# DATABASE ORGANIZATION

# PHASE 2

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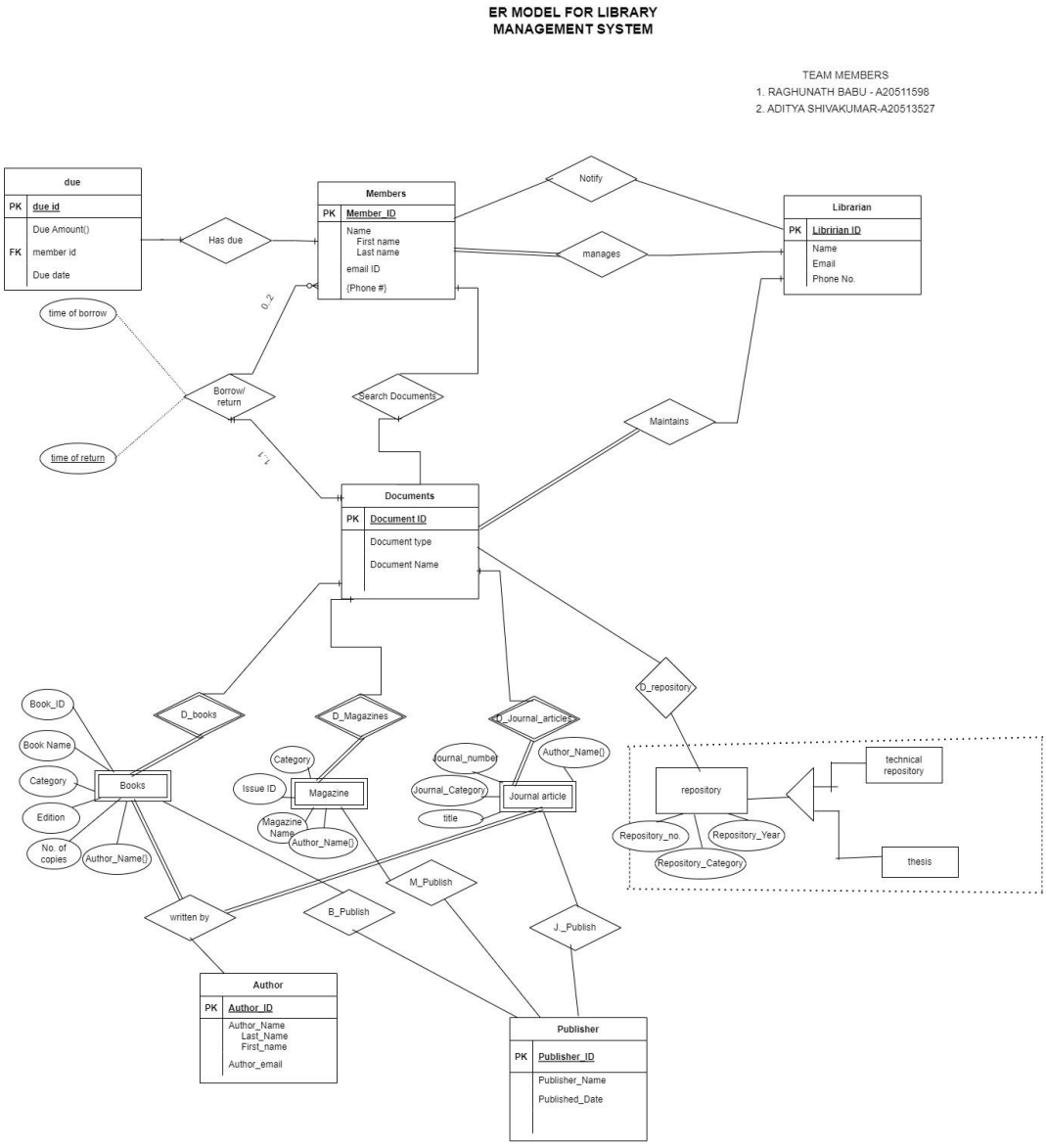

