Lesson 1

* CLI
  + Discuss why CLI is used and is better than GUIs
  + Basic commands
  + Operating system differences
  + Practice navigating and moving files
* Source Control
  + Give thumb drive/CD example and discuss inefficiencies
  + Give DropBox example and discuss overwriting
  + Talk about the need for a collaborative environment
  + Talk about Git
    - Remote repositories allow for collaboration
      * Implicitly adds backups
    - Introduce workflow
      * Pull down changes so your workspace is up to date
      * Make changes
      * Stage changes
      * Take a snapshot of those changes
      * Push changes to remote branch
      * Merge branch into Master
    - Discuss merge conflicts (and branches in a little more depth)
    - Practice
      * Everyone install Git and create GitHub account
      * Everyone create a new repository in GitHub
      * Create a local repository pointing to the GitHub remote following GitHub instructions
      * Create a new file and write something in it
      * Stage new file
      * Commit (take snapshot)
      * Push
      * Verify in GitHub
      * Make a change to the file
      * Commit (don’t have to stage because it is an existing file)
      * Push
      * Verify in GitHub
      * Remember if you are working with a team to pull before making changes so you have the most up to date version of the code
    - Discuss how commits are save points and you should commit often; you can roll back to different commits.
    - Discuss how Git allows Versioning in addition to Source Control
* What is Programming?
  + How many words in this sentence? How many vowels? What is the average number of vowels per word?
  + Using Google is vital.
    - Who can find out how to create a new text file with Terminal? What about Command Prompt?
* Java
  + James Gosling in 1995 at Sun Microsystems
  + Oracle now owns Java
  + It is old, but in high demand
  + It has been slower to add some features, but it’s careful nature has made it a strong foundation and enabled its longevity
  + Many enterprise level companies rely on Java
  + Java is statically typed, you will learn more about this in the next section
  + Install Java 1.8 and Eclipse
  + Eclipse is an Integrated Development Environment (IDE)
  + We will learn more about its features later. For now, create a new project with a class that has a main method.
* Variables and Data Types
  + What is a variable in algebra?
  + A variable is like a name, we assign a name to something, or someone, to identify the values and characteristics that make up that entity.
  + A variable is an identifier
  + Java is statically typed, each variable has an explicit type associated with it.
    - This enables us to know, not only the name of the variable, but what type of data a variable identifies.
  + Two types of data in Java; primitive, which we will learn about next, and Objects, which we will learn about later.
  + 8 primitive types in Java
    - Int
    - Double
    - Float
    - Long
    - Short
    - Byte
    - Char
    - Boolean
  + We will talk about Objects more in a later lesson, but we will add String to the list of data types covered today.
  + Declaring a variable
    - Type, identifier (name), assignment operator, value, semicolon.
    - You don’t have to assign a value at declaration
    - Choose meaningful names
    - Show sysout to print the values of the variables
* Operations
  + Giving a name to data is not enough to make a useful program, we need to perform operations on data.
  + Operation consists of an Operator that acts on Operands, most commonly two operands.
  + The most common operators, that you are already used to seeing, are mathematic, or arithmetic operators.
    - +, -, \*, /
    - Show examples and sysout the results
    - Show how + works with Strings: Concatenation
  + Other types of operators include equality, logical, and assignment operators.
  + Practice equality operations