Problem Set 4, Part I

Please start your answer to each problem on a new page, as we have done below!

Problem 1: Understanding and using inheritance

1-1) Taxi and Limousine

1-2) No, it's not possible because the Motorcycle class inherits from the Automobile class, and it doesn't define an accessor method getNumSeats() nor does Motorcycle class itself define one.

1-3) *Add your definition of the MovingVan class below:*

```
public class MovingVan extends Truck(){
      private int groundToFloorOfCargoArea;
      private boolean hasRamp;
      private distanceToCargoArea

      public MovingVan(int groundToFloorOfCargoArea, boolean hasRamp, String
make, int model, int year, int numberOfWheels, int distanceToCargoArea){
            super(make, model, year, numberOfWheels);
            this.distanceToCargoArea = distanceToCargoArea;
            this.groundToFloorOfCargoArea = groundToFloorOfCargoArea;
            this.hasRamp = hasRamp;
      }


      public String toString(){
            if(hasRamp){
                  return getCapacity() + ", distance to cargo " +
distanceToCargoArea + ", has a ramp;
            } else{
                  return getCapacity() + ", distance to cargo " +
distanceToCargoArea + ", has no ramp;
            {
      }
}
```

Problem 2: Inheritance and polymorphism

2-1) The two toString() method comes from the object class which is the superclass of Gee

2-2) The private ones that aren't declared inside of Tee, can be accessed via accessor methods and set via mutator methods

- private int c;
- private String d;
- private string a;
- private string x;

2-3)

which println statement?	**which method is called?**	**will the call compile (yes/no?)**	**if the call compiles, which version of the method will be called?**
first one	why()	yes	the Tee version
second one	how()	yes	Zee version
third one	where()	yes	Gee version
fourth one	toString()	yes	Tee version
fifth one	equals()	No, since there's no Tee equivalency?	Zee Version

2-4)

```
public int total(){
      return getC() + getE() + getF();
}
```

2-5)

