Mean, Var, and Std

mean

The *mean* tool computes the arithmetic mean along the specified axis.

```
import numpy

my_array = numpy.array([ [1, 2], [3, 4] ])

print numpy.mean(my_array, axis = 0)        #Output : [ 2.   3.]
print numpy.mean(my_array, axis = 1)        #Output : [ 1.5  3.5]
print numpy.mean(my_array, axis = None)     #Output : 2.5
print numpy.mean(my_array)                  #Output : 2.5
```

By default, the axis is `None`. Therefore, it computes the mean of the flattened array.

var

The *var* tool computes the arithmetic variance along the specified axis.

```
import numpy

my_array = numpy.array([ [1, 2], [3, 4] ])

print numpy.var(my_array, axis = 0)        #Output : [ 1.   1.]
print numpy.var(my_array, axis = 1)        #Output : [ 0.25  0.25]
print numpy.var(my_array, axis = None)     #Output : 1.25
print numpy.var(my_array)                  #Output : 1.25
```

By default, the axis is `None`. Therefore, it computes the variance of the flattened array.

std

The *std* tool computes the arithmetic standard deviation along the specified axis.

```
import numpy

my_array = numpy.array([ [1, 2], [3, 4] ])

print numpy.std(my_array, axis = 0)        #Output : [ 1.   1.]
print numpy.std(my_array, axis = 1)        #Output : [ 0.5  0.5]
print numpy.std(my_array, axis = None)     #Output : 1.11803398875
print numpy.std(my_array)                  #Output : 1.11803398875
```

By default, the axis is `None`. Therefore, it computes the standard deviation of the flattened array.

Task

You are given a 2-D array of size NxM.
Your task is to find:

1. The mean along axis 1

2. The var along axis 0

3. The std along axis $None$

Input Format

The first line contains the space separated values of N and M.
The next N lines contains M space separated integers.

Output Format

First, print the *mean*.
Second, print the *var*.
Third, print the *std*.

Sample Input

```
2 2
1 2
3 4
```

Sample Output

```
[ 1.5  3.5]
[ 1.   1.]
1.11803398875
```