

SANKET CHOUDHARY

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BCA 4<sup>th</sup> SEMESTER

CSIT202

1. Write a program to find the range, mean deviation about mean, mean deviation about median and standard deviation from a set of n observations. The value of n and the observations should be taken by the user.

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

int main(){
    int a[100],b,i,d,e,z[100],c,max,min,mean,mdm,median,mdmn,v,sd;
    //Taking the input
    c=b=0;
    while(c==0){
        printf("Enter the element:- ");
        scanf("%d",&a[b]);
        ++b;
        printf("If you want to enter more, press 0. Else press 1.:- ");
        scanf("%d",&c);
    }

    //Calculating the range
    min=max=a[0];
    for(i=0;i<b;i++){
        if(max<a[i]){
            max=a[i];
        }

        if(min>a[i]){
            min=a[i];
        }
    }

    //Calculating the Mean Deviation about Mean
    c=0;
```

```

for(i=0;i<b;i++){
    c=c+a[i];
}
mean=c/b;
for(i=0;i<b;i++){
    z[i]=a[i]-mean;
}
for(i=0;i<b;i++){
    if(z[i]<0){
        z[i]=z[i]*-1;
    }
}
c=0;
for(i=0;i<b;i++){
    c=c+(z[i]);
}
mdm=c/b;
for(i=0;i<100;i++){
    z[i]=0;
}

```

//Calculating the Mean Deviation about Median

```

for(c=0;c<b-1;c++){
    for(d=0;d<b-c-1;d++){
        if(a[d]>a[d+1]){
            e=a[d];
            a[d]=a[d+1];
            a[d+1]=e;
        }
    }
}
if(b%2==0){
    c=b/2;
    d=a[c]+a[c+1];
}

```

```

        median=d/2;
    }else{
        c=(b+1)/2;
        median=a[c-1];
    }
    for(i=0;i<b;i++){
        z[i]=a[i]-median;
    }
    for(i=0;i<b;i++){
        if(z[i]<0){
            z[i]=z[i]*-1;
        }
    }
    c=0;
    for(i=0;i<b;i++){
        c=c+(z[i]);
    }
    mdmn=c/b;
    for(i=0;i<100;i++){
        z[i]=0;
    }

//Calculating the Standard Deviation
d=0;
for(i=0;i<b;i++){
    d=d+((a[i]-mean)*(a[i]-mean));
}
v=d/b;
sd=sqrt(v);

//Printing the values
printf("%d\t%d\n",mean,median);
printf("The range is %d.\n",max-min);
printf("The value of mean deviation from mean is %d.\n",mdm);

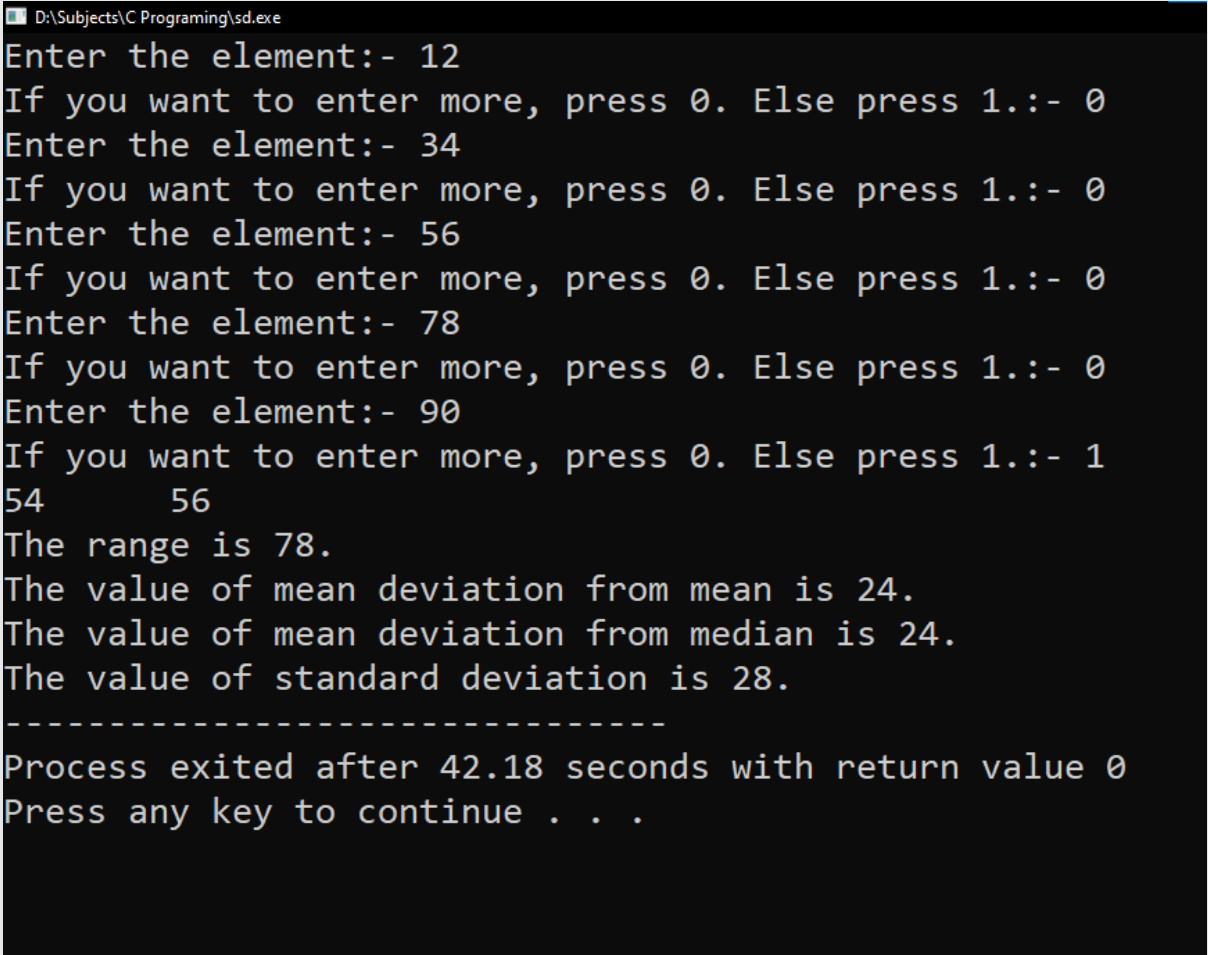
```

```

        printf("The value of mean deviation from median is
%d.\n",mdmn);
        printf("The value of standard deviation is %d.",sd);
        return 0;
    }

```

## OUTPUT:-



```

D:\Subjects\C Programing\sd.exe
Enter the element:- 12
If you want to enter more, press 0. Else press 1:- 0
Enter the element:- 34
If you want to enter more, press 0. Else press 1:- 0
Enter the element:- 56
If you want to enter more, press 0. Else press 1:- 0
Enter the element:- 78
If you want to enter more, press 0. Else press 1:- 0
Enter the element:- 90
If you want to enter more, press 0. Else press 1:- 1
54      56
The range is 78.
The value of mean deviation from mean is 24.
The value of mean deviation from median is 24.
The value of standard deviation is 28.
-----
Process exited after 42.18 seconds with return value 0
Press any key to continue . . .

```