48024
Applications Programming
Assignment 2

Topics:

OO design, GUIs, MVC, tables, lists

Learning Outcomes:

This assignment supports objectives 3 - 5

Due date:

June 3th 2019 - 11:59PM (Monday Week 12)

Weight:

20%

Individual Work

All work is individual. You must write every line of code yourself except for code copied from study module sample code, lecture sample code, tutor demos or lab code.

In most cases, you may discuss ideas, approaches and problems. However, if an assignment task is labeled as “Advanced”, you must not discuss ideas, approaches and problems. Advanced tasks are designed to test your ability to think on your own.

You MUST NOT let another student see your solution code, and you MUST NOT look at another student’s solution code. Sharing your code on public forums such as the UTSOnline discussion board, or Internet forums such as stackoverflow.com is not permitted. More information about Academic Misconduct can be found at:

http://www.gsu.uts.edu.au/rules/student/section-16.html

Skeleton Code

As a starting point for this assignment, you must use the skeleton code provided on PLATE (https://plate.it.uts.edu.au/) under Assessments->Assignment 2. There are two options, a Netbeans version, which includes the structure required to import directly into Netbeans, and a plain version for other IDEs (which tend to be less rigid about their import requirements).

The skeleton code contains a file called progress.txt which you must fill in and submit with your project to PLATE as you progress on the assignment (read Submission to PLATE for further details).

Expected workload

The time to do the assignment to a distinction level (i.e. a mark between 75% to 84%) has been estimated at 25 hours for a student of average ability who has completed all the tutorial and lab exercises.

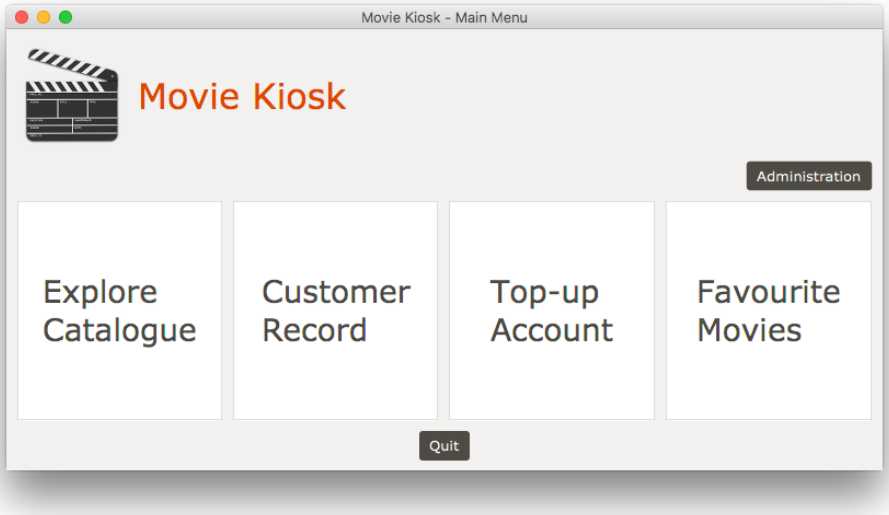
Specification

The specification is presented in several parts. In this document is given a series of screen shots and textual descriptions for visual reference.

A demonstration is also presented in the video found on PLATE at Assessments->Assignment 2. This demonstration video is considered part of the specification and contains important details about the dynamic function of the assignment.

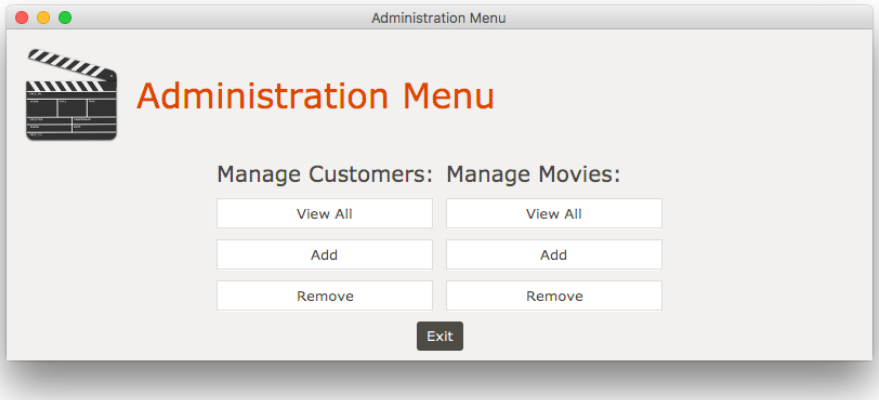
The screens presented below are given in no particular order, other than vague logical grouping, and in particular the order should not be construed as an indication of difficulty or recommended order of implementation.

Main Menu (10%)



The main menu is opened when the application launches. It has buttons to access the catalogue, view customer records, top-up an account, view customers' favorite movies and the administration menu. It also has an exit button which shuts the entire application down. The main menu has a header section with a small logo and the title "Movie Kiosk".

