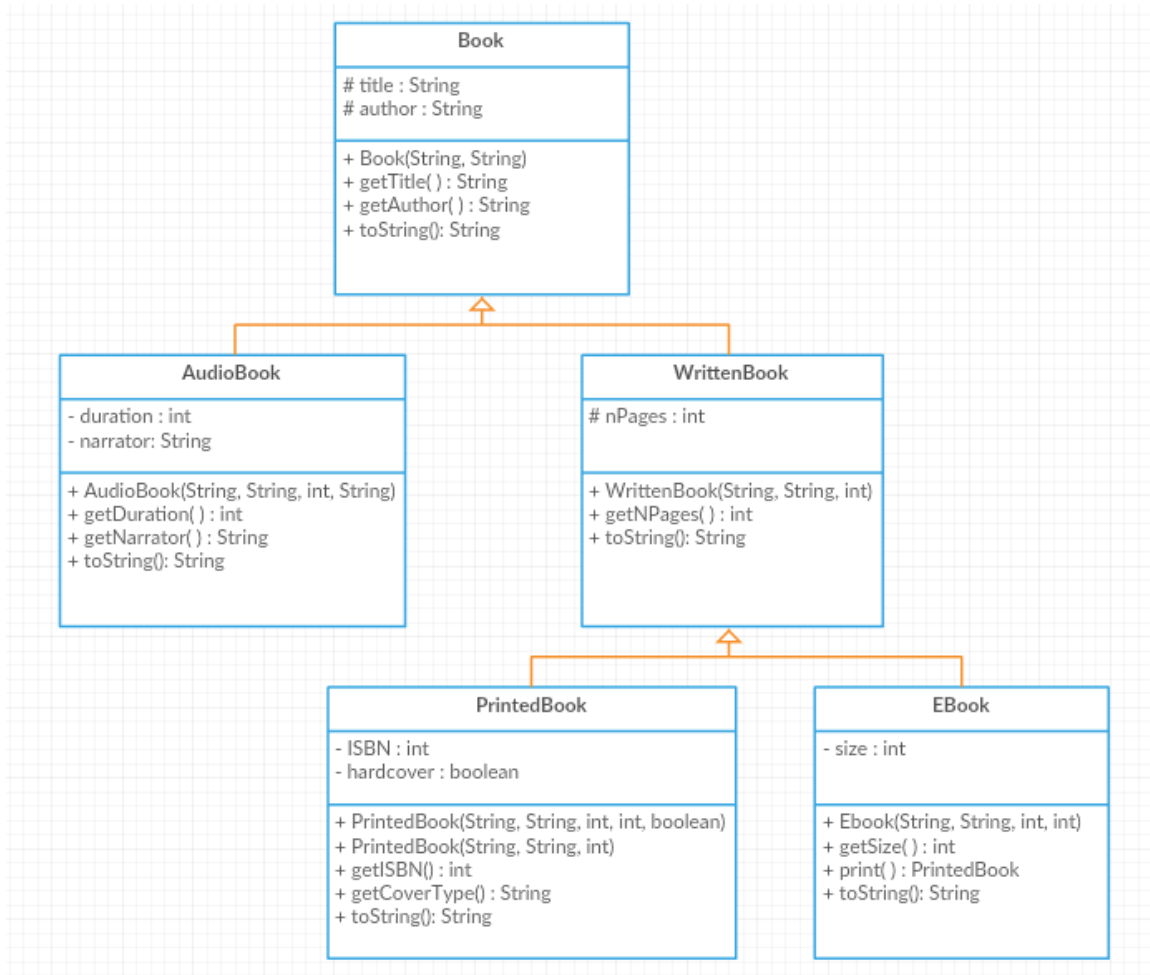


King Saud University
College of Computer and Information Sciences
Department of Computer Science
CSC113 – Computer Programming II – Lab No 5 – Spring 2017



Book class:

Attributes:

- title: the title of the book
- author: the author of the book

Methods:

- Book(title: String, author: int): constructor
- getTitle(): this method returns the title of the book
- getAuthor(): this method returns the author of the book
- toString(): returns the object's info in this format: 'Title: *title*, Author: *author*'

