

# Book Content Publishing System

Assignment brief:

Time 2hr 30 min (open book – no external websites).

Create a **project solution** (follow naming conventions provided). **Ensure your name and student number are placed in the Javadoc comments of all files you create.**

## Part 1 – 40%

You have been tasked to design, implement, and unit test part of a Book Content Publishing application.

The system is expected to support and interact with several specific **Book types** such as **PrintBook**, **EBook**, **WebComic**, **AudioBook**. You are the first developer of the system and are tasked with designing and implementing the **AudioBook** type, although you are encouraged to design the system to support the future development of other specific Book types.

Field data required for the system. Getters/Setters required for all fields + appropriate Constructor.

DATA	DESCRIPTION	APPLICATION	BUSINESS RULES
<b>TITLE</b>	The title of the Book in question	All Books	Text: min length 3 and max 30
<b>AUTHOR</b>	The Name of the Author	All Books	Text: min length 3 and max 30 Allowable characters: Upper and lowercase A-Z letters, spaces ( ) full stops (.) hyphens (-) only.  No other special characters supported at this stage of development.
<b>GENRE</b>	The primary category the book should be classified under	All Books	Allowable values (at this stage of development) <b>BIOGRAPHY, SCIFI, YA, CHILDRENS</b>  Each value also has a text description BIOGRAPHY – Biography/Autobiography SCIFI – Science Fiction and Fantasy YA – Young Adult Fiction CHILDRENS - For Younger Readers
<b>BLURB</b>	Short description of the book content	All Books	Text: min length 3 and max 200
<b>DURATION</b>	The length of the Audio Recording (in seconds)	Audio Books Only	Whole Number: range 1 to 36000 seconds (inclusive) - Equivalent to 10hrs Cannot be set smaller than currentPos
<b>NARRATOR</b>	The Name of the Narrator	Audio Books Only	Text min length 3 and max 30
<b>CURRENTPOS</b>	Current listening position (seconds)	Audio Books Only	Whole Number: 0 to duration Should be 0 at object creation point

**Any attempt to set a field to a value outside allowable rules should raise an appropriate exception**

**Additional required public methods – All Book types should include:**

### **progress()**

all books should include a **progress** method which will return a *formatted String* representing the current reading progress.

For AudioBooks this should be percentage progress calculated based on *currentPos* and *duration*.

For the Winnie-the-Pooh example below, with a *currentPos* value of 4000 seconds, the expected returned progress String would be

1 hours, 6 mins, 40 secs (40%)

Percentage progress *presented correct to zero places* can be calculated with the following formula:

$$\frac{\text{currentPos}}{\text{duration}} \times 100$$

### **displayDetails()**

you have also been asked to include a **displayDetails** method that will output to screen (console) key data (excluding blurb) for a given Book instance. *Note you do not need to Unit Test this functionality.*

For example, the expected output for an AudioBook, including progress/remaining stats should be:

```
Title       : Winnie-the-Pooh
By          : A. A. Milne
Genre       : CHILDRENS – For Younger Readers
Narrated By : Peter Dennis
Duration    : 2 hours, 46 mins, 33 secs
Progress    : 0 hours, 0 mins, 0 secs (0%)
Remaining   : 2 hours, 46 mins, 33 secs
```

note duration recorded in secs, displayed in hrs and mins and secs – 9993 in this example

### **displaySummary()**

each Book requires a **displaySummary** method that will output to screen (console) a short, formatted display of the title, author and blurb for a given Book instance. *Note you do not need to Unit Test this functionality.*

For example, the expected output for the AudioBook in the previous example should be:

```
Winnie-the-Pooh (A. A. Milne)
Winnie-the-Pooh may be a bear of very little brain, but thanks to his friends
Piglet, Eeyore and, of course, Christopher Robin, he's never far from an
adventure.
```

(note do not worry about line breaks etc. within the blurb, just format title (and author) on one line, and the blurb on the next)

## Part 2 – Testing – 30%

### 1. Unit Test applicable code from **Part 1**

You are not expected to unit test void methods which do not change the state of an Object.

