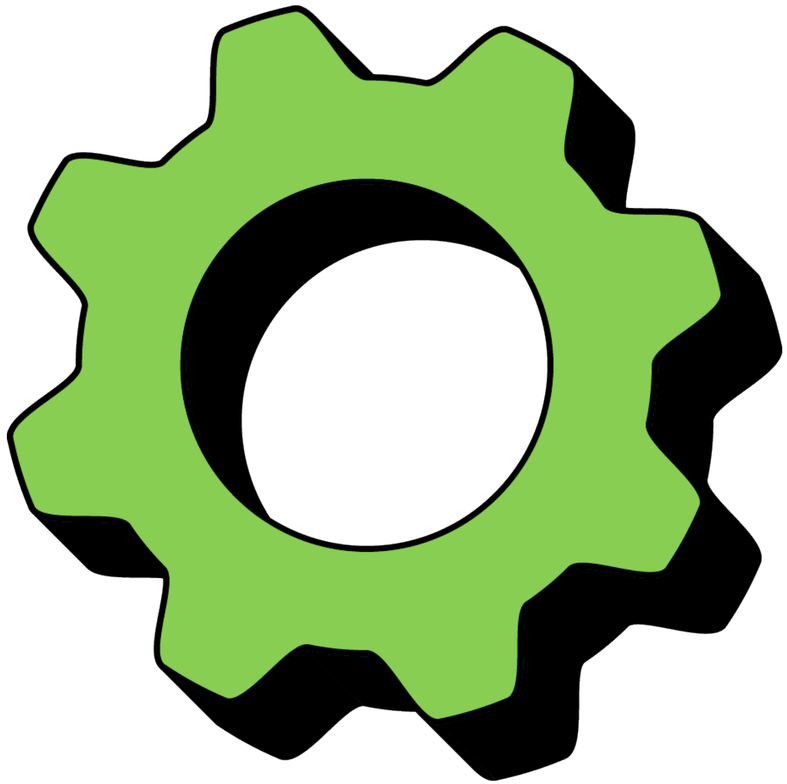
Essential Computing 1

Methods



Defining and calling methods

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Access modifiers

Public methods are accessible from outside the class.

Private methods are only accessible from inside the class.

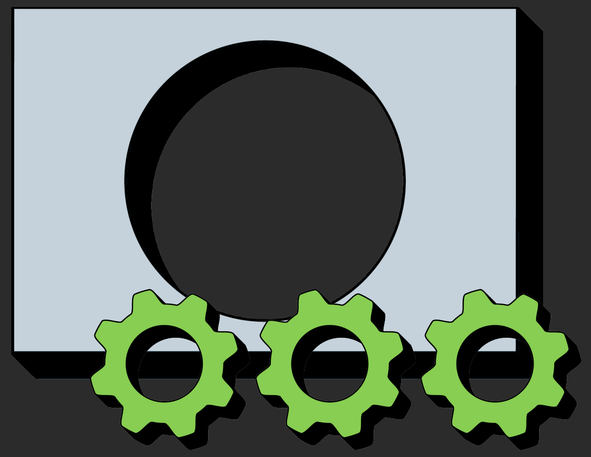
```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

The **static modifier** signifies that these methods belong to the class (Main).



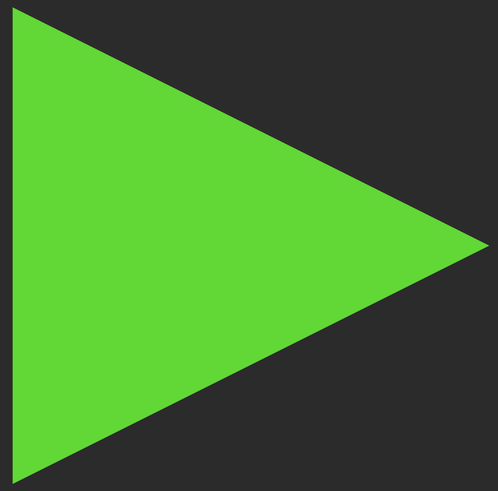
```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

