

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

```
void merge(int arr[], int left, int mid, int right) {
```

```
    int i, j, k;
```

```
    int n1 = mid - left + 1;
```

```
    int n2 = right - mid;
```

```
    int L[n1], R[n2];
```

```
    for (i = 0; i < n1; i++)
```

```
        L[i] = arr[left + i];
```

```
    for (j = 0; j < n2; j++)
```

```
        R[j] = arr[mid + 1 + j];
```

```
    i = 0;
```

```
    j = 0;
```

```
    k = left;
```

```
    while (i < n1 && j < n2) {
```

```
        if (L[i] <= R[j]) {
```

```
            arr[k] = L[i];
```

```
            i++;
```

```
        } else {
```

```
            arr[k] = R[j];
```

```
            j++;
```

```
        }
```

```
        k++;
```

```
    }
```

```
    while (i < n1) {
```

```
        arr[k] = L[i];
```

```
        i++;
```

```
        k++;
```

```
    }
```

```
    while (j < n2) {
```

```
        arr[k] = R[j];
```

```
        j++;
```

```
        k++;
```

```
    }
```

```
}
```

```
void mergeSort(int arr[], int left, int right) {
```

```
    if (left < right) {
```

```
        int mid = left + (right - left) / 2;
```

```
        mergeSort(arr, left, mid);
```

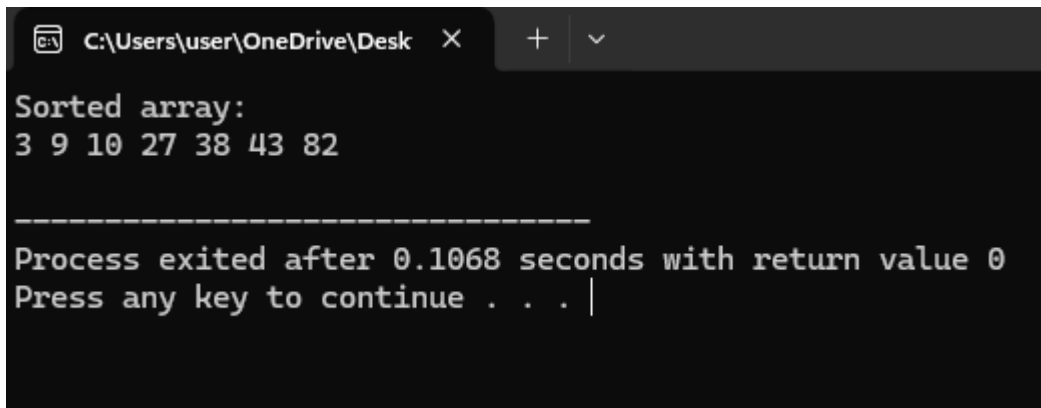
```
        mergeSort(arr, mid + 1, right);
```

```
        merge(arr, left, mid, right);
    }
}

int main() {
    int arr[] = {38, 27, 43, 3, 9, 82, 10};
    int arr_size = sizeof(arr) / sizeof(arr[0]);

    mergeSort(arr, 0, arr_size - 1);

    printf("Sorted array: \n");
    for (int i = 0; i < arr_size; i++)
        printf("%d ", arr[i]);
    printf("\n");
    return 0;
}
```



The screenshot shows a Windows command prompt window with a dark background. The title bar at the top indicates the file path 'C:\Users\user\OneDrive\Desktop' and includes standard window controls (minimize, maximize, close). The command prompt displays the output of the program: 'Sorted array:' followed by the sorted numbers '3 9 10 27 38 43 82' on the next line. Below this, a separator line of dashes is shown, followed by the message 'Process exited after 0.1068 seconds with return value 0' and 'Press any key to continue . . . |' with a cursor.

```
C:\Users\user\OneDrive\Desktop >
Sorted array:
3 9 10 27 38 43 82

-----
Process exited after 0.1068 seconds with return value 0
Press any key to continue . . . |
```