LIBRARY MANAGEMENT SYSTEM

INPUT AND OUTPUT DESIGN

There are 3 input files and produces 4 types of outputs.

Input_form_1: This form is used to collect data about patrons registered with the library. The inputs contain information like patron_no, user_type, patron_name. The information will be stored as follows in the patron database.

Patron_no	user_type	patron_name
ptxxxx	student	abc
ptxxxx	faculty	xyz

Where 'ptxxxx' is a unique identification number for each patron and xxxx are any valid 4 digit number. The user_type should either be student or faculty. The name of the patron can be any valid string. An example of the Patron database is:

Patron_no	user_type	patron_name
pt0011	student	steve
pt1234	faculty	teresa
pt2453	student	kang
pt4918	student	kim

Input_form_2 : This form is used to collect the information about the books to create or update the library database. It contains the information about the book including the isbn(8 digit unique code for each book), book_code (is same for the duplicates of the same book), category, title, author, availability and self_no. The format of the library database is:

ISBN	book_code	category	title	author	availability	self_no
Xxxxxxxx	aadddd	in library use	book_name	author_name	avl	ax-xxx

Xxxxxxxx	aadddd	for instructors	book_name	author_name	lent	ax-xxx
Xxxxxxxx	aadddd	to lend	book_name	author_name	lent	ax-xxx

The category of the book can be either "in library use only", these books cannot be issued to anyone, or "for instructors only" or "to lend", meaning it can be lent to anyone. The availability of a book can either be 'avl' or 'lent'. The self_no 'ax-xxx' is a combination of letters and digits ('a' is replaced with a letter and 'x' is replaced with digits). An example for the file is:

ISBN	book_code	category	title	author	availability	shelf_no
19385756	cs2003	in library use	computers	ram singh	avl	a5-123
19473528	en1846	for instructors	the journal	preety rao	lent	b6-452
29472648	mc2849	to lend	machines	pankaj pande	lent	s2-122

Input_form_3: This form is used to enter information about the book to be issued to the patron. It contains fields like patron_no, ISBN, date_of_issue. This information is stored in a separate table that relates patron_no to ISBN.The return date is initially the original return date of the book, it will be updated to the date the book was returned once the patron returns the book along with the fine, that will be automatically calculated and updated, once the book is returned. The issue_relation table has the following format:

patron_no	ISBN	date_of_issue	return_date	fine_incurred
Ptxxxx	Xxxxxxxx	dd-mm-yy	dd-mm-yy	0

Input_form_4: This is used to get information about the books to be returned to the library. It gets information about patron_no, ISBN, return_date. These inputs on processing will affect the issue_relation table as well as the library database. The return date of the book and fine_incurred of the issue_relation table are updated while returning.

Input_form_5: This is used to get input for performing search functions on the library database. The input fields are book_title, book_author. The user may input either one or both fields.

Input_form_6: This form is used to get librarian information for registration and login. The input fields include librarian_no, librarian_name, password. The librarian database used for librarian registration and login has the following format:

librarian _no	librarian_name	password
Lxxx	abc	********

Where the librarian_no is a unique number for each librarian and has a format of "lxxx" ('l' followed by 3 digits).the password should have at least 8 characters.

Output_1 : This contains a report on the books borrowed by a particular patron. The report is a view from the databases and contains fields like ISBN, book_title, book_author, issue_date, return_date.

Output_2 : This displays to the user the overdue that has been calculated from the return_date.

Output_3 : It gives a list of book information that matches the search criteria.

Output_4 : This is a report on errors that occur on particular requests placed. They include:

- E1 - error in issuing the book
  - E1.1 - The user type is not in hand with the book type.
  - E1.2 - Maximum number of books issued.
  - E1.3 - Book is not to be lent.
  - E1.4 - Invalid patron information.
- E2 - error in returning the book
  - E2.1 - Fine not paid
  - E2.2 - Book can't be returned on the same day of issue.
  - E2.3 - Invalid patron information.
- E3 - error in searching
  - E3.1 - No such book_title or Author

Output_5: error in syntax of any input

- S-err1 - patron information syntax error
  - S-err1.1 - patron_no not as defined.
  - S-err1.2 - user_type not defined.
- S-err2 - book information syntax error
  - S-err2.1 - ISBN not in format.
  - S-err2.2 - shelf number not in format
- S-err3 - issue information syntax error

- S-err4 - return book information syntax error

Team Members:
Shruti S (21z256)
Aishwarya R (22z431)