

## Week -05

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### **Merge sort 01:**

```
#include <stdio.h>
```

```
void Array_sort(int *array , int n)
```

```
{
```

```
    inti=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>
```

```

intmain()
{
inta[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>
```

```
intmain()
```

```
{
```

```
inta[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;
```

```
}
```