CS 1120 – 543

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**Lab Report – LA3: Library Catalog System**

**Design Phase**

**Basic Structure**

* class Main:
* class Controller: implement the IController interface
  + attributes - an item of type LibraryItem
  + constructor - create a new LibraryItem
  + method displayCollection - prints out all library items
  + method checkoutMaterials - checks out an item with active existence checking
  + method findItem - finds the item and returns it if it exists
  + method showMenu - prints the menu
  + method readInput - reads the input file
* class LibraryItem: implement the ILibrary interface
  + attributes - the book title or periodical title
  + constructor - created new book or periodical items
  + method checkOut - set the boolean value checkedOut to true
  + method toString - returns a string of details of the current library item
  + method getCallNumber - returns the call number of the object calling it
  + method isCheckedOut - returns true or false depending on if an item is checked out
  + method getDateCheckedOut - returns the date and item was checked out
  + method getDateDue - returns the date and item is due
  + method setDataDue - sets the due date of an item
* class Book: subclass of LibraryItem
  + attributes - the title of the book represented by a string
  + constructor - creates a new book
* class Periodical: subclass of LibraryItem
  + attributes - the name of the periodical represented by a string
  + constructor - creates a new periodical
* interface IController: pointer for the Controller class
* interface ILibrary: pointer for the LibraryItem class

**UML Diagram**

**LA2UMLDiagram.png**

**Pseudocode**

* public static void main();
  + read the input file
  + print the menu
  + ask the user what to do
  + execute command
* public Controller();
  + **public** **void** displayCollection();
    - go to the LibraryItem class
    - print all items
  + **public** **void** checkoutMaterials();
    - go the the LibraryItem
    - pass the current item
    - set the checkedOut boolean value to true
  + **public** ILibrary findItem(String callNum);
    - go to the LibraryItem class
    - pass the current item
    - return the item if it exist
  + **public** **void** showMenu();
    - print the menu
  + **public** **void** readInput(String fileName) **throws** IOException;
    - read the input file
    - throw error if file does not exist
* public LibraryItem();
  + **public** **void** checkOut();
    - call the find() method
    - check out the item if it exists
  + **public** String toString();
    - get all items
    - concatenate them to a string
    - return the string
  + **public** String getCallNumber();
    - return variable callNumber of the current item
  + **public** **boolean** isCheckedOut();
    - return true or false depending on boolean value
  + **public** GregorianCalendar getDateCheckedOut();
    - return the dateCheckOut variable of the current item
  + **public** GregorianCalendar getDateDue();
    - return the dateDue variable of the current item
  + **public** **void** setDateDue(GregorianCalendar dateDue);
    - set the dateDue variable of the current item