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| A picture of a winding road and trees  **LIBRARY CIRCULATION DESK DBMS** | DETAILS  This system design document is formulated to summarize the prospective system design for Library Circulation Desk Database Management System.  Mohanram, Neha  Data Management |

**Library Circulation Desk DBMS**

# **INTRODUCTION**

The system design document contains the summary of the executable components of the Library Circulation Desk Database Management System. The Application assists the librarian in Adding books, loan books, book check ins, tracking of fines. The library can improve its capabilities in books management, books tracking, and fines reporting after successful completion of design, test and deploying the Library Circulation Desk DBMS.

# **PURPOSE**

The purpose of System Design Document is to yield a description for how the Library Circulation Desk DBMS will be built. The System Design Document is created to ensure that the Library Circulation Desk DBMS meets the requirements specified as part of the MIS 6326.001 project requirements documentation. Additionally, the System Design Document gives a high-level description of the system architecture, including ER diagram, design decisions and assumptions.

# **SYSTEM OVERVIEW**

The proposed Library Circulation Desk DBMS makes use of the database concepts, oracle apex, AWS technology, basic and advanced SQL knowledge to optimize the existing Library application or introduce an optimized method. The Library Circulation Desk DBMS runs on top of AWS database which makes use of cloud architecture to fetch data from the database, thereby resulting in faster data transfer rate and improving the performance. It also makes use of Oracle Application Express which can be accessed via an URL making the accessibility much easier. The Library Circulation Desk provides clear user interfaces which allows data entry, data update, real-time data tracking and report generation. The main benefit of the Library Circulation Desk includes creation of book check outs and thereby maintaining the status of all the books in a selected library branch and track the borrowers’ book loan information.

# **SYSTEM ARCHITECTURE**

# **Hardware:**

The Library Circulation Desk DBMS requires most commonly used hardware architecture which is prevalent across most of the libraries. The hardware components include:

* A PC/Laptop/Workstation.
* Processor with Intel Pentium 4 or higher
* RAM – 2GB or higher
* Access to wireless/wired network connection.

# **Software:**

The components which encompasses the software architecture include:

* A windows OS /Mac OS/ Linux OS based operating system.
* Oracle SQL developer which is hosted on an AWS server database for creating tables, loading data into APEX etc.
* Chrome/Firefox/IE/EDGE browser for opening the application on APEX.

# **DESIGN DECISION**

1. The search results display values for ISBN, Author and title for any substring given and not just restricted for one column
2. Created a view for fined borrower details
3. The fined borrower list updates every time a fine is added and directly displays the borrowers with their card ID
4. Fine is updated backend instead of manual intervention
5. Creation of views for reports

# **ASSUMPTIONS**

1. The date out for book loans is automatically set to today’s date.
2. ISBN10 is considered to uniquely represent a book instead of ISBN13.

# **DATABASE DESIGN**

The primary significance of database design is to make sure that the updating of backend database happens based on the updates provided in the frontend. The design of the database can be effectively explained with the help of an ER diagram.

