Course COSC2440 - Further Programming
RMIT University Vietnam
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ASSIGNMENT 1
Individual Project

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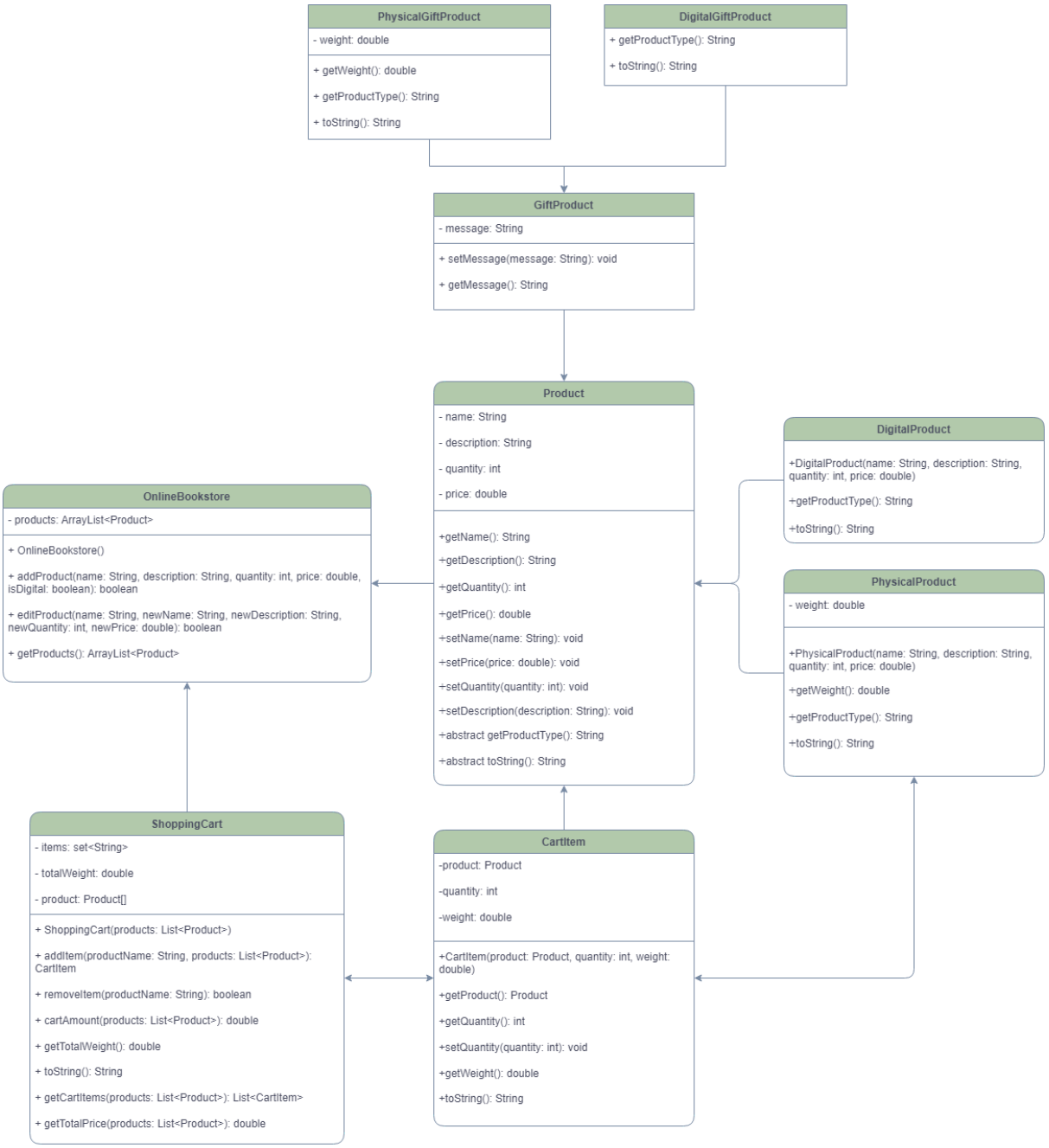
1.Introduction

