CSS343 Assignment 4

Nguyen Vi Cao, Andrew Chou, Grace Jeong | May 24, 2022

Overview

For assignment 4, we are required to design a software for a local movie rental store. This application has a database of DVDs and will be able to keep track of that database. It will hold three types of movies: Comedy (denoted as "F"), Drama (denoted as "D"), and Classics (denoted as "C"). The application also has some controls: Borrow (-1 in the inventory), Return (+1 in the inventory), Inventory (show the current inventory), and History (show the History).

List of Classes and Objects

Main: input the text file, run the StoreManager
StoreManager: build Customers object, build Movies objects, and process the Commands by reading the input text file
Customers: store Customers information such as ID, current status of borrow, return, history
HashTable: a data structure to store customers with their individual IDs
CustomersDatabase: store all customers objects
Media: create DVDMovie objects and return it
MovieGenre: create different types of movie object and return them
Movie: an abstract parent class that describes what the movie class holds
Inventory: create the inventory of DVDs
InventoryDatabase: have all of the control functions of the inventory (getStock, add and reduce Stock, etc.)
Database: database that holds media objects in a Binary Search Tree ADT
BinarySearchTree (BST): store the movie objects; have all the methods to retrieve, insert, display, remove
Comedy: movie variant, hold the information of comedy: Stock, Director, Title, Year
Drama: movie variant, hold the information of drama: Stock, Director, Title, Year
Classic: movie variant, hold the information of classic: Stock, Director, Title, Major actor, Date
CommandType: create Command object and return it
Command: an abstract parent class for different types of commands: borrow, return, inventory, history
Borrow: control the Borrow command
Return: control the Return command
History: control the History command
Inventory: control the Inventory command

UML diagram