# CSCA08 Fall 2015

## Week 9 – Object-Oriented Programing(OOP)

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# LEARNING OBJECTIVES

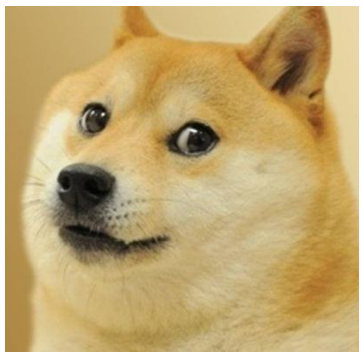
- At the end of the tutorial, you will be able to …

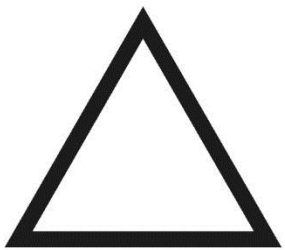
  Create your own classes and methods (~35 mins)

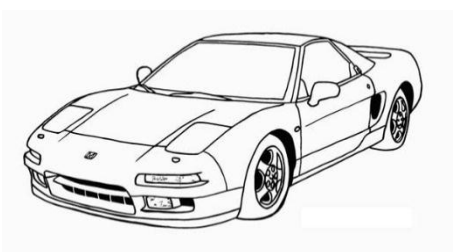
  - Person example
  - Event-Day example

# OOP

- What is an object?





A: Everything is an object in Python.

# OOP

- How do we represent them in Python?
  - e.g. representing Brian in Python
    - 1st approach: using a string

      “Brian, 32, Male, 123 Sesame Street, Professor”
    - 2nd approach: using a list

      [“Brian”, 32, “Male”, “123 Sesame Street”, “Professor”]
    - 3rd approach: using a dictionary

      {“name”: “Brian”, “age”: 32, “gender”: “Male”,
      “occupation”: “Professor”, “address”: “123 Sesame Street”}

# OOP

- 4th approach: creating our own Person class(OOP)

```
1.  class Person():
2.      '''A class to represent a human being'''
3.
4.      def __init__(self, name, age, gender, address, occupation):
5.          '''(Person, str, int, str, str, str) -> NoneType
6.          Create a new person named name, who is age years old, has home address,
7.          gender, occupation and blood type.
8.          REQ: age >=0
9.          '''
10.         self.name = name
11.         self.age = age
12.         self.gender = gender
13.         self.address = address
14.         self.occupation = occupation
15.
16. brian = Person('Brian', 32, 'Male', '123 Sesame Street', 'Professor')
```

# TERM TEST 2 SOLUTIONS

- Question 3(without docstring and main)

```
1.  def pig_latin(input_string):
2.      # if the word starts with a vowel
3.      if(input_string[0] in "aeiou"):
4.          # add w onto the end of the word
5.          result = input_string + "w"
6.      # if the word doesn't start with a vowel
7.      else:
8.          # get the index of the first vowel
9.          count = 1
10.         found_vowel = False
11.         while(count < len(input_string) and not found_vowel):
12.             if(input_string[count] in "aeiou"):
13.                 found_vowel = True
14.             else:
15.                 count += 1
16.         first_vowel_index = count
17.         # move everything before the first vowel to the end of the string
18.         result = input_string[first_vowel_index:] + input_string[0:first_vowel_index]
19.     # add an ay to the end of the string
20.     result += "ay"
21.     return result
```

- Question 1

1. 1234X
2. 123XD
3. 12XCC
4. 1XBBB
5. XAAAA

- Question 2

['X', 2, 3]
[7, 2, 3] ['Y', 8, 9] ['Y', 2, 3]
[['Z', 'W', 9], 2, 3] ['Z', 'W', 9] [1, 2, 3]
[['Z', 'W'], 3] ['Z', 'W'] [[1, 2], 3]