# A) Strong entities

Librarian(librarian ID, First Name,Last Name,Email)
Members(Member_ID, First Name, Last Name, Email ID)
Documents(Document_ID,Document Type,Document Name)
Due(Due_ID,,Due Date)
Author(Author_ID, Last_Name,First_Name, Author_email)
Publisher(Publisher_ID, Publisher_Name,Published_date)
Technical_Repository(Repository_No, Repository_Category, Repository_Year)
Thesis(Repository_No, Repository_Category, Repository_Year)

# B) Weak Entity Sets

Librarian(librarian ID, First Name,Last Name,Email)
Members(Member_ID, First Name, Last Name, Email ID)
Documents(Document_ID,Document Type,Document Name)
Due(Due_ID, Due Date)
Author(Author_ID, Last_Name,First_Name, Author_email)
Publisher(Publisher_ID, Publisher_Name,Published_date)
Technical_Repository(Repository_No, Repository_Category, Repository_Year)
Thesis(Repository_No, Repository_Category, Repository_Year)
Books(Document_ID,Book_Id,Book_Name,Category, Edition, No_of_Copies)
Magazine(Document_ID,Category, Issue_ID, Magazine_Name)
Journal_Article(Document__ID,Journal_Number, Journal_Category, title)

# C) Multi-valued Attributes

Librarian(librarian ID, First Name,Last Name,Email)
Librarian_Phone(Librarian_ID, Phone_Number)
Members(Member_ID, First Name, Last Name, Email ID)
Members_Phone(Member_ID, Phone_Number)
Documents(Document_ID,Document Type,Document Name)
Due(Due_ID,Due Date)
Author(Author_ID, Last_Name,First_Name, Author_email)
Publisher(Publisher_ID, Publisher_Name,Published_date)
Technical_Repository(Repository_No, Repository_Category, Repository_Year)
Thesis(Repository_No, Repository_Category, Repository_Year)
Books(Document_ID,Book_Id,Book_Name,Category, Edition, No_of_Copies)
Books_Author_Name(Document_ID, Author_Name)
Magazine(Document_ID,Category, Issue_ID, Magazine_Name)
Journal_Article(Document__ID,Journal_Category, title)
Journal_Article_Author_Name(Document_ID,Author_Name)

# D) Relationships

Librarian(librarian ID, First Name,Last Name,Email)

Librarian_Phone(Librarian_ID, Phone_Number)
Members(Member_ID,librarian ID, First Name, Last Name, Email ID)
Members_Phone(Member_ID, Phone_Number)
Due(Due_ID, Member_ID,Due Date)
Search Documents(Member_Id,Document_Id)
Borrow/Return(Member_Id,Document_Id)
Maintains(librarian ID,Document_Id)
Documents(Document_ID,Document Type,Document Name)
D_repository(Document_id,Repository_no)
Technical_Repository(Repository_No, Repository_Category, Repository_Year)
Thesis(Repository_No, Repository_Category, Repository_Year)
Books(Document_ID,Book_Id,Book_Name,Category, Edition, No_of_Copies)
Magazine(Document_ID,Category, Issue_ID, Magazine_Name)
Journal_Article(Document__ID,Journal_Category, title)
J_Publish(Document_id,Publisher_id)
M_Publish(Document_id,Publisher_id)
B_Publish(Document_id,Publisher_id)
Written_By(Document_id, Author_Id)
Author(Author_ID, Last_Name,First_Name, Author_email)
Publisher(Publisher_ID, Publisher_Name,Published_date)

