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**ROLL NO: 01**

**SUBJECT: AOA**

**EXPERIMENT NO: 3**

To implement Quicksort and comparative analysis for large values of 'n' using DAC technique

#include <stdio.h>

void swap(int\* a, int\* b)

{

int temp = \*a;

\*a = \*b;

\*b = temp;

}

int partition(int arr[] , int low, int high){

int pivot = arr[low];

int i = low;

int j = high;

while (i < j) {

// condition 1: find the first element greater than

// the pivot (from starting)

while (arr[i] <= pivot && i <= high - 1) {

i++;

}

// condition 2: find the first element smaller than

// the pivot (from last)

while (arr[j] > pivot && j >= low + 1) {

j--;

}

if (i < j) {

swap(&arr[i], &arr[j]);

}

}

swap(&arr[low], &arr[j]);

return j;

}

void Quicksort(int arr[],int low,int high){

if (low <= high){

int q = partition(arr,low,high);

Quicksort(arr,low,q-1);

Quicksort(arr,q+1,high);

}

}

int main() {

int data[] = {10,80,30,90,40,50,70};

int n = sizeof(data)/sizeof(data[0]);

for(int i = 0;i<n;i++){

printf("%d ",data[i]);

}

Quicksort(data,0,n-1);

printf("\nSorted array: ");

for (int i = 0; i < n; i++) {

printf("%d ", data[i]);

}

return 0;

}

**OUTPUT:**

