

HackBI VIII Java Workshop – Script

- Introduction
 - Introduce the workshop leaders.
 - Introduce Programming and Java.
 - Have participants download VS Code and run an empty test program to ensure there are no errors.

- Printing
 - Introduce the print() and println() functions and differentiate between them.
 - print() does not advance to a new line after printing, while println() does.
 - Emphasize the need for semicolons at the end of code.
 - Have participants print their name.

- Variables
 - Introduce variables.
 - They hold values and are categorized into datatypes.
 - (datatype) (variableName) = (value);
 - Introduce the int, double, String, and boolean datatypes.
 - Explain how variables can be printed by just using the variable name.
 - Have participants make variables and print them out.
 - Explain how numerical variables can be equated with mathematical equations.
 - Explain the mathematical signs in Java and let them try it out.

- User Input

- Introduce the Scanner class.
- Have participants import the Scanner class.
- Have participants create an object of the Scanner class – preferably outside main method for the purposes of the challenge.
- Introduce Scanner methods.
 - `nextInt()`, `nextDouble()`, and `next()`
 - Example: Have them print “What number do you like?,” then have them do a `nextInt()` stored in a variable that will be printed – “The number you like is _.”

- Conditionals

- Introduce conditionals.
- If, if-else, and if-else-if

- Methods

- Introduce methods.
 - Block of code that performs specific actions when called.
- For our purposes, they will start with “public static.”
 - Explain that in object-oriented programming, functions can relate to an object rather than the class (private keywords, no static, etc. – only a brief introduction due to time).
- Explain that a return-type is necessary (and can also be void).

- Explain how to run a method.
 - Explain how to implement a return-type in a method.
 - Explain how to print a returned statement from a method.
 - Have participants make a method that returns an int.
- Final Challenge
- Introduce participants to the final calculator challenge.
 - Have participants try making a program that performs addition, subtraction, multiplication, division, exponents, square root, and/or absolute value.
 - A methods sheet will be provided.
 - Give participants a hint before they start (i.e., how it should be formatted).
 - For example, note that the user input code to take in the required numbers for a specific operation should be in the operation's method because we didn't go over arguments.
 - Walk around as necessary.