

Please read Sections 7.10, 7.12 and 7.13 as well as Sections 9.1 and 9.2 of the textbook and then answer the following, trying not to look at your notes or at the textbook. Quiz #10, on Fri. 18 Nov., will consist exclusively of questions taken from the Part 1 of this homework.

Ex. 1. Assume we have the following two-dimensional array values:

1	2
3	4

 What is the value stored in values[0][1]?

Ex. 2. Write the initialization of the following two-dimensional double array:

1.1	3.1	9.7
3.9	0.4	1.8

Ex. 3. Assuming a two-dimensional array records has been initialized, write a statement that prints the number of rows and the numbers of columns of records.

Ex. 4. Write a pair of nested loops that print all the elements of a two-dimensional array numbers.

Ex. 5. What is a *ragged array*? Can you give an example (either a drawing, or a java code).

Ex. 6. In the header

```
public static void main(String [] args)
```

What is the type of args?

Ex. 7. What is a vararg parameter?

Ex. 8. Write a statement that creates an ArrayList object and stores its address in a nameList variable.

Ex. 9. Give the name of the methods used to a) add items to an ArrayList object, b) return the size of an ArrayList object c) retrieve an element in an ArrayList object, d) remove an element in an ArrayList object.

Ex. 10. What would the following code print?

```
ArrayList<String> bandList = new ArrayList<String>();  
bandList.add("Petula Clarck");  
bandList.add("Duracell");  
bandList.add("Don Vito");  
bandList.add("Poutre");  
System.out.println(bandList.size());  
bandList.remove(1);  
System.out.println(bandList);  
System.out.println(bandList.get(1));
```

Ex. 11. Supposing we have an ArrayList object cities, write a statement that would replace the second String stored in cities with "Charleston".

Ex. 12. What is the difference between an ArrayList object's size and capacity?

Ex. 13. Write a statement that creates an ArrayList object with an initial capacity of 100 Rectangle objects.

Ex. 14. What is the key word that indicates that a class inherits from another class?

Ex. 15. In the following class declaration, what is the name of the subclass? What is the name of the superclass?

```
public class Flower extends Plant
```

Ex. 16. If the class `Truck` extends the class `Vehicle`, in which order are executed the class's constructors when a `Truck` object is created?

Ex. 17. If `A` is a subclass of `B`, what would the following do?

```
public A(){
    super();
}
```

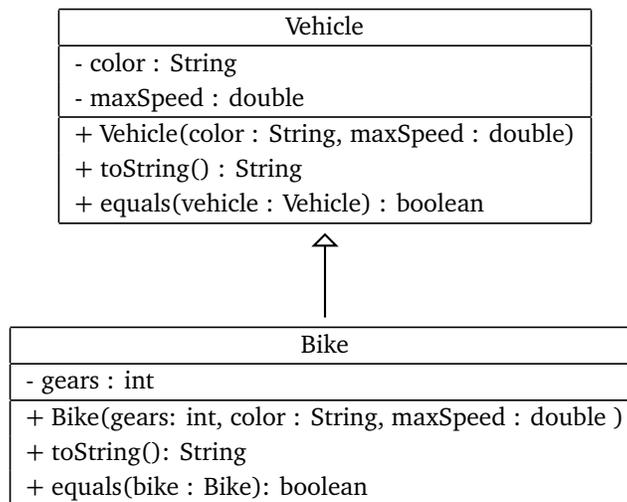
Part II — Programming Exercises

Ex. 1. Using `ArrayList` object, try to produce a program that would do the following (where the user input is underlined, and hitting carriage return is represented by `\n`):

```
How many painters do you like?
3
Enter the 1 name:
Amedeo Modigliani
Enter the 2 name:
Albrecht Dürer
Enter the 3 name:
Fernand Légre
You entered:[Amedeo Modigliani, Albrecht Dürer, Fernand Légre]
Did you misspelled a name?
Yes
Which one? Give its indice.
2
Ok, what do you want to store instead of Fernand Légre?
Fernand Léger
Now your list is:
[Amedeo Modigliani, Albrecht Dürer, Fernand Léger]
```

Your program should use a `Scanner` object, a `for` loop, the `add`, `get`, `toString` and `set` methods of the `ArrayList` class. You should be careful and “consume” the newline character when calling the `nextLine` method after the `nextInt` method. If you forgot about this, have a peek pages 94–97 of your textbook.

Ex. 2. We want to implement the following diagram:



In other words, we want to extend the `Vehicle` class with the `Bike` class, and this implies notably:

- the `Bike` constructor should call the `Vehicle` constructor,
- the `toString` method from the `Bike` class should call the `toString` method from the `Vehicle` class,
- the `equals` method from the `Bike` class should call the `equals` method from the `Vehicle` class,

Think about your program, make sure that you understand the logical relations between your two classes. Once you're confident, type them in BlueJ and write a small application program to test them. You should make sure that your `equals` method behave correctly by comparing identical `Bike` objects and different `Bike` objects.

