(SEE last page for used checkers)

Checking 1D stuff

input:

```
M1 = [5, 2, 1, 7, 9, 100.3;];

M2 = [1000.11, 234, 3, 405;];
```

```
PS C:\Users\Jezic\Desktop\UPD\EEE121\sp1_real\sp1_121> ./bin/sp1
1D or 2D? (Y/N): Y
----------------------------------------
Enter NO. OF ELEMENTS of first 1D dataset: 6
Enter NO. OF ELEMENTS of second 1D dataset: 4
----------------------------------------
Enter ELEMENTS of first 1D dataset (space separated or newline separated): 5 2 1 7 9 100.3
----------------------------------------
Enter ELEMENTS of second 1D dataset (space separated or newline separated): 1000.11 234 3 405
```

Central Tendency (calculatorsoup vs program):

Mean-Median-Mode Calculator

Enter Data Set

```
1, 2, 5, 7, 9, 100.3
```

Clear   Calculate

Answer:

Mean $\bar{x}$	20.716666666667
Median $\tilde{x}$	6
Mode	5, 2, 1, 7, 9, 100.3

Mean-Median-Mode Calculator

Enter Data Set

```
3, 234, 405, 1000.11
```

Clear   Calculate

Answer:

Mean $\bar{x}$	410.5275
Median $\tilde{x}$	319.5
Mode	1000.11, 234, 3, 405

```
D1 mean: 20.7167
D1 median: 6
D1 mode(s): 1 2 5 7 9 100.3
----------------------------------------
D2 mean: 410.528
D2 median: 319.5
D1 mode(s): 3 234 405 1000.11
----------------------------------------
```

Linear Conv (rapidtables vs program):

Enter first data sequence:

```
5, 2, 1, 7, 9, 100.3
```
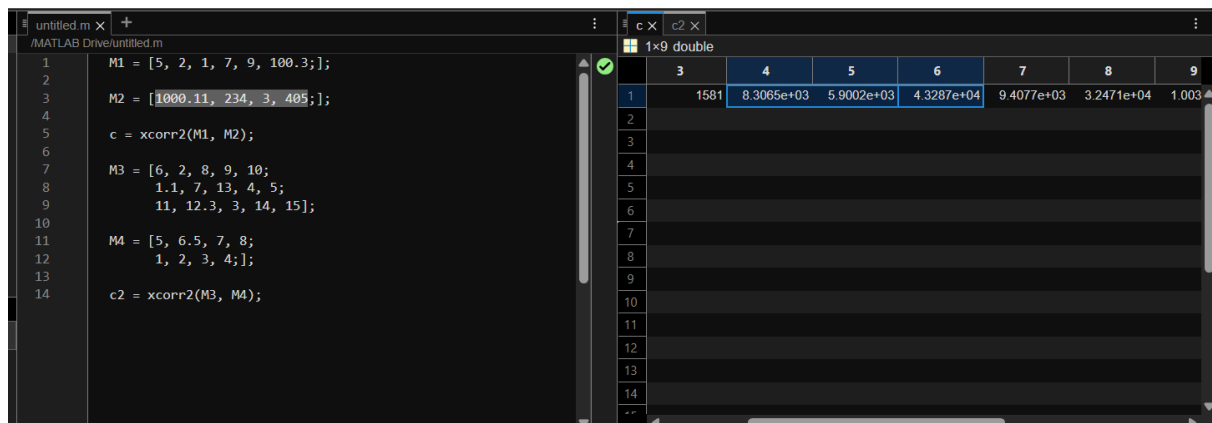
Enter second data sequence:

```
1000.11, 234, 3, 405
```

⚙ Calculate   ✖ Reset

Result data sequence:

```
5000.55 3170.2200000000003 1483.1100000000001 9265.77 11451.99
102843.033 26332.2 3945.9 40621.5
```

```
-----------------------------------------
Linear Convolution: [5000.55, 3170.22, 1483.11, 9265.77, 11452, 102843, 26332.2, 3945.9, 40621.5]
-----------------------------------------
'Cross Corr': [ [8306.55, 5900.22, 43286.6] ]
```

Cross Corr (matlab vs program):

```
untitled.m ×    +                                         ⋮      c ×   c2 ×                                          ⋮
/MATLAB Drive/untitled.m                                         1×9 double
1    M1 = [5, 2, 1, 7, 9, 100.3;];                        ✓           3        4         5         6         7         8        9
2                                                               1    1581   8.3065e+03  5.9002e+03  4.3287e+04  9.4077e+03  3.2471e+04  1.003
3    M2 = [1000.11, 234, 3, 405;];                             2
4                                                               3
5    c = xcorr2(M1, M2);                                        4
6                                                               5
7    M3 = [6, 2, 8, 9, 10;                                      6
8          1.1, 7, 13, 4, 5;                                    7
9          11, 12.3, 3, 14, 15];                                8
10                                                              9
11   M4 = [5, 6.5, 7, 8;                                        10
12         1, 2, 3, 4;];                                        11
13                                                              12
14   c2 = xcorr2(M3, M4);                                       13
                                                                14
```

```
-----------------------------------------
Linear Convolution: [5000.55, 3170.22, 1483.11, 9265.77, 11452, 102843, 26332.2, 3945.9, 40621.5]
-----------------------------------------
'Cross Corr': [ [8306.55, 5900.22, 43286.6] ]
```

