Submit your answer to these questions to the Google Classroom for this course.

Write your answers in a single file, in plain text or Google Docs format. If Google Doc, you can submit a link.

1. (a) Using `String`, give example Java code with two String references a and b , such that `a.equals(b)` is true, but `a==b` is false.

(b) Using a class **in the Java API** *other than* String, give your own example of two references a and b that refer to instances of the class such that `a.equals(b)` is true, but `a==b` is false.

Note: Many people mistakenly use == to compare Strings and other objects. It doesn't work reliably.

In Question 2 and 3, provide your own example. Not an example from the lecture slides or Internet.

2. Write Java code to demonstrate polymorphism using an interface. Your code must clearly show that polymorphism is occurring. Write comments in the code to show which statement(s) is (are) using polymorphism.

Limit your code to at most 10 statements. To keep the code short, use an interface from the Java API instead of defining your own.

3. Write Java code to demonstrate polymorphism using inheritance. Write comments in the code to indicate which statement(s) are using polymorphism.

4. Give a "real world" example of an application where it would be appropriate to model (in code) the real world things as each of these collection types:

(a) Set

(b) List

(c) Stack

(d) Map - and explain what are the keys and values

For each example, explain how the *semantics* of the collection matches your real-world example. Don't use the examples in the lecture slides.