Code for Teachers

A practical approach to programming

Chapter 6:
Objects

6-2:
The Python 500(000)

Lesson Objectives

- Simulating a Race
- Building/Using Object methods strategically

Review of `Car()`

- Make, Model, Year
  - Not useful for a race
- What traits are?
  - Speed (Top speed)
  - Acceleration
- Others like handling, traction, etc
- We’re gonna focus on speed/acceleration

Simulating Real-World Characteristics

- Sometimes we simplify characteristics for a reasonable, if not accurate, simulation
- Speed
  - mph, km/h
  - It’s a rate, so somehow we have to involve time
- Acceleration
  - mph/s, m/s/s
  - It’s a rate of change of a rate, so again, time matters

Adding Speed/Acceleration to Code

- Dodge Demon
  - Top speed: 168mph
  - Cars have different acceleration rates at different speed ranges. 0-60 times, 0-100 times, etc. are measured. I'll use an average of these rates.
  - 0 - 30mph: 1s => 30mph/s
  - 0 - 60: 2.3s => 26.08mph/s
  - 0 - 100: 5.1s => 19.6mph/s
  - Average of all rates: 25.22mph/s
  - We could be more precise, but that's more fun you can have with your
- Tesla P85D
  - Top speed: 155mph
  - Acceleration: 26.37mph/s

LET THE RACE BEGIN

Creating the Race

- This is how we'll describe time.
- Obviously we can't just tell the cars to "Go!". They don't know how
- But we can tell the Race how to handle moving two cars through TIME!
- To the code!

theforeverstudent.com

@mttaggart

mttaggart