PHASE 2 – LOGICAL DESIGN

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COMP 4410 Database Management

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Relational Schema

**Entertainment (eid, title, release\_date, genre, num\_in\_stock)**

* “eid” is a Primary Key
* “title” is NOT NULL
* “genre” is NOT NULL
* “num\_in\_stock” is NOT NULL

**Movies (eid, awards\_won, sequal\_id)**

* “eid” is a Primary Key
* “eid” is a Foreign Key to Entertainment (ON DELETE/UPDATE CASCADE)
* “sequal\_id” Foreign Key to Movies

**Games (eid, platform, version)**

* “eid” is a Primary Key
* “eid” is a Foreign Key to Entertainment (ON DELETE/UPDATE CASCADE)
* “platform” is NOT NULL
* “version” is NOT NULL

**Rent\_History (rid, eid, uid, time\_rented, time\_returned)**

* “rid” is a Primary Key
* “eid” is a Foreign Key to Entertainment
* “uid” is a Foreign Key to User
* “time\_rented” is NOT NULL

**Users (email, name, pass, phone, aid, is\_admin, level\_id)**

* “email” is PRIMARY KEY
* “level\_id” is a FOREIGN KEY to Sub\_Plan Table (NOT NULL)
* “aid” is a FOREIGN KEY to Address Table (NOT NULL)
* “name” is NOT NULL
* “pass” is NOT NULL

**Sub\_Plan (level\_id, total\_quota)**

* “level\_id” is a Primary Key
* “total\_quota” is NOT NULL

**Cast (cid, name, aid, is\_director)**

* “cid” is a Primary Key
* “name” is NOT NULL
* “aid” is a Foreign Key to Address Table (NOT NULL)
* “is\_director” is NOT NULL

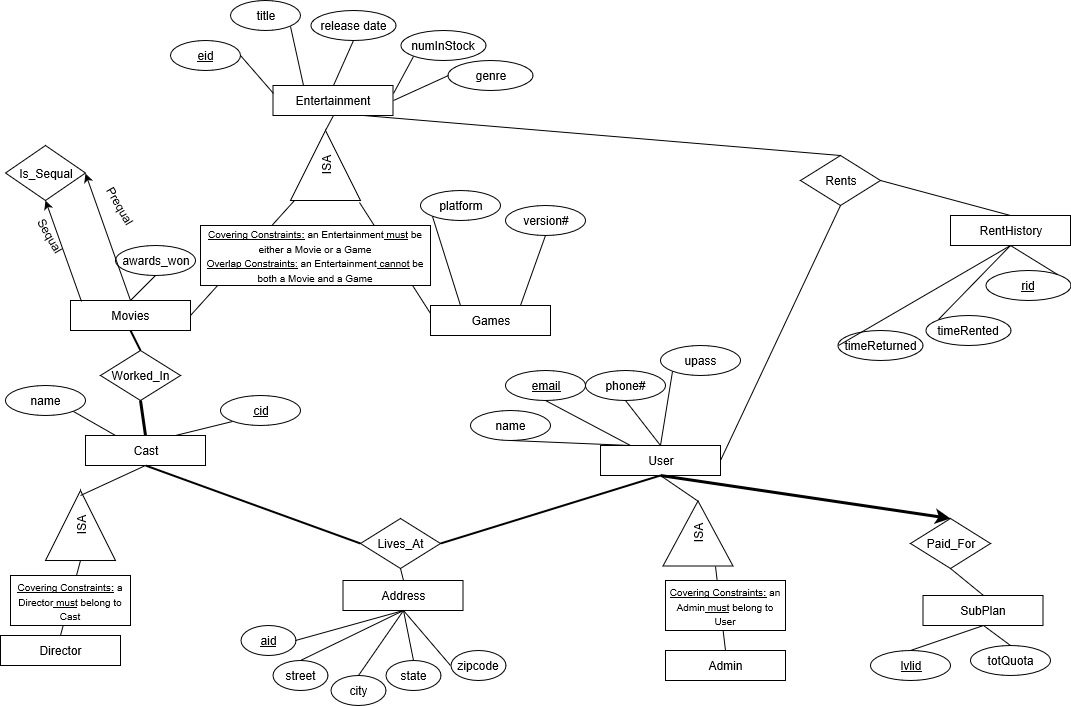
**Worked\_In (cid, eid)**

* “cid” and “eid” make a composite Primary Key
* “cid” is a Foreign Key to Cast (NOT NULL) (ON DELETE/UPDATE CASCADE)
* “eid” is a Foreign Key to Movies (NOT NULL) (ON DELETE/UPDATE CASCADE)

