

L11+L12

Data Structures and Algorithms: CSE2003

**Name:** Allen Ben Philipose

**Reg No:** 18BIS0043

Assignment - 5

**Question**

Devise code in C to perform

1. Bubble sort
2. Quick Sort

**Code**

#include<stdio.h>

void change (int \*a, int \*b) {

// General swap statement

int t = \*a;

\*a = \*b;

\*b = t;

}

int divide (int list[], int l, int u) {

// l is for lower limit

// u is for upper limit

int k = list[u];

int i = (l-1);

for(int j=l;j<=u-1;j++)

{

if(list[j]<=k)

{

i++;

change (&list[i],&list[j]);

}

}

change (&list[i+1],&list[u]);

// Calling the swap function

return (i+1);

}

void quick (int list[],int l,int u) {

if(l<u)

{

int middle=divide(list,l,u);

quick(list,l,middle-1);

quick(list,middle+1,u);

}

}

void bubble (int list[], int n) {

int i,j;

for(i=0;i<n-1;i++)

for(j=0;j<n-i-1;j++)

if(list[j]>list[j+1])

change (&list[j],&list[j+1]);

}

void print (int list[], int n) {

int i;

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

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

}

int main()

{

int no,a,t=1;

while(t==1){

printf("\n\n\nEnter \n");

printf("0. To exit \n");

printf("1. Quick sort \n");

printf("2. Bubble sort \n");

scanf("%d",&a);

if(a==0){

break;

}

else {

printf("Enter the Number of Elements \n");

scanf("%d",&no);

int list[no];

for (int i=0;i<no;i++){

printf("Enter element #%d: ",(i+1));

scanf("%d",&list[i]);

}

int b=a;

if (b==1){

quick(list, 0, no-1);

}

else if(b==2){

bubble(list,no);

}

else {

printf("Enter a valid option \n");

continue;

}

printf("Sort: ");

print(list,no);

}

}

printf("Exited... ");

return 0;

}

**Output**



