using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace statistics\_project

{

internal class Program

{

static void Main(string[] args)

{

int Q = 0;

int Q1 = 0, Q3 = 0;

double median = 0f;

int s = 0, old\_counter = 0, new\_counter = 0, mode = 0;

double sum\_for\_div = 0f;

Console.WriteLine(" how many numbers would you like to enter ?");

int x = int.Parse(Console.ReadLine());

int[] nums = new int[x];

Console.WriteLine("Enter numbers ");

for (int i = 0; i < x; i++)

{

nums[i] = int.Parse(Console.ReadLine());

}

for (int i = 0; i < 1000; i++)

{

for (int k = 0; k < x - 1; k++)

{

if (nums[k] > nums[k + 1])

{

s = nums[k];

nums[k] = nums[k + 1];

nums[k + 1] = s;

}

}

}

//MEDIAN

if (x % 2 == 0)

{

int first = nums[x / 2];

int second = nums[(x / 2) - 1];

int sum = nums[first] + nums[second];

median = sum / 2;

}

Else

{

int g = x + 1;

int median\_index = (g / 2) - 1;

median = nums[median\_index];

}

//Q1,Q3

Console.WriteLine("if you would like more than one quarter please enter 1 ");

int choice = int.Parse(Console.ReadLine());

if (choice == 1)

{

for (int i = 0; i < 2; i++)

{

Console.WriteLine("please enter which quarter you would like either 1 or 3");

int EQ = int.Parse(Console.ReadLine());

Q = Quarter(x, EQ);

Q = Q - 1;

if (EQ == 1)

{

Q1 = nums[Q + 1];

}

else

{

Q3 = nums[Q];

}

}

}

//MODE

for (int i = 0; i < x - 1; i++)

{

for (int j = i + 1; j < x - 1; j++)

{

if (nums[i] == nums[j])

{

new\_counter += 1;

}

}

if (new\_counter > old\_counter)

{

old\_counter = new\_counter;

mode = nums[i];

}

}

//range

int range = nums[x - 1] - nums[0];

//MEAN

int sum\_for\_mean = 0;

for (int i = 0; i < x; i++)

{

sum\_for\_mean = sum\_for\_mean + nums[i];

}

double mean = sum\_for\_mean / x;

// standard division

for (int i = 0; i < x; i++)

{

sum\_for\_div = sum\_for\_div + ((nums[i] - mean) \* (nums[i] - mean));

}

double standard\_division = sum\_for\_div / x;

//p90

int N\_p90 = x/9;

int p90 = nums[N\_p90];

//summation of divisions

double sub\_d = 0;

double sum\_d = 0;

for (int i = 0; i < x; i++)

{

sub\_d = nums[0] - mean;

sum\_d = sub\_d + sum\_d;

}

//outlieres

double IQR = Q3-Q1;

double H\_outliere = Q3 + 1.5 \* (IQR);

double L\_outliere = Q1 - 1.5 \* (IQR);

//output

Console.WriteLine(" the mode is : {0} , the range is : {1} , the median is : {2} , the meam is : {3} , standard division is : {4} , the p90 is : {5} , sum of deviation is : {6} ", mode, range, median, mean, standard\_division, p90, sum\_d);

Console.WriteLine(" Q1 = {0} , Q2 = {1},IQR = {2} ", Q1, Q3,IQR);

if (nums[0] < L\_outliere && nums[x - 1] > H\_outliere)

{

Console.WriteLine("high outlier is {0} & lower outlier is {1} ", H\_outliere, L\_outliere);

}

else if (nums[0] < L\_outliere)

{

Console.WriteLine("lower outlier is {0}", L\_outliere);

}

else if (nums[x - 1] > H\_outliere)

{

Console.WriteLine("high outlier is {0}", H\_outliere);

}

else Console.WriteLine("no outliers found ");

Console.ReadKey();

}

static int Quarter(int x, int EQ)

{

int s = (EQ \* (x + 1)) / 4;

if (EQ == 2)

s = s - 1;

return s;

       }

    }

}

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