a)Yes, Gee is a Superclass of Tee

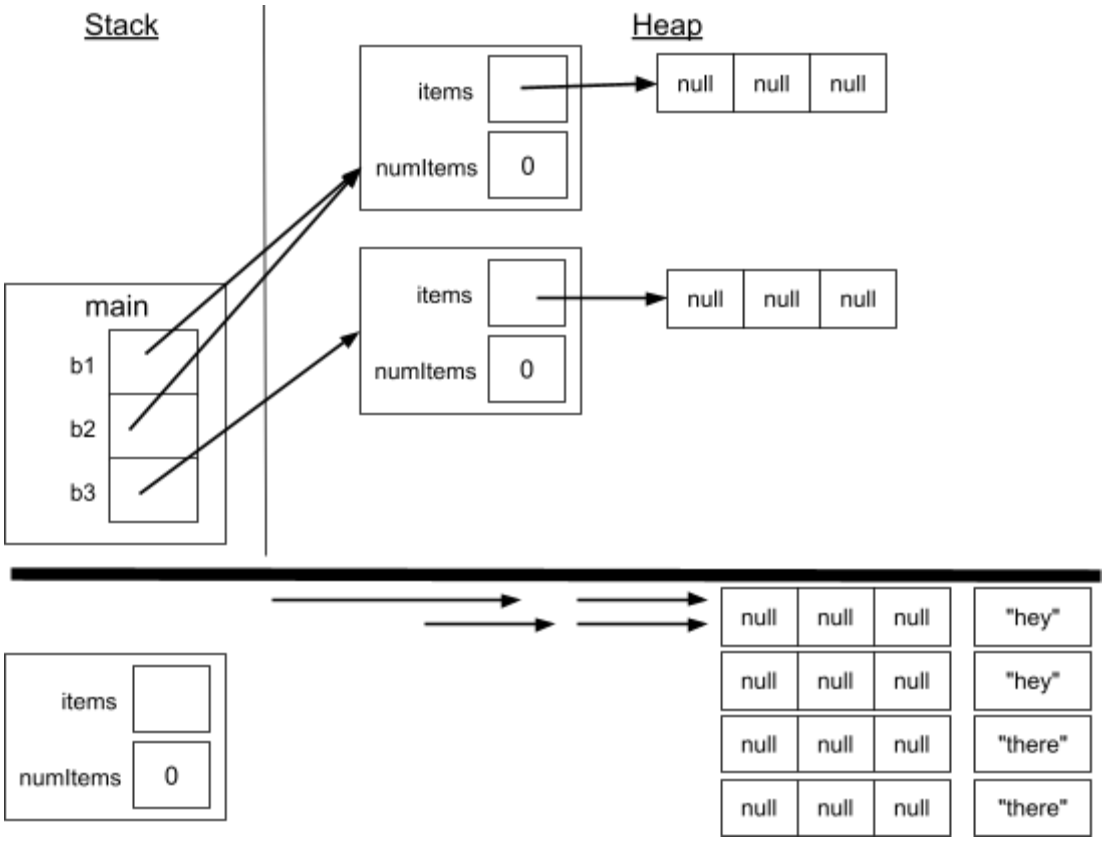
b)No, Tee is not the subclass of Zee

c)No, Zee and Yee are siblings they do not inherit from one another

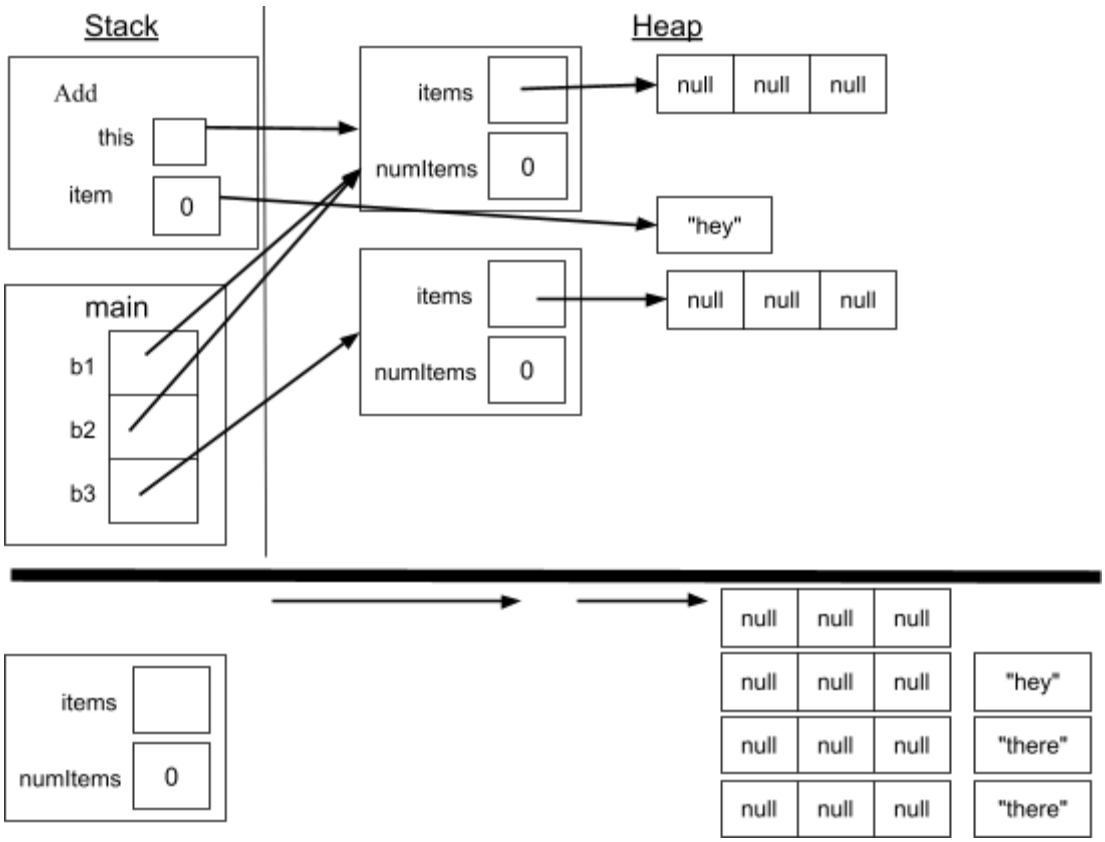
d)Yes, Object is the superclass of Gee and therefore Zee as well