# SQL QUERIES

```
create table librarian(
        Librarian_ID char(5),
        First_Name varchar(15),
        Last_Name varchar(15),
        Email_ID varchar(20),
        primary key(Librarian_ID)
);

create table Members(
        Member_ID char(5),
        Librarian_ID char(5),
        First_Name varchar(15),
        Last_Name varchar(15),
        Email_ID  varchar(20),
        primary key(Member_ID),
        foreign key (Librarian_ID) references librarian
);
create table Due(
        Due_ID char(5),
        Due_Date varchar(10),
        Member_ID char(5),
        primary key(Due_ID),
        foreign key (Member_ID) references Members
);

create table Documents(
        Document_ID char(5),
        Document_Type varchar(12),
        Document_Name varchar(25),
        primary key (Document_ID)
```

```
);


create table Technical_Repository(
        Repository_Number varchar(10),
        Repository_Category   varchar(25),
        Repository_Name       varchar(25),
        Repository_Year       varchar(10),
        primary key (Repository_Number)
);

create table Thesis(
        Repository_Number varchar(10),
        Repository_Category   varchar(25),
        Repository_Name       varchar(25),
        Repository_Year       varchar(10),
        primary key (Repository_Number)
);

create table Author(
        Author_ID char(5),
        Last_Name varchar(10),
        First_Name varchar(10),
        Auhtor_email varchar(20),
        primary key (Author_ID)
);

create table Publisher(
        Publisher_ID char(5),
        Publisher_Name varchar(25),
        Published_Date varchar(10),
        primary key (Publisher_ID)
);

create table books(
        Document_ID char(5),
        Book_Name  varchar(20),
        Book_Id  varchar(5),
        Category   varchar(20),
        Edition     varchar(15),
        No_of_Copies  varchar(5),
        primary key (Document_ID),
        foreign key (Document_ID) references Documents
);
create table Magazine(
        Document_ID char(5),
        Category   varchar(20),
        Issue_ID varchar(10),
        Magazine_Name varchar(20),
        primary key (Document_ID, Issue_ID),
        foreign key (Document_ID) references Documents
);

create table Journal_Article(
        Document_ID char(5),
        Category   varchar(20),
        Journal_Name varchar(20),
```

```
        Journal_Number int,
        primary key (Document_ID,Journal_Number),
        foreign key (Document_ID) references Documents
);

create table Members_Phone(
        Member_ID char(5),
        Phone_Number varchar(12),
        primary key(Member_ID, Phone_Number)
);
create table Librarian_Phone(
        Librarian_ID char(5),
        Phone_Number varchar(12),
        primary key(Librarian_ID, Phone_Number)
);

create table Books_Author_Name(
        Document_ID char(5),
        Author_Name varchar(15),
        primary key(Document_ID,Author_Name)
);

create table  Journal_Article_Author_Name(
        Document_ID char(5),
        Author_Name varchar(15),
        primary key(Document_ID,Author_Name)
);

create table Search_Documents(
        Member_ID char(5),
        Document_ID char(5),
        primary key(Member_ID,Document_ID),
        foreign key (Member_ID) references Members,
        foreign key (Document_ID) references Documents
);
create table Borrow_Return(
        Member_ID char(5),
        Document_ID char(5),
        primary key(Member_ID,Document_ID),
        foreign key (Member_ID) references Members,
        foreign key (Document_ID) references Documents
);
create table Maintains(
        Librarian_ID char(5),
        Document_ID char(5),
        primary key(Librarian_ID,Document_ID),
        foreign key (Librarian_ID) references Librarian,
        foreign key (Document_ID) references Documents
);

create table D_repository(
        Document_ID char(5),
        Repository_Number varchar(10),
        primary key(Document_ID, Repository_Number),
        foreign key (Repository_Number) references Technical_Repository,
        foreign key (Document_ID) references Documents
);
```

```
create table J_Publish(
        Document_ID char(5),
        Publisher_ID char(5),
        primary key(Document_ID,Publisher_ID),
        foreign key (Publisher_ID) references Publisher,
        foreign key (Document_ID) references Documents
);
create table M_Publish(
        Document_ID char(5),
        Publisher_ID char(5),
        primary key(Document_ID,Publisher_ID),
        foreign key (Publisher_ID) references Publisher,
        foreign key (Document_ID) references Documents
);
create table B_Publish(
        Document_ID char(5),
        Publisher_ID char(5),
        primary key(Document_ID,Publisher_ID),
        foreign key (Publisher_ID) references Publisher,
        foreign key (Document_ID) references Documents
);

create table Written_By(
        Document_ID char(5),
        Author_ID char(5),
        primary key(Document_ID,Author_ID),
        foreign key (Author_ID) references Author,
        foreign key (Document_ID) references Documents
);
```