We run the program



```
public class Main {

    public static void main( String[] args ){
        SayHello();
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    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

The first method being called is the **main method**

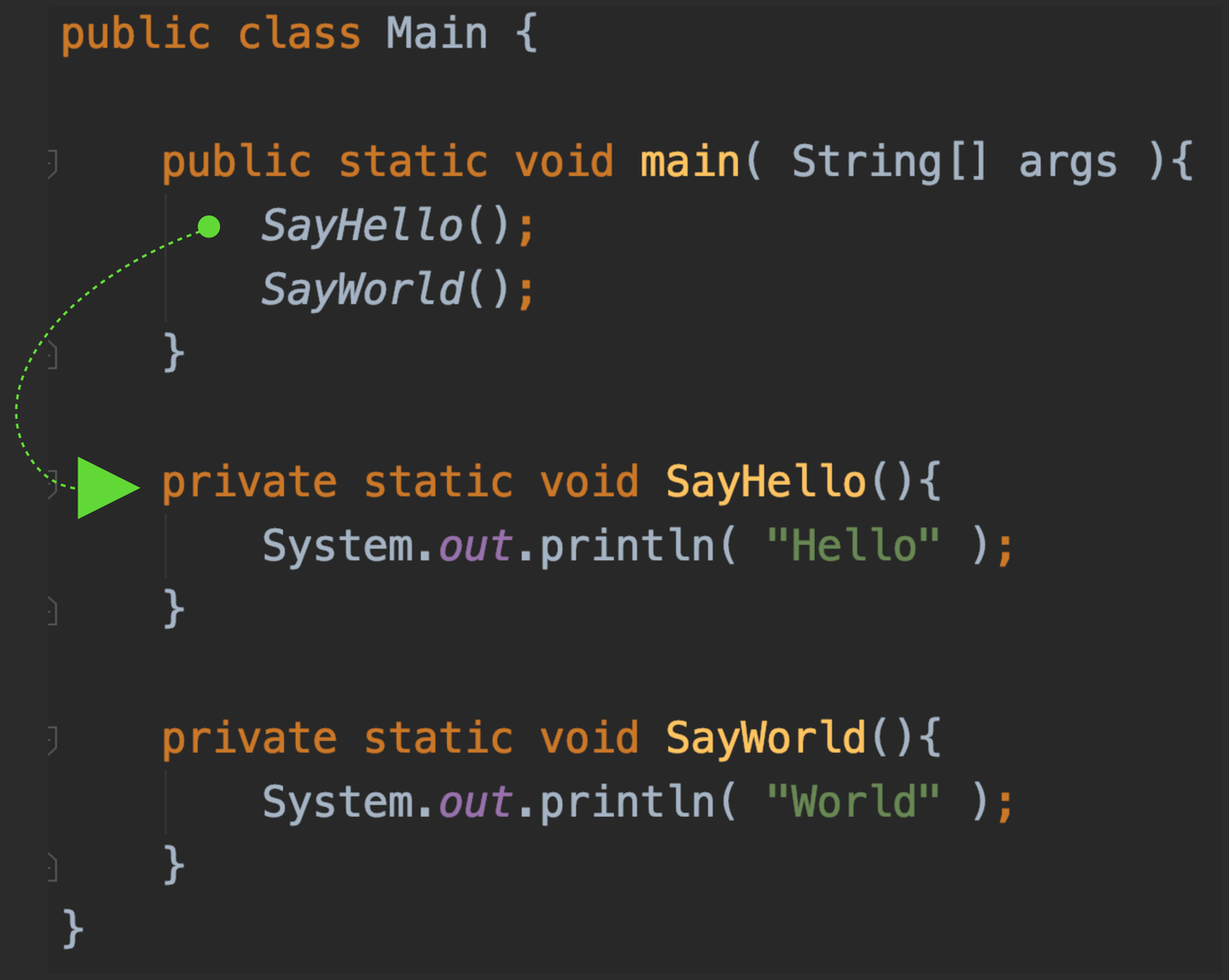
```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

The first line of code is is executed.

Call the method **SayHello**

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

We go to **SayHello**



The method **println** inside the object **out**, inside the class **System** is called.

