DISTRIBUTED AND PARALLEL DATABASE SYSTEMS

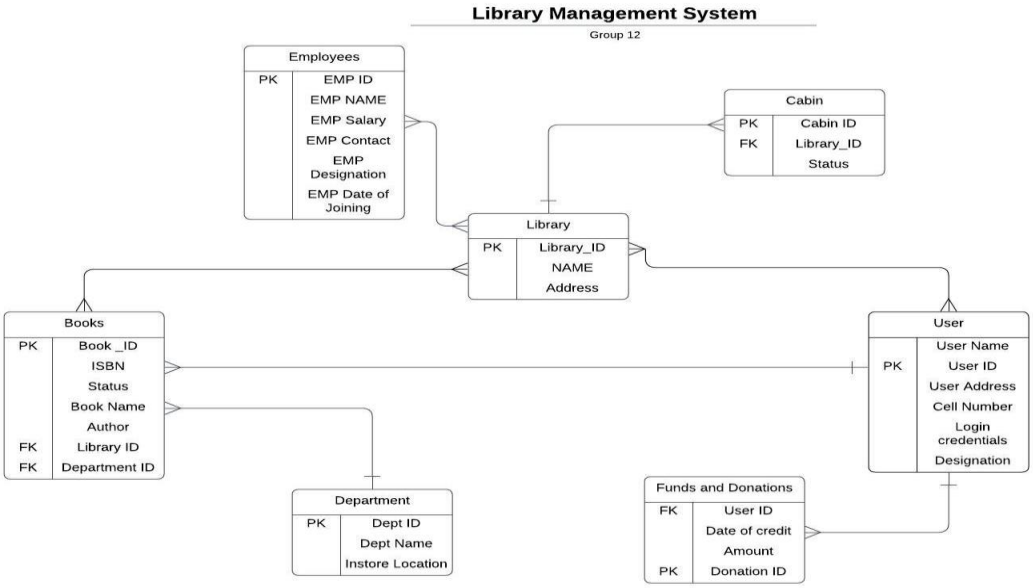
LIBRARY DATABASE MANAGEMENT SYSTEM

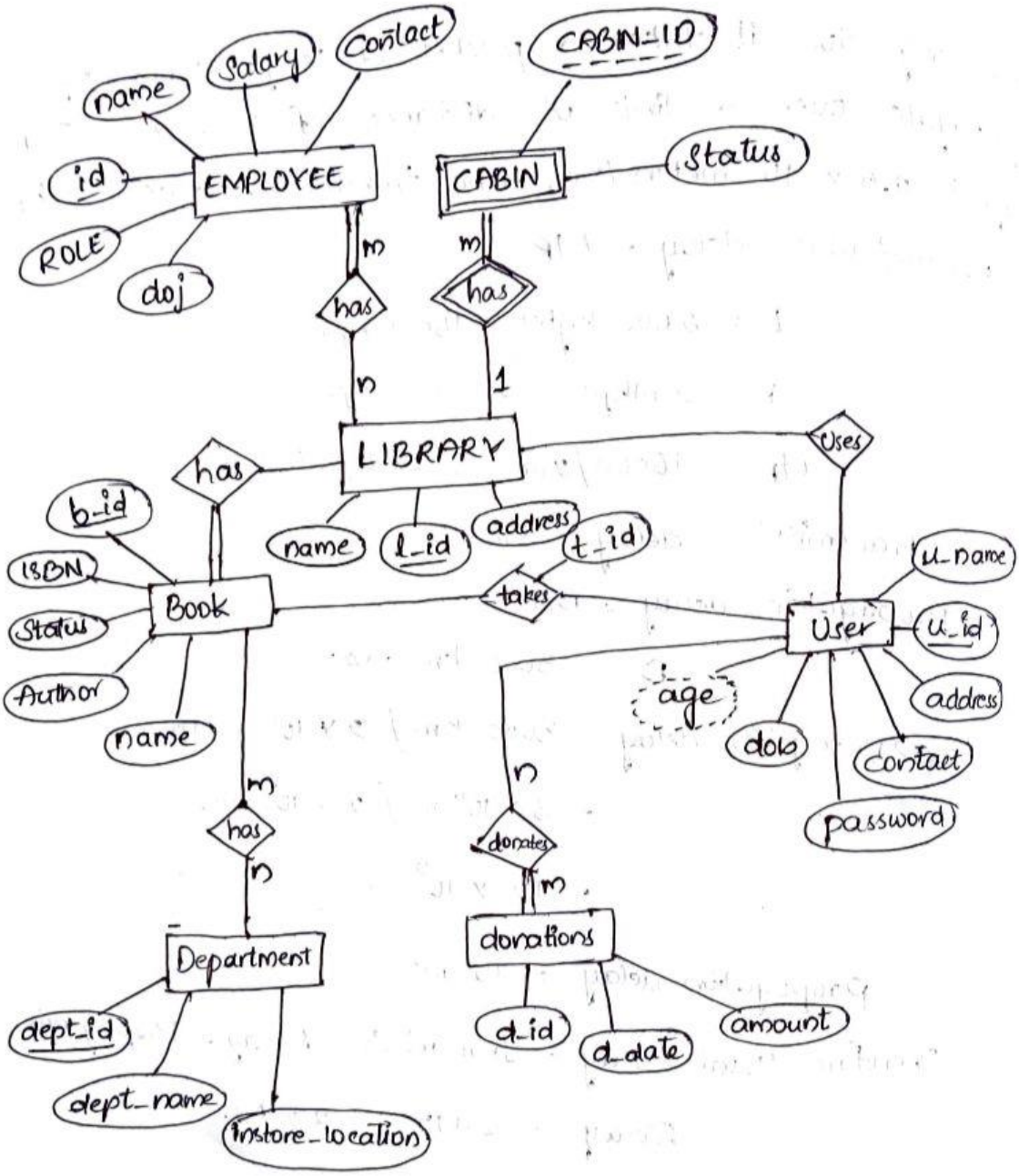
PROJECT – PART1

Library management system manages the catalog of a library as well as save the time of people. This system helps to keep the records of whole transactions of the books available in the library, gives the availability of a specific book along with it specifying its placement in the department. This system allows people to reserve cabin for a particular time. It also keeps track of the donations and funds received. This system stores details of the employees, specific details of books and users. This management system is available in many cities. So, the services provided are availed by libraries in all cities.

To build this project we use Oracle Enterprise 21c Edition Database. This can be used as a local database storage and in future can also be used to connect to distributed databases across the globe. This system can also be used for creating database links (public and private), that can be used to connect different libraries in the project and access data across them.

1)Project Design:

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Here we have 7 entities. They are Employees, Books, Users, Cabins, Departments, funds and Donations, Library.

- **Libraries** are available in different places and each one has its own name. They have been identified by a unique id, Library_ID.
- **Employees** are not specific to a single work location, they can work in multiple cities. They have a EMP ID which is specific to a particular employee. Therefore, no two employees have the same EMP ID. This entity shares a many to many relationships with libraries. Each employees work location may vary based on the requirement.
