HW5: Numpy Arrays

Due March 13, 2024 at 11:59pm

1 Hey Twin

Given an array, find the rows where all the values are equal.

```
>>> arr = np.array([[1, 1, 1], [1, 2, 3], [2, 2, 2]])
>>> findEqual(arr)
array([[1, 1, 1],
       [2, 2, 2]])
```

2 Checkers

Create an 8x8 array with a checkerboard pattern of zeros and ones using a slicing + striding approach.

```
>>> checkerboard()
    array([[1, 0, 1, 0, 1, 0, 1, 0],
           [0, 1, 0, 1, 0, 1, 0, 1],
           [1, 0, 1, 0, 1, 0, 1, 0],
           [0, 1, 0, 1, 0, 1, 0, 1],
           [1, 0, 1, 0, 1, 0, 1, 0],
           [0, 1, 0, 1, 0, 1, 0, 1],
           [1, 0, 1, 0, 1, 0, 1, 0],
           [0, 1, 0, 1, 0, 1, 0, 1]])
```

3 I need some space

Given an array of strings, return an array where each letter in each string is separated by a space.

```
>>> myarr = np.array(['python', 'is', 'cool!'])
>>> spaceBetween(myarr)
    array(['p y t h o n', 'i s', 'c o o l !'], dtype='<U11')
```

4 Everything is in order

Given a multidimensional matrix, sort the matrix along the columns.

```
>>> np.random.seed(12345)
>>> a = np.random.randint(1,50, (4, 5))
>>> a
array([[35, 38, 30,  2, 37],
       [42, 38, 35, 30,  2],
       [15, 42, 28, 17, 10],
       [12, 14, 11, 18, 19]])

>>> sorting(a)
array([[12, 14, 11,  2,  2],
       [15, 38, 28, 17, 10],
       [35, 38, 30, 18, 19],
       [42, 42, 35, 30, 37]])
```