Subject: PRO192
LAB 03 – **Inheritance (kế thừa)**

Mỗi Program tạo 1 project riêng có tên theo quy định sau:

Tên Project: **<MASV>_LAB3**
Bước 1: Ví dụ: Sinh viên có masv: CE123456. Tên Project được đặt tên như sau:

CE123456_LAB3

Bước 2: Tạo 1 file MS Word và chụp kết quả (*Tất cả màn hình của IDE Netbean 8.2*) của 4 chương trình, dán vào file.

Bước 3: Nén tất cả bài làm lại với tên: Lab3.zip

Bước 4: Sau đó submit bài làm (Lab3.zip) vào mục **Lab03** *đúng Slots* trên trang *https://edunext.fpt.edu.vn/*

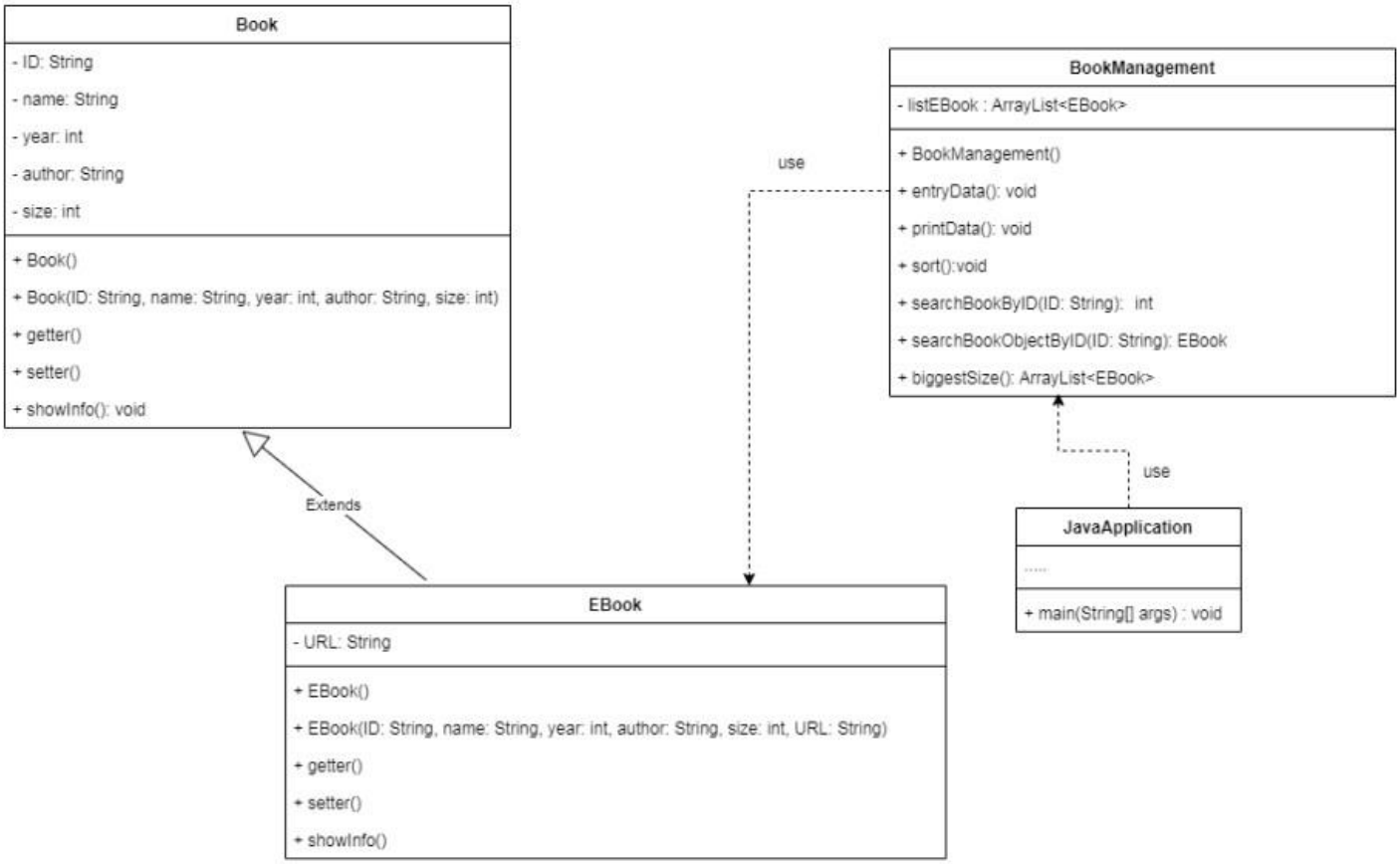
Yêu cầu:

- Comment giải thuật đầy đủ,
- Ghi thông tin tác giả (author): MSSV, Họ tên, lớp
- Format code
- Tạo file .jar cho từng project
- Nhập trước dữ liệu mẫu

