

Name: _____ Andrew Id: _____

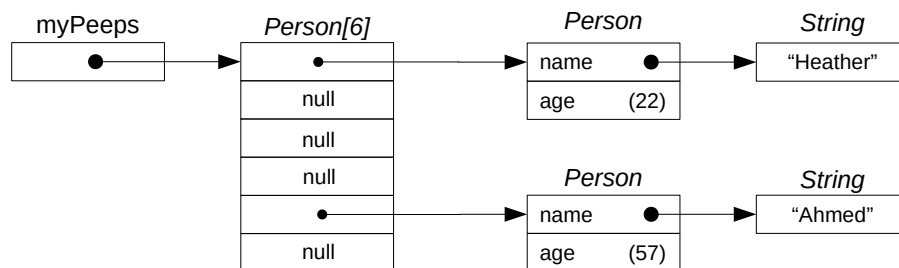
15-121 Fall 2021 Quiz 4

Up to 20 minutes. Show your work. No calculators, no notes, no books, no computers, no other people.
Don't write import lines in free response problems.

1. (2 points) **Multiple Choice:** For each of the following things, choose whether it can be best described as a data structure, and abstract data type (ADT), or java primitive type.

ArrayList: ☐ Data Structure ☐ ADT ☐ Java Primitive Type
List: ☐ Data Structure ☐ ADT ☐ Java Primitive Type
Array: ☐ Data Structure ☐ ADT ☐ Java Primitive Type
double: ☐ Data Structure ☐ ADT ☐ Java Primitive Type

2. (3 points) **Code From Picture:** Consider the following picture:



Assuming the `Person` class exists and has a constructor that takes `name` and `age` as arguments, write the appropriate lines of code to create the correct variables and objects that match what you see pictured above. Your code does not need to be inside of a method or a class. (So, this is a short code snippet.)

3. (4 points) **Code Tracing:** Indicate what the following program prints. Place your answer (and nothing else) in the box under the code.

```
public class Quiz4CT {
    private int[] monkey;

    public Quiz4CT(int b) {
        this.monkey = new int[5];
        for (int i = 0; i < this.monkey.length; i++) {
            this.monkey[i] = b - 2 * i;
        }
    }

    public int myFunc(int num) {
        int sum = 0;
        try {
            int i = 0;
            for (i = 0; i < num; i++) {
                sum += this.monkey[i];
            }
            System.out.println("Nice.");
        } catch (Exception e) {
            System.out.println("Boom!");
        }
        return sum;
    }

    public static void main(String[] args) {
        Quiz4CT ct = new Quiz4CT(10);
        System.out.println("val 1: " + ct.myFunc(3));
        System.out.println("val 2: " + ct.myFunc(6));
    }
}
```

4. (11 points) **Free Response:** Consider a file containing words separated by commas. The number of words per line is not fixed. Some lines are blank. Write the public static method `wordCounter` which, given a filename and a word, returns the number of times that word occurs in the file.

If there is an error opening the file, return `-1`.

Consider this example. If `input.txt` contains the following:

```
land,spiders,apparatus,sweltering,spider  
  
thoughtless  
modern,wax,spider,colour  
crack,alike,level,smooth
```

Then `wordCounter("input.txt","spider")` would return `2`.