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

The method **println** inside the object **out**, inside the class **System** is called.

```
Hello
```

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

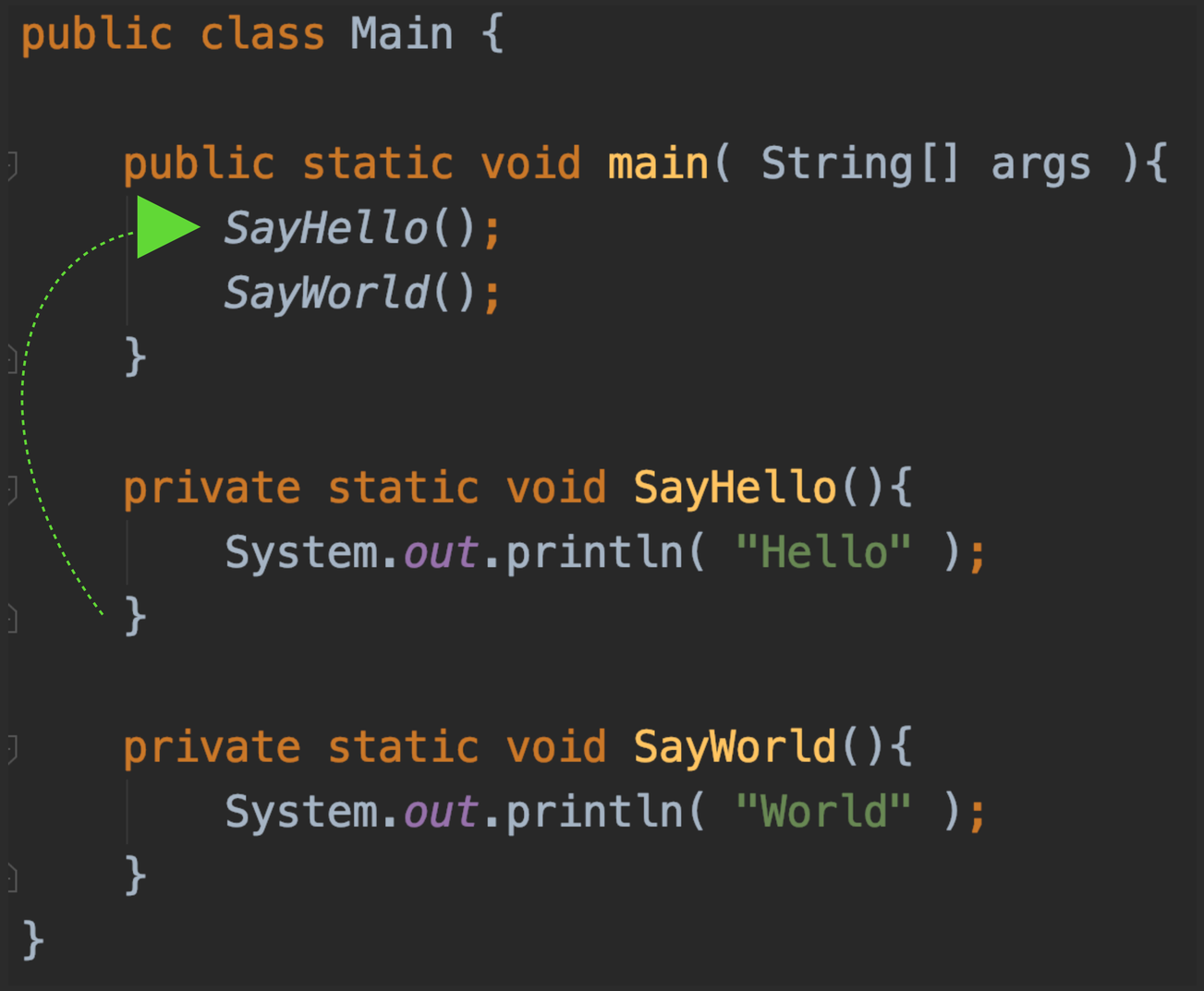
We reach the end of the method ...

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Hello

... so we **return** to where we came from ...

