

# COUNTING SORT


 dado  
 chave

```

typedef struct {
    int dado;
    int chave;
} Info;
    
```

v =

6	4	1	7	8	5	7	0	0	9	4
3	6	4	2	4	3	3	5	2	1	4

↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑ ↑

s =

9	7	0	6	5	7	1	8	4	0	4
1	2	2	3	3	3	4	4	4	5	6

0 1 2 3 4 5 6 7 8 9 10

cópia

C = 0 1 2 3 3 1 1

0 1 2 3 4 5 6

C = 0 0 2 6 8 9 11

```

VOID COUNTINGSORT(Info *v, int n) {
    
```

```

    int k, i, j, t, acum = 0;
    
```

```

    int *s, *c;
    
```

```

    k = MAX(v, n);
    
```

```

    c = calloc(k+1, sizeof(int));
    
```

```

    s = malloc(n * sizeof(Info));
    
```

```

    for(j=0; j<n; j++) {
    
```

```

        c[v[j].chave]++;
    
```

```

    }
    for(i=0; i<=k; i++) {
    
```

```

        t = c[i];
    
```

```

        c[i] = acum;
    
```

```

        acum += t;
    
```

```

    }
    for(i=0; i<n; i++) {
    
```

```

        s[c[v[i].chave]] = v[i];
    
```

```

        c[v[i].chave]++;
    
```

```

    }
    memcpy(v, s, sizeof(Info)*n);
    
```

```

    free(s);
    
```

```

    free(c);
    
```

```

}
    
```