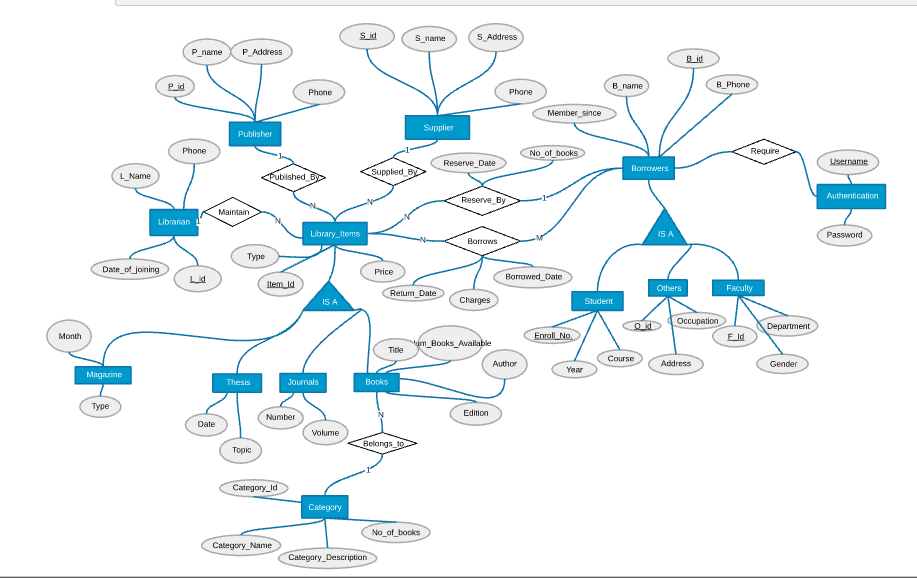
Library Management System Database

**Problem Statement:-**

 The purpose of the LIBRARY MANAGEMENT SYSTEM is mainly to provide automation to the library. It include Publisher and Supplier who will publishes and supplies the library items. A Publisher can publish many library items. Similarly a Supplier can supply many library items. Library items further divided into Books, Magazines, Thesis, Journals, where books belongs to category. Library items will reserved and borrowed by borrowers. One borrower can reserve many library items and many borrowers can borrow many library items. Entity librarian who maintains the library items of library. Another entity borrower which will require authentication to enter in library and for issuing the books. Borrowers can be generalize into student, faculty and others.

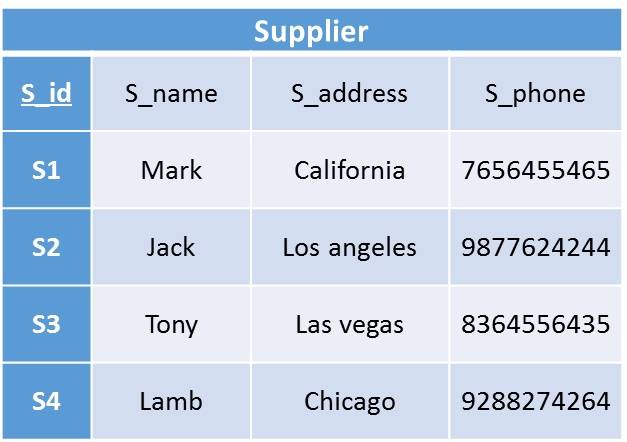
**E-R Diagram:-**



**Relational Schema:-**



**Table Schema with SQL code:-**



CREATE TABLE Supplier

(

S\_id INT NOT NULL,

S\_name VARCHAR NOT NULL,

S\_address VARCHAR NOT NULL,

S\_phone INT NOT NULL,

PRIMARY KEY (S\_id),

UNIQUE (S\_phone)

);

