**Week -05**

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**I’d: 191-15-12145**

**Merge sort 01:**

#include <stdio.h>

void Array\_sort(int \*array , int n)

{

int i=0 , j=0 , temp=0;

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

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

if(array[j]>array[j+1]){

temp = array[j];

array[j] = array[j+1];

array[j+1] = temp;

}

}

}

printf("\nThe array after sorting is..\n");

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

printf("\narray\_1[%d] : %d",i,array[i]);

}

}

float Find\_median(int array[] , int n){

float median=0;

if(n%2 == 0)

median = (array[(n-1)/2] + array[n/2])/2.0;

else

median = array[n/2];

return median;

}

int main(){

int array\_1[30] = {0};

int i=0 ,n=0;

float median=0;

printf("\nEnter the number of elements for the array : ");

scanf("%d",&n);

printf("\nEnter the elements for array\_1..\n");

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

printf("array\_1[%d] : ",i);

scanf("%d",&array\_1[i]);

}

Array\_sort(array\_1 , n);

median = Find\_median(array\_1 , n);

printf("\n\nThe median is : %f\n",median);

return 0;

}

**Merge sort 02:**

#include <stdio.h>

void main(){

int i, j, a, n, number[30],sum=0,sum1=0;

printf("Enter the value of n: ");

scanf("%d", &n);

printf("Enter the numbers: ");

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

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

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

for (j = i + 1; j < n; ++j){

if (number[i] > number[j]) {

a = number[i];

number[i] = number[j];

number[j] = a;

}

}

}

printf("The numbers arranged in ascending order are given below \n");

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

printf("%d\n", number[i]);

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

sum+=number[i];

}

printf("Sum: %d",sum);

while(sum!=0){

sum1 += sum % 10;

sum = sum/10;

}

printf("\nDigit Sum: %d",sum1);

}

**Selection sort 01:**

#include <stdio.h>

int main()

{

int a[50], n, i, j,min\_i,temp, res;

printf("Enter Number of Elements n :");

scanf("%d", &n);

printf("Enter %d Numbers : ", n);

res=pow(n,2);

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

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

}

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

min\_i = i;

for (j = i+1; j < n; j++){

if (a[j] < a[min\_i]){

min\_i = j;

}

}

temp = a[min\_i];

a[min\_i] = a[i];

a[i] = temp;

}

printf("\nSorted Data:");

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

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

}

printf("\nResult: %d\n", res);

return 0;

}

**Selection sort 02:**

#include <stdio.h>

int main()

{

int a[50], n, i, j, min\_i,temp,t,x=0;

printf("Enter Number of Elements n :");

scanf("%d", &n);

printf("Enter %d Numbers : ", n);

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

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

}

printf("Enter the time: ");

scanf("%d", &t);

for (i = 0; i < t; i++){

min\_i = i;

for (j = i+1; j < n; j++){

if (a[j] < a[min\_i]){

min\_i = j;

}

}

temp = a[min\_i];

a[min\_i] = a[i];

a[i]=temp;

}

printf("\nSorted Data:");

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

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

return 0;

}