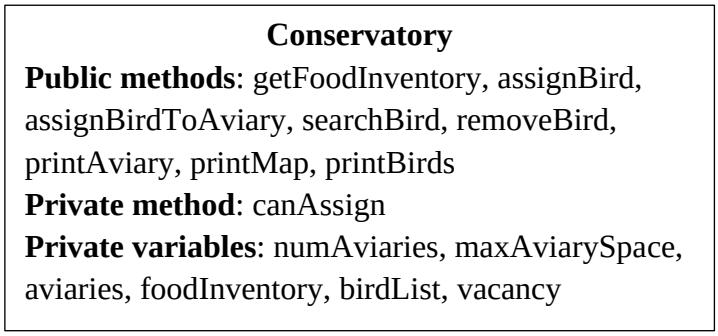
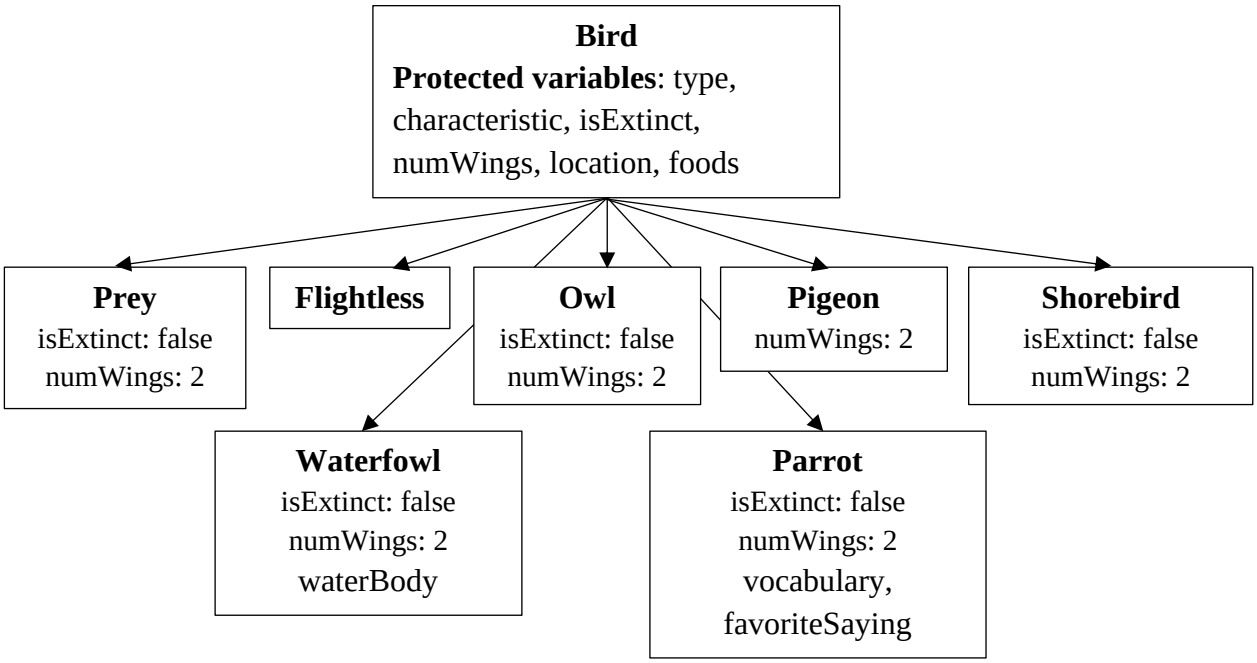
- My design will use 7 subclasses (i.e., prey, flightless, owl, parrot, pigeon, shorebird, waterfowl) inherited from the class bird to represent different classifications. Each subclass will also contain a field named “type” to indicate the specific type of each bird (e.g., prey might include hawks, eagles, and osprey).
- Each class will contain fields including the bird’s type, the bird’s characteristic, whether the bird is extinct or not, the number of wings, the aviary location where the bird lives, and a list of food items. They will have “protected” access because it both allows me to access these fields within this package and restrict users from directly manipulating them.
- My strategy for testing will based on the conservatory. I will create 13 birds of all kinds first and then try to assign them to the conservatory as setup. Then I will test the methods I wrote separately based on these birds and make sure they work as expected.





Testing plan:

- Test if bird and conservatory constructors work fine.
- Test if assignBird() and assignBirdToAviary() can assign a bird accurately and handle exceptions (e.g., exclude extinct birds, handle bird and index overflow).
- Test if searchBird() can report the accurate location of the given bird (whether or not the bird is inside the conservatory).
- Test if removeBird() can remove a given bird accurately (whether or not the bird is inside the conservatory).
- Test if getFoodInventory() can return an accurate map object describing the quantities of each food type.
- Test if the printAviary(), printMap(), and printBirds() work as expected.
- Test if I can print every bird in alphabetical order with their locations accurately assigned.