S.No: 3	Exp. Name: ***Quick sort***	Date:2025-07-23

Aim:

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

Source Code:

quickSort.c

```
// Type Content here...
#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 *x, int *y){
   int temp =*x;
   *x = *y;
   *y = temp;
}

int partition( int a[], int low, int high){
   int pivot = a[high];
   int i = low - 1;


for(int j = low; j < high; j++){
   if(a[j] <= pivot){
      i++;
      swap(&a[i],&a[j]);
   }
}

swap(&a[i+1],&a[high]);

printf("Pass: ");
display(a,low, high);

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 );
   }
}
```


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```
int main(){
   int a[100],n;

   printf("number of elements: ");
   scanf("%d",&n);

   printf("elements: ");
   for(int i = 0; i<n; i++){
      scanf("%d",&a[i]);
   }
   printf("Original array: ");
   display(a,0,n-1);

   quickSort(a,0,n-1);

   printf("Sorted array: ");
   display(a,0,n-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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