

Concept Map 2 of a Code

Creating a concept map for a program that prints an array recursively involves breaking down the task into its main components and showing the relationships between them. Here's how you can design a concept map for this problem:

A. Concept Map Components

1. Problem Definition

- Print elements of an array recursively.

2. Key Concepts

- Array
- Recursion
- Base Case
- Recursive Case

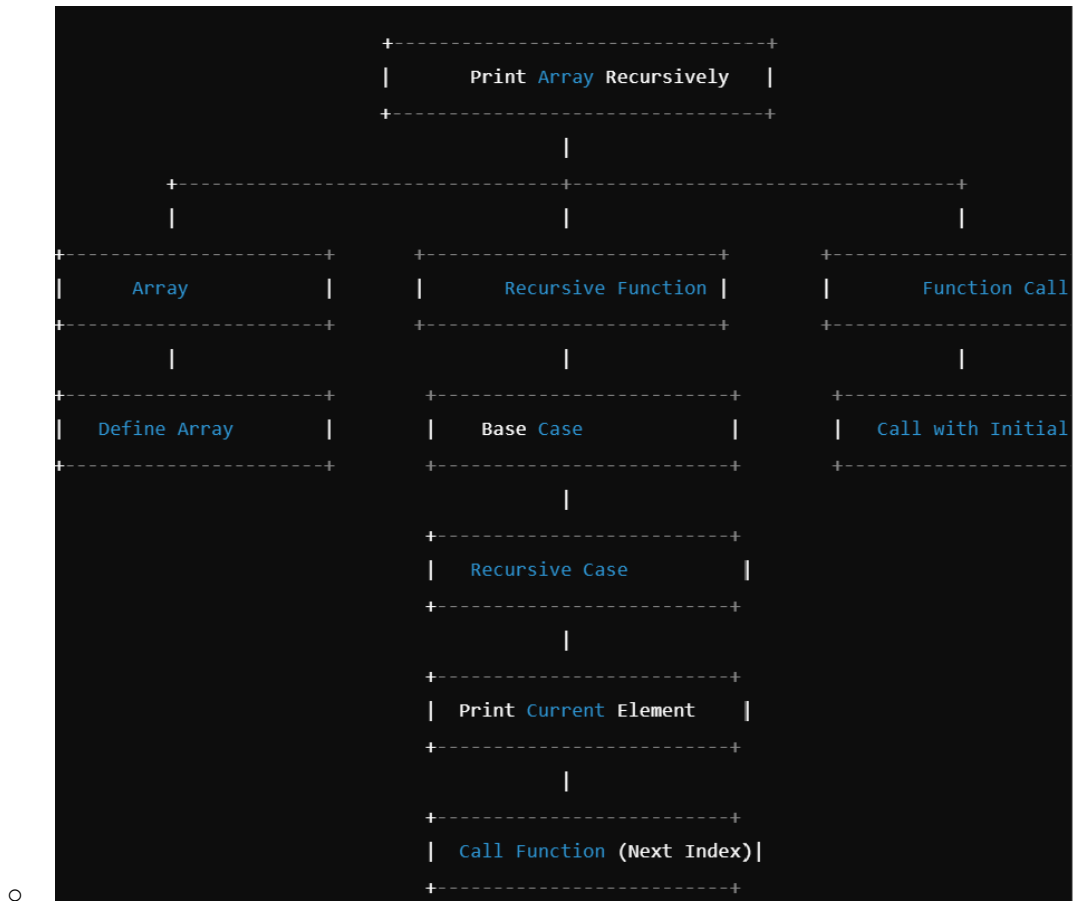
3. Steps to Solve the Problem

- Define the array.
- Create a recursive function.
 - Define the base case.
 - Define the recursive case.
- Call the recursive function.

4. Implementation Details

- Function parameters (array and current index).
- Print current element.
- Recursive call with next index.

B. Cmap draft



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C. The code

```

#include <iostream>
using namespace std;

void printArrayRecursively(int arr[], int size, int index = 0) {
    // Base case: If index is equal to the size of the array,
    //stop recursion
    if (index == size) {
        return;
    }
    // Print the current element
    cout << arr[index] << " ";
    // Recursive case: Call the function with the next index
    printArrayRecursively(arr, size, index + 1);
}

```

```
int main() {
    // Define an array
    int myArray[] = {1, 2, 3, 4, 5};
    int size = sizeof(myArray) / sizeof(myArray[0]);

    // Call the recursive function
    printArrayRecursively(myArray, size);

    return 0;
}
```

D. Explanation of the program

1. Function Definition (printArrayRecursively):

- Takes three parameters: the array (arr), the size of the array (size), and the current index (index), which defaults to 0.

2. Base Case:

- If the index is equal to the size of the array, the function returns, stopping the recursion.

3. Recursive Case:

- Prints the current element of the array.
- Calls itself with the next index (index + 1).

4. Array Definition and Function Call:

- The array myArray is defined.
- The size of the array is calculated.
- The recursive function is called with the initial index.

By following this concept map and code, you can understand how to break down the problem and implement a solution using recursion in C++.

E. Cougtube of all the above