CoGrammar

Welcome to this session:

Task Walkthrough - Control Structures - For and While

The session will start shortly...

Questions? Drop them in the chat.
We'll have dedicated moderators answering questions.

Safeguarding & Welfare

We are committed to all our students and staff feeling safe and happy; we want to make sure there is always someone you can turn to if you are worried about anything.

If you are feeling upset or unsafe, are worried about a friend, student or family member, or you feel like something isn't right, speak to our safeguarding team:

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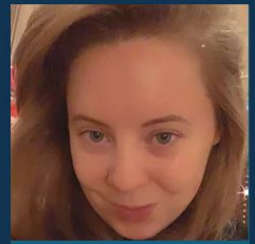
Designated Safeguarding Lead

Simone Botes

Rafiq Manan



Charlotte Witcher

Nurhaan Snyman

Ronald Munodawafa

Tevin Pitts

Scan to report a safeguarding concern

or email the Designated Safeguarding Lead:
Ian Wyles
safeguarding@hyperiondev.com

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- The use of disrespectful language is prohibited in the questions, this is a supportive, learning environment for all - please engage accordingly. **(Fundamental British Values: Mutual Respect and Tolerance)**
- No question is daft or silly - **ask them!**
- There are **Q&A sessions** midway and at the end of the session, should you wish to ask any follow-up questions. Moderators are going to be answering questions as the session progresses as well.
- If you have any questions outside of this lecture, or that are not answered during this lecture, please do submit these for upcoming Academic Sessions. You can submit these questions here: **Questions**

Skills Bootcamp Full Stack Web Development

- For all **non-academic questions**, please submit a query: ***www.hyperiondev.com/support***
- **Report a safeguarding incident: *www.hyperiondev.com/safeguardreporting***
- We would love your feedback on lectures: Feedback on Lectures
- If you are hearing impaired, please kindly use your computer's function through Google chrome to enable captions.

Learning Outcomes

- **Capture user input** using HTML forms and JavaScript to manipulate data.
- **Use a for loop** to iterate through a number and modify its digits.
- **Use a while loop** to analyze strings and determine if they meet specific conditions, such as being a palindrome.
- **Apply string and number manipulation techniques** in JavaScript to create dynamic programs.
- **Write and link external JavaScript files** to HTML for dynamic interaction.

Lecture Overview

- ➔ Presentation of the Task
- ➔ For Loops
- ➔ While Loops
- ➔ Task Walkthrough

Loops Task

Imagine you're trying to solve a mystery by reading clues in reverse order or flipping through a secret code. Today, we're going to become code detectives by manipulating numbers and words using JavaScript loops! 🔍🔢 In this task, you'll dive into how for loops and while loops can help us reverse the digits of a number and even reverse the letters in a word. By the end of this session, you'll be swapping, flipping, and reversing like a pro!

- Write a program that asks the user to input a number with at least three digits or a word of any length.
- Output both the original and reversed number.
- Ensure that you are doing input validation.

What does a for loop do in JavaScript?

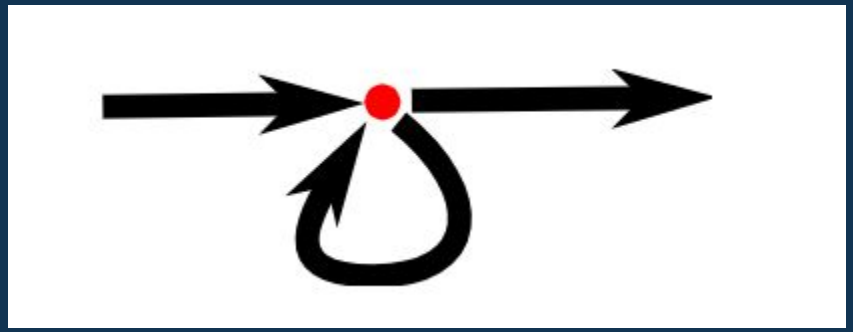
A. Repeats a block of code a set number of times.
B. Runs code until a condition becomes false.
C. Only runs code once.
D. Compares two values.

How do you collect user input in JavaScript using a pop-up box?

