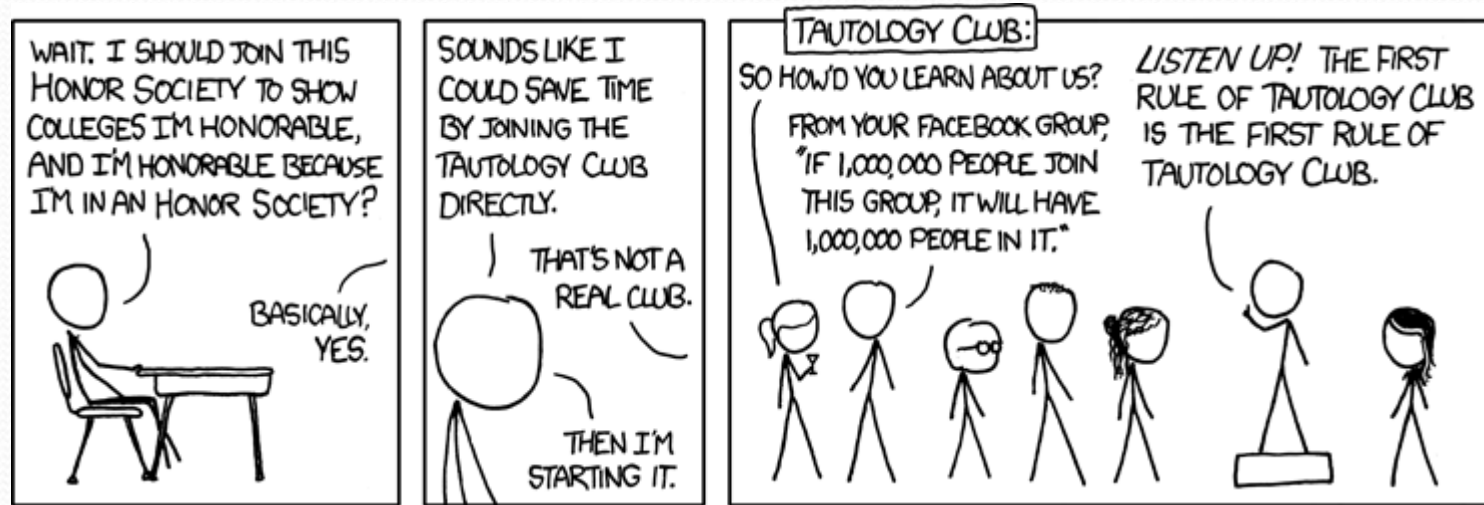


# CS 115, Autumn 2021

## Lecture 18: while loops

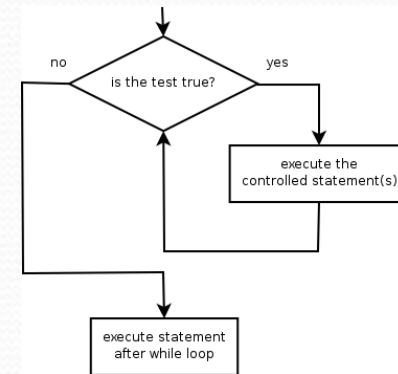


Thanks to Marty Stepp and Stuart Reges for parts of these slides

# The while loop

- **while loop:** Repeatedly executes its body as long as a logical test is true.

```
while test:  
    statement(s)
```



- **Example:**

```
num = 1  
while num <= 200:  
    print(str(num) + " ", end='')  
    num = num * 2
```

# initialization

# test

# update

# output: 1 2 4 8 16 32 64 128

# Exercise: grass

- Change the single green line at the bottom of the car program to be a line of separate blades of grass



# Exercise: speed up

- Alter the car animation to make it slowly accelerate.
  - Can we do this with `panel.animate(ms, function)`?
    - No – we set the speed once.
  - Instead, use `panel.sleep(ms)` to make the animation pause for the passed in time.
    - How can we make this repeat?
      - A `while` loop!

# Exercise: roll dice

- Write a program that simulates rolling two dice until the numbers shown on them sum to 7. Print out each roll and print out the number of rolls it took.

Example:

$$1 + 4 = 5$$

$$3 + 5 = 8$$

$$5 + 6 = 11$$

$$3 + 3 = 9$$

$$1 + 5 = 6$$

$$4 + 3 = 7$$

You got a 7 in 6 rolls.