Java Program Structure
Fast-paced Switchover from C++

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Why is Java everywhere?

Compilation Process

Non-JVM based Languages:

| Source Code | --- Compiler ---> | Executable Code |
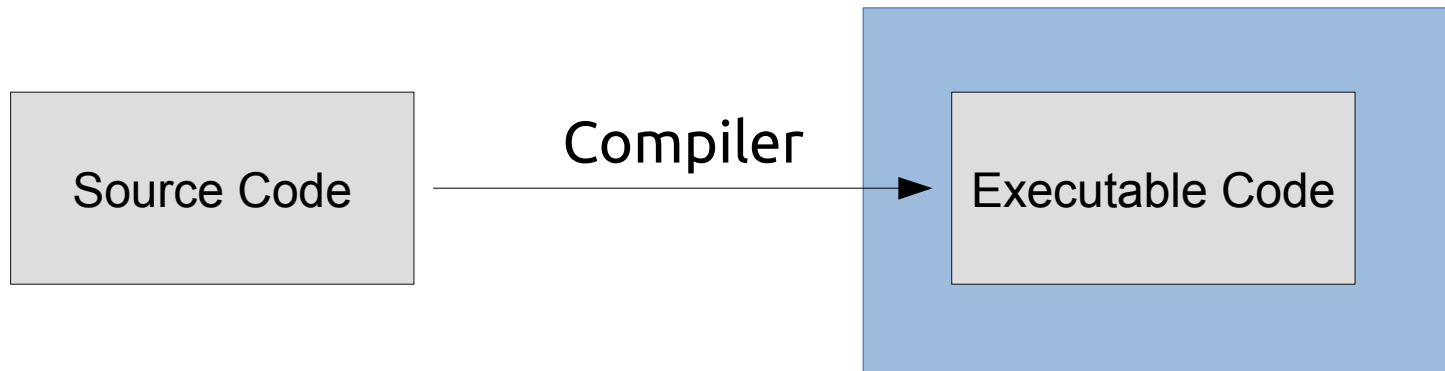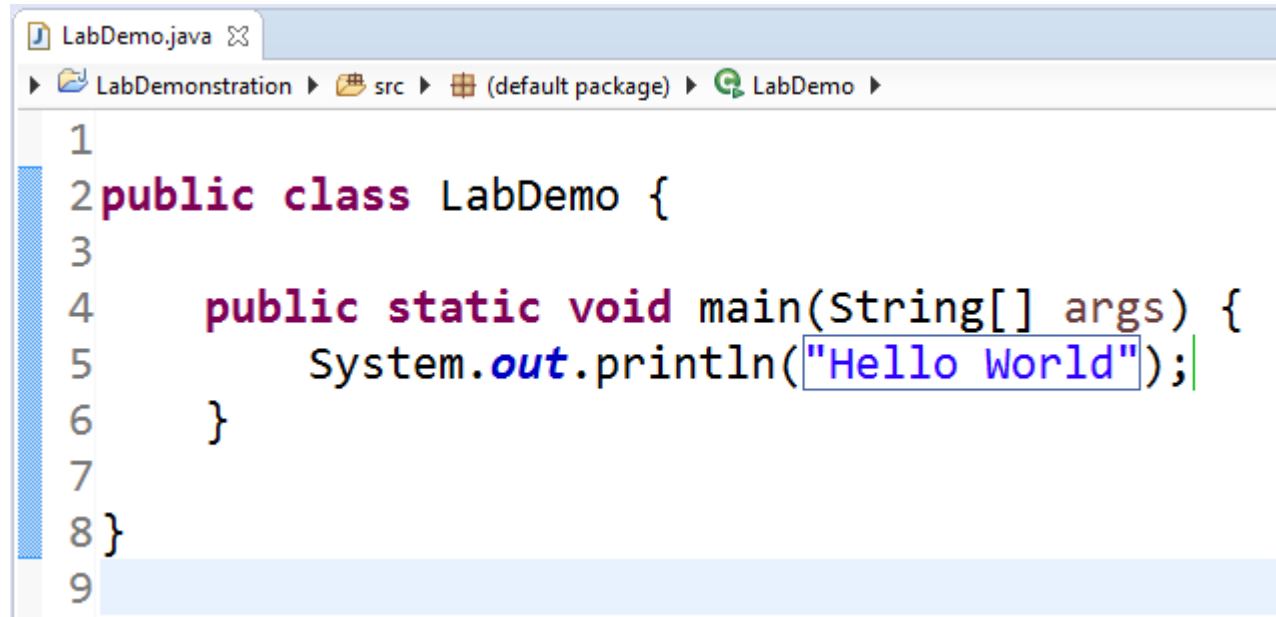
Executable on the target machine only

