Database I, Year 2023/ 2024

Project Title	University Library Management

Members:

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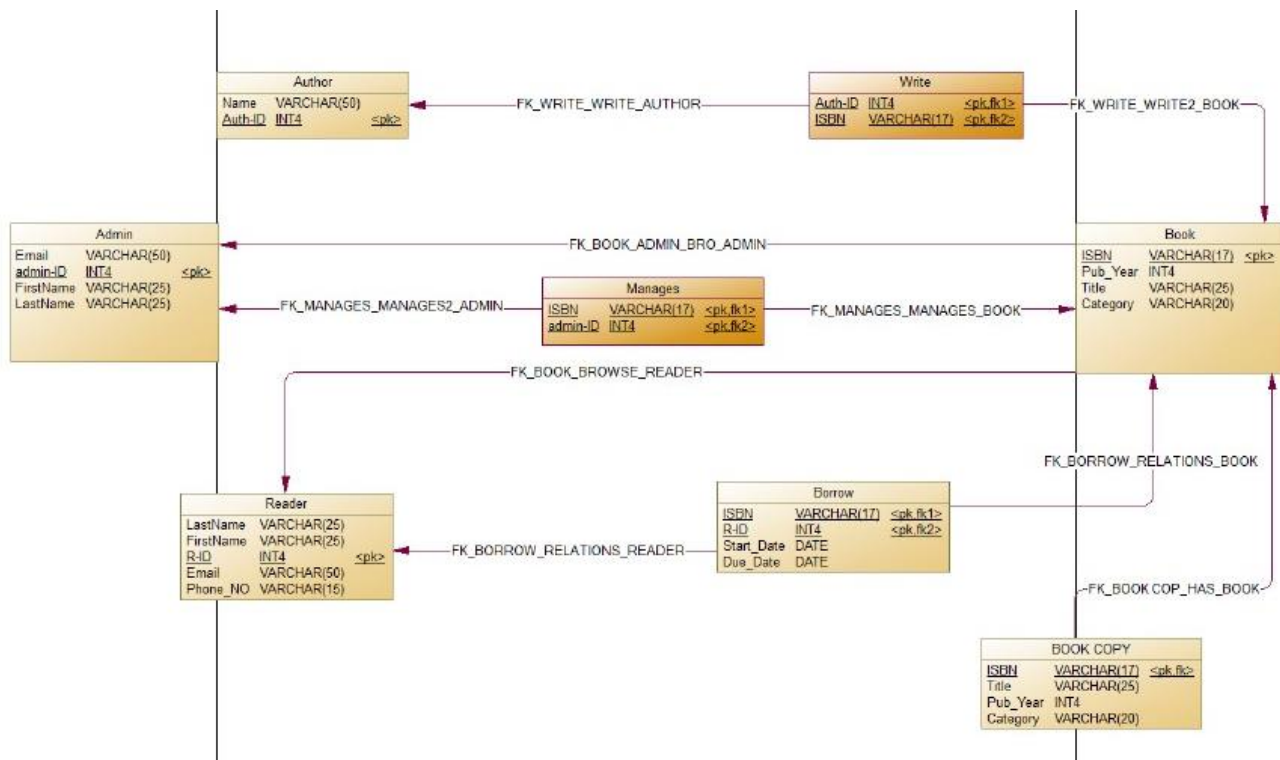**Phase 1**
Entity Relation Diagram
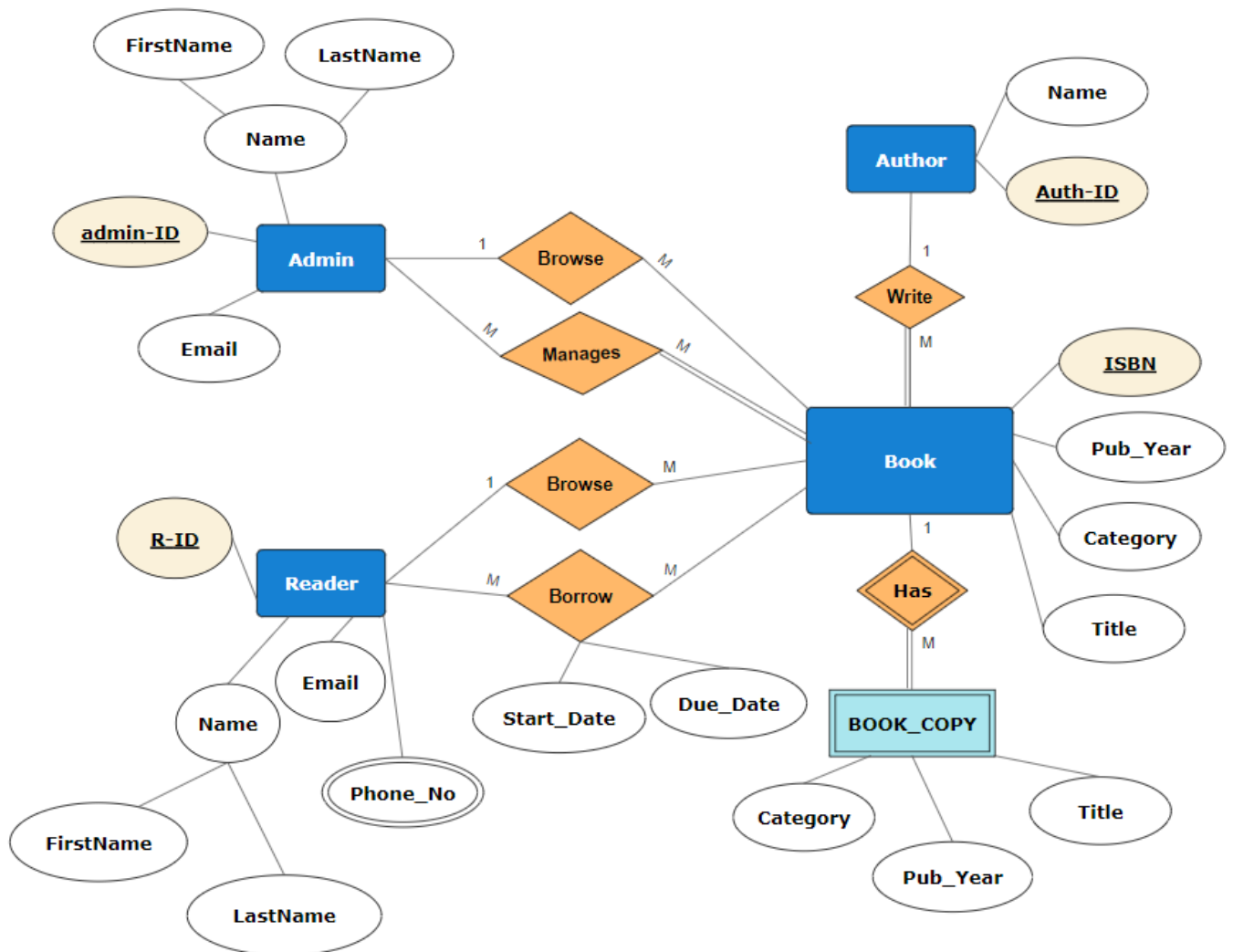
Phase 2
1.Physical ERD

