

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

```
void merge(int a[], int l, int m, int r) {
```

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

```
    int n1 = m - l + 1;
```

```
    int n2 = r - m;
```

```
    int L[100], R[100];
```

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

```
        L[i] = a[l + i];
```

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

```
        R[j] = a[m + 1 + j];
```

```
    i = 0; j = 0; k = l;
```

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

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

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

```
            i++;
```

```
        } else {
```

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

```
            j++;
```

```
        }
```

```
        k++;
```

```
    }
```

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

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

```
        i++; k++;
```

```
    }
```

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

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

```
        j++; k++;
```

```
    }
```

```
}
```

```
void mergeSort(int a[], int l, int r) {
```

```
    if(l < r) {
```

```
        int m = l + (r - l) / 2;
```

```
        mergeSort(a, l, m);
```

```
        mergeSort(a, m + 1, r);
```

```
        merge(a, l, m, r);
```

```
    }
```

```
}
```

```
int main() {
```

```
    int a[100], n, i;
```

```
    printf("Enter number of elements: ");
```

```

scanf("%d", &n);

printf("Enter %d elements:\n", n);
for(i = 0; i < n; i++)
    scanf("%d", &a[i]);

mergeSort(a, 0, n - 1);

printf("Sorted array:\n");
for(i = 0; i < n; i++)
    printf("%d ", a[i]);

return 0;
}

```

The screenshot shows a C++ IDE with the following components:

- Console Window:**

```

Enter number of elements: 5
Enter 5 elements:
44 9 23 33 44
Sorted array:
9 23 33 44 44
-----
Process exited after 24.56 seconds with return value 0
Press any key to continue . . .

```
- Compiler Window:**

```

Compilation results...
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\dell\OneDrive\Documents\28.exe
- Output Size: 130.3154296875 KiB
- Compilation Time: 0.23s

```
- Status Bar:** Line: 63, Col: 1, Sel: 0, Lines: 63, Length: 1183, Insert, Done parsing in 0.062 seconds.
- Taskbar:** Shows system tray with temperature (37°C), weather (Mostly cloudy), and date/time (14:32, 04-07-2025).