

Answer on Question #72101- Programming & Computer Science - C++

Question:

Consider A, B, C as three arrays of size m, n and m + n respectively. Array A is stored in ascending order whereas array B is stored in descending order.

Write a C++ program to produce a third array C, containing all the data of arrays A and B and arranged in descending order. Display the data of array C only.

Answer:

```
#include <iostream>
using std::size_t;
using std::cout;
using std::endl;

void mergeTwoSortedArrays(const int *A, const size_t n,
    const int *B, const size_t m, int *C, const size_t k) {

    size_t i = 0, j = m - 1, s = 0;
    while (i < n and j + 1 > 0 and s < k)
        if (A[i] < B[j]) C[s++] = A[i++];
        else C[s++] = B[j--];
    while (i < n and s < k) C[s++] = A[i++];
    while (j + 1 > 0 and s < k) C[s++] = B[j--];
}

int main() {
    const size_t n = 5;
    int A[n] = { -5, 2, 3, 7, 9 };
    const size_t m = 6;
    int B[m] = { 9, 4, 3, 1, -1, -10 };
    const size_t k = n + m;
    int C[k] = {};
    int C2[k] = {};

    mergeTwoSortedArrays(A, n, B, m, C, k);
    for (size_t s = 0; s < k; s++)
        cout << C[s] << " ";
    cout << endl;

    mergeTwoSortedArrays(A, n - 1, B, m - 3, C2, k);
    for (size_t s = 0; s < k; s++)
        cout << C2[s] << " ";
    cout << endl;
}
```

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