Checking 2D stuff

```
M3 = [6, 2, 8, 9, 10;
      1.1, 7, 13, 4, 5;
      11, 12.3, 3, 14, 15];

M4 = [5, 6.5, 7, 8;
      1, 2, 3, 4;];
```

input:

```
● PS C:\Users\Jezic\Desktop\UPD\EEE121\sp1_real\sp1_121> ./bin/sp1
1D or 2D? (Y/N): N
----------------------------------------
Enter NO. OF ROWS of first 2D dataset: 3
Enter NO. OF COLUMNS of first 2D dataset: 5
Enter NO. OF ROWS of second 2D dataset (should be less than or equal to the rows of first dataset): 2
Enter NO. OF COLUMNS of second 2D dataset (should be less than or equal to the cols of first dataset): 4
----------------------------------------
```

```
----------------------------------------
Enter ELEMENTS of first 2D dataset (space separated or newline separated): 6 2 8 9 10 1.1 7 13 4 5 11 12.3 3 14 15

----------------------------------------
Enter ELEMENTS of second 2D dataset (space separated or newline separated): 5 6.5 7 8 1 2 3 4
----------------------------------------
```

Central Tendency of whole datasets (calculator soup vs program):

Mean-Median-Mode Calculator

Enter Data Set

```
1.1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11,
12.3, 13, 14, 15
```

Clear   Calculate

Answer:

Mean $\bar{x}$	8.0266666666667
Median $\tilde{x}$	8
Mode	6, 2, 8, 9, 10, 1.1, 7, 13, 4, 5, 11, 12.3, 3, 14, 15

Mean-Median-Mode Calculator

Enter Data Set

```
1, 2, 3, 4, 5, 6.5, 7, 8
```

Clear   Calculate

Answer:

Mean $\bar{x}$	4.5625
Median $\tilde{x}$	4.5
Mode	5, 6.5, 7, 8, 1, 2, 3, 4

```
-------------------------------------
D1 mean: 8.02667
D1 median: 8
D1 mode(s): 1.1 2 3 4 5 6 7 8 9 10 11 12.3 13 14 15
-------------------------------------
D2 mean: 4.5625
D2 median: 4.5
D1 mode(s): 1 2 3 4 5 6.5 7 8
-------------------------------------
```

Central Tendency of each row of datasets (calculator soup vs program):

Mean-Median-Mode Calculator

Enter Data Set

2, 6, 8, 9, 10

Clear   Calculate

Answer:

Mean $\bar{x}$	7
Median $\tilde{x}$	8
Mode	6, 2, 8, 9, 10

Mean-Median-Mode Calculator

Enter Data Set

1.1, 4, 5, 7, 13

Clear   Calculate

Answer:

Mean $\bar{x}$	6.02
Median $\tilde{x}$	5
Mode	1.1, 7, 13, 4, 5

Mean-Median-Mode Calculator

Enter Data Set

3, 11, 12.3, 14, 15

Clear   Calculate

Answer:

Mean $\bar{x}$	11.06
Median $\tilde{x}$	12.3
Mode	11, 12.3, 3, 14, 15

```
EACH ROW OF D1
D1 mean: 7, 6.02, 11.06,
D1 median: 8, 5, 12.3,
D1 mode(s): 2, 6, 8, 9, 10,
1.1, 4, 5, 7, 13,
3, 11, 12.3, 14, 15,
```

[D1 mean: (1st row), (2nd row), (3rd row)
D1 median: (1st row), (2nd row), (3rd row)
D1 mode(s): (1st row)....,
(2nd row).....,
(3rd row).....,]

Mean-Median-Mode Calculator

Enter Data Set

5, 6.5, 7, 8

Clear   Calculate

Answer:

Mean $\bar{x}$	6.625
Median $\tilde{x}$	6.75
Mode	5, 6.5, 7, 8

Mean-Median-Mode Calculator

Enter Data Set

1, 2, 3, 4

Clear   Calculate

Answer:

