

1) The Song class contains two equals() methods. Explain the difference using your knowledge about inheritance.

the equals(Song other) method is just a normal overload made for convenience so we can directly compare two Song objects. the equals(Object o) one is the actual override from the Object class that every class in Java inherits from. so even though both check equality, only the Object version is recognized by built-in Java methods and collections because of inheritance - everything in Java is treated as an Object at the base level.

2) Why do we need the version of equals() that takes an Object as the parameter in this class?

we need the version that takes an Object because that's the one Java uses under the hood in things like ArrayList's contains() or indexOf(). if we only had equals(Song), the inherited Object.equals() would still be used there, which just compares memory addresses instead of actual content. so overriding equals(Object) makes sure our songs are compared by title and instruments everywhere, not just when we call it manually.