**ĐẠI HỌC BÁCH KHOA HÀ NỘI**

**TRƯỜNG CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG**

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**THỰC HÀNH LẬP TRÌNH HƯỚNG ĐỐI TƯỢNG LAB 04**

**GVHD: Đàm Quang Tuấn**

**Mã lớp: 744520**

Họ và tên: Phạm Mạnh Quyết

Mã số sinh viên: 20225663

Hà Nội 12/2024

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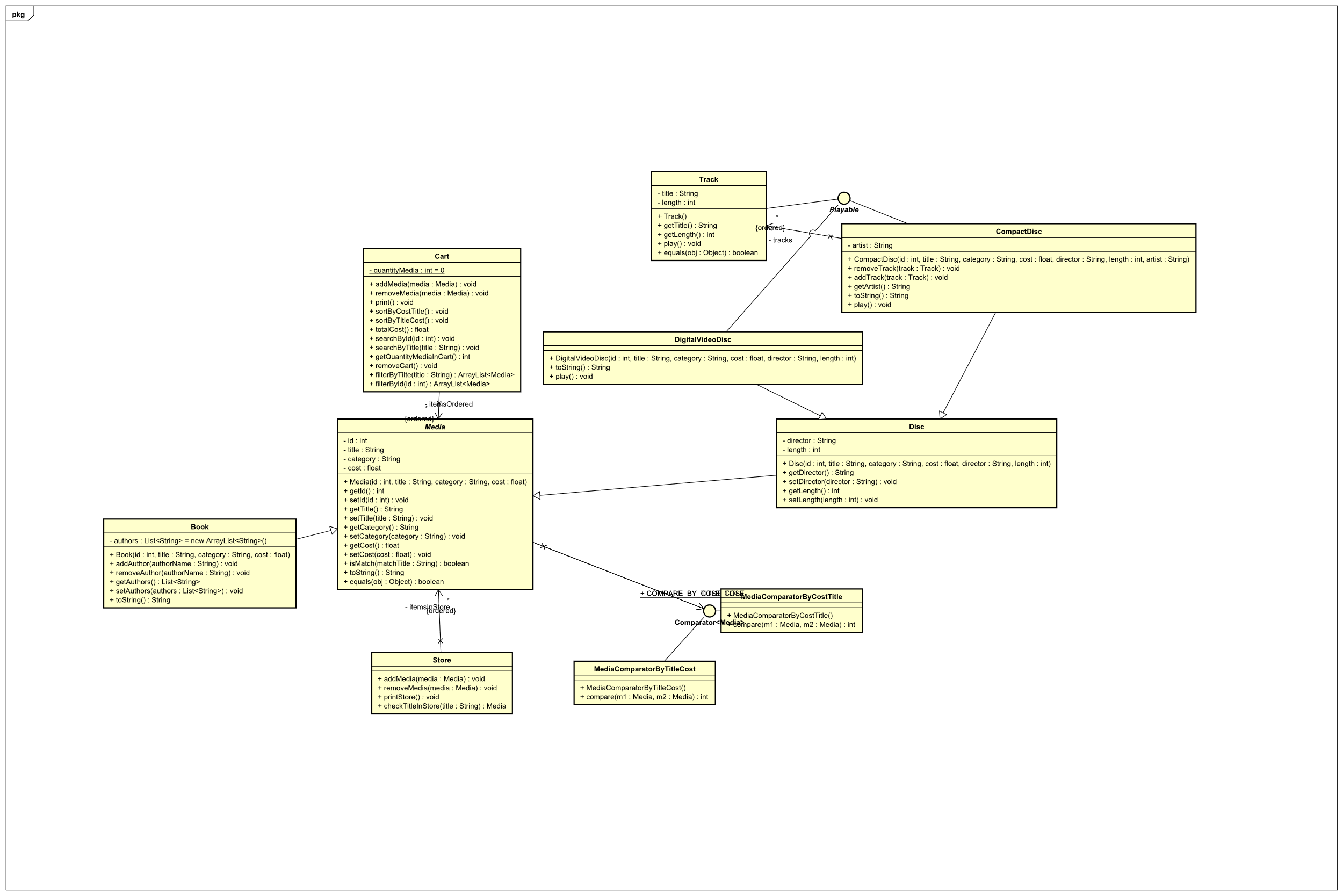
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# I. Class diagram

- Source file: 

- Hình ảnh: 

# II. Use case diagram

- Source file: 

- Hình ảnh: A diagram of a person

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# III. Source code

## 1. Create the Book class

A screenshot of a computer program

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## 2. Creating the abstract Media class

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## 3. Creating the CompactDisc

A screenshot of a computer code

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### 3.1. Creating the Disc class extending the Media class

A screen shot of a computer code

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### 3.2. Creating the Track class

A screenshot of a computer program

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### 3.3. Open the CompactDisc class

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## 4. Create the Playable interface

A screen shot of a computer code

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### 4.1. Method play() of DigitalVideoDisc class

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### 4.2. Method play() of CompactDisc class

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### 4.3. Method play() of Track class

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## 5. Update the Cart class to work with Media

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## 6. Update the Store class to work with Media