2.SQL DDL

 Create database Project
use Project;

/* Table: Admin   */

```
create table Admin (
   Email            VARCHAR(50)  unique       not null,
   admin_ID          INT    identity(1,1)          not null,
   FirstName         VARCHAR(25)          not null,
   LastName          VARCHAR(25)          not null,
   Pass             VARCHAR(10)          not null,
   constraint PK_ADMIN primary key (admin_ID)
);
```

/* Index: Admin_PK   */

```
create unique index Admin_PK on Admin (admin_ID);
```

```sql
/* Table: Author                                    */

create table Author (
   Name            VARCHAR(50)        not null,
   Auth_ID         INT     identity(1,1)        not null,

   constraint PK_AUTHOR primary key (Auth_ID)
);


/* Index: Author_PK                               */

create unique index Author_PK on Author (Auth_ID);

/* Table: "BOOK COPY"                                */

create table BOOK_COPY (
   ISBN            VARCHAR(17)        not null,
   Title           VARCHAR(25)        null,
   Pub_Year        INT             null,
   Category        VARCHAR(20)        null,
   constraint PK_BOOK_COPY primary key (ISBN)
);

/* Index: "BOOK COPY_PK"                             */

create unique index BOOK_COPY_PK on BOOK_COPY (ISBN);

/* Table: Book                                   */

create table Book (
   ISBN            VARCHAR(17)        not null,
   Pub_Year        INT             null,
   Title           VARCHAR(25)        null,
   Category        VARCHAR(20)        null,
   constraint PK_BOOK primary key (ISBN)
);

/* Index: Book_PK                                   */

create unique index Book_PK on Book (
ISBN
);

/* Table: Borrow                                  */
```

```
create table Borrow (
   ISBN              VARCHAR(17)        not null,
   R_ID           INT            not null,
   Start_Date        DATE             not null,
   Due_Date          DATE             not null,
   constraint PK_BORROW primary key (ISBN, R_ID)
);

/* Index: Borrow_PK                                  */

create unique index Borrow_PK on Borrow (
ISBN,
R_ID
);

/* Index: Relationship_8_FK                          */

create  index Relationship_8_FK on Borrow (
ISBN
);

/* Index: Relationship_9_FK                          */

create  index Relationship_9_FK on Borrow (
R_ID
);

/* Table: Manages                                    */

create table Manages (
   ISBN              VARCHAR(17)        not null,
   admin_ID        INT            not null,
   constraint PK_MANAGES primary key (ISBN, admin_ID)
);

/* Index: Manages_PK                                 */

create unique index Manages_PK on Manages (
ISBN,
admin_ID
);

/* Index: Manages_FK                                 */

create  index Manages_FK on Manages (
```

```
   ISBN
);

/* Index: Manages2_FK                        */

create  index Manages2_FK on Manages (
admin_ID
);

/* Table: Reader                             */

create table Reader (
   LastName        VARCHAR(25)        not null,
   FirstName        VARCHAR(25)        not null,
   R_ID        INT      identity(1,1)        not null,
   Email        VARCHAR(50) unique        not null,
   Phone_NO        VARCHAR(15)        not null,
   Pass        VARCHAR(10)        not null,
   constraint PK_READER primary key (R_ID)
);


/* Index: Reader_PK                          */

create unique index Reader_PK on Reader (
R_ID
);

/* Table: Write                              */

create table Write (
   Auth_ID        INT            not null,
   ISBN        VARCHAR(17)        not null,
   constraint PK_WRITE primary key (Auth_ID, ISBN)
);


/* Index: Write_PK                           */

create unique index Write_PK on Write (
Auth_ID,
ISBN
);

/* Index: Write_FK                           */
```

```
create index Write_FK on Write (
Auth_ID
);

/* Index: Write2_FK                              */

create index Write2_FK on Write (
ISBN
);

alter table BOOK_COPY
   add constraint FK_BOOK_COP_HAS_BOOK foreign key (ISBN)
     references Book (ISBN)
     on delete cascade on update cascade;

alter table Borrow
   add constraint FK_BORROW_RELATIONS_BOOK foreign key (ISBN)
     references Book (ISBN)
     on delete cascade on update cascade;

alter table Borrow
   add constraint FK_BORROW_RELATIONS_READER foreign key (R_ID)
     references Reader (R_ID)
     on delete cascade on update cascade;

alter table Manages
   add constraint FK_MANAGES_MANAGES_BOOK foreign key (ISBN)
     references Book (ISBN)
     on delete cascade on update cascade;

alter table Manages
   add constraint FK_MANAGES_MANAGES2_ADMIN foreign key (admin_ID)
     references Admin (admin_ID)
     on delete cascade on update cascade;

alter table Write
   add constraint FK_WRITE_WRITE_AUTHOR foreign key (Auth_ID)
     references Author (Auth_ID)
     on delete cascade on update cascade;

alter table Write
   add constraint FK_WRITE_WRITE2_BOOK foreign key (ISBN)
     references Book (ISBN)
     on delete cascade on update cascade;
```