

ITP-120: Java Programming I

Lecture #2

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Writing Output (aka Info)

- * **Output:** Something that comes *out* of the computer.
Simple: General print messages.
Advanced: Report based on 5 GB of data (input).
- * **In Java:**

```
System.out.print("Hello, World!");
```


Outputs: **Hello, World!**

Variables

- * **Variable:** Basically a cup to hold data.

Allows your program to remember something.
Holds one piece of data, which can change or vary later. Such as: `x = 1` ... `x = 5`

- * **In Java:**

```
String cool_person = "William";
```

```
int coffees_drunk = 3;
```

Java Variable Types

* **Integer:** Whole numbers.

```
int a = 2;
```

* **Double:** Decimal number with *double-precision*.

```
double d = 1.5;
```

* **String:** A *string* of characters. Text.

```
String some_text = "ABCdef123 !@#$ Hi :-)";
```

* **Boolean:** *true* or *false*

```
boolean java_is_fun = true;
```

Mathematical Calculations

And the basics about constants & methods.

```
// Pi (3.14...) is a Constant (variable won't change)  
// Note: UPPERCASE without the parentheses()
```

Math.PI

```
// Exponents (aka Powers): x ^ y  
// So, x squared is: Math.pow(x, 2);
```

Math.pow(x, y);

Accepting User Input

The so-called 'Scanner' class!

```
import java.util.Scanner;

public class HelloWorld_UserInput {

    public static void main(String[] args) {
        Scanner keyboard = new Scanner(System.in);
        String userName;

        System.out.print("What is your name? ");
        userName = keyboard.nextLine();

        System.out.println("Hello, " + userName);
    }
}
```

Scanner Method: Integers

```
Scanner keyboard = new Scanner(System.in);  
int some_whole_num;
```

```
// Reads in an integer from the user.  
some_whole_num = keyboard.nextInt();
```

Scanner Method: Decimals

```
Scanner keyboard = new Scanner(System.in);  
double some_decimal_num;
```

```
// Reads in an decimal number from the user.  
some_decimal_num = keyboard.nextDouble();
```


Scanner Method: Strings

```
Scanner keyboard = new Scanner(System.in);  
String some_text;
```

```
// Reads in a string (text) from the user.  
some_text = keyboard.nextLine();
```

Scanner Method: Booleans

```
Scanner keyboard = new Scanner(System.in);  
boolean some_boolean_var;
```

```
// Wants "true" or "false" from the user.  
some_boolean_var = keyboard.nextBoolean();
```

Object-Oriented Programming

- *** **PURPOSE:** Makes code represent real-world objects (people or cars) or abstract entities (e.g., checking accounts).
- * **Class:** The blueprint to create objects.
- * **Attributes:** Variables associated with an object.
- * **Methods:** Functions that modifies an object.
- * **Object:** An instance of a class. (student_1)
 - > An object contains both attributes (data) and methods (internal functions).