

# **Design Document**

## **Architecture**

The application is built based on MVC Architecture.

- **Model (M):** It manages the data ,logic and rules of the application. It is the lowest part of the architecture and is responsible for maintaining the data. In our application the java beans are part of the model
- **View (V):** It is the jsp or html files which render the view of the system i.e. the ones with which the end user interacts.
- **Control(C):** It accepts the commands from view or model and converts them to commands thus producing the desired results. The controller comprises of the servlet which interact with the data performing the database operations and then redirecting the result towards appropriate jsp.

It can also be compared to the the 3 tier architecture having following layers:

Presentation Layer: JSP, HTML, CSS

Data layer: It has the database of the application

Control Layer: IT comprises of the servlet controlling the flow of the data among the jsps.

## **Libraries and Software Used**

Software Used: Netbeans, MySQL workbench

Database: MySQL

Libraries: MySQL connector(for database)

Language: Java

## **Functionalities**

The application Library Circulation Desk lets the librarian perform the following functionalities:

- Search books based on the Key String entered by the user, The key String may include isbn or title or author name.
- Check Out a book based on the isbn of the book and card id of the borrower.
- Check in a book based on the card id of the borrower.

- Add a new borrower to the system.
- Manage fines of the borrower which includes:
  - ✓ Seeing the list of books for a given borrower who has fine paid
  - ✓ Seeing the list of books for a given borrower who has fine unpaid
  - ✓ Seeing the list of books for a given borrower who have both paid and unpaid fines
  - ✓ Seeing the list of over due books for a given borrower
  - ✓ Settling fines for the selected book of a given borrower