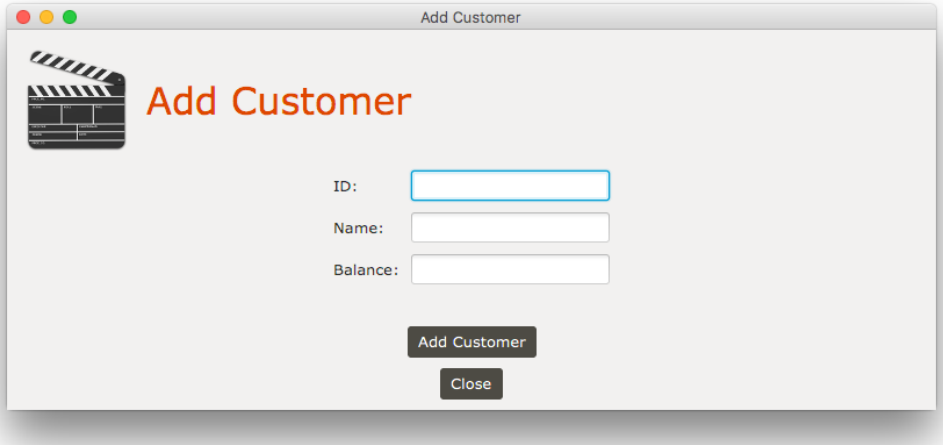
Administration Menu (5%)

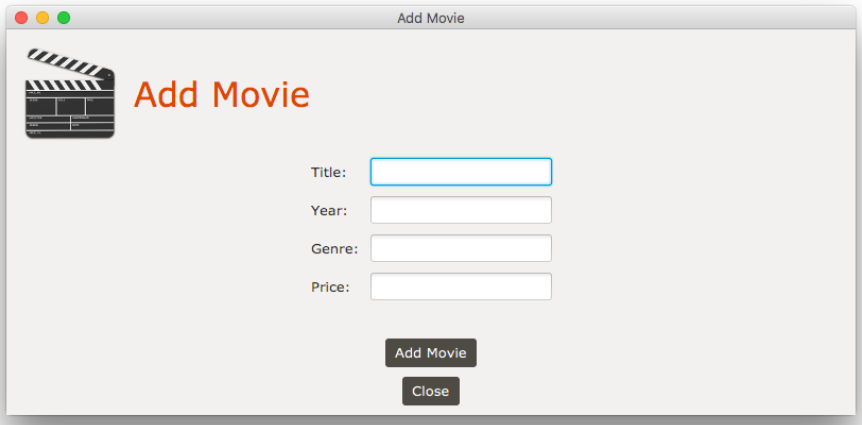


The administration menu is launched from the main menu. It has buttons to add, list and remove customers, and add, list and remove movies. The close button closes the administration menu window. The administration menu includes a simlar header as the main menu (and catalogue menu).

A little hint for that bit: https://stackoverflow.com/questions/28093508/javafx-fxml-file-textarea-line-break-and-tab-in-text

Add Customer and Add Movie (10%)