AudioBook class:

Attributes:

- duration: the length of the audio file in minutes
- narrator: the name of the person reading the book

Methods:

- AudioBook(title: String, author: String, duration: int, narrator: String): constructor
- getDuration(): this method returns the duration of the audio book
- getNarrator(): this method returns the name of the narrator
- toString(): returns the object's info in this format: 'Title: *title*, Author: *author*, Format: Audio, Duration: *duration*, Narrator: *narrator*'

WrittenBook class:

Attributes:

- nPages: the number of pages of the book

Methods:

- WrittenBook(title: String, author: String, nPages: int): constructor
- getNPages(): this method returns the number of pages of the book
- toString(): returns the object's info in this format: 'Title: *title*, Author: *author*, Format: Written, number of pages: *nPages*'

PrintedBook class:

Attributes:

- ISBN: the International Standard Book Number of the book
- hardcover: true if the book is hardcover, false otherwise

Methods:

- PrintedBook(title: String, author: String, nPages: int, ISBN: int, hardcover: boolean): constructor
- PrintedBook(title: String, author: String, nPages: int): constructor that initializes ISBN to 0 and hardcover to false
- getISBN(): this method returns the ISBN of the book
- getCoverType(): returns a string specifying if the book is hardcover or paperback
- toString(): returns the object's info in this format: 'Title: *title*, Author: *author*, Format: Written, number of pages: *nPages*, Printed, ISBN: *ISBN*, hardcover/paperback'

EBook class:

Attributes:

- size: the size of the ebook in MBs

Methods:

- EBook(title: String, author: String, nPages: int, size: int): constructor
- getSize(): this method returns the size of the ebook
- print(): this method returns the current Ebook as an object of type PrintedBook
- toString(): returns the object's info in this format: 'Title: *title*, Author: *author*, Format: Written, number of pages: *nPages*, Ebook, size: *sizeMB*'

Exercise: Translate into Java-code the previous classes.

Solution

```
public class Book {
    protected String title;
    protected String author;

    public Book(String title, String author) {
        this.title = title;
        this.author = author;
    }

    public String getTitle() {
        return title;
    }

    public String getAuthor() {
        return author;
    }

    public String toString() {
        return "Title: " + title + ", Author: " + author;
    }
}

public class AudioBook extends Book {
    private int duration;
    private String narrator;

    public AudioBook(String title, String author, int duration, String
narrator) {
        super(title, author);
        this.duration = duration;
        this.narrator = narrator;
    }

    public int getDuration() {
        return duration;
    }

    public String getNarrator() {
        return narrator;
    }

    public String toString() {
        return super.toString() + ", Format: Audio, Duration: " +
duration + ", Narrator: " + narrator;
    }
}
```

```
public class WrittenBook extends Book {
    protected int nPages;

    public WrittenBook(String title, String author, int nPages) {
        super(title, author);
        this.nPages = nPages;
    }

    public int getNPages() {
        return nPages;
    }

    public String toString() {
        return super.toString() + ", Format: Written, Number of pages: "
+ nPages;
    }
}

public class PrintedBook extends WrittenBook {
    private int ISBN;
    private boolean hardcover;

    public PrintedBook(String title, String author, int nPages, int ISBN,
boolean hardcover) {
        super(title, author, nPages);
        this.ISBN = ISBN;
        this.hardcover = hardcover;
    }

    public PrintedBook(String title, String author, int nPages) {
        this(title, author, nPages, 0, false);
    }

    public int getISBN() {
        return ISBN;
    }

    public String getCoverType() {
        return hardcover ? "Hardcover" : "Paperback";
    }

    public String toString() {
        return super.toString() + ", printed, ISBN: " + ISBN + ", " +
getCoverType();
    }
}
```

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```
public class EBook extends WrittenBook {
    private int size;

    public EBook(String title, String author, int nPages, int size) {
        super(title, author, nPages);
        this.size = size;
    }

    public int getSize() {
        return size;
    }

    public PrintedBook print() {
        return new PrintedBook(title, author, nPages);
    }

    public String toString() {
        return super.toString() + ", ebook, size: " + size + "MB";
    }
}
```