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BCA 4th SEMESTER

CSIT202

1. Write a program to calculate the AM, GM, HM, Median and Mode from n observations. The value of n and the observations are taken by user.

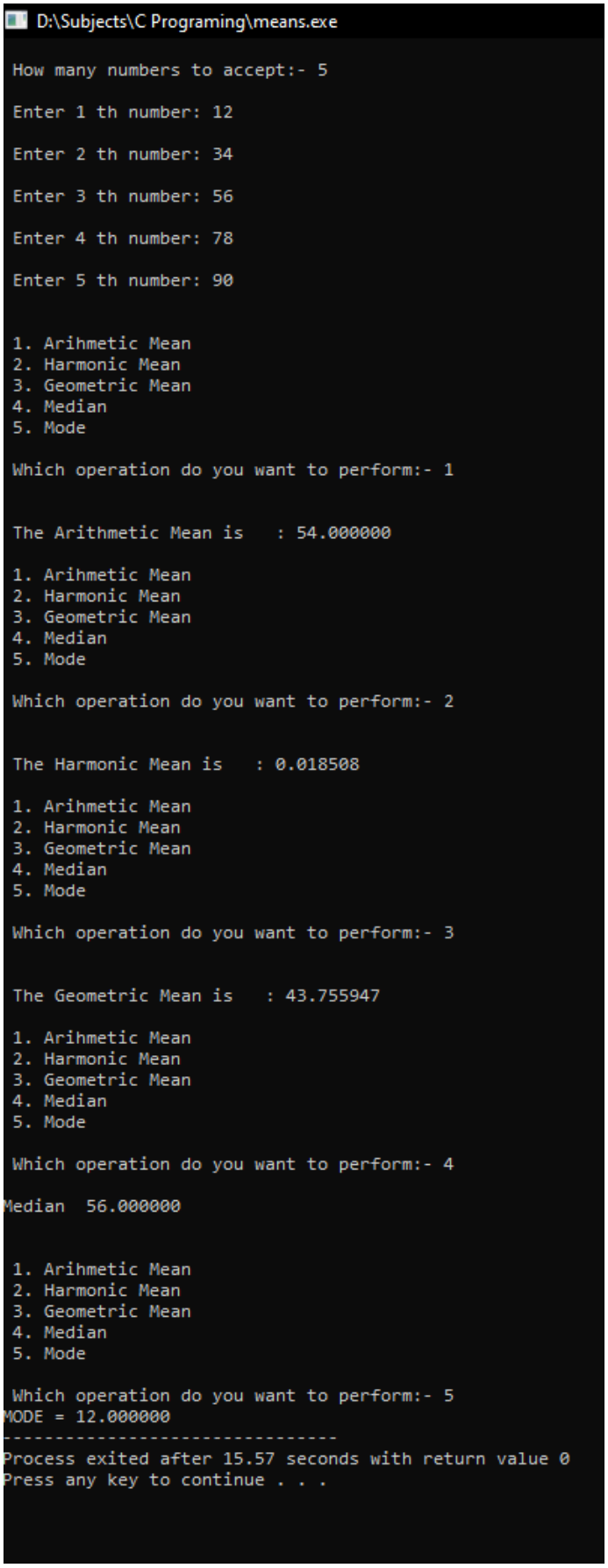
SOURCE CODE:-

```
#include<stdio.h>
#include<math.h>
int main()
{
   int i, op, size,t,s,j,c;
   float sum = 0, Arithmetic_Mean, Harmonic_Mean,
Geometric_Mean,numbers[100],median,mode,max=0;
   printf("\n How many numbers to accept:- ");
   scanf(" %d",&size);

   for(i=0;i<size;i++)
   {
    printf("\n Enter %d th number: ",i+1);
    scanf(" %f",&numbers[i]);
    s=s+1;
   }

   do{
        printf("\n\n 1. Arihmetic Mean");
        printf("\n 2. Harmonic Mean");
        printf("\n 3. Geometric Mean");
        printf("\n 4. Median");
        printf("\n 5. Mode \n");

        printf("\n Which operation do you want to perform:- ");
        scanf(" %d",&op);

   switch(op)
   {
      case 1:
         for(i=0;i<size;i++)
         {
           sum += numbers[i];
         }

         Arithmetic_Mean = sum/size;
```

```
    printf("\n\n The Arithmetic Mean is   : %f", Arithmetic_Mean);
    break;

case 2:
    for(i=0;i<size;i++)
    {
    sum += (1/numbers[i]);
    }

    Harmonic_Mean = size/sum;

    printf("\n\n The Harmonic Mean is   : %f", Harmonic_Mean);
    break;

case 3:
    sum = 1;
    for(i=0;i<size;i++)
    {

    sum *= numbers[i];
    }

    Geometric_Mean = pow(sum,(float)1/size);

    printf("\n\n The Geometric Mean is   : %f", Geometric_Mean);
    break;
case 4:
                    for(i=0;i<size-1;i++)
                    {
                    for(j=0; j<size-i-1; j++)
                    {
                     if(numbers[j]<numbers[j+1])
                    {
                    int temp = numbers[j];
                    numbers[j] = numbers[j+1];
                    numbers[j+1] = temp;
                    }
                    }
                    }
```

```
                        if( size%2 == 0)
                        {
                                median = (numbers[(size/2)-
1]+numbers[(size/2)])/2.0;
                        }
                        else
                        {
                                median = numbers[(size/2)];
                        }
                        printf("\nMedian  %f\n", median);
                        break;
                case 5:
                        for(i=0; i<size; i++)
                        {
                                t=numbers[i];
                                c=0;
                                for(j=0; j<size; j++)
                                {
                                        if(t==numbers[j])
                                                c++;
                                        if(c > max)
                                                max=c;
                                                mode=t;
                                }
                        }
                        printf("MODE = %f",mode);
                        break;
                }
        }while(op!=5);

   return 0;

}
```

OUTPUT:-


D:\Subjects\C Programing\means.exe
How many numbers to accept:- 5
Enter 1 th number: 12
Enter 2 th number: 34
Enter 3 th number: 56
Enter 4 th number: 78
Enter 5 th number: 90
1. Arihmetic Mean
2. Harmonic Mean
3. Geometric Mean
4. Median
5. Mode
Which operation do you want to perform:- 1
The Arithmetic Mean is : 54.000000
1. Arihmetic Mean
2. Harmonic Mean
3. Geometric Mean
4. Median
5. Mode
Which operation do you want to perform:- 2
The Harmonic Mean is : 0.018508
1. Arihmetic Mean
2. Harmonic Mean
3. Geometric Mean
4. Median
5. Mode
Which operation do you want to perform:- 3
The Geometric Mean is : 43.755947
1. Arihmetic Mean
2. Harmonic Mean
3. Geometric Mean
4. Median
5. Mode
Which operation do you want to perform:- 4
Median 56.000000
1. Arihmetic Mean
2. Harmonic Mean
3. Geometric Mean
4. Median
5. Mode
Which operation do you want to perform:- 5
MODE = 12.000000
Process exited after 15.57 seconds with return value 0
Press any key to continue . . .