Library Management System

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CS1114 – Concepts of Programming
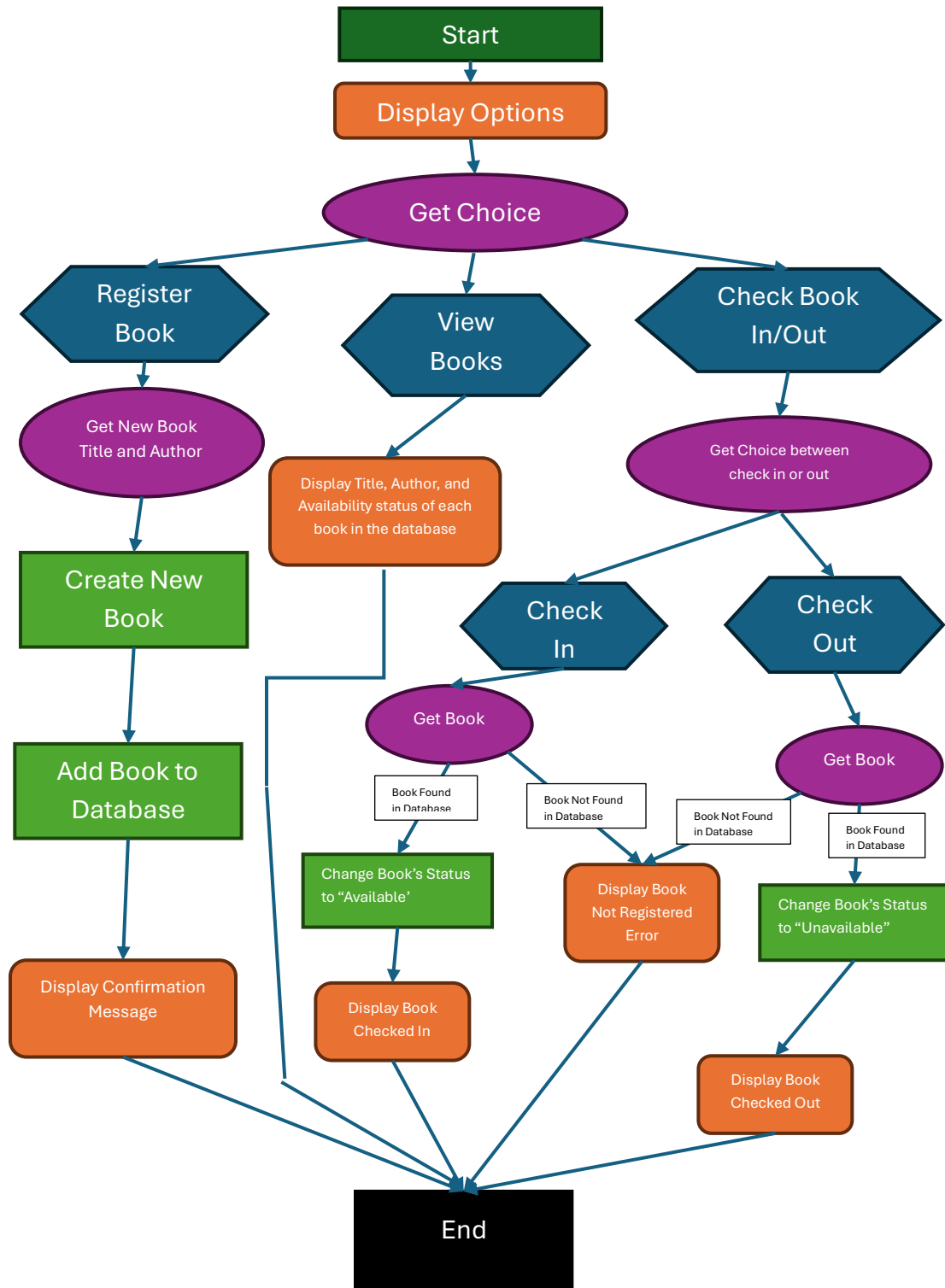
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Project Overview

  Our project will host a digital library containing any amount of books. Each book will have a title, an author, and an availability status showing whether the book can be checked out or not. Books may be added or checked in/out and can be viewed all at once. The program will make it much easier and quicker to manage a large number of books that can be checked out, and is easy to add to for any collection that might grow. The main functions will be the ability to register new books(adding them to the library with their own identifications and availability), checking books out or in (keeping them registered to the library but changing their availability status to be unavailable or available), and viewing all books (displaying all books registered to the library with their identifications and availability status).

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Algorithm

1. Start
2. Program presents the options
   -Register Book
   -View All Books
   -Check Book In/Out
3. Get user's choice
4. If user chooses Register Book:
   -Ask user for new book's title and author
   -Create new book with submitted title and author and "Available" status
   -Add created book to the list of books, above the book in the list whose author is below the new book alphabetically
   -Display "{Title} by {Author}, has been added to the library."
5. If user chooses View All Books:
   -Goes through list of books displaying each book's Title, Author, and Availability Status.
6. If user chooses Check Book In/Out:
   -Ask if user would like to check in or out
   -If user chooses to check in:
      -Ask user for Title and Author of the book they're checking in
      -If the Title and Author match a book in the list of books:
         -change the matching book's availability status to "Available"
         -Display "Thank you for checking in "{Title} by {Author}."
      -If the Title and Author do not match a book in the list of books:
         -display "{Title} by {Author} is not currently registered to the library"
   -If user chooses to check out:
      -Ask user for Title and Author of the book they're checking in
      -If the Title and Author match a book in the list of books:
         -change the matching book's availability status to "Unavailable"
         -Display "Thank you for checking out "{Title} by {Author}."
      -If the Title and Author do not match a book in the list of books:
         -display "{Title} by {Author} is not currently registered to the library"

7. End

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Flow Chart

Start

Display Options

Get Choice

Register Book

View Books

Check Book In/Out

Get New Book Title and Author

Display Title, Author, and Availability status of each book in the database

Get Choice between check in or out

Create New Book

Check In

Check Out

Add Book to Database

Get Book

Get Book

Book Found in Database

Book Not Found in Database

Book Not Found in Database

Book Found in Database

Change Book's Status to "Available'

Display Book Not Registered Error

Change Book's Status to "Unavailable"

Display Confirmation Message

Display Book Checked In

Display Book Checked Out

End

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Tools and Modules

Python io module

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