COMP110 Introduction to Computer Programming Using MATLAB

Voluntary Homework#1

Due: Tuesday, March 27, 2018, 23.59.

Number of rectangles from unit squares

Assume you are given an **m**×**n** rectangle of unit squares. Within this rectangle, many rectangles and squares can be formed by joining the unit squares.

Consider the 2×3 rectangle below.

A	B	C
D	E	F

There are 18 rectangles (some of them being squares) that you can construct using it:

A, AB, ABC, AD, ABDE, ABCDEF, B, BC, BE, BCEF, C, CF, D, DE, DEF, E, EF, F

Write a MATLAB program that gets the values **m** and **n** from the user. If either **m** or **n** is not a positive integer number, then the program should ask for that number again, until an acceptable value is given. The program should then *count* the number of rectangles/squares within the given **m**×**n** rectangle **using loops**, and display this number.

Sample screen output:

```
Enter m:  2.5
The value must be a positive integer.
Enter m:  -8
The value must be a positive integer.
Enter m:  3
Enter n:  4.1
The value must be a positive integer.
Enter n:  4

Total number of rectangles inside a 3x4 rectangle of unit squares: 60
>>
```

Make your program as structured as possible. Apply proper indentations. Never use BREAK, CONTINUE or RETURN.

Name your MatLab m-file as hv1*yourlastname*.m and then upload it to Blackboard Learn at http://ku.blackboard.com. Anyone e-mailing his/her homework will lose points!

While doing all your homework assignments, remember that:

- ***You should not work together,***
- ***You should not give or take any files,***
- ***You should not give or take help other than simple verbal hints.***