S.No: 3	Exp. Name: ***Quick sort***	Date:2025-08-12

Aim:

Write a program to perform Quick sort. Display the partial pass-wise sorting done.

Source Code:

quickSort.c

```
#include<stdio.h>
int pass = 1;
void display(int a[], int low, int high) {
   for(int i = low; i <= high; i++) {
      printf("%d ", a[i]);
   }
   printf("\n");
}
void swap(int *a, int *b) {
   int temp = *a;
   *a = *b;
   *b = temp;
}

int partition(int arr[], int low, int high) {
   int pivot = arr[high];
   int i = low - 1;
   for(int j = low; j < high; j++) {
      if(arr[j]<=pivot) {
         i++;
         swap(&arr[i], &arr[j]);
      }
   }
   swap(&arr[i+1], &arr[high]);
   printf("Pass: ");
   display(arr, low, high);
   return i+1;
}

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

int main() {
   int a;
   printf("number of elements: ");
   scanf("%d", &a);
   int arr[a];
   printf("elements: ");
   for(int i = 0; i < a; i++) {
      scanf("%d", &arr[i]);
   }
```


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```
    printf("Original array: ");
    display(arr, 0, a-1);
    quickSort(arr, 0, a-1);
    printf("Sorted array: ");
    display(arr, 0, a-1);
    return 0;
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
number of elements: 4
elements: 5 8 9 4
Original array: 5 8 9 4
Pass: 4 8 9 5
Pass: 5 9 8
Pass: 8 9
Sorted array: 4 5 8 9

Test Case - 2
User Output
number of elements: 6
elements: 5 1 10 8 9 7
Original array: 5 1 10 8 9 7
Pass: 5 1 7 8 9 10
Pass: 1 5
Pass: 8 9 10
Pass: 8 9
Sorted array: 1 5 7 8 9 10

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