Eye and Identity

identity

The *identity* tool returns an identity array. An identity array is a square matrix with all the main diagonal elements as 1 and the rest as 0. The default type of elements is float.

```
import numpy
print numpy.identity(3) #3 is for  dimension 3 X 3

#Output
[[ 1.  0.  0.]
 [ 0.  1.  0.]
 [ 0.  0.  1.]]
```

eye

The *eye* tool returns a 2-D array with 1's as the diagonal and 0's elsewhere. The diagonal can be main, upper or lower depending on the optional parameter k. A positive k is for the upper diagonal, a negative k is for the lower, and a 0 k (default) is for the main diagonal.

```
import numpy
print numpy.eye(8, 7, k = 1)    # 8 X 7 Dimensional array with first upper diagonal 1.

#Output
[[ 0.  1.  0.  0.  0.  0.  0.]
 [ 0.  0.  1.  0.  0.  0.  0.]
 [ 0.  0.  0.  1.  0.  0.  0.]
 [ 0.  0.  0.  0.  1.  0.  0.]
 [ 0.  0.  0.  0.  0.  1.  0.]
 [ 0.  0.  0.  0.  0.  0.  1.]
 [ 0.  0.  0.  0.  0.  0.  0.]
 [ 0.  0.  0.  0.  0.  0.  0.]]

print numpy.eye(8, 7, k = -2)   # 8 X 7 Dimensional array with second lower diagonal 1.
```

Task

Your task is to print an array of size NxM with its main diagonal elements as 1's and 0's everywhere else.

Note

In order to get alignment correct, please insert the line numpy.set_printoptions(legacy=’1.13’) below the numpy import.

Input Format

A single line containing the space separated values of N and M.
N denotes the rows.
M denotes the columns.

Output Format

Print the desired NxM array.

Sample Input

```
3 3
```

Sample Output

```
[[ 1.  0.  0.]
 [ 0.  1.  0.]
 [ 0.  0.  1.]]
```