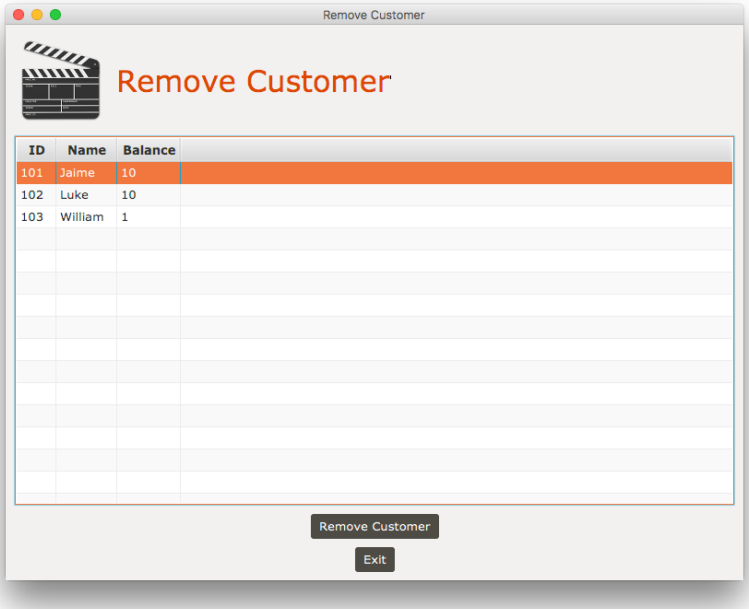


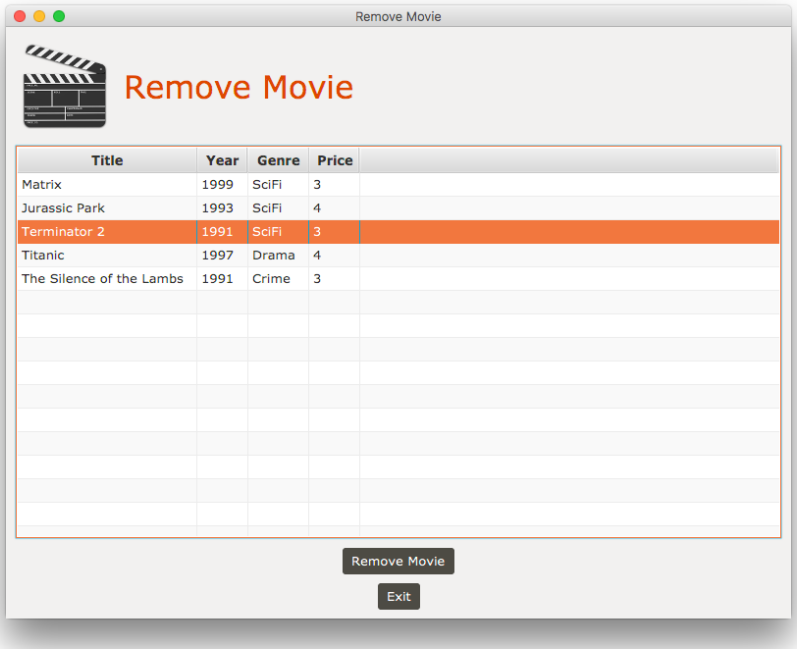


These two windows add a customer to the system, and a movie to the catalogue respectively. Each has text fields for data entry, each with an appropriate label. The Customer ID and Balance fields expect an integer, all others expect strings. The Add buttons handle the addition of the customer/movie to the appropriate component of the model. The also both have areas to give feedback to the user if the action was successful or not.

Remove Customer and Remove Movie (10%)

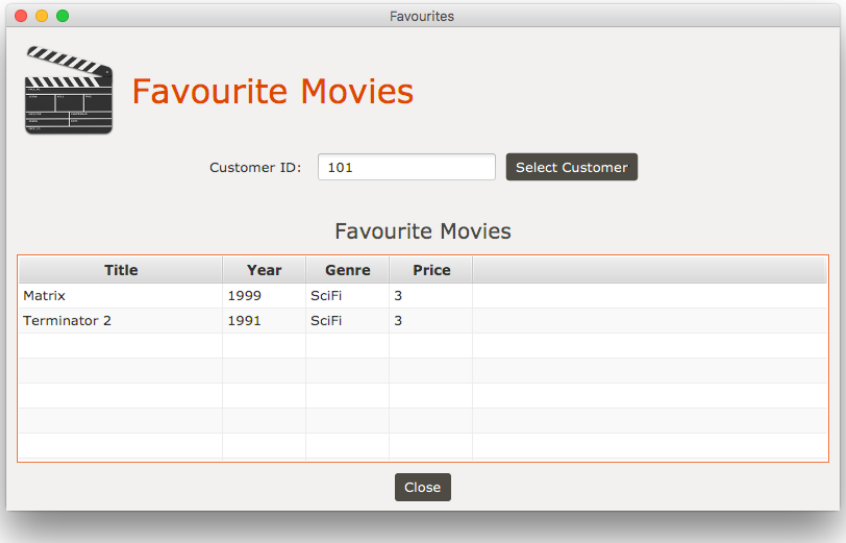
These two windows handle the removal of Customer and Movies. Remove Customer shows a table with the current Customers, remove Movie shows a table of the movies available to be removed (which may not be all the movies in the kiosk). Each remove button removes the currently selected item in its window. The close buttons close their windows.

