Write a program that reads data into an array from a file " **input.dat**". The first value to be read from the file is an integer that represents the number of floating-point values that will be stored in the float array (assume that the array has a maximum of 100 elements). Compute the mean and standard deviation of the array of data, then display on the screen and write into the output file " **output.dat**" the difference between each data value and the mean.

The formula for the standard deviation is $s = \sqrt{\dfrac{\sum (X - \bar{X})^2}{n-1}}$ where

s : sample standard deviation
$\sum$: sum of...
X : data value
$\bar{X}$: mean
n : number of data in sample/array

Sample content of input file "input.dat":

```
10
20.3 16 12.89 6 8.2 2.5 12.0 14.0 -54.5 37.6
```

The integer value 10 corresponds to the number of elements and the succeeding floating-point values are the actual values that will be stored in the array.

Sample output on the screen and on output file "output.dat"

```
The mean is 7.4990.
The standard deviation is 23.8173.

Table of differences between the data values and mean deviation
 Index      Data              Data-Mean
 0          20.30              12.80
 1          16.00               8.50
 2          12.89               5.39
 3           6.00              -1.50
 4           8.20               0.70
 5           2.50              -5.00
 6          12.00               4.50
 7          14.00               6.50
 8         -54.50             -62.00
 9          37.60              30.10
```