9. Constructors of whole classes and parent classes

- Which classes are aggregates of other classes? Checking all constructors of whole classes if they initialize for their parts?

Aggregates:

- Store aggregates Media.

- Cart aggregates Media.

- CompactDisc aggregates Track.

Store Class

- Constructor: Initializes the list of Media.

 Cart Class

- Constructor: Initializes the list of Media.

 Disc Class

- Constructor: Sets properties for Disc, and indirectly via inheritance, initializes Media attributes.

 DigitalVideoDisc Class

- Constructor: Sets properties specific to DigitalVideoDisc and initializes inherited ones.

 CompactDisc Class

- Constructor: Likely initializes the List<Track>.

 Track Class

- Constructor: Initializes these properties.

10. If the passing object is not an instance of Media, what happens?

- Return False

12. Sort media in the cart

Question: 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.

- In those classes, how should you implement the compareTo()method be to reflect the ordering that we want?

```java
public int compareTo(Media other) {
    int titleComparison = this.title.compareTo(other.title);
    if (titleComparison != 0) {
        return titleComparison;
    }
    // If titles are the same, compare by cost (higher cost first)
    return Double.compare(other.cost, this.cost);
}
```

- 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 because the Comparable interface allows only one natural ordering for a class. If we need multiple ordering rules (like sorting by title or cost), we must replace with Comparator instead.

- 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?

As DVDs has different ordering rule from other media types, We can override compareTo() method in DigitalVideoDisc class. After that, DVDs will be compare by the overridden compareTo() method.

Compare test:

File Edit Selection View Go Run Terminal Help

AimsProject

deoDisc.java   Aims.java   Polymorphism.java 1   Disc.java 2   CompactDisc.java 9+   Media.java 3   CompareTest.java ✕   StoreTest.java

EXPLORER

∨ OPEN EDITORS
    Cart.java src\hust\soict\dsai... 3
    DigitalVideoDisc.java src\hust\s...
    Aims.java src\hust\soict\dsai\aims
    Polymorphism.java src\hust... 1
    Disc.java src\hust\soict\dsai... 2
    CompactDisc.java src\hu... 9+
    Media.java src\hust\soict\d... 3
  ✕ CompareTest.java src\hust\soict...
    StoreTest.java src\hust\soict\dsai...

∨ AIMSPROJECT
  ∨ src
    ∨ hust\soict\dsai
      ∨ aims
        Aims.class
        Aims.java
      ∨ test
        ∨ cart
          CartTest.class
          CartTest.java
        ∨ compare
          CompareTest.class
          CompareTest.java
        > disc
        ∨ polymorphism
          Polymorphism.class
          Polymorphism.java   1
        ∨ store
          StoreTest.class
          StoreTest.java

> PROJECTS
> JAVA PROJECTS
> RUN CONFIGURATION

src > hust > soict > dsai > test > compare > CompareTest.java > Language Support for Java(TM) by Red Hat > CompareTest > main(String[])

```java
 6      import hust.soict.dsai.aims.media.DigitalVideoDisc;
 7
 8      public class CompareTest {
        Run main | Debug main | Run | Debug
 9          public static void main(String[] args) {
10              Cart cart = new Cart();
11
12              // create some media here
13              // for example: cd, dvd, book
14              CompactDisc cd1 = new CompactDisc(artist:"Hello", title:"Song", category:"Classic", director:"P", cost:24.55f);
15
16              DigitalVideoDisc dvd1 = new DigitalVideoDisc(title:"The Lion King",
17                      category:"Animation", director:"Roger Allers", length:87, cost:19.95f);
18
19              DigitalVideoDisc dvd2 = new DigitalVideoDisc(title:"Star Wars",
20                      category:"Science Fiction", director:"George Lucas", length:87, cost:24.95f);
21
22              Book b1 = new Book(title:"Hell", category:"Truyen", cost:80.25f);
23              Book b2 = new Book(title:"Good", category:"Truyen", cost:40.5f);
24
25              cart.addMedia(cd1);
26              cart.addMedia(dvd1);
27              cart.addMedia(dvd2);
28              cart.addMedia(b1);
29              cart.addMedia(b2);
30
```

PROBLEMS 21   OUTPUT   DEBUG CONSOLE   TERMINAL   PORTS   AZURE

```
1.DVD-Star Wars-Science Fiction-George Lucas-87: 24.95$
Ordered Items:
1.Book-Hell-Truyen: 80.25$
1.Book-Good-Truyen: 40.5$
1.DVD-Star Wars-Science Fiction-George Lucas-87: 24.95$
1.Compact Disc-Hello-Classic-P-0: 24.55$
1.DVD-The Lion King-Animation-Roger Allers-87: 19.95$
Total cost :190.2
*****************************************************
PS D:\New folder (2)\OOPLabs\AimsProject>
```

⚙ Debug: Poly...
⚙ Debug: Co...
⚙ Debug: Poly...

⊗ 2 ⚠ 18 ⊙ 1   ⏢ 0   Indexing completed.   Java: Ready   Ln 36, Col 36   Tab Size: 4   UTF-8   CRLF   Java

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