Variables

* Used to store information.
  + Two parts
    - Data Type
      * STRING
      * DATE
      * INTEGER
      * DECIMAL
    - Value – set on the right and is put into the variable on the left
* Hungarian notation has a prefix on the variable name
  + strName - string
  + intAge - integer
  + DecCost - decimal
  + blnLoggedIn – Boolean
* Camel is the practice of writing compound words or phrases.
  + FirstName – stores first name
  + RetirementAge – variable stores retirement age
  + MaterialCost – material cost
  + loggedIn – variable stores if user logged in
* Create a variable that houses my first homework assignment name
  + Hungarian Note: strFirstAssignment
  + Camel Case: firstAssignment
* Age = 25
* retirementAge = 65
* yearsToRetirement = retirementAge – age
* yearsToRetirement = 65 – 25

Concatenations

* pseudocode example
  + display "The total number of hours the students spent on this module is " + totalHours + " hours and the average number of hours a student spent on this module is " + averageHours + " hours."
  + Output: The total number of hours the students spent on this module is 23 hours and the average number of hours a student spent on this module is 7.67 hours.

Arrays

* A simple structure in programming that let us store more than one value in a variable. Often used for lists of data
* Example:
  + var name = [“Homer”, “Lisa”, “Bart”];
    - Creates an array called names with three strings inside. (JavaScript)
    - Names[0];
      * This would fetch “Homer”
    - Names[3] = “Marge”;
      * This would add the Marge entry to the 3rd slot in the array.

Control Structures

* Block of programming code that analyzes variables and chooses a direction in which to go based on given parameters.
* Sequence statements are executed in the order they are found in the code
  + Example
    - A = 4
    - B = 5
    - Total = a + b
    - Display “The total is “ + total +”.”
    - Output: The total is 9
* Selection Statements
  + IF statement example
    - A = 4
    - B = 5
    - If a < b then
      * Print(“Hello”)
    - Else
      * Print(“Good Bye”)
    - End if
    - Output: Hello
* Iteration Statements: WHILE and FOR are the most common.
  + While: the condition-controlled loop executes its code if the condition is true.
  + Example:
    - A = 4
    - B = 5
    - While a < b
      * Print(“Hello”)
    - End while
    - Output:
    - Hello
    - Hello
    - Hello (Infinite Loop)

Selection Structure

* IF statement pseudocode:
* IF (number or variable) (comparison) (number or variable) THEN
* [some action]
* END IF
* Example:
* Age = 29
* If age > 30 then
  + Display “Your are getting old.”
* End if
* SWITCH Statement is another type of selection structure

Iteration Structure

* While Statement Example
* Set counter = 1
* WHILE counter < 4
  + Display “Hello”
  + Counter = counter + 1
* END WHILE
* Output:
* Hello
* Hello
* Hello
* FOR statement example
  + Set counter = 1
  + FOR (counter to 3) STEP 1
    - Display “Hello”
  + NEXT Counter
  + Output:
  + Hello
  + Hello
  + Hello

Operators

* All programming languages use basic arithmetic operators to perform calculations
  + + Addition
  + – Subtraction
  + \* Multiplication
  + / Division
  + % Modulus operator to get remainder in integer division
  + + + Increment
  + - - Decrement
* Relational Operators
  + < Less Than
  + > Greater Than
  + <= Less Than or equal to
  + >= Greater than or equal to
  + == to
  + != Not equal to
  + === Equal value and same type
  + !== Not equal value or not same type
* Logical Operators
  + && = Logical and
  + || = Logical or
  + ! = Logical not

While 12 > 6

Total = 0 + 8

A = 6 +1

End while