

Sure, let's break down the provided C++ code line by line:

cpp

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This is a comment describing that this program implements the selection sort algorithm.

cpp

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```
#include <bits/stdc++.h> using namespace std;
```

This includes necessary header files for the program. `<bits/stdc++.h>` is a header that includes all standard libraries. `using namespace std;` is a directive that allows identifiers in the `std` namespace to be used without qualification.

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```
void selectionSort(int arr[], int n)
```

```
{  
    for (int i = 0; i < n - 1; i++)
```

This begins the definition of the `selectionSort` function. It takes an integer array `arr[]` and its size `n` as parameters. It initializes integer variables `i`, `j`, and `min_idx`.

The `for` loop iterates over the elements of the array `arr[]` up to the second-to-last element (`n - 1`). This loop controls the boundary of the unsorted subarray.

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```
    {  
        for (int j = i + 1; j < n; j++)  
        {  
            if (arr[j] < arr[min_idx])
```

Within the outer loop, another loop is used to find the index of the minimum element in the unsorted portion of the array. `min_idx` is updated if a smaller element is found.

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```
            if (min_idx != j)  
                swap(arr[j], arr[min_idx]);  
        }  
    }
```

After finding the minimum element (`min_idx`), it swaps it with the element at index `i` if `min_idx` is different from `i`. This effectively moves the smallest element to the correct position in the sorted portion of the array.

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```
void printArray(int arr[], int size)
{
    for (int i = 0; i < size; i++)
    {
        cout << arr[i] << " ";
    }
    cout << endl;
}
```

This defines a function named `printArray` which takes an integer array `arr[]` and its size `size` as parameters. It iterates over the array elements and prints them out, each followed by a newline.

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```
int main()
{
    int arr[] = {64, 25, 12, 22, 11};
    int n = sizeof(arr) / sizeof(arr[0]);
    selectionSort(arr, n);
    printArray(arr, n);
    return 0;
}
```

This is the `main` function where the program starts execution. It defines an integer array `arr[]` with some initial values. It calculates the size of the array using the `sizeof` operator and divides it by the size of its first element to determine the number of elements in the array (`n`).

It then calls the `selectionSort` function passing the array `arr[]` and its size `n`. After sorting, it prints the sorted array using the `printArray` function. Finally, it returns `0`, indicating successful execution of the program.