

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 $N \times M$ 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 $N \times M$ array.

Sample Input

```
3 3
```

Sample Output

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

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