**Decision Making in C :-**

1. **Simple if Statement**

The if statement allows you to execute a block of code only if a specified condition is true.

**Syntax:**

**if (condition) {**

**// code to be executed if condition is true**

**}**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int num = 10;**

**if (num > 5) {**

**System.out.println("Number is greater than 5");**

**}**

**}**

**}**

1. **if...else Statement**

The if...else statement allows you to execute one block of code if the condition is true, and another block if it is false.

**Syntax:**

**if (condition)**

**{**

**// code to be executed if condition is true**

**} else**

**{**

**// code to be executed if condition is false**

**}**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int num = 4;**

**if (num > 5) {**

**System.out.println("Number is greater than 5");**

**} else {**

**System.out.println("Number is not greater than 5");**

**}**

**}**

**}**

1. **else if Ladder**

The else if ladder is used to check multiple conditions one after the other.

**Syntax:**

**if (condition1) {**

**// code to be executed if condition1 is true**

**} else if (condition2) {**

**// code to be executed if condition2 is true**

**} else {**

**// code to be executed if all conditions are false**

**}**

**Example:**

**public class Main**

**{**

**public static void main(String[] args)**

**{**

**int num = 3;**

**if (num > 5)**

**{**

**System.out.println("Number is greater than 5");**

**}**

**else if (num == 5)**

**{**

**System.out.println("Number is equal to 5");**

**}**

**Else**

**{**

**System.out.println("Number is less than 5");**

**}**

**}**

**}**

1. **The switch Statement**

The switch statement allows you to execute one block of code out of many based on the value of a variable.

**Syntax:**

**switch (variable) {**

**case value1:**

**// code to be executed if variable is equal to value1**

**break;**

**case value2:**

**// code to be executed if variable is equal to value2**

**break;**

**// you can have any number of case statements**

**default:**

**// code to be executed if variable doesn't match any case**

**}**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int day = 3;**

**switch (day) {**

**case 1:**

**System.out.println("Monday");**

**break;**

**case 2:**

**System.out.println("Tuesday");**

**break;**

**case 3:**

**System.out.println("Wednesday");**

**break;**

**case 4:**

**System.out.println("Thursday");**

**break;**

**case 5:**

**System.out.println("Friday");**

**break;**

**case 6:**

**System.out.println("Saturday");**

**break;**

**case 7:**

**System.out.println("Sunday");**

**break;**

**default:**

**System.out.println("Invalid day");**

**}**

**}**

**}**

1. **The Conditional Operator (Ternary Operator)**

The conditional operator is a shorthand for the if...else statement. It is also known as the ternary operator because it takes three operands.

**Syntax:**

**condition ? expression1 : expression2;**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int num = 10;**

**System.out.println(num > 5 ? "Number is greater than 5" : "Number is not greater than 5");**

**}**

**}**

**1.6 Decision Making with Loops :-**

**1) while Loop**

The while loop repeatedly executes a block of code as long as a specified condition is true**.**

**Syntax:**

**while (condition) {**

**// code to be executed**

**}**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int i = 0;**

**while (i < 5) {**

**System.out.println(i);**

**i++;**

**}**

**}**

**}**

**2) do...while Loop**

The do...while loop is similar to the while loop, but it guarantees that the code block is executed at least once.

**Syntax:**

**do {**

**// code to be executed**

**} while (condition);**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**int i = 0;**

**do {**

**System.out.println(i);**

**i++;**

**} while (i < 5);**

**}**

**}**

**3) for Loop**

The for loop is used for iterating over a sequence (like a range of numbers). It is more compact than a while loop.

**Syntax:**

**for (initialization; condition; increment) {**

**// code to be executed**

**}**

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**for (int i = 0; i < 5; i++) {**

**System.out.println(i);**

**}**

**}**

**}**

**Jumps in Loops: break and continue :-**

1. **break Statement:**

The break statement is used to exit from a loop or a switch statement prematurely.

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**for (int i = 0; i < 10; i++) {**

**if (i == 5) {**

**break;**

**}**

**System.out.println(i);**

**}**

**}**

**}**

1. **continue Statement:**

The continue statement skips the rest of the code inside the loop for the current iteration and jumps to the next iteration.

**Example:**

**public class Main {**

**public static void main(String[] args) {**

**for (int i = 0; i < 10; i++) {**

**if (i == 5) {**

**continue;**

**}**

**System.out.println(i);**

**}**

**}**

**}**