Teste de Mesa – Aula07 - QuickSort

quicksort(vet, 0, 3) 🡺 a = vet 🡺 esq = 0 🡺 dir = 3

void quicksort(int \*a, int esq, int dir) {

int i, j, x, aux;

i = esq;

j = dir;

x = a[(esq + dir) / 2]; // pivô central

while (i <= j) { // ir até o pivô

while (a[i] < x && i < dir)

i++; // avança

while (a[j] > x && j > esq)

j--; // retrocede

if (i <= j)

{ // troca os elementos

aux = a[i];

a[i] = a[j];

a[j] = aux;

i++; //avança

j--; //retrocede

}

} //fim do while

// executa a recursão

if (j > esq)

quicksort(a, esq, j); // lado esq

if (i < dir)

quicksort(a, i, dir); // lado dir

}

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **a** | | | | **i** | **j** | **x** | **i <= j ?** | **a[i] < x && i < dir ?** | **a[j] > x && j > esq ?** | **i <= j ?** | **aux** | **j > esq ?** | **i < dir ?** |
| **[0]** | **[1]** | **[2]** | **[3]** |
| 6 | 5 | 1 | 3 | 0 | 3 | A[1] = 5 | v | F | F | v | 6 |  |  |
| 3 |  |  | 6 | 1 | 2 |  | v | f | f | v | 5 |  |  |
|  | 1 | 5 |  | 2 | 1 |  | f |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| quicksort(a,esq,j) 🡺 a = vet 🡺 esq = 0 🡺 dir = 1 | | | | | | | | | | | | | |
| 3 | 1 | 5 | 6 | 0 | 1 | A[0] = 3 | v | f | f | v | 3 |  |  |
| 1 | 3 |  |  | 1 | 0 |  | f |  |  |  |  | f | f |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| quicksort(a,i,dir) 🡺 a = vet 🡺 esq =2 🡺 dir = 3 | | | | | | | | | | | | | |
| 1 | 3 | 5 | 6 | 2 | 3 | A[2]=5 | v | f | v |  |  |  |  |
|  |  |  |  |  | 2 |  |  |  | f | v | 5 |  |  |
|  |  | 5 |  | 3 | 1 |  | f |  |  |  |  | f | f |
| 1 | 3 | 5 | 6 |  |  |  |  |  |  |  |  |  |  |

R: