LOOPS

Loops in C are control structures that allow a set of instructions to be repeated multiple times, facilitating efficient and concise coding. There are three main types of loops in C: `for`, `while`, and `do-while`.

1. For Loop:

The `for` loop is used when the number of iterations is known beforehand. It consists of three parts: initialization, condition, and update. The loop continues executing as long as the condition is true.

```c
for (initialization; condition; update) {
    // Code to be repeated
}
```

2. While Loop:

The `while` loop repeats a set of statements while a specified condition is true. It is suitable when the number of iterations is not known beforehand and is determined dynamically during runtime.

```c
while (condition) {
    // Code to be repeated
}
```

3. Do-While Loop:

Similar to the `while` loop, the `do-while` loop also repeats a set of statements based on a condition. However, it ensures that the code inside the loop is executed at least once, as the condition is checked after the execution of the loop.

```c
do {
    // Code to be repeated
} while (condition);
```

Loops are essential for automating repetitive tasks, iterating over arrays, and implementing various algorithms. They contribute to the modularity and efficiency of C programs by reducing redundancy and promoting code reuse. Understanding and mastering loop structures is fundamental for C programmers to enhance the functionality and readability of their code.