🡪

CREATE TABLE Publisher

(

P\_id INT NOT NULL,

P\_name VARCHAR NOT NULL,

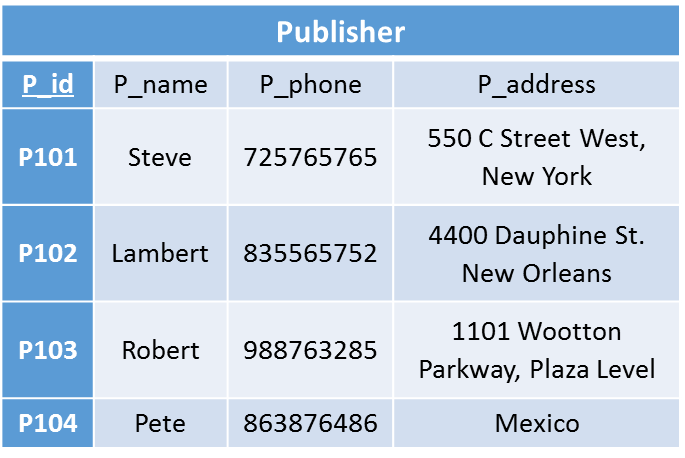
P\_phone INT NOT NULL,

P\_address VARCHAR NOT NULL,

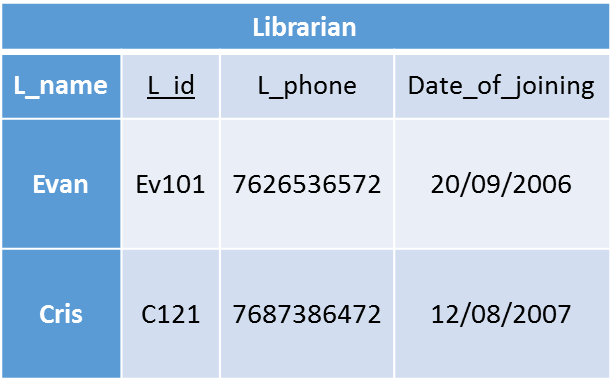
PRIMARY KEY (P\_id),

UNIQUE (P\_phone)

);



🡪



CREATE TABLE Librarian

(

L\_name VARCHAR NOT NULL,

L\_id INT NOT NULL,

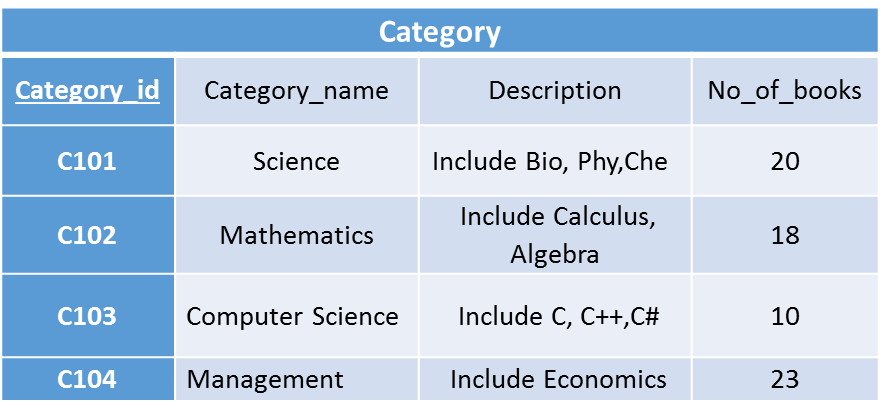
L\_phone INT NOT NULL,

Date\_of\_joining INT NOT NULL,

PRIMARY KEY (L\_id)

);

🡪



CREATE TABLE Category

(

Category\_id INT NOT NULL,

Category\_name VARCHAR NOT NULL,

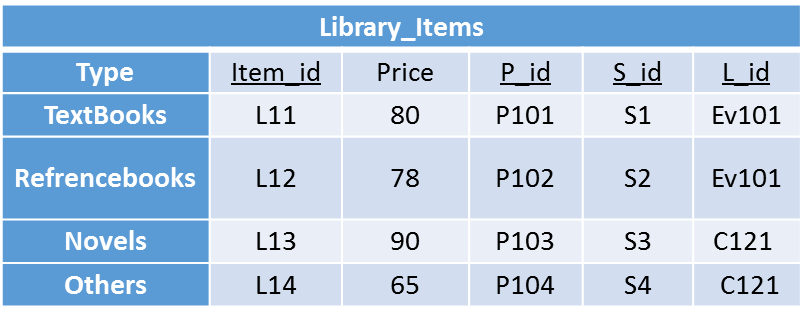
Description VARCHAR NOT NULL,

No\_of\_books INT NOT NULL,

PRIMARY KEY (Category\_id)

);

🡪



CREATE TABLE Library\_Items

(

Title VARCHAR NOT NULL,

Item\_id INT NOT NULL,

Price INT NOT NULL,

P\_id INT NOT NULL,

S\_id INT NOT NULL,

L\_id INT NOT NULL,

PRIMARY KEY (Item\_id),

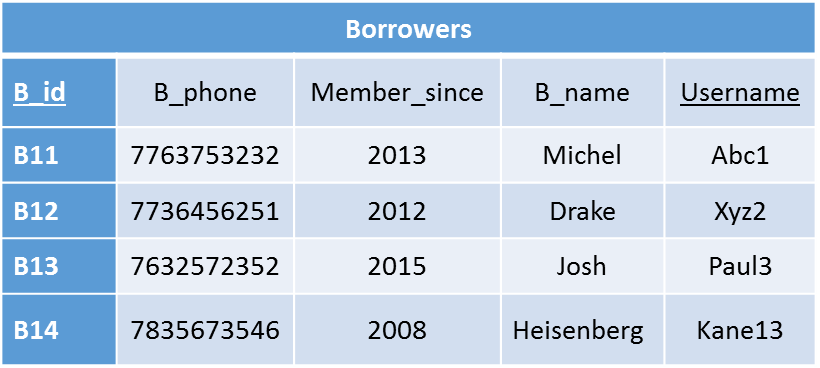
FOREIGN KEY (P\_id) REFERENCES Publisher(P\_id),

