



# SHREE L. R. TIWARI COLLEGE OF ENGINEERING

Approved by AICTE & DTE, Maharashtra State & Affiliated to University of Mumbai, NAAC Accredited, NBA Accredited program,  
ISO 9001:2015 Certified | DTE Code No: 3423, Recognized under Section 2(f) of the UGC Act 1956, Minority Status (Hindi Linguistic)

Name: Samit Dubey

Roll no.: 22 Div: A

Batch: A1

## **Program:**

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

```
void quicksort(int arr[], int p, int r);  
int partition(int arr[], int p, int r);`1
```

```
int main() {  
    int n;  
    printf("Enter the number of elements: ");  
    scanf("%d", &n);  
  
    int arr[n];  
    printf("\nEnter the elements of the array: ");  
    for (int i = 0; i < n; i++) {  
        scanf("%d", &arr[i]);  
    }  
  
    printf("\nArray before sorting: ");  
    for (int i = 0; i < n; i++) {  
        printf("%d ", arr[i]);  
    }  
  
    int p = 0, r = n - 1;  
    quicksort(arr, p, r);  
  
    printf("\nArray after sorting: ");  
    for (int i = 0; i < n; i++) {  
        printf("%d ", arr[i]);  
    }  
    return 0;  
}
```

```
void quicksort(int arr[], int p, int r) {  
    if (p < r) {  
        int q = partition(arr, p, r);  
        quicksort(arr, p, q - 1);  
        quicksort(arr, q + 1, r);  
    }  
}
```

```
int partition(int arr[], int p, int r) {
```



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```
int x = arr[r];
int i = p - 1;
int temp;
for (int j = p; j < r; j++) {
    if (arr[j] <= x) {
        i++;
        temp = arr[i];
        arr[i] = arr[j];
        arr[j] = temp;
    }
}
temp = arr[i + 1];
arr[i + 1] = arr[r];
arr[r] = temp;
return i + 1;
}
```

## **Output:**

Enter the number of elements: 5

Enter the elements of the array: 5 6 8 12 59

Array before sorting: 5 6 8 12 59

Array after sorting: 5 6 8 12 59