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BCA 4th 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:-