FOREIGN KEY (S\_id) REFERENCES Supplier(S\_id),

FOREIGN KEY (L\_id) REFERENCES Librarian(L\_id)

);

🡪



CREATE TABLE Borrowers

(

B\_name VARCHAR NOT NULL,

B\_phone INT NOT NULL,

Member\_since INT NOT NULL,

B\_id INT NOT NULL,

Username VARCHAR NOT NULL,

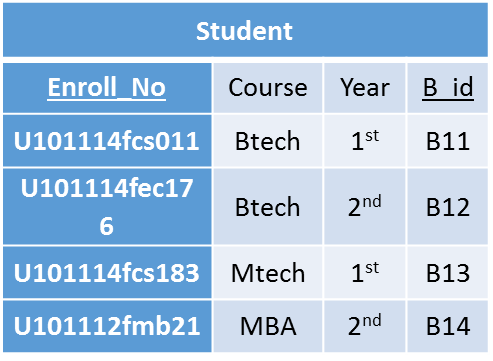
Item\_id INT NOT NULL,

PRIMARY KEY (B\_id),

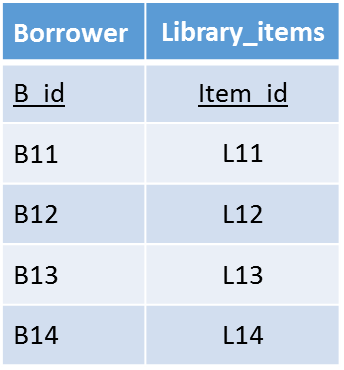
FOREIGN KEY (Username) REFERENCES Authentication(Username),

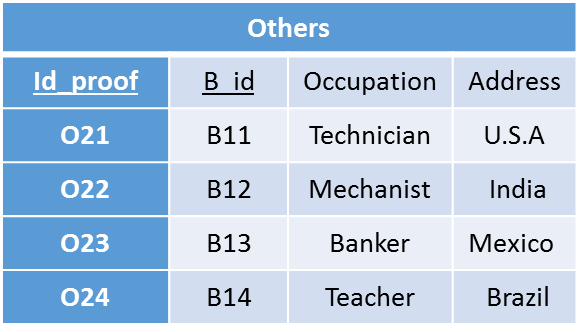
FOREIGN KEY (Item\_id) REFERENCES Library\_Items(Item\_id)

);



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CREATE TABLE Others

(

Occupation VARCHAR NOT NULL,

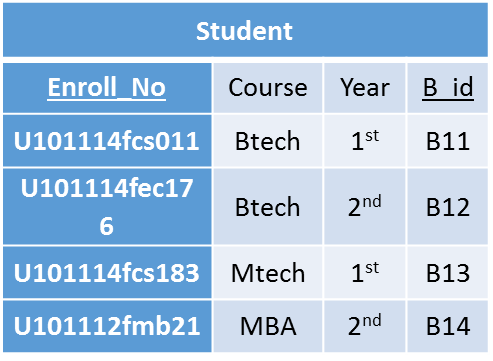
Address VARCHAR NOT NULL,

Id\_proof INT NOT NULL,

B\_id INT NOT NULL,

FOREIGN KEY (B\_id) REFERENCES Borrowers(B\_id)

);