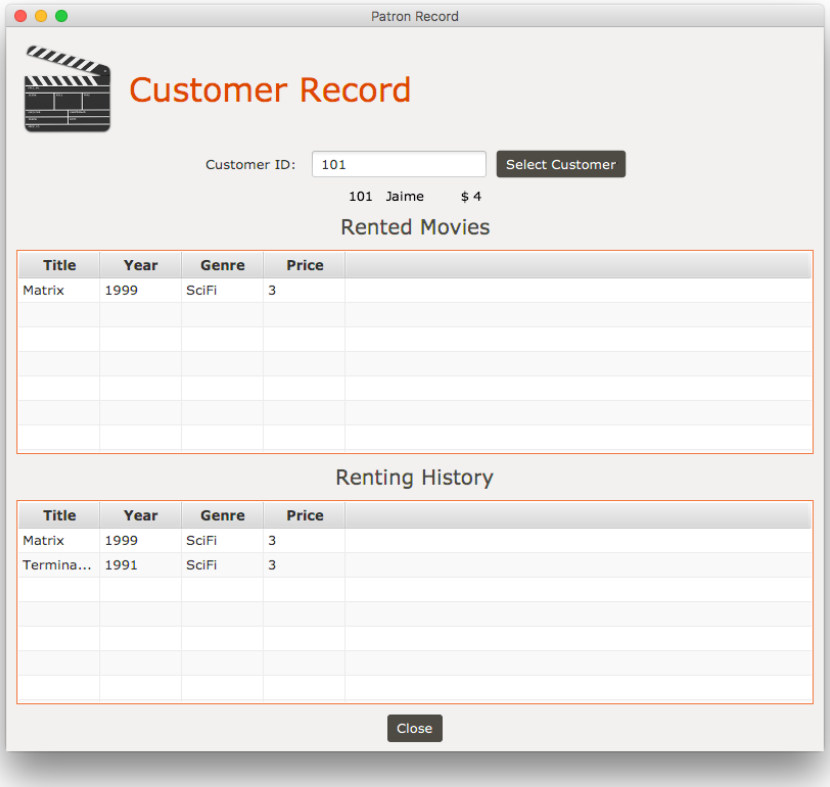




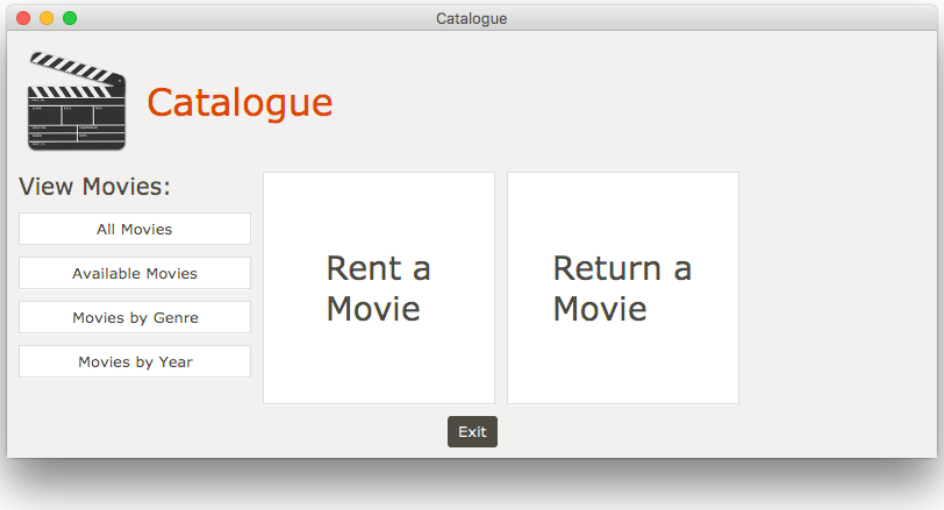
Customer Record and Favourite Movies (10%)

These two windows display the customer record and the customer's favourite movies. The both include display areas for the related lists, suitably labelled. They both also include a text field for the entry of a Customer ID, along with a label and a button to refresh the tables based on the entered Customer ID. There is an area showing feedback text indicating which customer is selected.





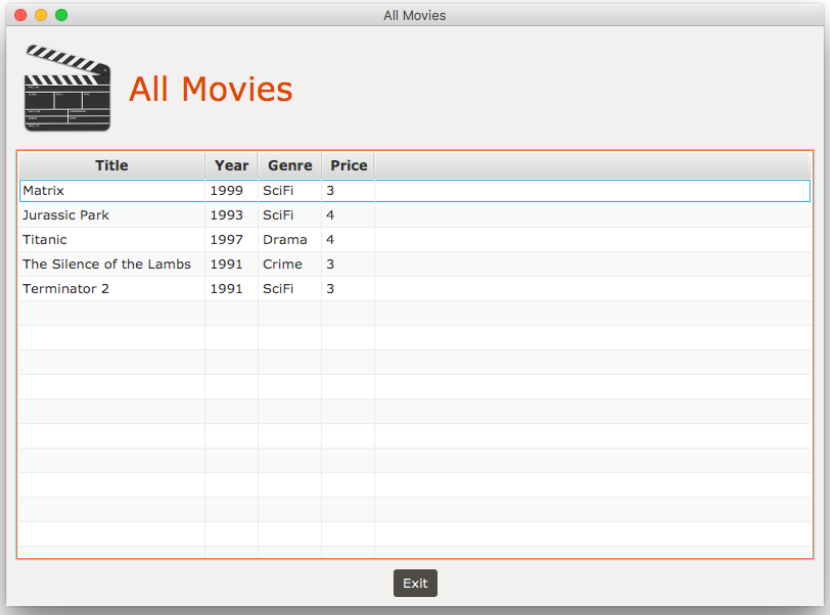
Catalogue Menu (5%)