Problem 3: Memory management and the `ArrayBag` class

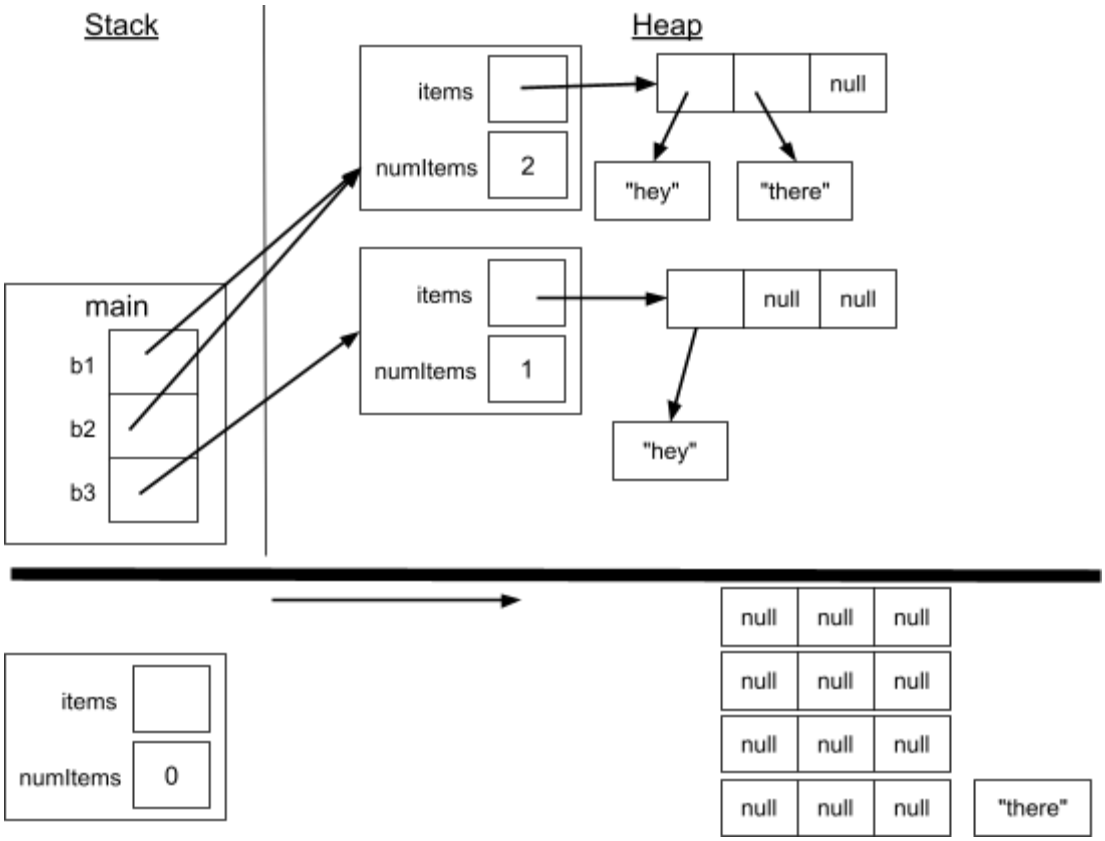
3-1)



3-2)



3-3)



3-4)

B1 and B2: {“hey”,”there”}

B3: {“hey”}