JVM based Languages:

| Source Code | --- Java Compiler ---> | Java ByteCode | --- Just-in-time Compiler ---> | Executable Code |
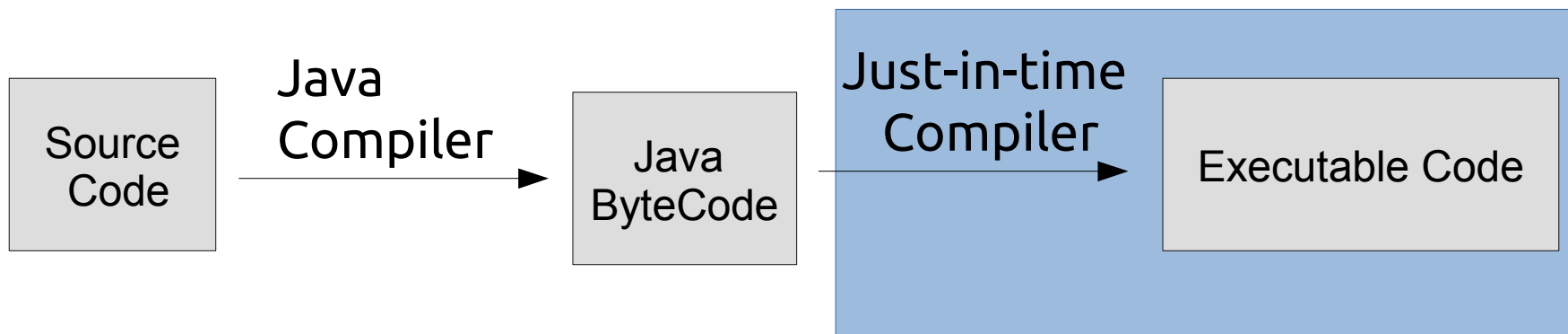
Executable on any JVM
(Java Virtual Machine)

A Hello World Application


```
LabDemo.java ☒
▶ 🗁 LabDemonstration ▶ 🗁 src ▶ ⊞ (default package) ▶ ⊘ LabDemo ▶
1
2 public class LabDemo {
3
4     public static void main(String[] args) {
5         System.out.println("Hello World");
6     }
7
8 }
9
```

Taking input from user

```java
import java.util.Scanner;

public class LabDemo {

    public static void main(String[] args) {
        System.out.println("Please enter a number:");


        Scanner ektaScanner = new Scanner(System.in);
        int n = ektaScanner.nextInt();

        System.out.println("Your number was: " + n);
    }

}
```

