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Bubble Sort

```
#include <stdbool.h>
#include <stdio.h>

void swap(int* s, int* b) {
    int temp = *s;
    *s = *b;
    *b = temp;
}

void bubbleSort(int arr[], int n) {
    int i, j;
    bool swapped;
    for (i = 0; i < n - 1; i++) {
        swapped = false;
        for (j = 0; j < n - i - 1; j++) {
            if (arr[j] > arr[j + 1]) {
                swap(&arr[j], &arr[j + 1]);
                swapped = true;
            }
        }
        if (swapped == false)
            break;
    }
}

void printArray(int arr[], int size) {
    for (int i = 0; i < size; i++)
        printf("%d ", arr[i]);
}

int main() {
    int n;
    printf("Enter number of elements: ");
    scanf("%d", &n);
    int arr[n];
    for (int i = 0; i < n; i++) {
        printf("Enter %d integer: ", i + 1);
        scanf("%d", &arr[i]);
    }
}
```

```

    bubbleSort(arr, n);
    printf("Sorted array: ");
    printArray(arr, n);
    return 0;
}

```

Output –

```

Enter number of elements: 6
Enter 1 integer: 241
Enter 2 integer: 3246
Enter 3 integer: 325
Enter 4 integer: 45
Enter 5 integer: 867
Enter 6 integer: 12
Sorted array: 12 45 241 325 867 3246

=== Code Execution Successful ===

```

Shell Sort

```

#include <stdio.h>

void shellSort(int arr[], int n) {
    for (int gap = n / 2; gap > 0; gap /= 2) {
        for (int i = gap; i < n; i++) {
            int temp = arr[i];
            int j;
            for (j = i; j >= gap && arr[j - gap] > temp; j -= gap) {
                arr[j] = arr[j - gap];
            }
            arr[j] = temp;
        }
    }
}

void printArray(int arr[], int n) {
    for (int i = 0; i < n; i++) {
        printf("%d ", arr[i]);
    }
}

int main() {
    int n;

```

```
printf("Enter the number of elements: ");
scanf("%d", &n);
int arr[n];
for (int i = 0; i < n; i++) {
    printf("Enter %d integer: ", i + 1);
    scanf("%d", &arr[i]);
}
shellSort(arr, n);
printf("Sorted array: ");
printArray(arr, n);
return 0;
}
```

Output –

```
Enter the number of elements: 6
Enter 1 integer: 34
Enter 2 integer: 466
Enter 3 integer: 78
Enter 4 integer: 23
Enter 5 integer: 53
Enter 6 integer: 14
Sorted array: 14 23 34 46 53 78

=== Code Execution Successful ===
```