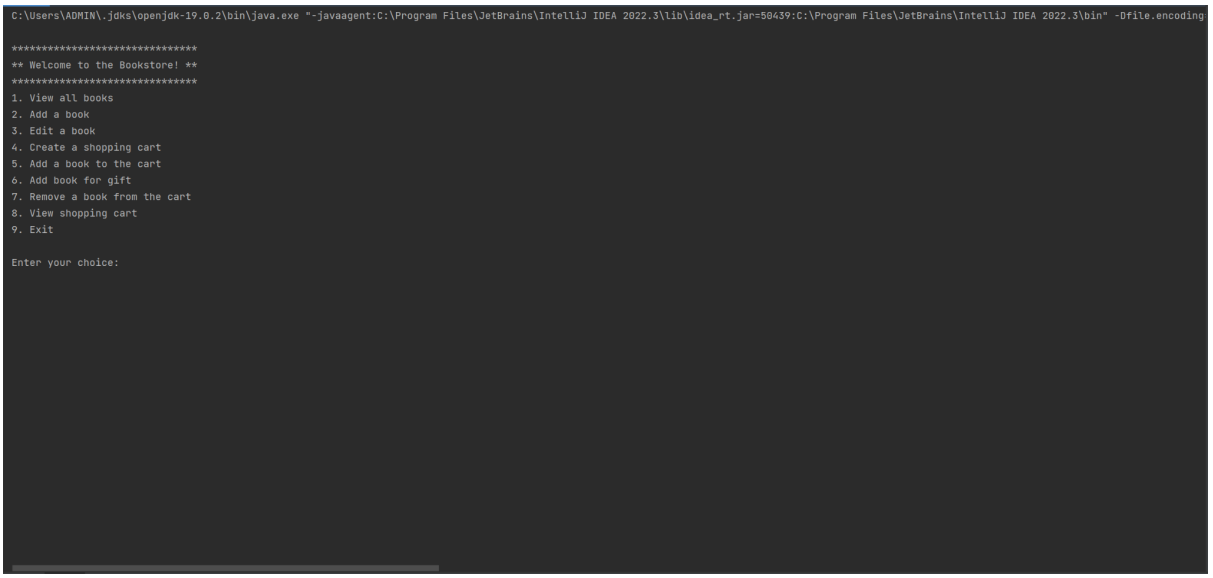
A Java online bookstore was programmed by me. The program lets users add, alter, and view books, create a shopping cart, add and remove items, and view all the books in the cart with their names and prices. Users can create and split books in the app. Eight options are available to customers. The "OnlineBookstore" class contains products and methods to add and update them. In the "ShoppingCart" class, cart items represent books and their quantities. It lets you add and remove items from your cart. Name, description, quantity, and price are shared by all objects in the abstract base class "Product." All subclasses must implement abstract methods "getProductType()" and "toString()". The "PhysicalProduct" subclass of "Product" represents physical products like books. It adds weight to the "Product" class. To provide information on physical books, it overrides "getProductType()" and "toString()". Ebooks are "DigitalProducts" in the "Product" subclass. The "Product" class provides properties and methods, but not weight. It overrides "getProductType()" and "toString()" to send digital books with suitable information. "CartItem" abstract class covers its fields and functions and provides public methods to access and modify its data. CartItem isolates its implementation and simplifies client interaction. The "Product" class may inherit from another class, however the code does not display inheritance. No polymorphism either. A superclass method or interface may be overridden by the "Product" class or another software class. The classes'PhysicalGiftProduct' and 'DigitalGiftProduct' both inherit from the abstract class 'GiftProduct' which in turn inherits from the class 'Product'.The class GiftProduct is an abstract class which provides a common template for its subclasses to implement the specific details. The method getProductType() is overridden in both PhysicalGiftProduct and DigitalGiftProduct classes to provide a specific implementation of the abstract method defined in GiftProduct. The instance variable message is declared private and accessed through public getter and setter methods. This ensures that the variable is protected from unauthorised access and modification. Each class represents a distinct module or component of the overall program, with well-defined responsibilities and interfaces. This allows for easier maintenance and extensibility of the code. The last class, "Main," runs the application and displays the user interface. The program produces an instance of the

"OnlineBookstore" class with a list of "Product" objects for the store's books. It creates a ShoppingCart object to store user-added books and a Scanner object to read user input. The application then loops to offer choices. A switch statement determines the action after the terminal reads the user's option. If the user selects all books, the program prints product objects. The software adds a book to the OnlineBookstore's product objects when the user enters details. If the user can change a book, the computer asks for its name and the new information. If the user creates a ShoppingCart, the OnlineBookstore's Product objects are used to build it. The computer asks for the book's name and adds it to the ShoppingCart object when the user adds a book. The application removes the book from the ShoppingCart object after asking the user to name it. The shopping cart prints if the user wishes to see it. Loop until the user leaves the program.

