**44-542 Object Oriented Programming**

**ArrayLists KEY**

1. Consider the following program:

import java.util.\*;

import java.io.\*;

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public class ArrayListStuff

{

public static void main(String[] args) throws Exception

{

Scanner myScanner = new Scanner(new File("arrayData.txt"));

ArrayList<Integer> myNums = new ArrayList<Integer>();

int numIn;

while((numIn = myScanner.nextInt()) != -1)

{

myNums.add(numIn);

System.out.print(numIn + " ");

}

System.out.println();

ArrayList<Dog> myDogs = new ArrayList<Dog>();

while(myScanner.hasNext())

{

myDogs.add(new Dog(myScanner.next(), myScanner.nextInt()));

System.out.println("size of myDogs = " + myDogs.size());

}

for(Dog myDog : myDogs)

{

System.out.println(myDog);

}

System.out.println(myDogs.get(2));

}

}

The code for class **Dog** is shown here:

**public class Dog**

**{**

**private String name;**

**private int age;**

**public Dog(String name, int age)**

**{**

**this.name = name;**

**this.age = age;**

**}**

**public Dog()**

**{**

**this("", 0);**

**}**

**public int getAge()**

**{**

**return age;**

**}**

**public void setAge(int age)**

**{**

**this.age = age;**

**}**

**public String getName()**

**{**

**return name;**

**}**

**public void setName(String name)**

**{**

**this.name = name;**

**}**

**public String toString()**

**OUTPUT**

**10 20 30 50 75 100 200 500**

**size of myDogs = 1**

**size of myDogs = 2**

**size of myDogs = 3**

**size of myDogs = 4**

**Zelda 10**

**Midge 6**

**Eve 5**

**Carmen 3**

**Eve 5**

**{**

**return name + " " + age;**

**}**

**}**

The file **arrayData.txt** contains the following:

**10 20 30 50 75**

**100 200 500 -1**

**Zelda 10 Midge 6 Eve 5**

**Carmen 3**

Write the output of the program in the box provided.

1. Write the code to do each of the following. Assume this code will be added to the end of the program **ArrayListStuff** in the previous step.
   1. Set the value in **myNums** indexed by 2 to 47.

**myNums.set(2, 47);**

* 1. Add another dog to **myDogs**. The name of the dog is Page, and she is one year old.

**myDogs.add(new Dog("Page", 1));**

* 1. Write a statement that returns the **Dog** object stored at index 3. What is the name and age of the dog returned?

**myDogs.get(3);**

The name of the returned dog is Carmen, and she is 3 years old.

* 1. Write statements that will return and print the size of each of the two array lists. Tell what values are printed by each statement.

**System.out.println(myNums.size()); // prints 8**

**System.out.println(myDogs.size()); // prints 5**

* 1. Write a statement that inserts the number 250 into **myNums** at index 5. Show what the list looks like after the value is inserted.

**myNums.add(5, 250);**

**Current contents of list: 10, 20, 47, 50, 75, 250, 100, 200, 500**

* 1. Write a statement that removes the **Dog** object at index 1 from **myDogs**. What is the name and age of the dog that is removed?

**myDogs.remove(1);**

**Name and age of dog removed: Midge, age 6**