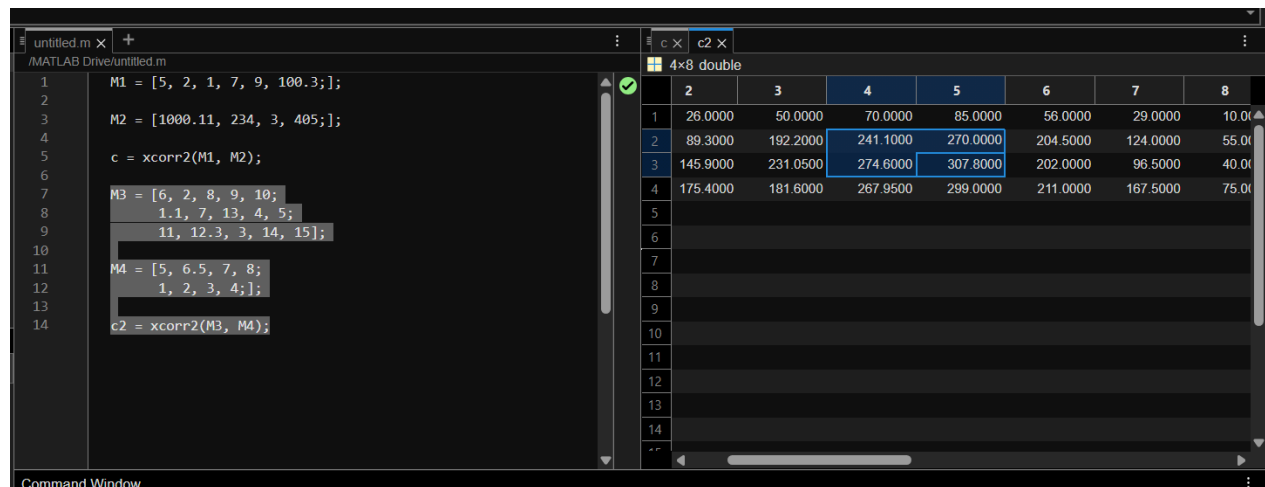|	
Mean $\bar{x}$	2.5
Median $\tilde{x}$	2.5
Mode	1, 2, 3, 4

```
--------------------------------------
EACH ROW OF D2
D2 mean: 6.625, 2.5,
D2 median: 6.75, 2.5,
D2 mode(s): 5, 6.5, 7, 8,
1, 2, 3, 4,
```

[D2 mean: (1st row), (2nd row)
D2 median: (1st row), (2nd row)
D2 mode(s): (1st row)....,
(2nd row).....,
]

Cross Corr (matlab vs program):


```matlab
M1 = [5, 2, 1, 7, 9, 100.3;];

M2 = [1000.11, 234, 3, 405;];

c = xcorr2(M1, M2);

M3 = [6, 2, 8, 9, 10;
      1.1, 7, 13, 4, 5;
      11, 12.3, 3, 14, 15];

M4 = [5, 6.5, 7, 8;
      1, 2, 3, 4;];

c2 = xcorr2(M3, M4);
```

4×8 double

	2	3	4	5	6	7	8
1	26.0000	50.0000	70.0000	85.0000	56.0000	29.0000	10.0(
2	89.3000	192.2000	241.1000	270.0000	204.5000	124.0000	55.0(
3	145.9000	231.0500	274.6000	307.8000	202.0000	96.5000	40.0(
4	175.4000	181.6000	267.9500	299.0000	211.0000	167.5000	75.0(

```
Cross Corr:
[ [241.1, 270],
[274.6, 307.8] ]
--------------------------------------
```

all matched up!

used checkers:

central tendency:
https://www.calculatorsoup.com/calculators/statistics/mean-median-mode.php

linear conv:
https://www.rapidtables.com/calc/math/convolution-calculator.html
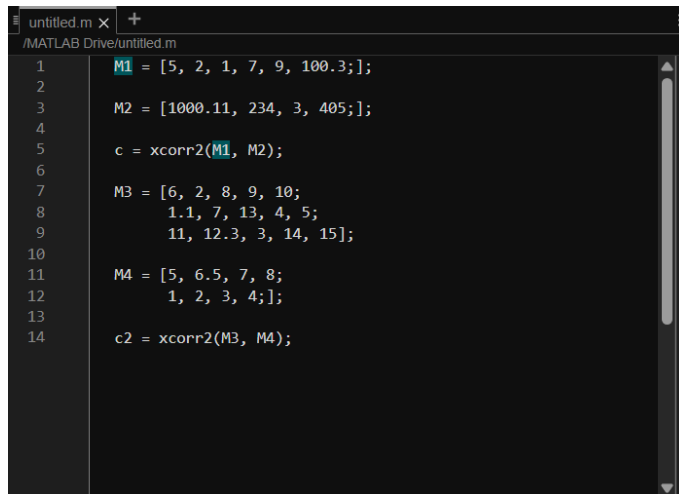
source code for xcorr2 using matlab:

```
M1 = [5, 2, 1, 7, 9, 100.3;];

M2 = [1000.11, 234, 3, 405;];

c = xcorr2(M1, M2);

M3 = [6, 2, 8, 9, 10;
      1.1, 7, 13, 4, 5;
      11, 12.3, 3, 14, 15];

M4 = [5, 6.5, 7, 8;
      1, 2, 3, 4;];

c2 = xcorr2(M3, M4);
```