

Library Checkout Simulation

Introduction / Project Objectives

The program will simulate a checkout at a library. It starts with a language-selection screen, then leads through a normal checkout. E.g., screen for entering card number / User ID, then a screen for entering item numbers, then a final goodbye screen. All of this happening with the appropriate "success" or "problem" screens as is appropriate.

Program description

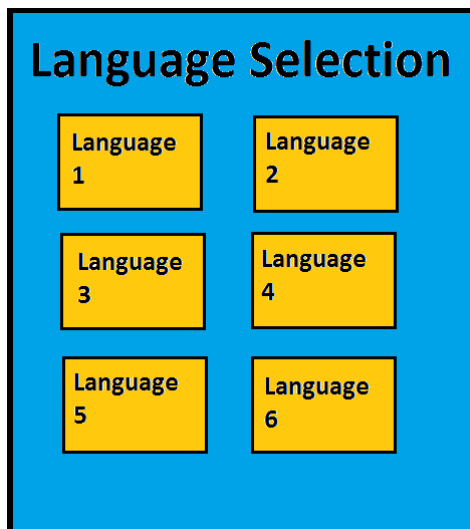
The initial beta version will be a simplified version of the checkout, where the user will be expected to know the ID # of any books the user checks out, as well as their own ID #. In subsequent versions we hope to include a searchable list of items to make it easier to interact with the program.

The program is meant as a demonstration program, rather than a full-fledged library system, so the back end is unimportant; if the program is restarted and no data was saved from earlier checkouts, it's perfectly fine.

The system should be able to handle the text files (.ini files, technically) that tell which content to load for a given situation.

General Design

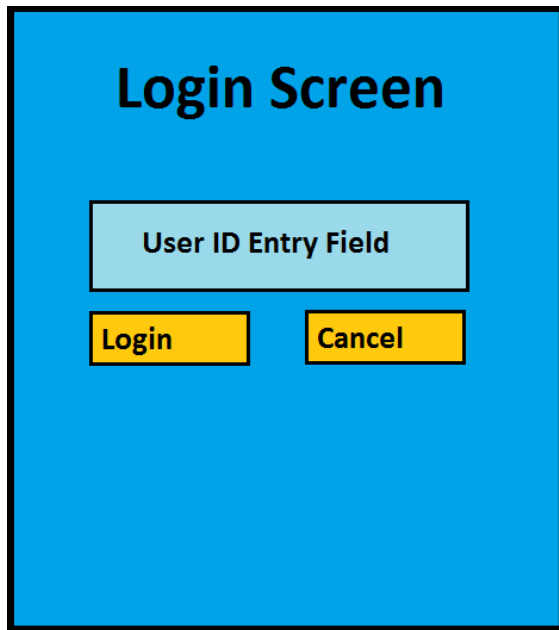
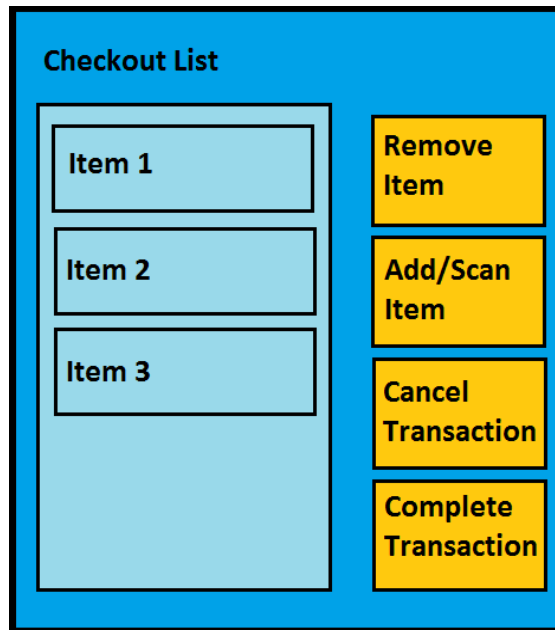
The initial welcome screen will contain an array of buttons for selecting the user's preferred language. Depending on the option the user selects the dialogue (pop ups, user instructions, etc.) will appear in that language and provide appropriate audio queues.



After language selection a screen asking for the user's Library ID will appear and allow the user to cancel the transaction at that point if they choose. If no input is entered the screen will return to the Language Selection/Welcome Screen.

After the user logs in, they will be taken to the checkout screen where they can add items to the list and remove them as well as finalize the transaction. They will also have an option to cancel the entire transaction at this point.

Figure 1: Language Selection Screen

*Figure2: Login Screen**Figure 3: Checkout List Screen*

There will also be a variety of popups throughout indicating input errors and “item not found” errors. Once the user selects complete transaction the transaction list will be stored and associated with the customer’s ID for future interaction.

