CS 160
CS Orientation

Practice Loops and Functions
Odds and Ends...

• Assignment #7 will be posted!!!
• Assignment #6 demoed this week!!!
Seeing Patterns...

• Print the triangle of stars given max stars for base as a positive odd number.
• Example:

N=3
*  
***

N=5
*  
**  
***  
****  
*****
```python
1 max_stars=int(input("Enter odd max stars"));
2 stars_to_print=1;
3 spaces=max_stars//2;  # int(max_stars/2);
4
5 while(stars_to_print<=max_stars):
6    for x in range(spaces):
7       print(" ",end='');
8    for x in range(stars_to_print):
9       print("*",end='');
10      print('');
11     spaces=spaces-1;
12     stars_to_print=stars_to_print+2;
13 ~
```
Stars with function demo...

def star_fun(stars):
    spaces=stars//2;
    for num_stars_on_line in range(1,stars+1,2):
        for y in range(spaces):
            print(" ", end='');
        for y in range(num_stars_on_line):
            print("*",end='');
        print("\n");
        spaces-=1;

def main():
    stars=int(input("Enter odd Stars: "));
    star_fun(stars);

main();
In-class Exercise #6

Design a Python function called my_sqrt() that takes a positive whole number $n$ as input and returns the square root of $n$ using the Babylonian algorithm. The Babylonian algorithm computes the square root of a positive number, $n$, as follows:

1. Make a guess at the answer (you can pick $n/2$ as your initial guess).
2. Compute $r = n / \text{guess}$
3. Set $\text{guess} = (\text{guess} + r) / 2$
4. Go back to step 2 for as many iterations as necessary. The more steps 2 and 3 are repeated, the closer guess will become to the square root of $n$.
5. Compare your square root function with the math.sqrt() result.
```python
1 def my_sqrt(n): # n = num
2     guess = n / 2
3     # Also, you could ask user for iterations or stop when a threshold is reached, such as absolute value of new_guess-old_guess < .0000001
4     for i in range(1000):
5         r = n/guess
6         guess = (guess + r)/2
7     return guess

# main function of where to start our program
9 def main():
10     num = int(input("Enter positive num: "));
11     my_sqrt(num); 
12 
14 main(); # start by calling main function
```

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