

## AP Computer Science

### Tracing References Lab

The file `Person.java` defines a simple class that represents a person (a person has a name and an age). The file `References1.java` contains a program that instantiates three `Person` objects and then makes some modifications to the objects and their references.

- Carefully hand-trace the `References1.java` program. Draw a diagram to illustrate the three objects and the references to them and how these change as the program executes. Your trace should also show what the program prints.
- Now compile and run the program. Compare the results to your trace. If there are any differences, re-trace the program to understand what it is doing.
- Suppose the programmer meant to do a circular shift in reassigning the three people -- that is he/she wanted to have the original `person2` object become `person1`, the original `person3` become `person2` and the original `person1` become `person3`. Revise the code to make this happen.

The file `References2.java` contains another program involving `Person` objects. This one illustrates the difference between assignments involving objects and assignments involving primitive values.

- Hand trace `References2.java`.
- Run the program to check your trace. If your trace was incorrect, study the program more carefully to understand what it is doing.
- Why do the three objects stay the same for all the different assignments but the three integers do not?