Object Oriented Programming In Python

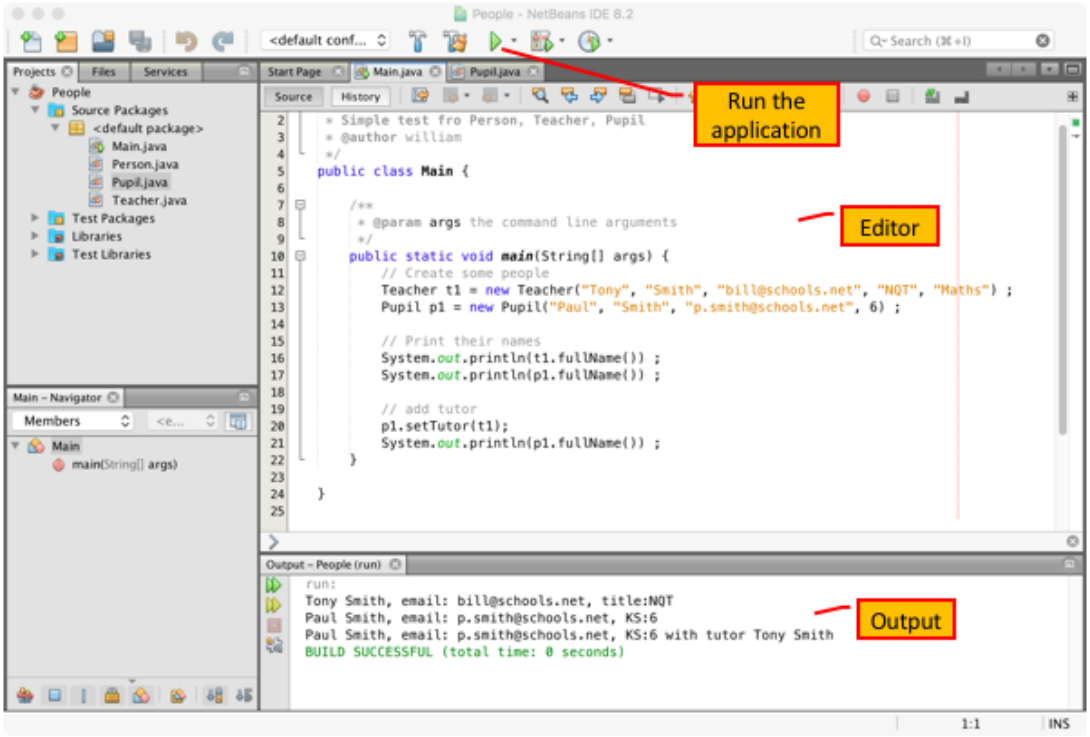
Activity Sheet

Week 5

1 Task 1: Java

A simple Java version of the example with Person, Pupil and Teacher classes is available. Download and unzip the files.

The zip file contains a project for NetBeans, a powerful IDE for Java (and more). Start NetNeans and navigate to the project directory and open the project.



Try the following exercises:

1. Run the program.
2. Review the code and look at the difference with Python.
3. The implementation does not include the teacher's department in the full description. Fix this.
4. Add additional attributes, which should appear in the full description:
    a. Every person should have a school number
    b. A teacher should have a telephone extension

What are your views on the following:

1. The advantages of Python versus Java for teaching OOP
2. The difficulty of Java for Python programmers

2 Task 2: Misconceptions

Exercise 1: Review the Following Program and Suggest Misconceptions
A student is completing a basic (but dull) exercise that involves a Person class. So far], he has the code below. Review this code: the student is stuck with completing the next part of the exercise.

```
class Person:

    def __init__(self):
        self.names = []
        self.emails = []

    def addPerson(self, name, email):
        self.names.append(name)
        self.emails.append(email)

    def personInfo(self):
        pass # student unsure how to proceed
```

What misconception might the student have? What suggestions would you make?

Exercise 2: Review the Following Program and Suggest Misconceptions
A second student working on the same problem has implemented the following program. It runs, but she is baffled by the result.

```
class Person:

    name = ""
    email = ""

    def __init__(self, n, e):
        names = n
        emails = e

    def personInfo(self):
        s = Person.name + " has email: " + Person.email
        return s

p1 = Person("Bill", "bill@net")
p2 = Person("Erix", "eric@net")

print(p1.personInfo())
```

Help her out.

3 Task 3: Form / Pupil / Teacher / Test / Mark

Exercise 1: Review Responsibilities of Different Classes in Pupil.report()
The method pupil.report() has been implemented to give a report of a pupil's marks in all tests. Review the code and complete the following table of the methods used:

Method	From Class	What It Does

Exercise 2: Plan and Implement Test.report()
We want to complete a new method in the test class to generate a report of all pupil's results in the test. Complete the following table to plan this method.

Class	Responsibility	Method(s) Needed

Complete the implementation

Exercise 3: Enhance Pupil.report()
A limitation of the existing implementation of pupil.report() is that there is no report if no mark has been entered (for example if the pupil was absent). The form object has a list of all the tests, so it would be possible to note if there was a test for which no mark has been entered.

Plan and implement this enhancement.