Decision-Making Statements

1. Decision-Making Statements
These statements allow the program to make decisions and execute a block of code based on the outcome of a condition.

1.1 `if` Statement
The `if` statement evaluates a condition and executes the block of code inside it if the condition is true.

Syntax:
```
if (condition) {
    // Code to execute if condition is true
}
```
Example:
```
#include <stdio.h>
int main() {
    int num = 10;
    if (num > 5) {
        printf("Number is greater than 5\n");
    }
    return 0;
}
```
Output:
```
Number is greater than 5
```

1.2 `if-else` Statement
The `if-else` statement allows for two possibilities: if the condition is true, one block of code executes; if false, another block executes.

Syntax:
```
if (condition) {
    // Code to execute if condition is true
} else {
    // Code to execute if condition is false
}
```
Example:
```
#include <stdio.h>
int main() {
    int num = 3;
    if (num > 5) {
        printf("Number is greater than 5\n");
    } else {
        printf("Number is less than or equal to 5\n");
    }
    return 0;
}
```
Output:
```
Number is less than or equal to 5
```

1.3 `if-else if-else` Ladder
The `if-else if-else` ladder is used when multiple conditions need to be checked.

Syntax:
```
if (condition1) {
    // Code to execute if condition1 is true
} else if (condition2) {
    // Code to execute if condition2 is true
```

```
} else {
    // Code to execute if all conditions are false
}
**Example:**
#include <stdio.h>
int main() {
    int num = 10;
    if (num == 0) {
        printf("Number is zero\n");
    } else if (num > 0) {
        printf("Number is positive\n");
    } else {
        printf("Number is negative\n");
    }
    return 0;
}
**Output:**
Number is positive

#### 1.4 `switch` Statement
The `switch` statement is used to execute one block of code among many alternatives based on the value of a variable.

**Syntax:**
switch (expression) {
    case constant1:
        // Code to execute if expression equals constant1
        break;
    case constant2:
        // Code to execute if expression equals constant2
        break;
    // You can have any number of cases
    default:
        // Code to execute if expression doesn't match any case
}
**Example:**
#include <stdio.h>

int main() {
    int day = 3;
    switch (day) {
        case 1:
            printf("Monday\n");
            break;
        case 2:
            printf("Tuesday\n");
            break;
        case 3:
```

```
            printf("Wednesday\n");
            break;
        case 4:
            printf("Thursday\n");
            break;
        case 5:
            printf("Friday\n");
            break;
        case 6:
            printf("Saturday\n");
            break;
        case 7:
            printf("Sunday\n");
            break;
        default:
            printf("Invalid day\n");
}
```