

## Problem Solving With C

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### Session 4: Loops in C

Loops in C allow repeating a block of code multiple times until a condition is met. Types of loops: for, while, and do-while.

#### 1. for Loop

Used when the number of iterations is known.

```
#include <stdio.h>
int main() {
    for (int i = 1; i <= 5; i++) {
        printf("%d\n", i);
    }
    return 0;
}
```

#### 2. while Loop

Used when the number of iterations is unknown, runs while condition is true.

```
#include <stdio.h>
int main() {
    int i = 1;
    while (i <= 5) {
        printf("%d\n", i);
        i++;
    }
    return 0;
}
```

#### 3. do-while Loop

Executes at least once before checking the condition.

```
#include <stdio.h>
int main() {
    int i = 1;
    do {
        printf("%d\n", i);
        i++;
    } while (i <= 5);
    return 0;
}
```

## Common Questions and Answers

Q1: Difference between for and while?

A: for is preferred when iterations are known, while is used for unknown iterations.

Q2: What is an infinite loop?

A: A loop whose condition never becomes false.

Q3: Difference between break and continue?

A: break exits the loop entirely; continue skips current iteration.

Q4: Can loops be nested?

A: Yes, loops can be placed inside other loops.