

ASSIGNMENT-2

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Course name : C programming for Logical Thinking

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1. Find the Median of an unsorted Array

Scenario:

A statistics firm computes the median salary from a survey dataset.

Parameters:

1. store an odd number of salaries in an array.
2. sort and find the median (middle value).

Questions:

1. write a program to find the median of an unsorted array.

2. Explain the importance of sorting before finding the median.

Answer:

1. Median of unsorted array:

```
#include <stdio.h>
int main()
{
    int n, i, j, temp;
    int arr[100];
    printf("Enter the no. of element: ");
```

```

scanf ("%d", &n);
printf ("Enter the salaries :\n");
for (i=0; i<n; i++)
{
    scanf ("%d", &arr[i]);
}
for (i=0; i<n-1; i++)
{
    for (j=i+1; j<n; j++)
    {
        if (arr[i]>arr[j])
        {
            temp = arr[j];
            arr[j] = arr[i];
            arr[i] = temp;
        }
    }
}
int median = arr[n/2];
printf ("Sorted salaries :\n");
for (i=0; i<n; i++)
{
    printf ("%d", arr[i]);
}
printf ("\n Median salary = %d", median);
return 0;

```

2. Importance of Sorting before Finding the Median:

Sorting is essential before finding the median because:

1. Median depends on order:

The median is the middle value, without sorting, the middle position doesn't appear true center of the data.

2. Correct representation of data distribution:

Sorting arranges salaries from lowest to highest, making the median a true measure of central tendency.

3. Avoids incorrect results:

In an unsorted array, the element at the middle index may be very high or very low, giving a wrong median.

4. Standard Statistical practice:

In real-world data analysis, datasets are always sorted before calculating median to ensure accuracy.