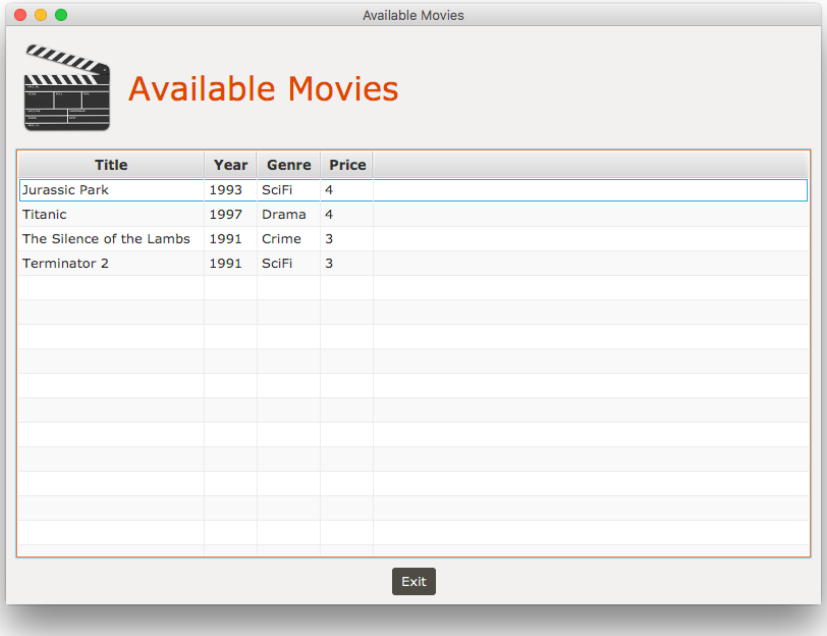


The catalogue menu presents the options for interacting with the catalogue. It includes the menu header (as with the main menu and the administration menu).

Show All Movies and Show Available Movies (10%)

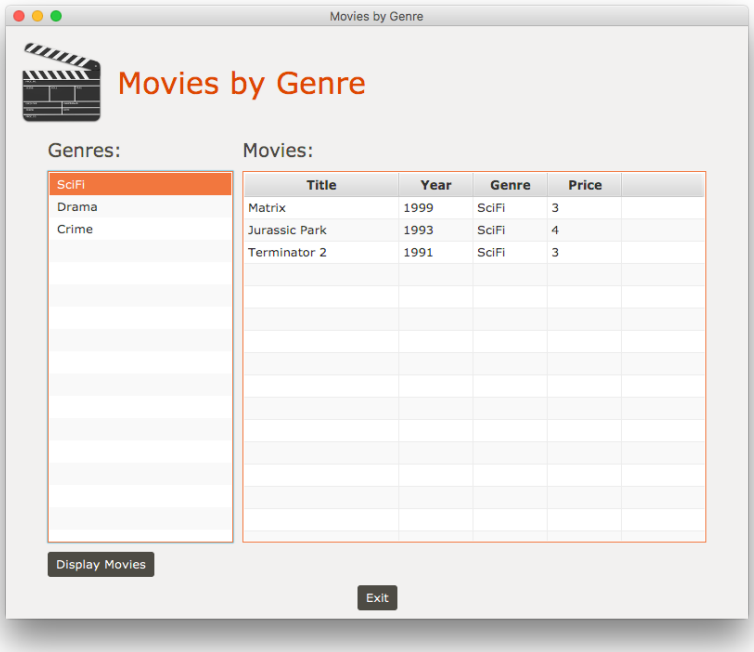
The complete catalogue (accessed from Show All Movies) and the available movies menu show the lists of all the movies, and the movies available for someone to rent, respectively.

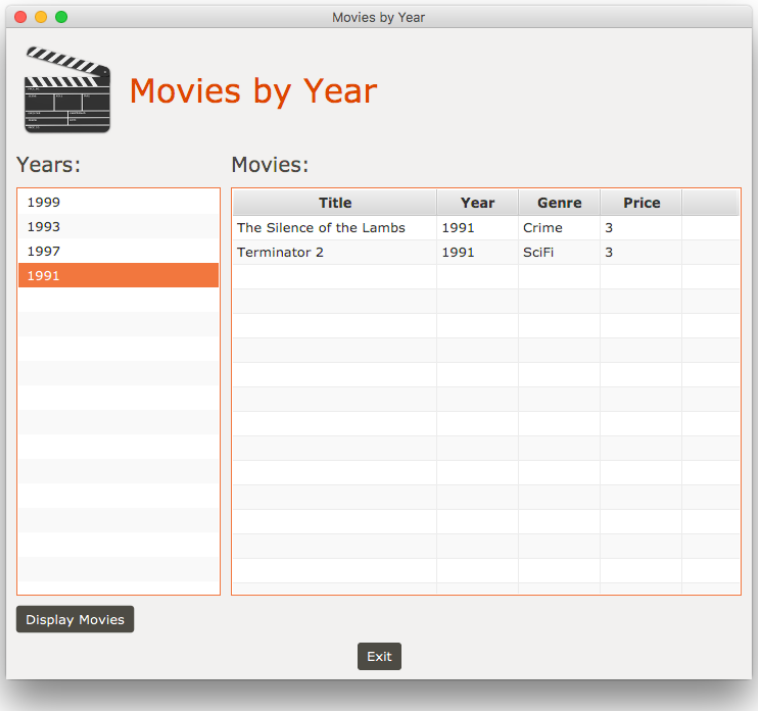




Browse by Genre and Browse by Year (10%)

