

```
//Quick Sort
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//Class:-SY CSE A
//Roll No:-CS2145
```

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

```
// Function to swap two elements
```

```
void swap(int *a, int *b) {
```

```
    int t = *a;
```

```
    *a = *b;
```

```
    *b = t;
```

```
}
```

```
// Partition function
```

```
int partition(int arr[], int low, int high) {
```

```
    int pivot = arr[high]; // pivot element
```

```
    int i = low - 1;    // index of smaller element
```

```
    for (int j = low; j <= high - 1; j++) {
```

```
        if (arr[j] < pivot) {
```

```
            i++;
```

```
            swap(&arr[i], &arr[j]);
```

```
        }
```

```
    }
```

```
    swap(&arr[i + 1], &arr[high]);
```

```
    return (i + 1);
```

```
}
```

```
// Quick Sort function
```

```
void quickSort(int arr[], int low, int high) {
```

```
    if (low < high) {
```

```
        int pi = partition(arr, low, high);
```

```
        quickSort(arr, low, pi - 1); // sort left side
```

```
        quickSort(arr, pi + 1, high); // sort right side
```

```
    }
```

```
}
```

```
int main() {
```

```
    int arr[] = {10, 7, 8, 9, 1, 5};
```

```
    int n = sizeof(arr) / sizeof(arr[0]);
```

```
    quickSort(arr, 0, n - 1);
```

```
    printf("Sorted array: ");
```

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

```
        printf("%d ", arr[i]);
```

```
        printf("\n");
```

```
    return 0;
```

```
}
```