CSE 1224 - Homework 4 - Due Friday, November 4 at 11:59 PM

1) Write a function called *anti_diag*(n) that takes a positive integer as an argument. The function should return an n by n matrix (i.e. a list-of-lists) with 0s everywhere except its anti-diagonal, which should contains 1s.

For example *anti_diag*(5) should return

```
[[0, 0, 0, 0, 1],
 [0, 0, 0, 1, 0],
 [0, 0, 1, 0, 0],
 [0, 1, 0, 0, 0],
 [1, 0, 0, 0, 0]]
```

2) Write a function called *small_plus*(n) that returns a n by n matrix where n is odd. The matrix should have a small plus-sign made of 1s in the middle.

For example, *small_plus*(5) should return,

```
[[0, 0, 0, 0, 0],
 [0, 0, 1, 0, 0],
 [0, 1, 1, 1, 0],
 [0, 0, 1, 0, 0],
 [0, 0, 0, 0, 0]]
```

small_plus(7) should return,

```
[[0, 0, 0, 0, 0, 0, 0],
 [0, 0, 0, 0, 0, 0, 0],
 [0, 0, 0, 1, 0, 0, 0],
 [0, 0, 1, 1, 1, 0, 0],
 [0, 0, 0, 1, 0, 0, 0],
 [0, 0, 0, 0, 0, 0, 0],
 [0, 0, 0, 0, 0, 0, 0]]
```

3) Write a function called *border*(m, n) that returns an m by n matrix with 1s on its border, 0s elsewhere.

For example, *border*($5, 4$) should return,

```
[[1, 1, 1, 1],
```

```
 [1, 0, 0, 1],
 [1, 0, 0, 1],
 [1, 0, 0, 1],
 [1, 1, 1, 1]]
```

4) Write a function called *stripes*(n) that returns an n by n matrix with alternating stripes of 0s and 1s. For example, *stripes*(5) should return

```
[[1, 1, 1, 1, 1],
 [0, 0, 0, 0, 0],
 [1, 1, 1, 1, 1],
 [0, 0, 0, 0, 0],
 [1, 1, 1, 1, 1]]
```