Carlos Hernandez

Professor Dinesh Sthapit

CSC205

30 November 2021

Objects Comparison and Equality

For the code shown in Figure 5.4, the output is as follows:

Text

Description automatically generated

The output here is 2 lines for each method, and with 3 different methods to test objects, we get 6 lines in total. The first set of results is false, then true, resulting from this method:

Text

Description automatically generated

The output here returns false for the first print statement, and true for the second due to == only comparing references and not values. Although the values are different, they are irrelevant since we compare with ==, instead this tells Java to look at the reference of x and see if it’s the same as 123.45555D, which in this case it is. If we were to compute the value or arrive at it differently however, this could lead to fatal errors in our code base, since the reference wouldn’t be the same, even if the numbers were.

The second method we can see contains the same results, but for a different reason:

Text

Description automatically generated

The second method returns false then true, like the first test. Though this is for different reasons. Since we use .equals() instead of ==, we start comparing values instead of references. The program checks if it’s the same class, and if it is, if it contains the same value. In this case, the first statement compares it to a Long object, which doesn’t hold the same value, so it returns false. It then compares it to a number which it implicitly sees as a double, and sees it holds the same value, giving it a value of true. Finally, we have the third method, which we can see below:

Text

Description automatically generated

This method returns with false, then false like we saw before. This comparison takes x and compares it with a Long that holds the same value. Since equals also considers if the objects share the same class, it returns false regardless. Finally, the last statement compares it to a double, but one that doesn’t hold the same value. Since they are not the same value, it returns false. That explains all the results for the given methods, and explains the different comparisons.