1. What does it mean to overload a method? Why is it useful?

2. Write two findIndex methods such that the method name is overloaded. One method should take a 1D array of integers as a parameter, and an int x and return the index of x in the array, and the other method should print a 1D array of Strings and a String s, and return the index of s in the array. Both methods should return -1 if the value is not in the array.

3. What does it mean to override a method? Why is it useful?

4. What is wrong with this code?
int[][] table = new int[15][7];

for (int row = 0; row <= table.length; row++)
    for (int col = 0; col <= table[row].length; col++)
        table[row][col] = 0;

5. Write a method that takes an array of doubles as a parameter and returns the average of the elements.

public class Student {
    private String name;
    public Student(String name) {
        this.name = name;
    }
    public String getName() {
        return name;
    }
}

Would the following code compile (in particular, the line that calls the equals method)? Why or why not?

Student std = new Student("Apu");
Student std2 = new Student("James");
if (std.equals(std2))
    System.out.println("They are equal");
7. Given the following classes, draw a diagram showing which classes would inherit methods from other classes.

   Dog    Quadruped    Creature    Elephant    Biped    Human    Kangaroo

8. Given your diagram above, are the following lines of code legal or illegal?

   • _________ Quadruped q = new Quadruped();
   • _________ Quadruped q2 = new Biped();
   • _________ Biped b = new Human();
   • _________ Elephant e = new Creature();
   • _________ Creature c = new Kangaroo();
   • _________ Dog d = new Dog();
     Creature c2 = d;

9. Which class from #7 would contain these methods?
10. What is the output of this code?

```java
public static void doSomething(int[] arr) {
    int[] myArr = arr;
    myArr[0] = 37;
}

public static void main(String[] args) {
    int[] arr = { 3, 6, 10, 17 }; 
    doSomething(arr); 
    for (int val : arr) {
        System.out.println(val / 2);
    }
}
```

11. Consider the following code.
public static void changeArray(int[][] arr)
{
    for (int row = 0; row < arr.length; row++)
        for (int col = row; col < arr[row].length; col++)
            arr[row][col] = row + col;
}

What is contained in the 2D array myArray after the following code?
int[][] myArray = new int[5][5];
changeArray(myArray);