2. UML class diagram



3. Working screenshot of my program



the program choice menu asks the user to select the number to perform the operation

Enter choice to add books

```
Book added successfully!

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 1
[Book type: DIGITAL - Harrypoter - Description: the chamber of secrets - Quantity: 10 - Price: $15.0
, Book type: PHYSICAL - Making Movies - Description: Monster Cinema - Quantity: 20 - Price: $10.0
]

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice:
```

Check the books in the product list

```
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 3
Editing a book...
Enter book name that you want to edit: Making Movies
Enter new book name (leave blank if no change): Creating Films
Enter new book description (leave blank if no change): Dramatic theater
Enter new quantity available (leave blank if no change): 15
Enter new price (leave blank if no change): 5
Book edited successfully!

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 1
[Book type: DIGITAL - HarryPotter - Description: the chamber of secrets - Quantity: 10 - Price: $15.0
, Book type: PHYSICAL - Creating Films - Description: Dramatic theater - Quantity: 15 - Price: $5.0
]
```

Edit book in the product list and view them whether they are edited or not

```
[Book type: DIGITAL - HarryPotter - Description: the chamber of secrets - Quantity: 10 - Price: $15.0
, Book type: PHYSICAL - Creating Films - Description: Dramatic theater - Quantity: 15 - Price: $5.0
]

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 4
Create shopping cart successfully

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice:
```

Create the shopping cart

```
********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 5
Enter book's name: HarryPotter
Book added to cart successfully!

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 8
Here are the books in your cart:
- HarryPotter (1) - $15.0
Total: $15.0
```

Add book to the cart, and view them in the cart

```
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 8
Here are the books in your cart:
- HarryPotter (1) - $15.0
Total: $15.0

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 2
[Book type: DIGITAL - HarryPotter - Description: the chamber of secrets - Quantity: 9 - Price: $15.0
, Book type: PHYSICAL - Creating Fimls - Description: Dramatic theater - Quantity: 15 - Price: $5.0
]
```

Check if the number of books of the type that has just been added to the cart is actually reduced in the product list

```
********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 7
Enter book name to remove from cart: HarryPotter
Book removed from cart successfully!

********************************
** Welcome to the Bookstore! **
********************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 8
Your cart is empty

********************************
```

Remove the book from the cart, and view the cart again

```
******************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 6
Enter book's for gift: HarryPotter
Enter message for gift:
Happy Birthday my best friend!
Book for gift added to cart successfully!

******************************
** Welcome to the Bookstore! **
******************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 8
Here are the books in your cart:
- HarryPotter (1) - $15.0
Total: $15.0
```

Add book as gift to the cart and view them whether in the cart or not

```
** Welcome to the Bookstore! **
******************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 8
Here are the books in your cart:
- HarryPotter (1) - $15.0
Total: $15.0

******************************
** Welcome to the Bookstore! **
******************************
1. View all books
2. Add a book
3. Edit a book
4. Create a shopping cart
5. Add a book to the cart
6. Add book for gift
7. Remove a book from the cart
8. View shopping cart
9. Exit

Enter your choice: 9

Process finished with exit code 0
```

Press “9” to exit the program.

4. Conclusion

Users are able to add books to a product list, modify book information, and create a shopping cart that they may add or delete books from using the online book selling system that I designed. Users also have the ability to purchase books using the system. Users would be able to see the whole product list in addition to the things they have selected from the list of goods for inclusion in their shopping basket. The users may also add the books from the product list as a present and attach a note to it. Moreover, the book that was added as a gift can also be put to the shopping cart as a product.