Technical Requirements:

1. Using Object-Oriented programming style.
2. Using ArrayList to store data
3. Check data input is valid with following information:
   ID: must be exactly 5 characters and no duplicated with existed ID in Database (your list).
   name: not empty
   year: must be in range 1900 to 2024 and not empty
   author: not empty
   size: must be greater than 0 and not empty

Create 4 classes as below:



- **entryData():** Add new book to ArrayList (listEBook)
- **printData():** Print list of books
- **sort():** Sort the list of books ascending by size
- **searchBookByID(id):** This function will return the index of the Book found in the list, if it is found. It will return -1 if the book is not found
- **searchBookObjectByID(id):** This function will return the object of the Book found in the list, if it is found. It will return null if the Book is not found
- **biggestSize():** Returns a list of books with the largest size
- **deleteBookByID(id):** deletes the book with the ID entered by the user and displays the message 'Delete successfully'. If the book is not found, the message 'Not found' will be displayed.

Write a book management program with the following functions:

Create menu for this program as below:

----- BOOK MANAGEMENT -----

1. Adds new book.

2. Shows all books.

3. The biggest size book.

4. Search a book by ID.

5. Sort the list of books ascending by size.

6. Delete a book by ID.

7. Quit.

Please select a function:

Function 1. When user selects the first function, the application will receive book information and append this book into a list.

----- Add new ebook -----

Input ID: B0001

Input name: HTML

Input year: 2022

Input authors: Peter, John

Input size (kilobyte): 100

Input url: www.gooolge.com

Ebook created and added to list of ebooks successful!

Function 2. When user selects the second function, the list of books will be shown:

```
----------------------------BOOK MANAGEMENT -------------------------------------+
| No. | ID    | Name              | Year | Author        | Size  |URL             |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  1  | B0001 | HTML              | 2022 | Peter, John   | 100KB |www.google.com  |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  2  | B0002 | C/C++             | 2000 | Bobita        |  90KB |http://c.com.vn |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  3  | B0003 | JAVA              | 1999 | Jerry         |  65KB |www.goolge.com  |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  4  | B0004 | Python            | 1998 | John          |  70KB |python.org      |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  5  | B0005 | Javascript        | 2000 | Peter         |  19KB |javacript.com   |
+-----+-------+-------------------+------+---------------+-------+----------------+
```

Function 3. When user select the third function, the list ebook have biggest size:

```
| No. | ID    | Name              | Year | Author        | Size  |URL             |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  1  | B0001 | HTML              | 2022 | Peter, John   | 100KB |www.google.com  |
+-----+-------+-------------------+------+---------------+-------+----------------+
```

Function 4. When the user selects the fourth function, it will return the book information with the ID entered by the user. If the book is not found, it will display the message 'Not Found'.

```
>>> Please enter book's ID to search: B0001
Search Results:
----------------------------BOOK MANAGEMENT -------------------------------------+
| No. | ID    | Name              | Year | Author        | Size  |URL             |
+-----+-------+-------------------+------+---------------+-------+----------------+
|  1  | B0001 | HTML              | 2022 | Peter, John   | 100KB |www.google.com  |
+-----+-------+-------------------+------+---------------+-------+----------------+

>>> Please enter book's ID to search: B1111
Search Results: Not Found
```

Function 5. When the user selects the fifth function, the list will be sorted in descending order by size, and the sorted list of books will be displayed.

```
----------------------------BOOK MANAGEMENT -------------------------------------+
| No. | ID    | Name               | Year | Author        | Size  |URL             |
+-----+-------+--------------------+------+---------------+-------+----------------+
|  1  | B0001 | HTML               | 2022 | Peter, John   | 100KB |www.google.com  |
+-----+-------+--------------------+------+---------------+-------+----------------+
|  2  | B0002 | C/C++              | 2000 | Bobita        |  90KB |http://c.com.vn |
+-----+-------+--------------------+------+---------------+-------+----------------+
|  3  | B0004 | Python             | 1998 | John          |  70KB |python.org      |
+-----+-------+--------------------+------+---------------+-------+----------------+
|  4  | B0003 | JAVA               | 1999 | Jerry         |  65KB |www.goolge.com  |
+-----+-------+--------------------+------+---------------+-------+----------------+
|  5  | B0005 | Javascript         | 2000 | Peter         |  19KB |javacript.com   |
+-----+-------+--------------------+------+---------------+-------+----------------+
```

Function 6: When the user selects the 6th function, the program deletes the book with the ID entered by the user and displays the message 'Delete successfully'. If the book is not found, the message 'Not found' will be displayed.

Function 7. When the user selects 7th function, end the program and display the information below

THANK FOR USING OUR APPLICATION!

SEE YOU AGAIN!

Function 8. When user selected invalid function, the application will be shown the warning message "The function of application must be from 1 to 7!"

END