Conditionals

Types of Conditionals

A conditional in C can be written using `if` , `else-if` , `else, ternary operators, and` switch` statements.

if Statements

An `if` statement tests an expression and executes code based on its truth.

```c
if (x == 3) {
  printf("x is 3!");
}
```

else-if Statements

An `else-if` statement tests an expression and must come after an existing `if` or `else-if` .

```c
if (x > 3) {
  printf("x is greater than 3");
} else if (x < 3) {
  printf("x is less than 3");
}
```

else Statements

An `else` statement is accessed when all preceding `if` and/or `else-if` statements return `false` .

```c
if (x > 3) {
  printf("x is greater than 3");
} else if (x < 3) {
  printf("x is less than 3");
} else {
  printf("x equals 3");
}
```

Dangling else Statement

A dangling `else` statement results when it's ambiguous which conditional the `else` statement is attached to.

Ternary Operators

A ternary operator is a condensed `if-else` statement.

```
min = a < b ? a : b; // This is the
same as the if-else below

if (a < b) {
  min = a;
} else {
  min = b;
}
```

switch Statements

A `switch` statement is a condensed series of cascading `else` statements. It tests a value and compares it against multiple cases.

```
switch (grade) {
  case 9:
    printf("Freshman\n");
    break;
  case 10:
    printf("Sophomore\n");
    break;
  case 11:
    printf("Junior\n");
    break;
  case 12:
    printf("Senior\n");
    break;
  default:
    printf("Invalid\n");
    break;
}
```

Operators and Conditionals

A conditional in C can use relational operators such as `&&`, `||`, and `!` to compare values and test multiple expressions.