Tutorial 2

You may use repl.it (Node.JS template), visual studio code or simply your browser to work on your exercises. Place completed answers into a word document or zip up your project folder and submit.

Reference:

- Learn about Parsing
- Learn about break

Tips for Effective Loop Use

- Initialization: Ensure loop counters are properly initialized.
- Condition: Set correct looping conditions to prevent infinite loops.
- Increment: Properly increment or decrement counters to progress through the loop correctly.

Exercise 1: Counting Numbers

Objective: Write a program using a for loop to print numbers from 1 to 100.

- Instructions:
  - Use a for loop to iterate from 1 to 100.
  - Print each number in the console.

Exercise 2: Countdown Timer

Objective: Write a for loop that counts down from 10 to 1 and then prints "Liftoff!".
Common Mistake: Be careful on the usage of operator

Exercise 3: Validate User Input

Objective: Use a do-while loop to prompt a user to enter a number between 1 and 10 until they do so correctly.
Common Mistake: Think about how to validate the input

Exercise 4: Simple Interest Calculator

Objective: Write a while loop that calculates simple interest every year until the total amount doubles.
Challenge: not to use any if statement
Common Mistake:

- Using an incorrect formula for simple interest calculation, or failing to update the amount correctly within the loop.

Exercise 5: Print Even Numbers

Objective: Write a for loop that prints all even numbers from 2 to 20.
Hint: The increment being used is key.

Exercise 6: Guessing Game

Objective: Implement a guessing game using a do-while loop where the user has to guess a predefined number (e.g., 7). The loop should continue until the correct number is guessed.

Exercise 7: Break out of an Infinite Loop

Implement an infinite for loop that the user can break out of by entering a specific word (e.g., "exit").

Hint: Think about using break

Exercise 8: Making Triangle

Use a `for` loop to print a triangle pattern of stars (`*`). The triangle should have 5 rows, with the number of stars increasing by one in each row.

Exercise 9: Sum of an Array

Objective: Calculate the sum of all elements in an array using a for loop.

Instructions:

- Initialize an array with several numbers.
- Use a for loop to iterate through the array and sum up all the elements.
- Print the final sum.

Exercise 10: Find the Maximum

Objective: Find the largest number in an array using a for loop.

Instructions:

- Initialize an array with several numbers.
- Use a for loop to traverse the array and find the largest number.
- Print the largest number.

Exercise 11: Reverse a String

Objective: Use a loop to reverse a string.

Instructions:

- Start with a given string.
- Use a for loop to create a new string that is the reverse of the original.
- Print the reversed string.

Exercise 12: Multiplication Table

Objective: Print a multiplication table for a given number up to 10 using a for loop.

Instructions:

- Choose a number to generate a multiplication table for.
- Use a for loop to compute and print the multiplication table from 1 to 10.

Exercise 13: Looping Over Arrays Using for...of

Objective: Use the for...of loop to iterate over an array and print each element.

Instructions:

- Initialize an array containing several elements.
- Use a for...of loop to iterate through the array.
- Print each element inside the loop.

Exercise 14: Debugging

Solve the bug(s) below so that it will produce the expected output.

Expected Output

```
3
6
9
12
15
```

```
let i = 0;
let j = 0;
while (i < 3) {
   console.log (i*j);
   j = j + 1;
}
```