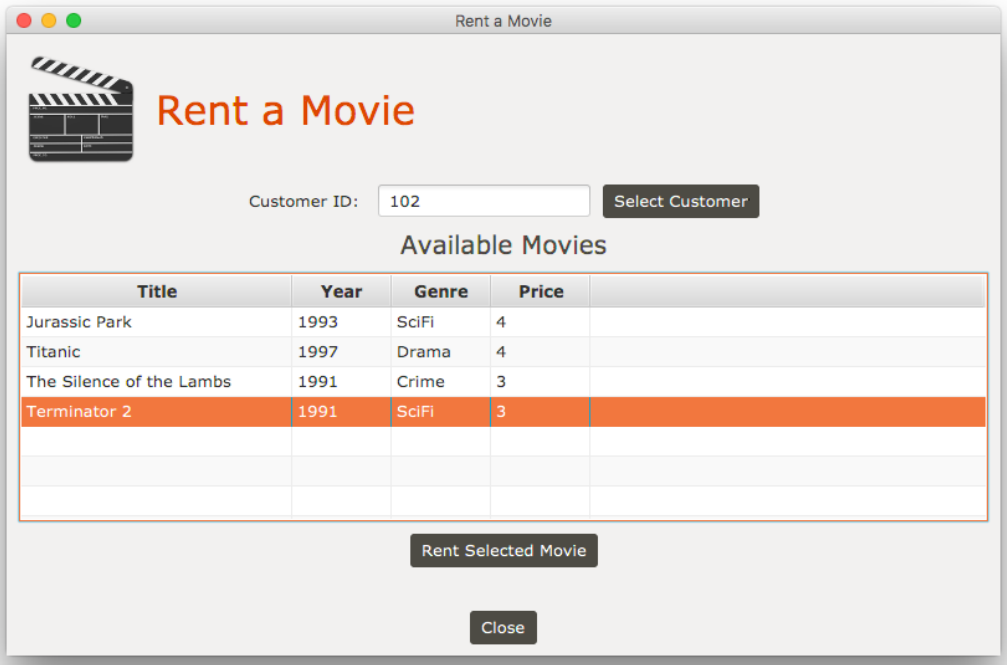
These two windows display labelled lists of years/genres from which the selected item is used to display the suitably filtered list of movies in the table display area.





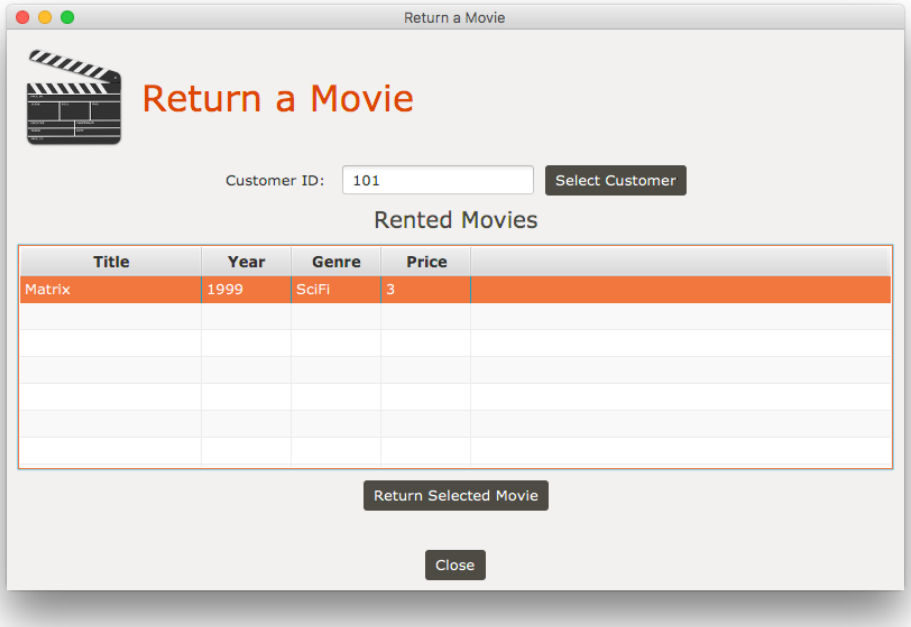
Rent a Movie (10%)

The Rent a Movie window allows the entry of a Customer ID, which when the Select Customer button is clicked, shows a list of movies that are available to borrow. This list should exclude movies that were rented by other customers. Note that Select Customer button is disabled if there is no text in the Customer ID field, and the Rent Selected Movie button is disabled if no movie is selected.



