CSE 1224 - Homework 2 - Due Saturday, September 24

1) Convert the following function to a function that uses a for-loop. Your function should be named $foo\_for(n)$.

```
def foo_while(n):
  count = 10
  i = 7
  while i <= 2 * n + 2:
    count += i
    i += 3
  return count
```

2) An **identity matrix** of size n is the n x n square matrix with ones on the main diagonal and zeros elsewhere.

Write a function called $identity(n)$ that takes a positive integer greater than 1 as an argument and returns an n x n identity matrix.

For example, the the following lines of code,

```
m = identity(3)
for row in m:
  print(row)
```

should result in

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

3) an **anti-identity matrix** of size n is the n x n square matrix with ones on the anti-diagonal and zeros elsewhere.

Write a function called $anti\_identity(n)$ that takes a positive integer greater than 1 as an argument and returns an n x n anti-identity matrix.

For example, the the following lines of code,

```
m = anti_identity(3)
for row in m:
  print(row)
```

should result in

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

4) Write a function called $zee(n)$ that takes an integer greater then 2 as argument and return an n x n matrix with a "Z" composed of 1s.

For example, the the following lines of code,

```
m = zee(3)
for row in m:
  print(row)
```

should result in

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

and

```
m = zee(4)
for row in m:
  print(row)
```

should result in

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

5) Write a function called $edges(m, n)$ that takes two integers m and n as arguments. m and n are both integers greater than 2. The function should return an m x n matrix with 1s on its edges and 0s elsewhere.

For example, the following lines of code,

```
m = edges(3, 4)
for row in m:
print(row)
```

Should result in

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

What to Turn In
All of your code should be written in repl.it. Only turn in your methods, not any code that tests or runs the methods.

Download your code by clicking the three dots next to main.py. Rename the file "1224_Homework2_yourlastname.py". Finally, upload it to Carmen.