Taking input from user
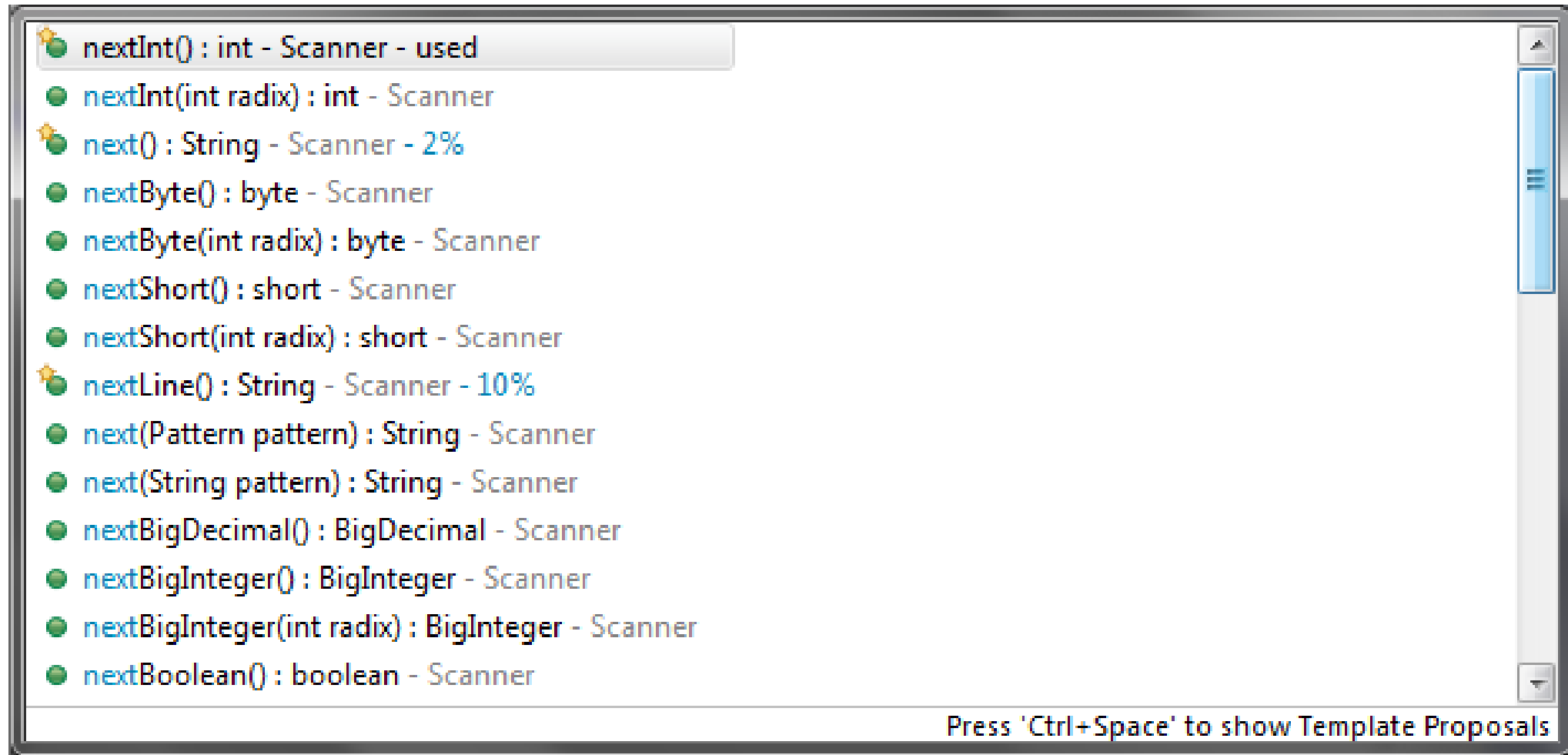
Data-types

Integers*: **byte, short, int, long**

Floating-point: **float, double**

Characters: **char**

Boolean: **boolean**

*Does not support unsigned, positive only integers

Control Statements (1/2)

```java
1 import java.util.Scanner;
2
3 public class LabDemo {
4
5     public static void main(String[] args) {
6         System.out.println("Please enter a number:");
7
8         Scanner ektaScanner = new Scanner(System.in);
9         int n = ektaScanner.nextInt();
10
11         if (n == 0)
12             System.out.println("The number is zero");
13         else if (n > 0)
14             System.out.println(n + " is positive number");
15         else if (n < 0)
16             System.out.println(n + " is negative number");
17         else
18             System.out.println(n + " is not a number");
19     }
```

Control Statements (2/2)

```java
1 import java.util.Scanner;
2
3 public class LabDemo {
4
5     public static void main(String[] args) {
6         System.out.println("Please enter a number:");
7
8         Scanner ektaScanner = new Scanner(System.in);
9         int n = ektaScanner.nextInt();
10
11         for (int i = 0; i<n; i++)
12         {
13             System.out.println("Testing " + i);
14         }
15     }
16 }
```

Arrays

```java
1 import java.util.Scanner;
2
3 public class LabDemo {
4
5     public static void main(String[] args) {
6         int marks[];
7         marks = new int[30];
8         System.out.println(marks.length);    //30
9     }
10 }
```

Arrays

```java
1 import java.util.Scanner;
2
3 public class LabDemo {
4
5     public static void main(String[] args) {
6         int marks[] = {1, 2, 3, 4, 5};
7         System.out.println(marks.length);    //5
8         System.out.println(marks[2]);        //3
9     }
10 }
```

2D Array

```java
import java.util.Scanner;

public class LabDemo {

    public static void main(String[] args) {
        int marks[][] = new int[4][5];
        for (int i = 0; i<4;i++)
            for (int j = 0; j<5; j++)
                marks[i][j] = i*j;

        System.out.println(marks.length);      //4
        System.out.println(marks[0].length);//5
        System.out.println(marks[1][2]);      //2
    }
}
```

String

```
1
2 public class LabDemo {
3
4     public static void main(String[] args) {
5         String s = new String("This is a sample.");
6         System.out.println(s);
7     }
8 }
```

Array of String

```
 1
 2 public class LabDemo {
 3
 4     public static void main(String[] args) {
 5         String s[] = {"Sunday", "Monday"};
 6         System.out.println("MIST is not "
 7                 + "closed on " + s[0] + " or " + s[1]);
 8
 9     }
10 }
```