## **DSA - Assignment 1**

# Library Management System

## using linked list data structure

INTRODUCTION  
Your **first assignment in this block** is to use linked list data structure for implementing a small Library Management System (LMS) in Python. LMS manages information of books and borrowed books including:

For books:

1. bid (string): the id of the book (this should be unique for the book).
2. title (string): the title of the book.
3. author (string): the person/people who write (s) the book(s).
4. status (string): the status of  books in the library. (available or issued)

For borrowed books:

1. bid (string): the code of the book to be lended.
2. borrower (string): the name of the borrower.

YOUR TASKS

You should use 2 linked lists storing data of books and borrowed books respectively. You are not allowed to use available list structures in python such as ArrayList, Vector or LinkedList classes.

Your program should have a menu that allows users to choose a corresponding task.

Your system should inlcude the following files:

main.py – displays a menu that allows users to choose a corresponding tasks (1 mark)

AddBook.py – Add books to the database (2 marks)

ViewBooks.py – Displays the list of books in the library (2 marks)

DeleteBook.py – Delete a book from the library (2 marks)

BorrowedBook.py – Lend a book from library (1 mark)

ReturnBook.py – Return a book to the library (2 marks)

Tasks explanation  
Book list (8 marks):  
1.1.      Add book detail  
Allow a user to add information of books. The content of the file should be as below:

Bid | Title | Author | status (0 – available)

B01  |  Physics     |  Michael G. Solomon    |  0  
B02  |  Biology     |  Andreas M. Antonopoulos  |  0   
B03  |  Southern   |  Tiana Laurence   |  0

1.2.      View book  
Display data in format:  
bid  |  title  |  author  |  status   
  
For example after loading the above file, this option give the output below:  
Bid |   Title        |  Author  |  status  
-------------------------------------------------------------------  
B01  |  Physics     |  Michael G. Solomon    |  0  
B02  |  Biology     |  Andreas M. Antonopoulos  |  0   
B03  |  Southern   |  Tiana Laurence   |  0

1.3.      Delete book  
  
Write the function :  
def deleteBook()   
which deletes the node whose info contains the book with entered bid.

1.4.      Borrow book  
Allow a user to input lending item.  
When running, the screen looks like:  
Enter book id:  
After the user enter bid, the program checks if books available, users can lend   
1.5.      Return book  
Enter book id:

After the user enter bid users can return books and program set status available

Submission Requirements  
Create the directory with a name like **<class><roll number>-ASS1**, e.g.  
**SE0508-HE123456-ASS1                        (1)**

Compress the folder   (1) to .zip (or .rar) file (with the same name) and upload to cms.

Assignment assessment  
You will be asked to modify immediately and to explain your assignment in lab room to be sure that you are really the author of the assignment you submitted.