INTRODUCTION TO JAVA APPLICATIONS

Robert A. Fulkerson
University of Nebraska at Omaha
College of Information Science and Technology

First Program: "Hello World"

1. // This is the first program most people write in a new language, the "Hello World!" program. In Java, this
2. // file must be named HelloWorld.java, with the first part
3. // of the name -- HelloWorld -- being the same as the name of
4. // the class in line 8 below. The filename itself (not
5. // the class name) must always end in .java to indicate
6. // that it's a java source file.
7. public class HelloWorld {
8.  // public static void main ( String args[] ) {
9.  System.out.println( "Hello World!" );
10. }
11. }

Hello World!

Java Comments

- Comments in Java can be one of three styles:
  - Single line
    - starts at // anywhere on a line
    - ends at the end of that line
  - Multi-line
    - starts with character sequence /* anywhere
    - ends with character sequence */ anywhere after that
    - can span multiple lines
  - javadoc
    - Starts with character sequence /** anywhere
    - Ends with character sequence */ anywhere after that
    - Uses javadoc utility to create HTML documentation from code
"Hello World" using multiple outputs

1. // Output one line of text using two output statements.
2. public class HelloWorldMultiplePrints {
3.     public static void main ( String args[] ) {
4.         System.out.print ( "Hello ");
5.         System.out.println ( "World!" );
6.     }
7. }

Hello World!

"Hello World" with multiple lines

1. // Output multiple lines with one output statement
2. public class HelloWorldOnePrint {
3.     public static void main ( String args[] ) {
4.         System.out.println ( "Hello
\tWorld
!" );
5.     }
6. }

Hello World

Escape Sequences

- Escape sequences begin with a slash and are immediately followed by another character.
- This two-character sequence, inside double quotes " " allows you to control your output (\n, \t, \b) or output characters you wouldn't otherwise be able to (\", \") inside a string.

<table>
<thead>
<tr>
<th>Seq</th>
<th>Meaning</th>
<th>Example Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>\n</td>
<td>New line</td>
<td>System.out.println(&quot;Hi\nThere&quot;);</td>
</tr>
<tr>
<td>\t</td>
<td>Horizontal tab</td>
<td>System.out.println(&quot;What's\tup?&quot;);</td>
</tr>
<tr>
<td>\b</td>
<td>Backspace</td>
<td>System.out.println(&quot;Hi\b\bHey&quot;);</td>
</tr>
<tr>
<td>\</td>
<td>Backslash</td>
<td>System.out.println(&quot;Back\\Slash&quot;);</td>
</tr>
<tr>
<td>&quot;</td>
<td>Double quote</td>
<td>System.out.println(&quot;Dbl&quot;&quot;Quote&quot;);</td>
</tr>
</tbody>
</table>
Using `System.out.printf()`

1. // Using `System.out.printf()` to print multiple lines.
2. // The format for a `printf()` is to supply a format
3. // Control String, then arguments to any format specifiers.
4. // The %s is "%s\n\n%s\n%s". The %s is a format specifier,
5. // or placeholder, for a string. Then the three arguments
6. // to replace the specifiers are "Hello", "World" and "."
7. public class HelloWorldUsingPrintf {
8.     public static void main ( String[] args ) {
9.         System.out.printf("%s\n\n%s\n%s", // FCS
10.             "Hello", "World", "!" );
11.     }
12. }

```
Hello
World
```

Adding Two Integers

1. import java.util.Scanner; // program uses class Scanner
2. public class Addition {
3.     public static void main ( String[] args ) {
4.         int first; // first number
5.         int second; // second number
6.         int sum; // sum of numbers
7.         // Create Scanner to obtain input from keyboard
8.         // System.in is the input complement to System.out
9.         Scanner input = new Scanner(System.in);
10.        System.out.print( "Enter first integer: " );
11.        first = input.nextInt();  // read from user
12.        System.out.print( "Enter second integer: " );
13.        second = input.nextInt();  // read from user
14.        sum = first + second; // add numbers
15.        System.out.printf("Sum is %d\n", sum);
16.    }
17. }

Adding Two Integers, Variation 1

1. import java.util.Scanner;  // program uses class Scanner
2. public class AdditionVariation1 {
3.     public static void main ( String[] args ) {
4.         // Create Scanner to obtain input from keyboard
5.         // System.in is the input complement to System.out
6.         Scanner input = new Scanner(System.in);
7.         System.out.print( "Enter first integer: " );
8.         first = input.nextInt(); // first number
9.         System.out.print( "Enter second integer: " );
10.        second = input.nextInt(); // second number
11.        sum = first + second; // sum of numbers
12.        System.out.printf("Sum is %d\n", sum);
13.    }
Adding Two Integers, Variation 2

```java
import java.util.Scanner; // program uses class Scanner
public class AdditionVariation2 {
    public static void main(String args[]) {
        // Create Scanner to obtain input from keyboard
        // System.in is the input complement to System.out
        Scanner input = new Scanner(System.in);
        System.out.print("Enter first integer: ");
        int first; // first number
        first = input.nextInt(); // read from user
        System.out.print("Enter second integer: ");
        int second; // second number
        second = input.nextInt(); // read from user
        int sum = first + second; // add numbers
        System.out.println("Sum is "+ sum);
    }
}
```

Adding Two Integers, Variation 3

```java
import java.util.Scanner; // program uses class Scanner
public class AdditionVariation3 {
    public static void main(String args[]) {
        // Create Scanner to obtain input from keyboard
        // System.in is the input complement to System.out
        Scanner input = new Scanner(System.in);
        System.out.print("Enter first integer: ");
        int first; // first number
        first = input.nextInt(); // read from user
        System.out.print("Enter second integer: ");
        int second; // second number
        second = input.nextInt(); // read from user
        System.out.printf("Sum is %d\n", first + second);
    }
}
```

Adding Two Integers, Variation 4

```java
import java.util.Scanner;
public class AdditionVariation4 {
    public static void main(String args[]) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter first integer: ");
        int first; // first number
        first = input.nextInt(); // read from user
        System.out.print("Enter second integer: ");
        int second; // second number
        second = input.nextInt();
        System.out.printf("Sum is %d\n", first + second);
    }
}
```