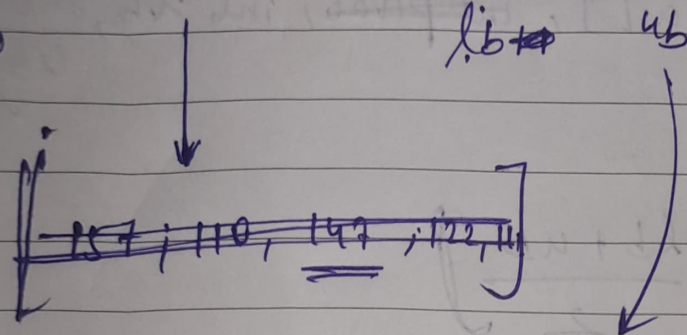


Quick sort :

pivot (random element)

[157, 110, 147, 122, 111, 149, 151, 141, 123, 112, 117, 133]



[141, 123, 112, 117, 133, 110, 147, 122, 111, 149, 157, 151]

[110, 147, 122, 111, 149, 157, 151]

less than more
← → Then
⇒ [141, 123, 112, 117, 133, 110, 147, 122, 111, 149, 157, 151]

pivot for left half

pivot
for right
half

[123, 112, 117, 110, 122, 111] 133, [141, 147] [151, 157]

[110, 112, 111, 117, 122, 123]

[141, 147]

[151, 157]

[110, 112, 111, 117, 122, 123, 141, 147, 151, 157]

quick sort code:

```
#include <stdio.h>

int partition (int a[], int low, int high) {
    int p = a[high], i = low - 1, j;
    for (j = low; j < high; j++)
        if (a[j] < p) {
            i++;
            int temp = a[i];
            a[i] = a[j];
            a[j] = temp;
        }
}
```

```
    int temp = a[i+1];
    a[i+1] = a[high];
    a[high] = temp;
    return i+1;
}
```

```
void quicksort (int a[], int low, int high) {
    if (low < high) {
        int pi = partition(a, low, high);
        quicksort(a, low, pi-1);
        quicksort(a, pi+1, high);
    }
}
```

```
int main() {  
    int n, a[100], i;  
    scanf("%d", &n);  
    for (i = 0; i < n; i++) scanf("%d", &a[i]);  
    quicksort(a, 0, n-1);  
    for (i = 0; i < n; i++) printf("%d ", a[i]);  
}
```