- **Books** details are stored in this table. The primary key for this table is Book_ID. Libraries in various locations will have copies of a same book. So here it shares a many to many relationships with library.
- **Cabin** stores info about various bookings made and also the availability status of the pods. Here a one to many relation is seen where one library will have many cabins in it.
- **Department** has its own Department_ID. Each department has more than one copy of a single book, hence showing a one-to-many relationship.
- **Funds and Donations** has info about the funds received from governments and any other sources.
- **Users** have details about each user. One user can borrow more than one book.

2) Installation:

- Oracle 21c Enterprise Edition for Windows setup has been installed successfully into the computer from the Oracle Website. A video has been recorded regarding the installation of Oracle 21c setup and it's been uploaded as another file.
- The link to download the setup is as follows below, https://www.oracle.com/database/technologies/xe-downloads.html

3) Contribution towards the Project:

- My Contribution towards this project is that I look-up with the data of Users. I have my part of research and analysis of User data and came up with the attributes User_name, User_ID, Address, Contact_No. , Password, Age. I store, analyze data of Users in the database using Oracle 21c. I alter Users data based on requirements.
- In this Project User is an Entity where it has details of Users who visit to the library and a User_ID will be given each user which is the Primary Key. User_Name will be given as registered in the library to each user, The Address and the Contact_No. of every user is stored along with age of User. For Each User a Unique password will be generated so that User can use when logged into digital libraries, This password is securely stored and Password is also an attribute.

Below Figure shows the conceptual E-R Diagram of the User Entity with its Attributes.