

Week 2 – Conditions & Loops – Research Assignment

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02/27/23

1. What are the different loops JavaScript provides us with?
 - a. For loop
 - b. While loop
 - c. Do / while loop
 2. What is the syntax of one of the loops in your above answer? How and when should you use this loop? Give an example.
 - a. The **For loop** executes code a specified number of times. It is commonly used for situations when you know the number of iterations that has to happen.
 - b. The syntax for a For loop can contain 3 primary expressions and followed by the code to execute:
 - i. First expression initiates or declares a variable
 - ii. Second expression declares the condition
 - iii. The third expression declares the increment or decrement condition that updates the value of the first expression
- ```
for(i = 0; i < 10; i++) {
 | console.log(i);
}
```
- iv.
  - v. In this example, the variable is "i" assigned to a value of 0. The variable condition is that "i" is less than 10. The increment is set to add 1 to the value and loop again until the second condition is false. The secondary element is print the output to the console. The code can be roughly translated to "i" starting at 0, for as long as "i" is less than 10, add 1 to the value of "i" until it stops at 10 because then the condition of if is no longer less than 0 but equal to 10. Then print the output.
3. What is the syntax of another one of the loops in your above answer? How and when should you use this loop? Give an example.
  - a. The **While loop** executes code after checking if a specific condition is true. If the condition is false right away, it will never get to executing the code so there may never be an output for this loop.
  - b. The syntax for a While loop only contains a condition.

```

56 let a = 0
57 while(a < 10) {
58 console.log(a);
59 a++
60 }
61

```

- i.
  - ii. In this example, the condition in the while loop is that as long as “a” is less than 0, print out “a” then increment by 1 and loop again to see if the code remains true, then continue until the condition is false, which in this case is when “a” equals 9.
  - iii. This loop is used when you don’t know how many times it may take to meet the condition and therefore, the loop will continue to happen until the condition is met, especially useful if there is a large range of possibilities to NOT meet the condition.
  - iv. [https://users.cs.utah.edu/~germain/PPS/Topics/while\\_loops.html#:~:text=A%20%22While%22%20Loop%20is%20used,not%20be,tween%201%20and%2010%22.](https://users.cs.utah.edu/~germain/PPS/Topics/while_loops.html#:~:text=A%20%22While%22%20Loop%20is%20used,not%20be,tween%201%20and%2010%22.)
4. What is the syntax of another one of the loops in your above answer? How and when should you use this loop? Give an example.
- a. A **Do/While loop** executes code first and then checks if the specified condition is true. It will continue to run the code until the condition becomes false. The Do/While loop will run the code at least once because of its structure to execute code first then check the condition.
  - b. The syntax of the Do/While loop starts with the key word “Do” followed by curly brackets to describe the code block to execute, close curly bracket, then followed by the key word “while” and then parenthesis, which within the parenthesis, contains the condition.

```

5
6 do {
7 console.log(a);
8 } while (a < 10)
9

```

- c.
- d. A scenario for when a do while loop should be used is in a menu-driven program, when a user actions must be repeated through a menu of options each time in order to understand the action a user wants to do.
  - i. For example, you create a printer loop for a menu that states in order for a user to get to the correct printer setting, the user must go through the computer’s settings, then Devices, then printers. The loop can however, include or exclude path divergences
  - ii. <https://study.com/academy/lesson/do-while-loop-definition-example->

[results.html#:~:text=So%20the%20do%20while%20loop,the%20user%20wants%20to%20take.](#)

5. What is your favorite thing you learned this week?
  - a. I would have to say the ability to combine conditional statements with loops. This was definitely a jump in learning for me from simply trying to understand variables and true/false statements, or more rather how the computer logic interprets code to starting to try to use it to the coder's advantage.