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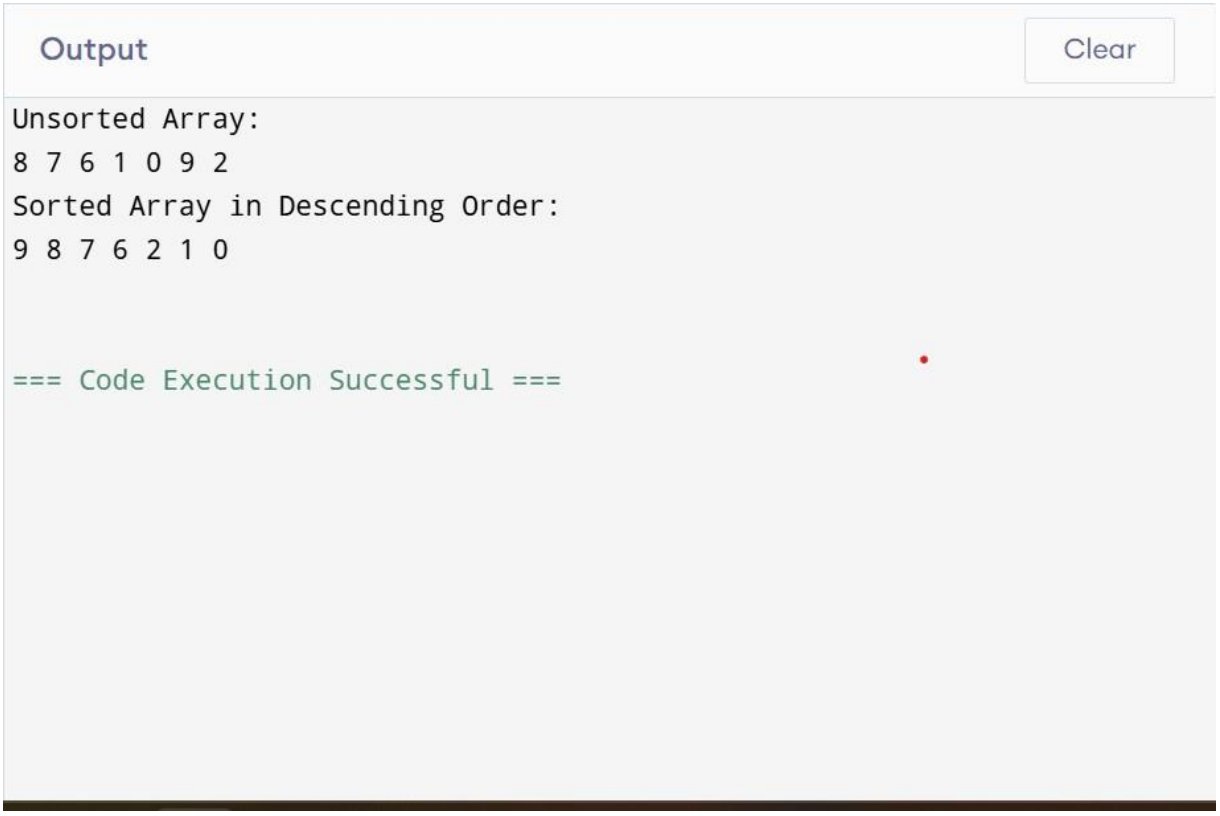
Q. 1

```
#include <iostream>
using namespace std;
void swap(int *k, int *c) {
int t = *k;
  *k = *c;
  *c = t;
}

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

int partition(int array[], int low, int high) {
  int pivot = array[low];
  int i = low + 1;
  int j = high;

  while (i <= j) {
    while (i <= high && array[i] >= pivot)
      i++;
```

```
    while (j >= low && array[j] < pivot)
      j--;
    if (i < j)
      swap(&array[i], &array[j]);
  }
  swap(&array[low], &array[j]);
  return j;
}

void quickSort(int array[], int low, int high) {
  if (low < high) {
    int pi = partition(array, low, high);
    quickSort(array, low, pi - 1);
    quickSort(array, pi + 1, high);
  }
}

int main() {
  int data[] = {8, 7, 6, 1, 0, 9, 2};
  int n = sizeof(data) / sizeof(data[0]);

  cout << "Unsorted Array:\n";
  printArray(data, n);

  quickSort(data, 0, n - 1);

  cout << "Sorted Array in Descending Order:\n";
  printArray(data, n);
```

```
  return 0;
}
```

Result:



Q. 2

```
#include <iostream>
using namespace std;

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

void printArray(int array[], int size) {
  for (int i = 0; i < size; i++) {
```

```
    cout << array[i] << " ";
  }
  cout << endl;
}

void selectionSort(int array[], int size) {
  for (int step = 0; step < size - 1; step++) {
  int max_idx = step;
    for (int i = step + 1; i < size; i++) {
      if (array[i] > array[max_idx])
        max_idx = i;
    }
    swap(&array[max_idx], &array[step]);
    cout << "After iteration " << step + 1 << ": ";
    printArray(array, size);
  }
}

int main() {
  int data[] = {20, 12, 10, 15, 2};
  int size = sizeof(data) / sizeof(data[0]);

  cout << "Unsorted Array:\n";
  printArray(data, size);

  selectionSort(data, size);

  cout << "Sorted Array in Descending Order:\n";
  printArray(data, size);
```

```
  return 0;
}
```

Result: