print args.length

```
● ● ●

class HelloWorld1{
    public static void main(String[] args) {
        System.out.println("Hello World: "+args);
        System.out.println("Length :" +args.length);
    }
}
```

```
● ● ●

Hello World: [Ljava.lang.String;@4517d9a3
Length :0
```



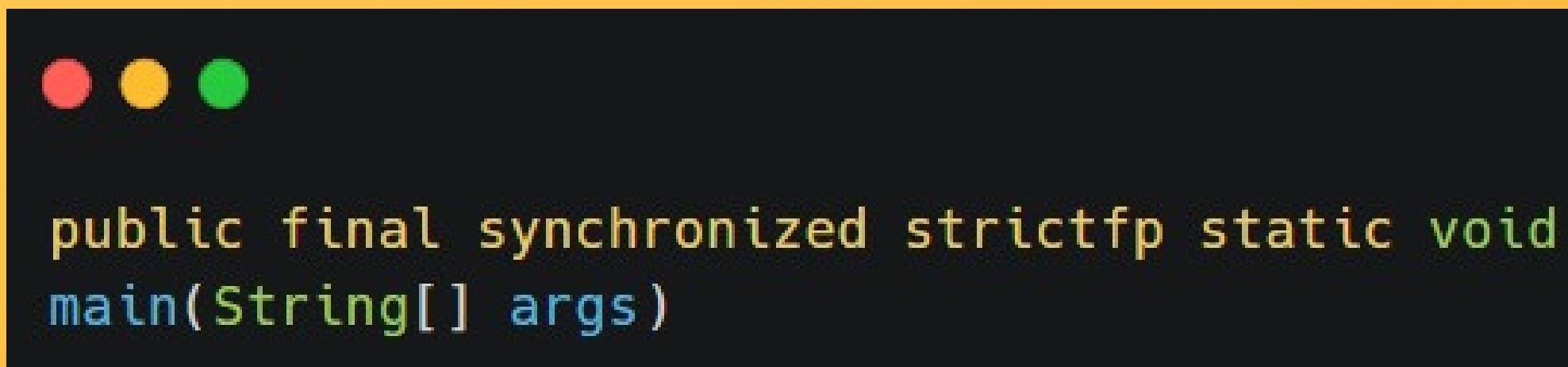
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What is void in Main()?

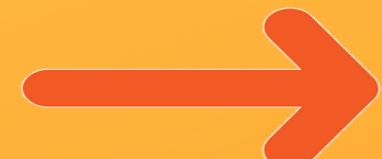
- ✓ JVM calls main() and does not expect to return any value back and hence the return type is void which means do not return anything.

6

What are the other modifiers that can be used in the signature of a main method?



```
public final synchronized strictfp static void  
main(String[] args)
```



Can a main method be overloaded?

- ✓ Yes a main method can be overloaded. But, however the JVM will always call public static void **main(String args[])** and you should call all other overloaded methods from the default main method.





```
class HelloWorld1{
    public static void main(String[] args) {
        System.out.println("main(String
args):"+args);
        main(10);
    }
    public static void main(int args) {
        System.out.println("main(int): "+args);
    }
}
```



```
main(String args):[Ljava.lang.String;@4517d9a3
main(int): 10
```



Can a main method be inherited?

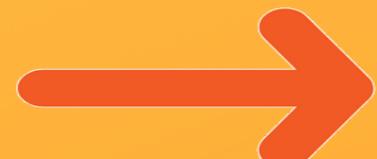
✓ Yes, a main method can be inherited

```
● ● ●

class HelloWorld1{
    public static void main(String[] args) {
        System.out.println("Hello World");
    }
}
class HelloWorld2 extends HelloWorld1{}
```

```
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javac Hello*.java
java HelloWorld2 //prints Hello World
```

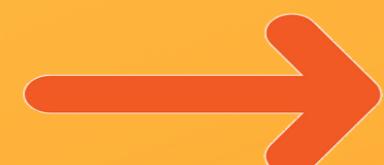


Can a main method be written using variable args?

- ✓ Yes. A main method be written using variable args



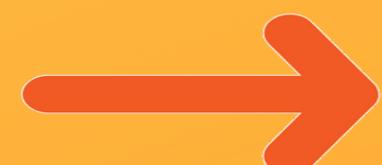
```
public static void main(String ... args)
```



Can I replace the position of public static?

- ✓ Yes, you can write **public static void main** or **static public void main**

```
● ● ●  
class HelloWorld1{  
    static public void main(String[] args) {  
        System.out.println("Hello World");  
    }  
}
```





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