A. alert()
B. console.log()
C. prompt()
D. if()

Loops

- **Looping** control flow allows us to go back to some point in the program where we were before and **repeat** it.



While Loops

- The screenshot below shows the syntax of **while** loops.

```
while (condition) {
  // body of loop
}
```

- **While** loops are used when you need to repeat your code until a certain **condition is met**.
- We can use **trace tables** to help us test our loops and evaluate how the computer will run the code, line by line.

While Loops

```
let laps = 1,
  finish_line = 5;

// while loop from i = 1 to 5
while (laps <= finish_line) {
  console.log(laps);
  laps += 1;
}
```

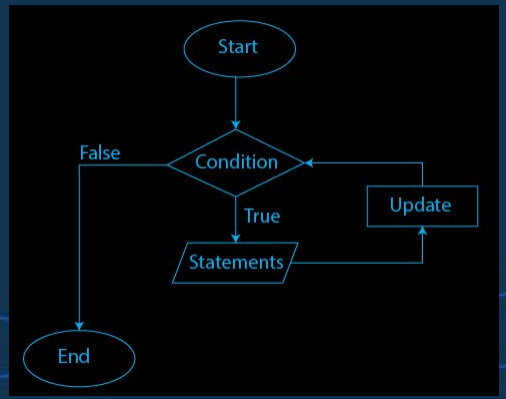
laps	finish_line	laps <= finish_line	Output
1	5	true	Print 1
2	5	true	Print 2
3	5	true	Print 3
4	5	true	Print 4
5	5	true	Print 5
6	5	false	Stop

For Loops

- The screenshot below shows the syntax of **for** loops.

```
for (initialExpression; condition; updateExpression) {
  // for loop body
}
```

- **For** loops are used when we need to repeat our code a **set number of times**.



For Loops

```
const MAX = 5;

// looping from i = 1 to 5
for (let i = 1; i <= MAX; i++) {
  console.log(`Good night`);
}
```

i	MAX	i <= MAX	Action
1	5	true	Print
2	5	true	Print
3	5	true	Print
4	5	true	Print
5	5	true	Print
6	5	false	Stop

For vs While

- A **for loop** is usually used when the number of iterations is **known**.
- The **while loop** is usually used when the number of iterations is **unknown.**

Break Statement

- The **break** statement is used to **terminate** the loop immediately when it is encountered.
- You can run a **break statement** by using the **break** keyword.
- This works for both **while** and **for** loops.

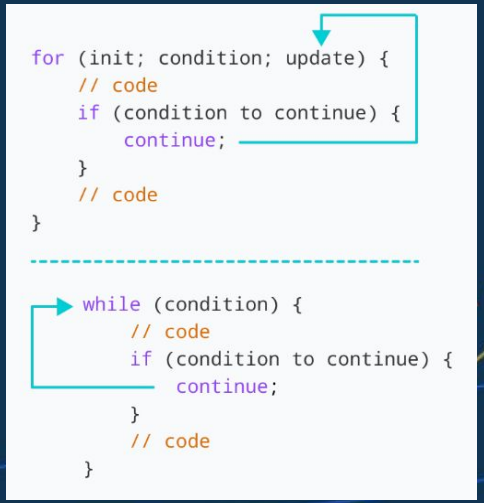
```
// program to print the value of i
for (let i = 1; i <= 5; i++) {
  // break condition
  if (i == 3) {
    break;
  }
  console.log(i);
}
```

Continue Statement

- The **continue** statement is used to **skip** the current iteration of the loop and the control flow of the program goes to the **next iteration**.
- This works for both **while** and **for** loops.

```
for (let i = 1; i <= 5; i++) {
  // condition to continue
  if (i == 3) {
    continue;
  }

  console.log(i);
}
```



Loops Task

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- Write a program that asks the user to input a number with at least three digits or a word of any length.
- Output both the original and reversed number.
- Ensure that you are doing input validation.

What type of loop would be best for reversing a number when you know the number of digits?

A. for loop
B. while loop
C. do...while loop
D. switch statement

Which string method helps break a string into an array of characters, useful for reversing a word?

A. split()
B. reverse()
C. join()
D. concat()

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Q & A SECTION

Please use this time to ask any questions relating to the topic, should you have any.

Thank you for attending

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