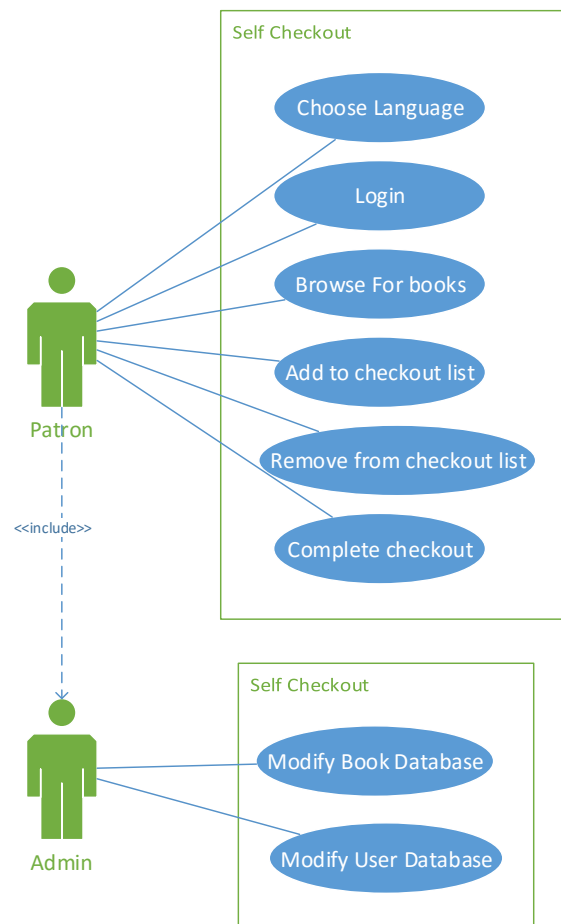
Requirements

	M = Mandatory, D = Desirable, O = Optional	
	User Requirements	
1.	User will be able to select their preferred language.	M
2.	User should enter PIN in order to complete login	D
3.	User will be able to enter their login data on the login screen.	M
4.	User will be able to add items to the cart (books, CDs, DVDs, etc.)	M
5.	User should be able to remove items from the list by selecting them.	D
6.	User will be able to cancel transaction from login and checkout list.	M
7.	User will able to complete transaction and successfully checkout items.	M
8.	User might want to browse for an item rather than knowing item IDs	O
	System Requirements	
1.	System will maintain a timer throughout the entire checkout process.	M
2.	System will timeout after 30s of inactivity in login window.	M
3.	System will display error message if user ID not found in database.	M
4.	System will automatically return to welcome screen and cancel transaction after 60s of inactivity in checkout window	M
5.	System will display error message if invalid item number entered.	M
6.	System should display error message if item type is not allowed at self-checkout	D
7.	System will display verification message if user selects cancel transaction.	M
8.	If user confirms cancellation, system will cancel transaction.	M
9.	System will display verification message if user selects "complete transaction".	M
10.	If user confirms transaction completion, list should be stored by the system and associated with the user's ID for future reference.	D

Data Dictionary

Name	Description	Type
Patron	Person who is going to check out the item	entity
language	Various sets of graphics/text/sound (e.g. Pirate, Pig Latin, etc.)	relation
patron ID	Unique identifier for the patron	attribute
items	Item that would be found in the library (e.g., book, DVD, magazine, etc.). Has various attributes (e.g., Title, item ID)	entity
item ID	Unique identifier for the item	attribute
checkout list	List of items being checked out to the patron	attribute
item database	Holds all the items in the library	entity
user database	Holds all the accounts of the library	entity
type	Type of the item (e.g., reference (doesn't leave the library), or something allowed to be checkout)	attribute
Is checked out	Whether the item is currently checked out or not	attribute
transaction	Causing the item database to be updated (correctly related) with the checkout list	relation
admin	Person who edits the text files in the background (no direct interface with program)	entity

Use Case Diagram



Roles

Title	Role	
Andrew J Brutlag	Requirement Phase	Requirements Validation
	Design Phase	Development Team Leader, Development Team Member
	Implementation phase	Development Team Leader, Development Team Member
Requirement Phase Tasks		
<ul style="list-style-type: none"> • Assist in requirements identification • Final Draft Use Case Diagram • Contributed to Data Dictionary 		
Design phase Tasks		
<ul style="list-style-type: none"> • Assist in Architecture • Assist in Development Plan • (to be determined) 		
Implementation Phase Tasks		
<ul style="list-style-type: none"> • Assist in coding • Assist in testing • (to be determined) 		

Title	Role	
Clay April Monoceros	Requirement Phase	Client Engineer, Requirements Analyst
	Design Phase	Development Team Member, Program Architect
	Implementation phase	User Documentation, Development Team Member
Requirement Phase Tasks		
<ul style="list-style-type: none"> • Assist in requirements identification • Write Program Purpose and Intended Outcome • First Draft Use Case Diagram • Contributed to Data Dictionary 		
Design phase Tasks		
<ul style="list-style-type: none"> • Assist in Architecture • Assist in Development Plan • (to be determined) 		
Implementation Phase Tasks		
<ul style="list-style-type: none"> • Assist in coding • Assist in testing • (to be determined) 		

Title	Role	
Jose Martin	Requirement Phase	Project Leader
	Design Phase	Project Leader, Development Team Member, Program Architect
	Implementation phase	Project Leader, Development Team Member
Requirement Phase Tasks		
<ul style="list-style-type: none"> • Create schedule • Coordinate meetings • Assist in requirements identification • Generate final requirements document 		
Design phase Tasks		
<ul style="list-style-type: none"> • Assist in Architecture • Assist in Development Plan • (to be determined) 		
Implementation Phase Tasks		
<ul style="list-style-type: none"> • Assist in coding • Assist in testing • (to be determined) 		

Title	Role	
Thiago Vilella Waideman Puga	Requirement Phase	Requirements Validation
	Design Phase	Development Team Member, Program Architect
	Implementation phase	Development Team Member
Requirement Phase Tasks		
<ul style="list-style-type: none">• Assist in requirements identification• First Draft Use Case Diagram• Contributed to Data Dictionary		
Design phase Tasks		
<ul style="list-style-type: none">• Assist in Architecture• Assist in Development Plan• (to be determined)		
Implementation Phase Tasks		
<ul style="list-style-type: none">• Assist in coding• Assist in testing• (to be determined)		