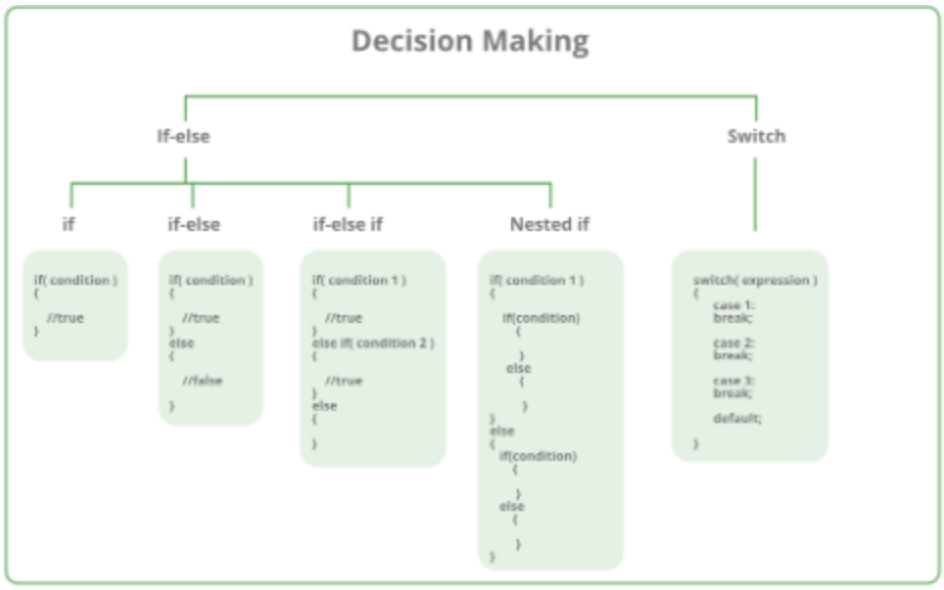
CHI TIẾT
CẤU TRÚC LẬP TRÌNH TRONG C++

(tài liệu tham khảo dành cho học viên)

Decision Making in C++



1. if statement
2. if..else statements
3. nested if statements
4. if-else-if ladder
5. switch statements
6. Jump Statements:
    a. break
    b. continue
    c. goto
    d. return

1. if statement in C++

Syntax:

```
if(condition)
{
   // Statements to execute if
   // condition is true
}
```

C C++

```cpp
//IMIC Technology - C++ program to illustrate If statement
#include<iostream>
using namespace std;

    int main()
    {
        int i = 10;

        if (i > 15)
        {
           cout<<"10 is less than 15";
        }

        cout<<"I am Not in if";
    }
```

Output:

```
I am Not in if
```

2. if-else in C++

Syntax:

```
if (condition)
{
    // Executes this block if
    // condition is true
}
else
{
    // Executes this block if
    // condition is false
}
```

C C++

```cpp
//IMIC Technology - C++ program to illustrate if-else statement
#include<iostream>
using namespace std;

int main()
 {
        int i = 20;

        if (i < 15)
            cout<<"i is smaller than 15";
        else
            cout<<"i is greater than 15";

    return 0;
 }
```

Output:

```
i is greater than 15
```

3. Nested-if in C++

Syntax:

```
if (condition1)
{
   // Executes when condition1 is true
   if (condition2)
   {
      // Executes when condition2 is true
   }
}
```

C C++

```cpp
//IMIC Technology - C++ program to illustrate nested-if statement
#include <iostream>
using namespace std;

int main()
{
    int i = 10;

    if (i == 10)
    {
        // First if statement
        if (i < 15)
           cout<<"i is smaller than 15\n";

        // Nested - if statement
        // Will only be executed if statement above
        // is true
        if (i < 12)
            cout<<"i is smaller than 12 too\n";
        else
            cout<<"i is greater than 15";
    }

    return 0;
}
```

Output:

```
i is smaller than 15
i is smaller than 12 too
```

4. If-else-if ladder in C++

Syntax:

```
if (condition)
    statement;
else if (condition)
    statement;
.
.
else
    statement;
```

C C++

```cpp
//IMIC Technology - C++ program to illustrate if-else-if ladder
#include<iostream>
using namespace std;

int main()
{
    int i = 20;

    if (i == 10)
        cout<<"i is 10";
    else if (i == 15)
        cout<<"i is 15";
    else if (i == 20)
        cout<<"i is 20";
    else
        cout<<"i is not present";
}
```

Output:

```
i is 20
```

5. Jump Statements in C++

Syntax:

```
break;
```

C C++

```cpp
//IMIC Technology - CPP program to illustrate
// Linear Search
#include <iostream>
using namespace std;

void findElement(int arr[], int size, int key)
{
    // loop to traverse array and search for key
    for (int i = 0; i < size; i++) {
        if (arr[i] == key) {
            cout << "Element found at position: " << (i + 1);
            break;
        }
    }
}

// Driver program to test above function
int main()
{
    int arr[] = { 1, 2, 3, 4, 5, 6 };
    int n = 6; // no of elements
    int key = 3; // key to be searched

    // Calling function to find the key
    findElement(arr, n, key);

    return 0;
}
```

Output:

```
Element found at position: 3
```

Syntax:

```
continue;
```

C C++

```cpp
//IMIC Technology - C++ program to explain the use
// of continue statement

#include <iostream>
using namespace std;

int main()
{
    // loop from 1 to 10
    for (int i = 1; i <= 10; i++) {

        // If i is equals to 6,
        // continue to next iteration
        // without printing
        if (i == 6)
            continue;

        else
            // otherwise print the value of i
            cout << i << " ";
    }

    return 0;
}
```

Output:

```
1 2 3 4 5 7 8 9 10
```

Syntax:

```
Syntax1       |   Syntax2
-----------------------------
goto label;   |    label:
.             |    .
.             |    .
.             |    .
label:        |    goto label;
```

C C++

```cpp
//IMIC Technology - C++ program to print numbers
// from 1 to 10 using goto statement
#include <iostream>
using namespace std;

// function to print numbers from 1 to 10
void printNumbers()
{
    int n = 1;
label:
    cout << n << " ";
    n++;
    if (n <= 10)
        goto label;
}

// Driver program to test above function
int main()
{
    printNumbers();
    return 0;
}
```

Output:

```
1 2 3 4 5 6 7 8 9 10
```

Syntax:

```
return[expression];
```

C C++

```cpp
//IMIC Technology - C++ code to illustrate return
// statement
#include <iostream>
using namespace std;

// non-void return type
// function to calculate sum
int SUM(int a, int b)
{
    int s1 = a + b;
    return s1;
}

// returns void
// function to print
void Print(int s2)
{
    cout << "The sum is "<< s2;
    return;
}

int main()
{
    int num1 = 10;
    int num2 = 10;
    int sum_of = SUM(num1, num2);
    Print(sum_of);
    return 0;
}
```

Output:

```
The sum is 20
```

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