

CIS 331 In-class Exercises

1. Please convert the following Java program to a Python program. Please use Python's syntax and conventions. Hint – An interface is a special abstract class.

```
interface Person{
    public void setName(String n);
    public String getName();
}

class Student implements Person{
    private String stuNum;
    private String name;

    public void setStuNum(String sn){
        stuNum = sn;
    }

    public String getStuNum(){
        return stuNum;
    }

    public void setName(String n){
        name = n;
    }

    public String getName(){
        return name;
    }
}

public class TestInterface{
    public static void main(String[] args){
        Student stu = new Student();
        stu.setName("John Smith");
        stu.setStuNum("12345");
        System.out.println("Student Name: " + stu.getName());
        System.out.println("Student Number: " + stu.getStuNum());
    }
}
```

2. Please convert the following Java program to a Python program. Hint – Static/class scoped attributes are defined outside of constructor/methods. A method can be defined in Python instead of the “static” method in Java for this exercise.

```
class StaticAttributeTest {
    private static int counter=0;
    public StaticAttributeTest(){
        counter++;
    }
    public static int getCounter(){
        return counter;
    }
}

public class Tester {
    public static void main( String args[] ){
        StaticAttributeTest[] st=new StaticAttributeTest[10];
        for(int i=0; i<10; i++)
            st[i]=new StaticAttributeTest();

        System.out.println("Counter is "+StaticAttributeTest.getCounter());
    }
}
```

3. Multiple inheritance in Python. Please finish the following –
- Define a “Car” class with a method “run”.
 - Define a “Rocket” class with a method “fly”.
 - “run” and “fly” methods can just print some simple messages.
 - Define a “RocketCar” class that inherits from both “Car” and “Rocket”.
 - Create a “RocketCar” instance and call “run” and “fly”.
 - What happens if you define a method “brake”, with same or different method bodies, in both “Car” and “Rocket”?