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.

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.]]
```

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