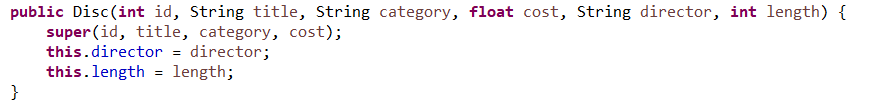
A screenshot of a computer program

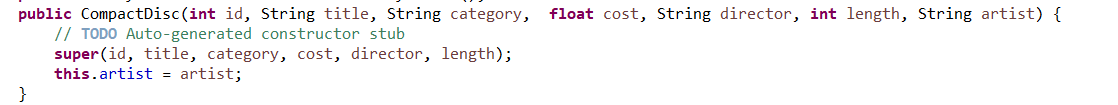
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## 7. Constructors of whole classes and parent classes

A white background with black text

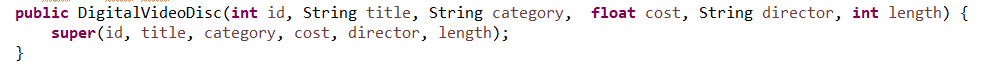
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A close-up of text

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## 8. Unique item in a list

- In Media class

A computer code with text

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- In Track class

A computer code on a white background

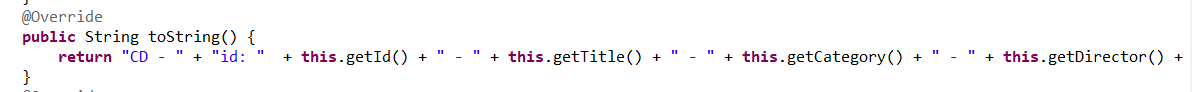
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## 9. Polymorphism with toString() method

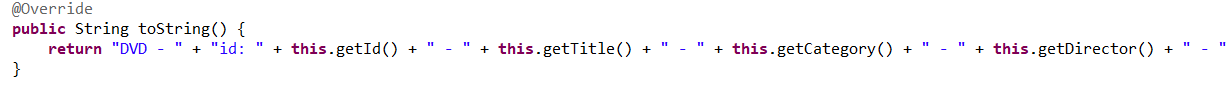
A screenshot of a computer

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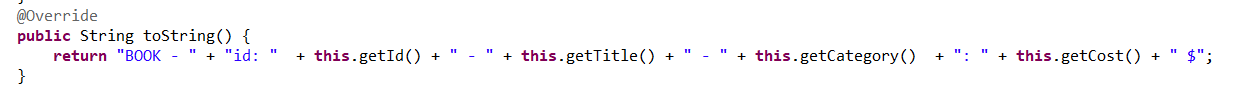
- Override toString() method in CompactDisc class



- Override toString() method in DigitalVideoDisc class



- Override toString() method in Book class



## 10. Sort media in the cart

A screen shot of a computer code

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A screenshot of a computer program

Description automatically generated



## 11. Create a complete console application in the Aims class

### 11.1. Menu chính

A close up of a box

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### 11.2. Chọn 1: View Store

A screenshot of a computer program

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### 11.2.1. Chọn 1: See a media’s details

A screenshot of a computer program

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### 11.2.2. Chọn 2: Add a media to cart

A screenshot of a computer

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10.2.3. Chọn 3: Play a media

A screenshot of a computer program

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### 11.2.4. Chọn 4: See current cart

A screenshot of a computer

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### 11.3. Add media

A screenshot of a computer program

Description automatically generated

### 11.4. Remove media

A screenshot of a computer program

Description automatically generated

### 10.5. Chọn 3: See current cart

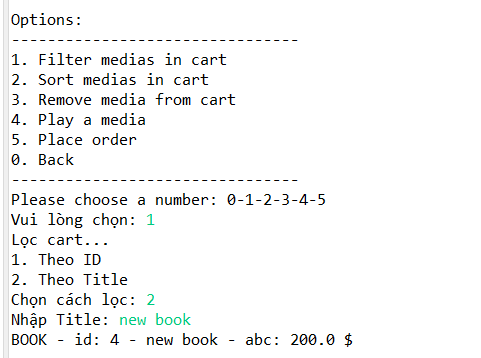
A screenshot of a computer program

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### 10.5.1. Filter medias in cart

A screenshot of a computer code

Description automatically generated



### 10.5.2. Sort medias in cart

- Theo giá rồi tên

A screenshot of a computer program

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- Theo tên rồi giá

A screenshot of a computer program

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### 10.5.3. Chọn 5: Place order

A screenshot of a computer program

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# IV. Question

**1.**Which classes are aggregates of other classes?

TL: Cart, Store là tập hợp (aggregates) của các đối tượng Media, vì nó chứa danh sách các đối tượng Media.

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

TL: Phương thức equals() sẽ trả về false, vì hai đối tượng không thể so sánh được.

**3.** What class should implement the Comparable interface?

TL: Lớp Media: Vì tất cả các loại phương tiện (Book, DVD, CD, v.v.) đều là con của Media, nên quy tắc sắp xếp mặc định nên được định nghĩa trong lớp Media.

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

TL: Trong lớp Media, phương thức compareTo() nên định nghĩa quy tắc sắp xếp mặc định

cho mọi loại phương tiện. Ví dụ: sắp xếp theo tiêu đề trước, rồi đến giá.

**5.** 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?

- Không thể có hai quy tắc sắp xếp với Comparable, giao diện Comparable chỉ hỗ trợ một

quy tắc sắp xếp mặc định được triển khai trong compareTo().

- Nếu cần nhiều quy tắc sắp xếp, phải sử dụng thêm các lớp Comparator.

**6.** 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?

TL: Ghi đè phương thức compareTo() trong lớp con DigitalVideoDisc để áp dụng quy tắc sắp

xếp khác biệt (theo tiêu đề, độ dài giảm dần, rồi đến giá).