1. Is Java a Pass by Value or Pass by Reference Language?

Java follows a pass-by-value mechanism.

In Java, when variables are passed into methods, what is actually passed is a copy of the value. For primitive types like int or char, the actual value is passed. However, when dealing with objects, the value passed is the reference to the object, not the object itself. Despite this, the reference itself is passed by value, meaning the reference can be modified locally but does not affect the original reference in the calling method.

2. Why do the titles of jungleDVD and cinderellaDVD remain unchanged after calling swap(jungleDVD, cinderellaDVD)?

The swap method only swaps the local references within the method scope, not the original references.

Since Java passes arguments by value, what happens inside the swap method is that the local copies of the references to the objects (jungleDVD and cinderellaDVD) are exchanged. However, the original references in the calling method (main) remain unaffected because only the local copies of the references are swapped, not the actual references themselves.

3. Why does the title of jungleDVD change after calling changeTitle(jungleDVD, cinderellaDVD.getTitle())?

The method changeTitle modifies the title field of the jungleDVD object directly, which impacts the original object.

In Java, when an object is passed to a method, it is the reference to that object that is passed by value. Both the original reference (jungleDVD in main) and the method's parameter (dvd in changeTitle) point to the same object. So, any modifications to the object through dvd (like changing the title) will reflect on the object referenced by jungleDVD as well.

4. What should the return type of the toString() method in the DigitalVideoDisc class be?

The return type of the toString() method should be String.

The toString() method in Java is designed to provide a string representation of the object. This method is commonly used to generate a textual description of an object’s state. Therefore, the return type must be String since it returns a readable string representation of the object, typically for debugging or logging purposes.