Announcements

- Reminders
  - MPL #4 – “For Loops” – due Mon, Oct 13th by 11:59pm
  - Program 4 due Wed, Oct. 15th by 11:55pm

Class Example

Use a nested loop to draw the following output.

- Modify the code given to print out the first 50 prime numbers, rather than just the prime numbers less than 100.
- Once that works, make your output look like the output below.

Class Example

```
i = 2
while i < 100:
    j = 2
    prime = True
    while j < i:
        if i % j == 0:
            prime = False
            break
    j += 1
if prime:
    print(i, "is prime")
i = i + 1

2 3 5 7 11 13 17 19 23 29
31 37 41 43 47 53 59 61 67 71
73 79 83 89 97 101 103 107 109 113
127 131 137 139 149 151 157 163 167 173
179 181 191 193 197 199 211 223 227 229
```
Practice

Work in groups to write code that will draw the following Christmas Tree.

Hints:
- You will need a nested loop.
- Count the number of stars and the number of blank spaces in each line and see how they change.
- The trunk of the tree is drawn after the loops complete.

Saving Previous Value in Loop

You may need to hold onto a previous input for a calculation later in a loop.

```python
import random
prev_roll = random.randint(1, 6)
curr_roll = random.randint(1, 6)
print("Previous = ", prev_roll, "current = ", curr_roll)
while not (prev_roll == 1 and curr_roll == 1):
    prev_roll = curr_roll
    curr_roll = random.randint(1, 6)
    print("Previous = ", prev_roll, "current = ", curr_roll)
```

Saving Previous Value in Loop

Equivalent code to previous slide.

```python
import random
curr_roll = random.randint(1, 6)
while True:
    prev_roll = curr_roll
    curr_roll = random.randint(1, 6)
    print("Previous = ", prev_roll, "current = ", curr_roll)
    if prev_roll == 1 and curr_roll == 1:
        break
```

Saving Previous Value in Loop

Input: 29 23 19 17 13 11 7 3 1 1

```python
prev = int(input("Number? "))
curr = int(input("Number? "))
diff = prev - curr
while diff != 0:
    diff = prev - curr
    print("Difference = ", diff)
    if diff == 0:
        break
    prev = curr
curr = int(input("Number? "))
```
Working in groups, figure out what this code is doing and hand in a description of the code. Put all your group member names on the paper as well.

```python
# A roulette wheel has 36 numbers from 1-36 on it
# and a 0 and a 00 on it. You can consider 37 to be 00.
import random
def main():
    oddCount = 0
    spinCount = 0
    n = random.randint(0, 37)
    # Zero
    if n == 0 or n == 37: # treat 37 as 00
        oddCount = 0
    # Odd
    elif n%2 == 1:
        oddCount += 1
        if oddCount == 6:
            break
    # Even
    else:
        oddCount = 0
    print(oddCount, spinCount)
main()
```

### Next Time

- Reading/Writing data from/to a File
- Section 6.1