Lab 11: Classes

- **Class**
  - represents an object with data fields (instance variables)
- **Constructor**
  - special method `__init__` that instantiates an object by initializing its instance variables
- **Method**
  - procedures that allows you to work with objects, usually to access or mutate the instance variables
- **self**
  - special variable that refers to the current object of a class

- **classes.txt**
  - answer the 7 questions, please number your answers
- **snakeEyes.py**
  - create one (or two) Die objects and use them to "roll" the dice until snake eyes (two 1s) is rolled
- **temp.py**
  - create a Temperature class that has **one instance variable**: the temperature in Celsius
  - code getters and setters (for both ºC and ºF) and the special string representation method
  - use tempTester.py to test
- Don't forget to show me!

Creating Classes

Use an instance variable:
`self._instVar`
Call a method on this object:
`self.method()`

- Start a class – example.py

```
class Example:
```

- Create constructor – special method

```
def __init__(self, param):
    self._instVar = param
```

- Getters – returns instance variable

```
def getInstVar(self):
    return self._instVar
```

- Setters – changes instance variable

```
def setInstVar(self, newValue):
    self._instVar = newValue
```

- Equality – special method (also `def __ne__(self, other):`)

```
def __eq__(self, other):
    if self._instVar == other.getInstVar():
        return True
    return False
```

- String Representation – special method

```
def __repr__(self):
    return "The object containing " + str(self._instVar)
```

Using Classes

Call a method on an object:
`objectName.method()`

Whenever you have an instance

- Import the Class – tester.py

```
from example import Example
```

- Create instances

```
ex1 = Example("Hello")
ex2 = Example("Goodbye")
```

- Use getters

```
val1 = ex1.getInstVar()
val2 = ex2.getInstVar()
```

- Use setters

```
ex1.setInstVar("Hi")
ex2.setInstVar("Later")
```

- Determine equality

```
if ex1 == ex2:
    print("They are equal.")
if ex1 != ex2:
    print("They are not equal.")
```

- Use string representation

```
print(ex1)
print(ex2)
```