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Topic - While Loop

Understanding the While Loop: A Beginner's Guide

The while loop repeats code as long as a condition is true. It's essential for automation and control in programming. Let's explore its syntax and examples for clear understanding.



While Loop Syntax and Basic Usage

Syntax

The while loop checks a condition before running the code block repeatedly.

Example: **while (condition) { // code }**

Usage

- Execute code while a condition remains true
- Useful for repeating tasks with unknown iteration count

Example 1: Simple Counter Program

1

Initialize Counter

Set a starting value, e.g., `int i = 0;`

2

Loop Condition

Run while `i < 5`

3

Increment

Increase counter each loop iteration `i++`

Example 2: User Input Validation

Prompt User

Ask for input and store the response

Accept Input

Loop ends when valid input is received

Check Validity

Use while loop to repeat prompt if input is invalid



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Recap: Key Advantages and Considerations

Flexible Repetition

While loops handle unknown iteration counts efficiently.

Potential Risks

Ensure loop condition eventually becomes false to avoid infinite loops.

Clear Logic

Use while loops to simplify repeating conditional tasks.