Due Date: 20.05.2019, 23:55

CENG112 – Data Structures
Homework #4

In this homework, you are expected to implement a “Iztech Media Market” stock list application using Java. This homework will cover Binary Search Tree topic.

Assume that you are designing a stock list system for a media market which sells movies and books. Your materials should be placed in a binary search tree with respect to the price attribute.

Implement the ***Media interface***, which should be including but not limited**:**

```
public interface IMedia {
  public String mediaName();
  public String mediaType();
  public int mediaPrice();
  public int mediaYear();
  ...
}
```

Accordingly, the ***Book*** class can be defined as:

```
public Book implements IMedia {
  private String authorName;
  public String toString();
  … // Constructors, getter setter and other methods
}
```

Where the ***Movie*** class is defined as:

```
public Movie implements IMedia {
  private String directorName;
  private String actressName;
  private String actorName;
  public String toString();
  … // Constructors, getter setter and other methods
}
```

You are expected to read media data from *CENG112_HW4_Media.txt* file where each line is formed as:

mediaType,mediaName,mediaPrice,mediaYear,authorName/directorName,actressName(if Movie),actorName(if Movie)

Requirements

As a customer, you may want to purchase a media according to some query results. You are expected to implement the queries given below using a Binary Search Tree implementation, which follows Binary Search Tree Interface:

1. Print the minimum priced book whose author name is taken from console.
2. Print the maximum priced book whose author name is taken from console.
3. Print the minimum priced movie whose director name is taken from console.
4. Print the maximum priced movie whose director name is taken from console.
5. Print all media whose prices are less or equal than the amount taken from console.
6. Print all media whose prices are greater than the amount taken from console.
7. Print all media in descending order in terms of the price.
8. Print all media in ascending order in terms of the price.
9. Print all books in descending order in terms of the price.
10. Print all books in ascending order in terms of the price.
11. Print all movies in descending order in terms of the price.
12. Print all movies in ascending order in terms of the price.

When coding try to maximize reuseability.

Assignment Rules

1. In this lecture's homework, there is **no cheating allowed**. If any cheating has been detected, they **will be graded as 0** and there will be no further discussion on this.
2. You are expected to submit your homework in groups. Therefore, **only one of you** will be sufficient to submit your homework.
3. Make sure you export your homework as an **Eclipse project**. You can use other IDEs as well, however, you must test if it is supported by Eclipse.
4. Make sure that your ".txt" files (if there is any) are in your project after you exported it.
5. Please submit your homework through CMS.
6. You are **not allowed to use Collections Framework**. You should implement the data structures on your own.
7. **Late submissions are strictly not allowed!** Thereby, do not send us email to allow your lately submitted homework.
8. Please be informed that your submissions may be anonymously used in software testing and maintenance research studies. Your names and student IDs will be replaced with non-identifying strings. If you do not want your submissions to be used in research studies, please inform the instructor (Dr. Tuglular) via e-mail.
9. Please export your Java Project as the given format with your assigned group ID. **If you do not follow the given format you will lose points from your homework**. This format is necessary for us to write and run our tests on your homework.

   Example:
   Project Name: G2_CENG112_HW4

Zipped Project Name: G2_CENG112_HW4.zip