Hello



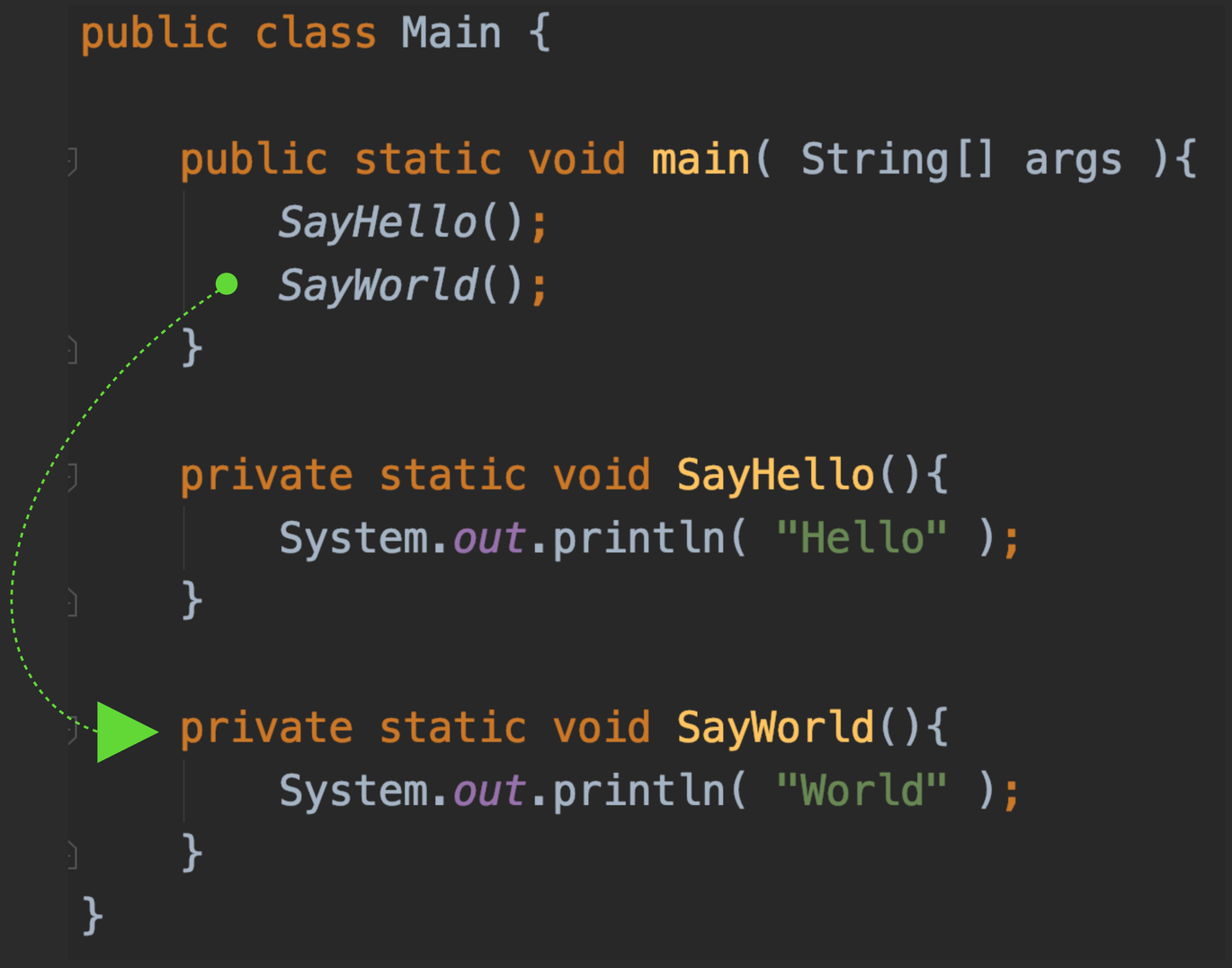
... and move to next line.

