A Pigeon is a kind of Flyer (Bees are also Flyers, as are Airplanes). Every Flyer has public void takeOff() and land() methods, but may differ in their strategies. Pigeons use BirdStyleLandingStrategy and BirdStyleTakeoffStrategy.

Each Pigeon has a name based on an integer passed to the constructor. The public String getName() method returns the name, such as Pigeon2.

A Pigeon is either Relaxed or Startled. The public void behave() which depends on what state it is in. For a relaxed pigeon, behave() just prints e.g., “Pigeon2 is relaxed, just pecking at the ground.” A startled pigeon prints that it is startled, and then takes off when behave() is called.

Pigeons observe each other and startle easily, so that if one suddenly takes off, others also become startled. (Pigeons don’t read minds or observe changes in the state of the other pigeons; they become startled when they observe another pigeon actually take off.)

There are two types of Visitor to Pigeons, Boy and Grandma. When a Boy visits, the pigeon will be startled. When a Grandma visits, the pigeon will become relaxed.

The code in driver is divided into four parts. Each has a block comment that you can remove when you get to that part. In Eclipse, you can select each block and Source>Remove Block Comment.

Part 1 is to complete the State pattern so that it uses the Strategy pattern. Note that the strategy package is complete and correct, ready to use.

Part 2 involves writing the visitor hierarchy (The files for interface Visitor and the implementing classes Boy and Grandma are provided but need to be completed). Test by uncommenting Part 2 block.

Part 3 involves completing the observer pattern. Note that it involves just an interaction between pigeons p0 and p1. Uncomment it and you p0, when startled, will cause both p0 and p1 to take off when they subsequently behave.

Part 4 involves completing a bit of driver code, involving an iterator so that each new pigeon, before being added to a flock, will observe every pigeon already in the flock, and every pigeon in the flock will observe this new pigeon. It then gets added to the flock. When done, the flock will consist of 10 pigeons (Pigeon0 through Pigeon9).