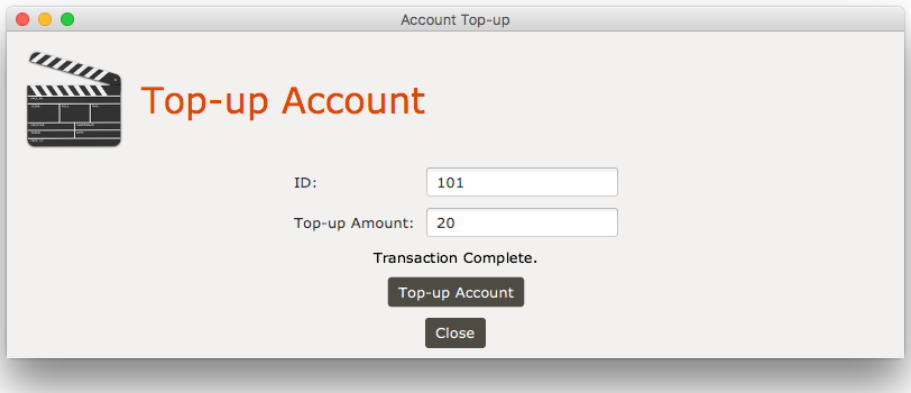
Return a Movie (10%)

The return a movie window operates similarly to the rent a movie window but shows the movies that the customer has currently rented (and are thus available to return). The buttons in this window have similar restrictions to the rent a movie window (text in Customer ID field, movie selected).



Top-Up Account (10%)

The top-up account window allows the entry of a Customer ID and a top-up amount (an integer). The account top-up only takes place when the user clicks on the Top-Up Account button. The window also additional includes an area for text feedback as to whether a top-up was successfully completed.



Requirements

Layout

To get full marks, you should layout your windows to look as close as possible to the screenshots. This means that you should try to duplicate the spacing between and around nodes that is shown in the screenshots, and the width and height of the nodes, and the alignment of the nodes. In the model solution, all hgap, vgap and spacing properties for GridPanes, HBoxes and VBoxes were set to 10.

Style

A CSS file is included in the skeleton code which provides all the styles used in the assignment.

Code

- Your solution must satisfy the following code requirements:
- Your solution must follow the MVC architecture.
- Your solution must keep the package structure and class names that were provided in the skeleton code.
- The models must notify the views of changes by correctly applying the JavaFX property patterns and observable lists. Model data that can change must be observable. Model data that never changes need not be observable.
- The views must be laid out in FXML.

Peer marking and demonstration

In your scheduled week 12 lab class you must demonstrate your assignment to your tutor and be prepared explain parts of your code to your tutor if requested. If you are unable to explain your code, it may impact your marks. Your presence is required at this class. Any student who is not present without being granted prior permission may have up to 50% of their marks for this assignment deducted.

In addition to demonstrating your assignment, you will also be assigned two other students to peer mark, and two other students will be assigned to peer mark you. The purpose of this peer marking is to mark the functionality of your application which cannot be tested by PLATE. Your marks for functionality will be based on these peer marks after they are moderated by the subject coordinator. Aside from marks for the functionality, the subject coordinator will also mark your code to ensure that all code requirements have been met. Your final mark will be a combination of marks for functionality and marks for code (See “Marking scheme”). Note that you can only be marked for features that can be demonstrated to work.

Marking the code and analyzing spoofing, cheating and plagiarism is done in the two weeks following the due date. If you are suspected of Academic Misconduct, I will forward your case to the Misconduct Committee and will notify you by email. Your mark will be finalized within 2 weeks of the due date.

Submission to PLATE

READ THIS ENTIRE SECTION CAREFULLY

Included in the skeleton code is a file called progress.txt which you must fill out as you progress through the assignment. This file will contain lines such as these:

```
[?] The Main menu window is at least partially done.
[?] The Main menu window is done.
[?] The Catalogue menu window is at least partially done.
...etc…
```

As you make progress on your assignment, you must edit this file by changing each [?] into a [y] and then submit your progress to PLATE. Don't forget to save this file before submitting. For example, after you get the main menu window partially done (even if you have only done a small amount), you edit this file as follows:

```
[y] The Main menu window is at least partially done.
[?] The Main menu window is done.
[?] The Catalogue menu window is at least partially done.
...etc…
```

Then you submit your project to PLATE so that there is a record of what your code looked like when you first started to make progress on your Main menu window. After you complete the Main window feature, you should again update this file as follows:

```
[y] The Main menu window is at least partially done.
[y] The Main menu window is done.
[?] The Catalogue menu window is at least partially done.
...etc…
```

Then you submit your project to PLATE again so that there is a record of what your code looked like when you completed this feature.

It is not always required that you complete a feature before moving onto the next feature. For example, your progress.txt file may read:

```
[y] The Main menu window is at least partially done.
[?] The Main menu window is done.
[y] The Catalogue menu window is at least partially done.
...etc…
```

This would indicate that you partially completed the Main menu window, then moved on to the Catalogue menu window. This is allowed, as long as you have completed at least enough of the Main menu window that will allow you to correctly open the Catalogue menu window.

Important: If you don't submit your progress on a particular feature, then your marks for that feature won't count! That is, you are only marked for those features where you submit evidence of your progress. Be very careful to always submit your progress as soon as you make progress so that you don't lose any marks unnecessarily.

