

Alternatively, to compare items in the cart, instead of using Comparator, we can use the Comparable interface and override the compareTo() method. You can refer to the Java docs to see the information of this interface.

Suppose we are taking this Comparable interface approach.

- What class should implement the Comparable interface?

Media class should implement the Comparable interface

- Can we have two ordering rules of the item (by title then cost and by cost then title) if we use this Comparable interface approach?

No we cannot. The Comparable interface assumes that there is only one natural ordering for the objects being compared.

- Suppose the DVDs has a different ordering rule from the other media types, that is by title, then decreasing length, then cost. How would you modify your code to allow this?

We can override the compareTo method in Disc class to reflect the new ordering rule.

-What are the advantages of Polymorphism?

+ Polymorphism makes it easier to extend and modify code. New classes can be added without modifying existing code,

as long as they adhere to the same interface.

+Polymorphism promotes a clean and intuitive design by allowing the use of abstract concepts rather than specific implementations.

+Polymorphism enables the reuse of code by allowing different classes to be treated uniformly through a common interface.

- How is Inheritance useful to achieve Polymorphism in Java?

+ Inheritance allows subclasses to override methods defined in their superclass.

+When a method is called on such a reference variable, the method implementation is determined dynamically based on the actual type of the object it refers to, rather than the type of the reference variable itself.

This enables polymorphic behavior, where the same method call can exhibit different behavior depending on the actual type of the object.

- What are the differences between Polymorphism and Inheritance in Java?

+Polymorphism allows objects of different classes to be treated as objects of a common superclass.

Inheritance is a mechanism that allows a class (subclass) to inherit properties and behaviors from another class (superclass).

+Polymorphism is typically achieved through method overriding, where subclasses provide their own implementation of methods inherited from a superclass. It can also be achieved through method overloading

Inheritance is implemented by using the extends keyword in Java. Subclasses inherit the members (fields and methods) of their superclass and can extend or override them as needed.