E.g. methods which print/display to console.

Any fully autogenerated methods like `toString()` or other similar methods like `equals()` can also be omitted from Unit testing at this stage.

## Part 3 - Bookshelf Util/Search class - 30%

Create a **Bookshelf** class to support the system for various display and searching operations. Each search method should be **static** and accept/return an **ArrayList** of the **appropriate type**.

You do NOT need to JUnit Test this class – instead you should **carry out ad-hoc testing in a main method** in the class to demonstrate the methods function as expected.

Create at least 3-5 instances of the AudioBook class to use as test data and call the implemented methods as required. You can base your test data on the samples below, or create your own. Data does not have to be from genuine books, just appropriate values to test/demonstrate the required functionality.

Using your knowledge of OOP you should create the following functionality based on the given descriptions:

1. Create 2 static batch display methods **outputDetails()** and **outputSummaries()** which will output relevant display details of all objects in the parameter argument ArrayList to console.

```

-----
Book Details
-----
Title       : Winnie-the-Pooh
By          : A. A. Milne
Genre       : CHILDRENS - For Younger Readers
Narrated By : Peter Dennis
Duration    : 2 hours, 46 mins, 33 secs
Progress    : 0 hours, 0 mins, 0 secs (0%)
Remaining   : 2 hours, 46 mins, 33 secs

Title       : A Life with Footnotes
By          : Rob Wilkins
Genre       : BIOGRAPHY - Biography/Autobiography
Narrated By : Rob Wilkins
Duration    : 10 hours, 0 mins, 0 secs
Progress    : 0 hours, 0 mins, 0 secs (0%)
Remaining   : 10 hours, 0 mins, 0 secs

Title       : Hunger Games
By          : Suzanne Collins
Genre       : SCIFI - Science Fiction and Fantasy
Narrated By : Tatiana Maslany
Duration    : 9 hours, 26 mins, 40 secs
Progress    : 0 hours, 0 mins, 0 secs (0%)
Remaining   : 9 hours, 26 mins, 40 secs
-----

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Book Summaries
-----
Winnie-the-Pooh (A. A. Milne)
Winnie-the-Pooh may be a bear of very little brain, but thank

A Life with Footnotes (Rob Wilkins)
The official biography of author Terry Pratchett written by h

Hunger Games (Suzanne Collins)
Not a cookbook
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```

Two Sample output(s) here (images – summary image cropped where blurb is long)

2. Create a **searchByGenre** method i.e. search for all objects in the parameter argument ArrayList that match a specified Genre (e.g. Childrens, YA etc). You should return an ArrayList containing any that satisfy the search criteria.
3. Create a **searchByDuration** method i.e. search for all objects in the parameter argument ArrayList that have a Duration *within a specified lower and upper range* e.g. between 60 and 2000 seconds (range inclusive of both values). You should return an ArrayList containing any that satisfy the search criteria.
4. Create a **searchWithinBlurb** method which will return a list of all objects in the parameter argument ArrayList which include a particular search term (word/phrase) in the blurb field. E.g. Searching for "Christopher Robin" should return the Winnie-the-Pooh book used as an example before as this term is within the blurb.  
This search should be **case-insensitive**. Partial match is valid E.g. Searching for "chris" would return the same results. You should return an ArrayList containing any that satisfy the search criteria.

**All methods should include and demonstrate appropriate validation**

When complete, upload a zipped archive of the entire **Eclipse Project Structure**, and submit it to **Assignments (P2 assessment)** on CANVAS.  
Check you have uploaded the correct file. It is your responsibility to ensure you have submitted the correct file.

**(Files can be redownloaded to check if necessary after submission)**

**Remember you must also record and upload a short narrated walk through video of your submission (separate assignment). Any Submission without a corresponding narrated video will not be accepted.**

**[END]**