CREATE TABLE Student

(

Enroll\_No. INT NOT NULL,

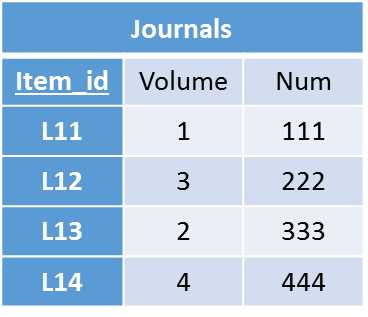
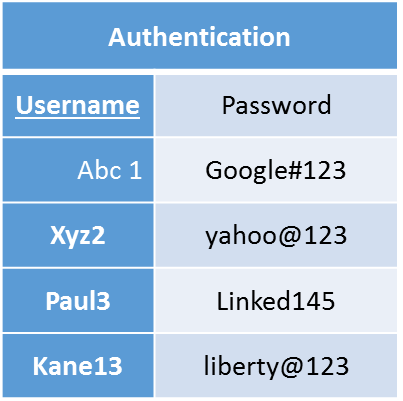
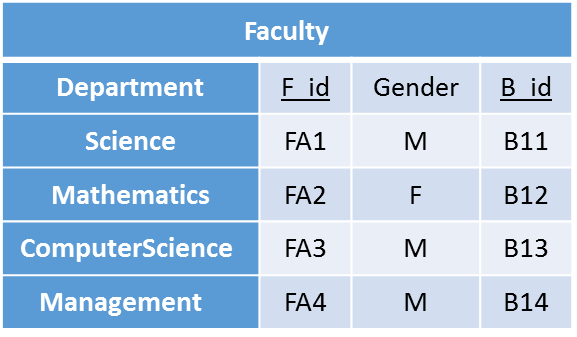
Course VARCHAR NOT NULL,

Year INT NOT NULL,

B\_id INT NOT NULL,

FOREIGN KEY (B\_id) REFERENCES Borrowers(B\_id)

);



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CREATE TABLE Faculty

(

Department VARCHAR NOT NULL,

F\_id INT NOT NULL,

Gender CHAR NOT NULL,

B\_id INT NOT NULL,

FOREIGN KEY (B\_id) REFERENCES Borrowers(B\_id)

);

CREATE TABLE Authentication

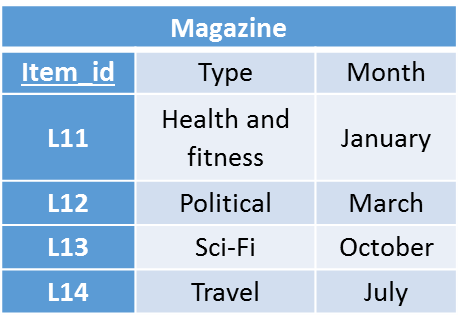
(

Username VARCHAR NOT NULL,

Password VARCHAR NOT NULL,

PRIMARY KEY (Username)

);



CREATE TABLE Magazine

(

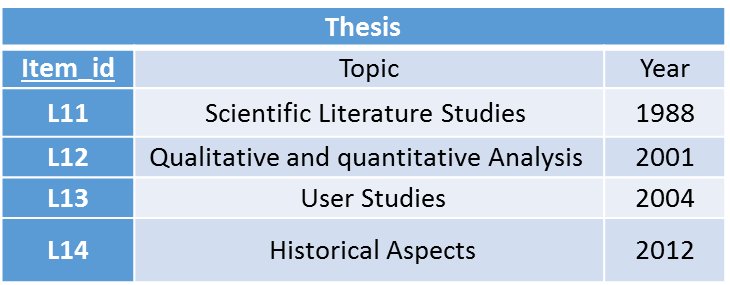
Month INT NOT NULL,

Type INT NOT NULL,

Item\_id INT NOT NULL,

FOREIGN KEY (Item\_id) REFERENCES Library\_Items(Item\_id)

);



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CREATE TABLE Thesis

(

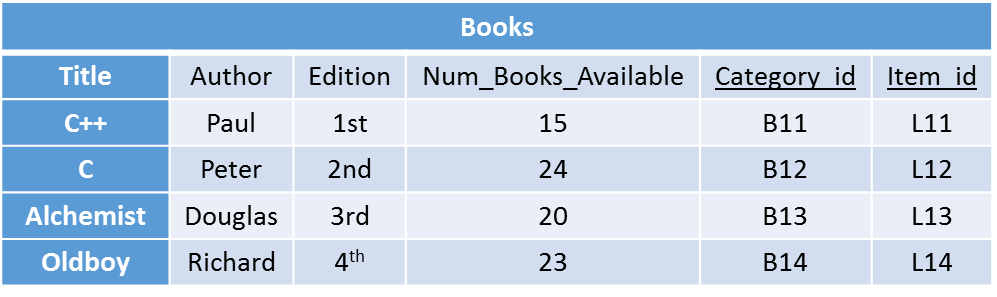
Year INT NOT NULL,

Topic VARCHAR NOT NULL,

Item\_id INT NOT NULL,

FOREIGN KEY (Item\_id) REFERENCES Library\_Items(Item\_id)

);



CREATE TABLE Books

(

Type VARCHAR NOT NULL,

Author VARCHAR NOT NULL,

Edition INT NOT NULL,

Num\_Books\_Available INT NOT NULL,

Category\_id INT NOT NULL,

Item\_id INT NOT NULL,

FOREIGN KEY (Category\_id) REFERENCES Category(Category\_id),

FOREIGN KEY (Item\_id) REFERENCES Library\_Items(Item\_id)

);