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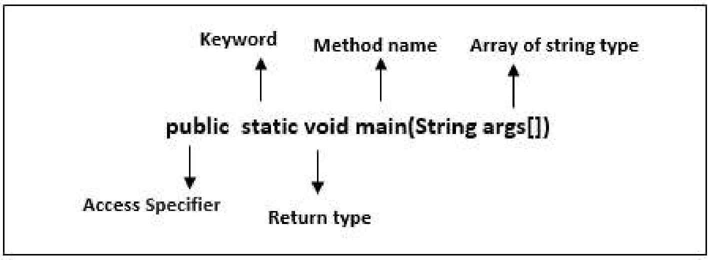
Java main() method

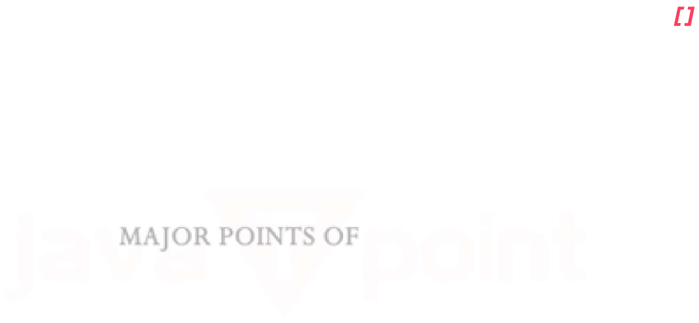
The main() is the starting point for JVM to start execution of a Java program. Without the main() method, JVM will not execute the program. The syntax of the main() method is:



public: It is an access specifier. We should use a public keyword before the main() method so that JVM can identify the execution point of the program. If we use private, protected, and default before the main() method, it will not be visible to JVM.

static: You can make a method static by using the keyword static. We should call the main() method without creating an object. Static methods are the method which invokes without creating the objects, so we do not need any object to call the main() method.

void: In Java, every method has the return type. Void keyword acknowledges the compiler that main() method does not return any value.



main(): It is a default signature which is predefined in the JVM. It is called by JVM to execute a program line by line and end the execution after completion of this method. We can also overload the main() method.

String args[]: The main() method also accepts some data from the user. It accepts a group of strings, which is called a string array. It is used to hold the command line arguments in the form of string values.

```
main(String args[])
```

Here, agrs[] is the array name, and it is of String type. It means that it can store a group of string. Remember, this array can also store a group of numbers but in the form of string only. Values passed to the main() method is called arguments. These arguments are stored into args[] array, so the name args[] is generally used for it.

What happens if the main() method is written without String args[]?

mpile, but not run, because JVM will not recognize the main() method. Remember JVM always looks

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with a string type array as a parameter.

Execution Process

First, JVM executes the static block, then it executes static methods, and then it creates the object needed by the program. Finally, it executes the instance methods. JVM executes a static block on the highest priority basis. It means JVM first goes to static block even before it looks for the main() method in the program.

Example

```
class  Demo
{
static                //static block
{
System.out.println("Static block");
}
public static void main(String args[])  //static method
{
System.out.println("Static method");
}
}
```

Output:

```
Static block
Static method
```

We observe that JVM first executes the static block, if it is present in the program. After that it searches for the main() method. If the main() method is not found, it gives error.

Example

A program that does not have the main() method gives an error at run time.

```
class DemoStaticBlock
{
Static                            //static block
{
System.out.println("Static block");
```

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```
}
```

Output:

```
Error: Main method not found in the class Demo, please define the main method as:
public static void main(String[] args)
or a JavaFX application class must extend javafx.application.Application
```

So the main() method should always be written as:

```
public static void main(String args[])
```

We can interchange public and static and write it as follows:

```
static public void main(String args[])
```

We can also use the different name for the String type array and write it as:

```
static public void main(String[] x)
```

Different ways of writing main() method are:

```
static public void main(String []x)
static public void main(String...args)
```

String...args: It allows the method to accept zero or multiple arguments. There should be exactly three dots between String and array; otherwise, it gives an error.

Example

A program that has no main() method, but compile and runs successfully.

```
abstract class DemoNoMain extends javafx.application.Application
{
static      //static block
{
System.out.println("Java");
```

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```
}
}
```

Output:

```
Java
```

Overloading of main() method

We can also overload the main() method. We can define any number of main() method in the class, but the method signature must be different.

Example

```
class OverloadMain
{
public static void main(int a)  //overloaded main method
{
System.out.println(a);
}
public static void main(String args[])
{
System.out.println("main method incoked");
main(6);
}
}
```

Output:

```
main method invoked
6
```

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