CECS 277 LAB VISITOR PATTERN

OBJECTIVE: Build on the Visitor example that we went over in lecture, and tweak it some to show you a different sort of iterator.

INTRODUCTION: Please remember the coding standards here.

Iterators come in two broad categories: those that return something (in the case of the one that we went over in lecture, it returned an instance of the Agreement class) or iterators that accumulate statistics about the elements that the Visitor has visited. This lab will have you build one of the later type. Note, there is no reason that a given Visitor could not do both of those.

PROCEDURE:

Start with the code from today's lecture here. I want you to:

- Change the visitor interface so that it does **not** return anything. The results of the visitor's visit to a given element will be managed in instance variables belonging to the visitor.
- Add a method `averageYear` to the visitor interface to return the average publication year/release year of all the elements that the visitor has visited. You will also have to add a couple of member variables to keep track of the number of elements that your visitor has visited and the total number of years (the yearReleased in DVD and yearPublished in Game) of the elements visited so far.
- Add the method `counts` to the visitor to return an ArrayList that is essentially a listing of the frequencies of the genres of film and game. For instance, if the visitor visits 1 games in the ROAD_RAGE genre, 2 games in the SCIENCE_FICTION genre and three movies in the ADVENTURE genre, this ArrayList would have 5 Strings in it. If you print them out, one per line, it would look like:

```
Counts for the Movies
Genre: ADVENTURE came up: 3
Counts for the Games
Genre: SCIENCE_FICTION came up: 2
Genre: ROAD_RAGE came up: 1
```

  o To gather these statistics, you will need two Map objects: one that maps from **Movie**Genre to an integer, and another map that maps from **Game**Genre to an integer.

- I specifically **do not** want you to print text out to the console from inside of the visitor class. That is why am asking you to produce this output as an **ArrayList**, leaving the driver to print out the values.
- Change the VisitorRunner class so that you display the averageYear and the counts once your visitor has visited all your elements.

WHAT TO TURN IN:

- DVD.java
- Game.java
- ItemElement.java
- RentalVisitor.java
- RentalVisitorImpl.java
- VisitorRunner.java
- Your console output, named console.txt
- Your UML class diagram, in .png, jpeg, or .pdf format.

SAMPLE OUTPUT:

```
DVD - Name: Jurasic Park Released: 1993 Genre: ADVENTURE
Game - Fast and Furiously Publication year: 2005 Rating: MATURE Genre: ROAD_RAGE
DVD - Name: Indiana Jones and the Last Crusade Released: 1989 Genre: ADVENTURE
DVD - Name: The Goonies Released: 1985 Genre: ADVENTURE
Game - Star Wars 1st Class Publication year: 2012 Rating: TEEN Genre: SCIENCE_FICTION
Game - They Came From Space Publication year: 2019 Rating: RATING_PENDING Genre: SCIENCE_FICTION
Now for the statistics
Average year published was: 2000.5
Counts for the Movies
Genre: ADVENTURE came up: 3
Counts for the Games
Genre: SCIENCE_FICTION came up: 2
Genre: ROAD_RAGE came up: 1
Completed satisfactorily.
```