Your solution is to be submitted to PLATE at https://plate.it.uts.edu.au/ to Applications Programming / Assessments / Assignment 2. Your assignment should be submitted as a JAR file that includes:

- All Java source files required to compile your assignment.
- All FXML, CSS and image files required to run your assignment.

- The progress.txt file at the top level of your project directory structure.

Based on your submitted progress.txt file, PLATE will calculate a mark. This mark should NOT be considered in any way as your final mark. Rather, it should be considered as a "potential" mark. On the week 12 demonstration and peer marking day, the system will try to assign you to peer mark other students who have a similar potential mark as yourself.

There is no scheduled late submission period. An extension of up to one week may be given by the subject coordinator before the due date; you have to supply documentary evidence of your claim. An extension CANNOT be given after the due date.

You may also apply for special consideration for reasons including unexpected health, family or work problems. More information about how to apply for special consideration can be found at http://www.sau.uts.edu.au/assessment/consideration.html

Online support

The Assignment 2 discussion board has been set up so that students can ask questions, and other students can reply. A tutor may post a reply only if they think the student response was wrong, or in the case of correcting a mistake in the assignment specification.

You must not post Java code to the discussion board. The board is there to help you, not to provide the solution. Posting your code is academic misconduct and will reported. Each time this rule is violated, I will delete the code and post a comment of the form: "Strike 1: Posting code". After 3 strikes, the discussion board will be deleted because it did not work.

FAQs (Frequently Asked Questions) and their answers are posted on PLATE alongside the assignment documentation. If you have a question, check the FAQ first, it may already be answered there. You should read the FAQ at least once before you hand in your solution, but to be safe check it every couple of days. Anything posted on the FAQ is considered to be part of the assignment specification. The FAQ will be frozen (no new entries) at the end of week 11; no questions will be answered after it is frozen.

If anything about the specification is unclear or inconsistent, contact me and I will try to make it clearer by replying to you directly and posting the common questions and answers to the FAQ. This is similar to working on the job, where you ask your client if you are unsure what has to be done, but then you write all the code to do the task. Email huan.huo@uts.edu.au to ask for any clarifications or corrections to the assignment.

Test Cases

For testing purposes, please make sure that you have a database of movies and customers as follows:

Title	Year	Genre	Price
Matrix	1999	SciFi	3
Titanic	1997	Drama	4
The Silence of the Lambs	1991	Crime	3
Jurassic Park	1993	SciFi	4
Terminator 2	1991	SciFi	3

ID	Name	Balance
101	Jaime	10
102	Luke	10
103	William	1

Marking Scheme

Task	Mark
Main Menu	10
All nodes are shown and FXML is used	4
The layout is correct	2
Fonts and colours are correct	1
The buttons open the correct stages	1
The exit button works	2
Administration Menu	5
All nodes are shown and FXML is used	1
The layout is correct	1
Fonts and colours are correct	1
The buttons open the correct stages	1
The close button works	1
Catalogue Menu	5
All nodes are shown and FXML is used	1
The layout is correct	1
Fonts and colours are correct	1
The buttons open the correct stages	1
The close button works	1
Add Customer and Add Movie	10
All nodes are shown and FXML is used	4
The layout is correct	4
The close buttons work	2
Remove Customer and Remove Movie	10
All nodes are shown and FXML is used	1
The layout is correct	1
The customers and movies are displayed as a table	4
The tables are displayed correctly using the observer pattern (*)	3
The close buttons work	1

Customer Record and Favourite Movies	10
All nodes are shown and FXML is used	1
The layout is correct	1
The buttons are correctly disabled and enable based on input	2
The text feedback displays the correct information for valid and invalid Customer IDs	2
The customer record is correctly updated using the observer pattern (*)	3
The close buttons work	1

Show All Movies and Show Available Movies	10
All nodes are shown and FXML is used	1
The layout is correct	1
The columns are correctly labelled	4
The tables are correctly updated using the observer pattern (*)	3
The close buttons work	1

Show Movies By Genre and Show Movies By Year	10
All nodes are shown and FXML is used	1
The layout is correct	1
The tables and lists display the correct information (and only the correct information)	3
The tables and lists are correctly updated using the observer pattern (*)	4
The close buttons work	1

Rent a Movie	10
All nodes are shown and FXML is used	1
The layout is correct	1
The buttons are correctly disabled and enabled according to the conditions in the specification	3
The table is correctly refreshed when a movie is rented	3
The table displays the correct set of available movies	1
The close buttons work	1

Return a Movie	10
All nodes are shown and FXML is used	1
The layout is correct	1
The buttons are correctly disabled and enabled according to the conditions in the specification	3
The list is correctly updated using the observer pattern (*)	4
The close buttons work	1

Top-up Account	10
All nodes are shown and FXML is used	1
The layout is correct	1
The buttons are correctly disabled and enabled according to the conditions in the specification	3
The text feedback correctly displays the result of attempting to top-up an account	4
The close buttons work	1

(*) The code will be checked by the subject coordinator in the 2 weeks following the due date