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Hello

Go to the **SayWorld** method.

```
Hello
```



```
public class Main {

    public static void main( String[] args ){
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    }

    private static void SayHello(){
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    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Execute first line.

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Hello

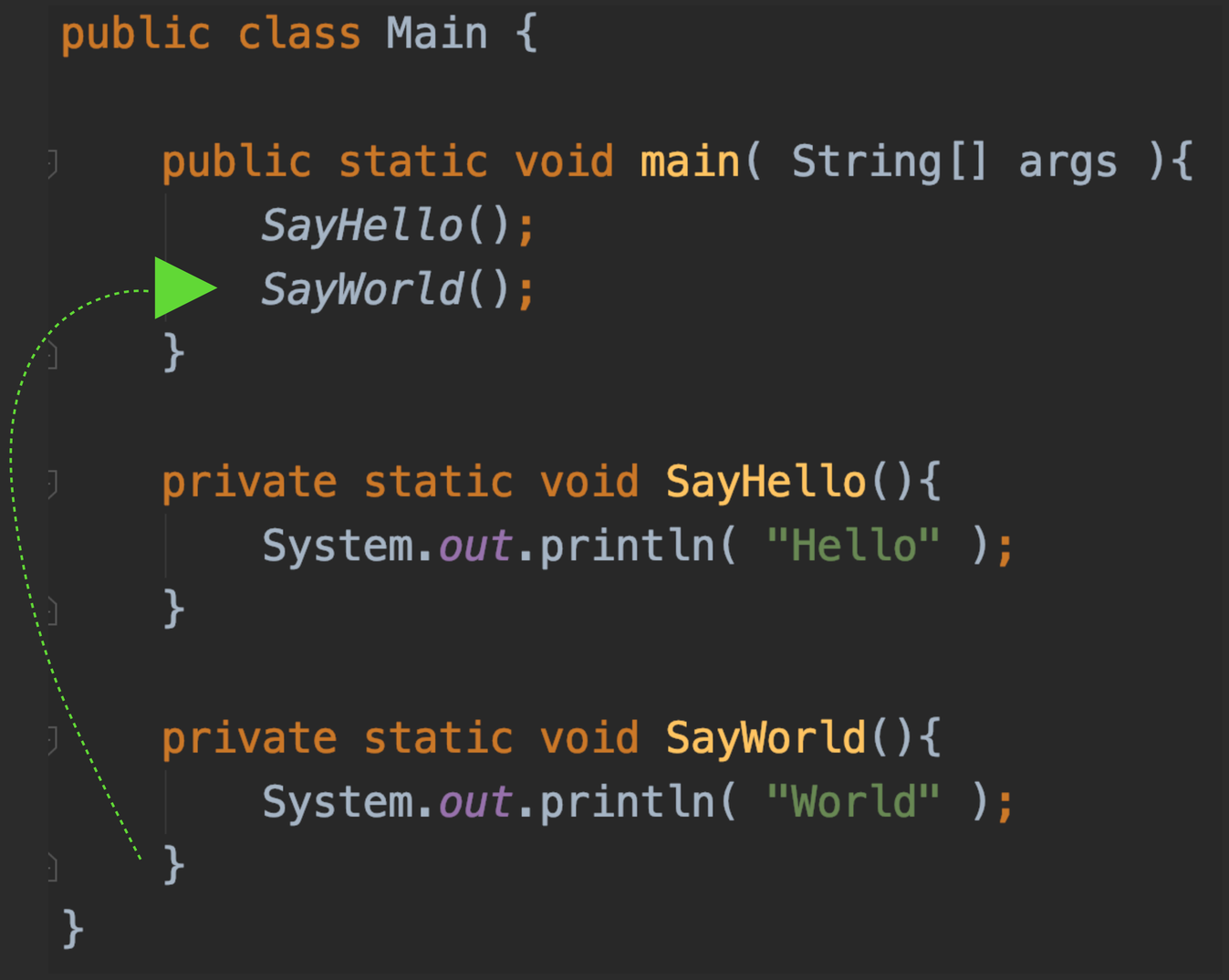
Execute first line.

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

```
Hello
World
```

We reached the end of SayWorld so we **return** to where we came from

```
Hello
World
```



```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Next line.
End of main method.

```
Hello
World
```

```java
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

Program exits

```
public class Main {

    public static void main( String[] args ){
        SayHello();
        SayWorld();
    }

    private static void SayHello(){
        System.out.println( "Hello" );
    }

    private static void SayWorld(){
        System.out.println( "World" );
    }
}
```

```
Hello
World
```