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Class - SYCSE

Rollno. - 7

Batch - St

Sub. - D.S

## Practical No. 8

Aim: Implementation of quick sort

Theory:

stratergy to divide a list into two sub-lists.

The steps are:

- 1. Pide an element, called a pivot, from the list
- 2. Rearder the list so that all elements which are less than the pivot come before the pivot and so that all elements greater than pivot come afterit (equal values can go either way). After this partitioning the pivot is in its final position. This is called the partition aperation.
- 3. Recursively sort the sub-list of lessor elements

The base case of the recursion are lists of size zero or one, which are always sorted.





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	Enample: stangetist wantande - smou	
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	\$10,80,30,90,40,50,70} = 001/09	
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	Partition around	
	70 (last element)	
	(10,30, 40,50) 8.04 (astrong (90,80))	72.75
	Partition are	os bnuc
	Local trace from the part of the sort from	
	50	-
	110,30(40) (3	
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	around it-dus cost odai ted a skinit of prayers	
	\$10,603 £3 : and agast and T	
	Partition around 300 somete as ship.	
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Algorith	m: (Operas oveletrog methodola
	Algorithm Cenicle Sort (p, q)
	11 sorts the elements a Cp] a Cq I which reside in
	the global
	11 array a [1:n] into ascending order; a [n+1] is
	considered to 11 + 3 =11
	Il be defined and must be of all the dements in
	a [1:n].
	+100g.94
	4 :1-1 :=:
	if (pcq) then 11 If there are more than one element
7	•
(600	Il divide P into two subproblems
	j: = Partition (a, p, q+1);
	Ilj is the position of the partioning element
12.	solve the subproblems
	Counciesort (p, j-1);
	Quick sort (jt), q);
GOZ NOW	of the There is no need for combining solutions.
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		THE PARTY OF THE P
	Algarithm partition (a, m, p)	
	V: = a Cm); i == m; j == p; and hangel	
malin	double to repeat 1920 24020012 out 7400211	
	Lodolo adt	
2)	Had a token repeate of as I a: 1) to komp !!	
	(:= i+1; at horotimos	
017	11 be definitive Catilary and the domer	
	la:De	-
	repeat	
	j:= j-1;	
3000019	and and grown suntitional a CjJ & NA: (psq) 21	
	is (ici) then Interchange (a.i.i).	
	(1+3 until cirzy);=:	
0000019 12	sacisting add to anishog add as ill	
	a Cm]:=aCi];aCi]:= v; return j;	
	(1-j. gd. drosabina)	
	(p. 1 fl) down down	<u></u>
	conclusion to Thus we have implemented Quick sort	
	5	
		- 10

```
#include<stdio.h>
int a[20];
int partition(int m,int p)
int v=a[m], i=m, j=p, temp;
do
do
i++;
 while (a[i] < v);
do
j--;
while(a[j] > v);
if(i \le j)
temp = a[i];
a[i] = a[j];
a[j] = temp;
} while(i<j);
a[m]=a[j];
a[j] = v;
return j;
void quicksort(int p, int q)
int j;
if (p < q)
j = partition (p,q+1);
quicksort(p,j-1);
quicksort(j+1,q);
}
void main()
int n,i, inf=32000;
printf("Enter The total no of elements");
scanf("%d", &n);
printf("enter Elements:");
for(i=1;i<=n;i++)
scanf( "%d",&a[i]);
a[n+1]=inf;
quicksort(1,n);
printf("Sorted elements are:\n");
for(i=1;i<=n;i++)
printf( "%d ",a[i]);
```

