

## Lab 5

- A simple class definition consists of a header and a set of method definitions. Several related class can be defined in the same module. Each element, a module, a class, and a method, can have a separate docstring associated with it.
- In addition to methods, a class can also include instance variables. These represent the data attributes of the class. Each instance or object has memory storage.
- The constructor or `__init__` method is called when a class is instantiated. Contains a header and a body. First parameter is always `self`.
- Instance variable is introduced and referenced like any other variable, always prefixed with `self`.
- Some standard operators can be overloaded for use with new classes of object. One overloads an operator by defining a method that has the corresponding name.
- When a program can no longer reference an object, it is considered dead and its storage is recycled by the garbage collector.
- A class variable is a name for value that all instances of a class share in common.
- Pickling is the process of converting an object to a form that can be saved to permanent file storage.
- Try-except statement is used to catch and handle exceptions.
- Object Oriented features: encapsulation, inheritance, polymorphism.

## Exercises.

- ① What are instance variables, what role does self play?
  - I.V. is a variable defined in a class
  - self represent the instance itself, needed in every class method.
- ② What a constructor does?
  - instantiate a class/object
- ③ Explain `__str__` method
  - print ~~the~~ data information about the instance
  - Give ~~user~~ code information
- ④ 

```
def setName(self, Name):  
    self.name = Name
```
- ⑤ 

```
def getAge(self):  
    return (self.age)
```
- ⑥ When a program can no longer reference an object, it is dead, storage recycle by garbage collector.
- ⑦ Create another parameter to store the 12-digit number.
- ⑧ A class variable is a name for a value that all instance of a class share in common
- ⑨ By defining the new method that has the corresponding name
- ⑩ 

```
def totalAsset(self):  
    totalasset = 0  
    for i in acct:  
        totalasset += i.getbalance.  
    return (totalasset)
```



- ⑤. Easiest way to save object to permanent file storage.
- ⑥ to catch and handle exceptions
- ⑦ 

```
def <(self, other):  
    return(self.rank < other.rank)
```
- ① Reduce repetition, more organized
- ② 

```
parentclass. __init__(self, argument...)
```

  
It passes parent class methods to the current class.
- ③ 

```
def __str__(self):  
    return (self.age + super().__str__())
```

Review Questions:

1. a
2. c
3. b
4. b
5. b
6. b
7. a
8. b
9. b
10. a