EER DIAGRAM SCHEMA REPORT

1. The library system has 16,000 members, 100,000 titles and 250,000 volumes. Therefore, two entities **Member** and **Book** is required to represent the above.

2. The librarian must check out the books to members and check the availability of books. **Missed requirement** - An entity **Staff** has been introduced to represent the above. **Librarian** becomes a subclass of entity **Staff**. There is a relationship named **Access** which gives the staff access to the entity.

3. The entity **Catalogue** is a subclass of **Book** whose primary key is **ISBN.**

4. A catalogue of books contains description of each title. An entity **Reference Librarian** is introduced as a subclass of **Staff**. Since Staff has access to Book, Reference Librarian also gets access to the Catalogue under Book.

5. The entities **Associate Librarian, Checkout staff, Library assistant** are added as subclasses of Staff along with the entities **Chief librarian and Reference Librarian**.

6. A relationship **Checks out** introduced that connects Book and Staff with attributes **Checkout dates, No. of books** and **Dues date** which is a derived attribute. Also a derived attribute **Grace date** is included which represents the due date after grace period. An attribute **Is_overdue** checks if the book is overdue or not.

7. **Missed Requirement -** A relationship **Notice** is introduced that connects Staff and Member with attributes **NType**(to classify between membership renewals and books returns) and **Date.**

8. The entity **Member** has attributes SSN, LID as primary key, Name, Phone, MType, HAddr (Home address), CAddr (Campus address), Valid through. A relationship **Register** that connects Staff and Member.

9. The attribute **MType** (Member Type) of the entity **Member** differentiates between Professor and Regular member.

10. **Missed Requirement -** The attribute **NTMType** (Notice-to-member type) of relationship **Notice** differentiates the notice between Regular members and Professor.

11. The attribute **BType** (Book Type) of the entity Catalogue differentiates between Available books, rare or out-of-print books, interesting books and so on.

12. The attribute **ISBN** is the primary key of the entity Book. It is used to uniquely identify a book.

ASSUMPTIONS

1. Reference librarian can check out a member. Since, Reference librarian / librarian belongs to staff under job_type, all staff members can access/check out a member if needed.
2. Books with same title having different language/binding/edition can be identified by ISBN and location.
3. Location entity uses US Congress model to statistically and strategically place and organize book within the library.
4. In notice relationship, NType is to classify between what type of notice is sent i.e., Renewal of membership or Book due. NTMType is to address which class of the members the notice is sent to (Professor or student)