**Address (aid, state, city, street, zip)**

* “aid” is a Primary Key
* “state” is NOT NULL
* “city” is NOT NULL
* “street” is NOT NULL
* “zip” is NOT NULL

Updated ER Diagram



SQL Queries for Table Creations

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| --- | --- |
| CREATE TABLE Entertainment( | eid INTEGER PRIMARY KEY, |
|  | title VARCHAR(64) NOT NULL, |
|  | release\_date TIMESTAMP, |
|  | genre VARCHAR(64) NOT NULL, |
|  | num\_in\_stock INTEGER NOT NULL); |
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| CREATE TABLE Address( | aid INTEGER PRIMARY KEY, |
|  | state VARCHAR(2) NOT NULL, |
|  | city VARCHAR(32) NOT NULL, |
|  | street VARCHAR(64) NOT NULL, |
|  | zip INTEGER NOT NULL); |
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| CREATE TABLE Sub\_Plan( | level\_id INTEGER PRIMARY KEY, |
|  | total\_quota INTEGER NOT NULL); |
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| CREATE TABLE Movies( | eid INTEGER PRIMARY KEY, |
|  | awards\_won INTEGER, |
|  | sequal\_id INTEGER, |
|  | FOREIGN KEY (eid) REFERENCES Entertainment(eid) ON DELETE CASCADE); |
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| CREATE TABLE Games( | eid INTEGER PRIMARY KEY, |
|  | platform VARCHAR(64) NOT NULL, |
|  | version FLOAT, |
|  | FOREIGN KEY (eid) REFERENCES Entertainment(eid) ON DELETE CASCADE); |
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| CREATE TABLE Users( | user\_email VARCHAR(128) PRIMARY KEY, |
|  | name VARCHAR(32) NOT NULL, |
|  | pass VARCHAR(32) NOT NULL, |
|  | phone INTEGER, |
|  | aid INTEGER NOT NULL, |
|  | is\_admin BOOLEAN NOT NULL, |
|  | level\_id INTEGER NOT NULL, |
|  | FOREIGN KEY (aid) REFERENCES Address(aid), |
|  | FOREIGN KEY (level\_id) REFERENCES Sub\_Plan(level\_id) ); |
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| CREATE TABLE Rent\_History( | rid INTEGER PRIMARY KEY, |
|  | eid INTEGER NOT NULL, |
|  | user\_email VARCHAR(128) NOT NULL, |
|  | time\_rented TIMESTAMP NOT NULL, |
|  | time\_returned TIMESTAMP, |
|  | FOREIGN KEY (eid) REFERENCES Entertainment(eid) ON DELETE NO ACTION, |
|  | FOREIGN KEY (user\_email) REFERENCES Users(user\_email) ON DELETE NO ACTION); |
|  |  |
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|  |  |
| CREATE TABLE Cast\_Member( | cid INTEGER PRIMARY KEY, |
|  | name VARCHAR(32) NOT NULL, |
|  | aid INTEGER NOT NULL, |
|  | is\_director BOOLEAN NOT NULL, |
|  | FOREIGN KEY (aid) REFERENCES Address(aid) ); |
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|  |  |
| CREATE TABLE Worked\_In( | cid INTEGER, |
|  | eid INTEGER, |
|  | PRIMARY KEY(cid,eid), |
|  | FOREIGN KEY (cid) REFERENCES Cast\_Member(cid) ON DELETE CASCADE, |
|  | FOREIGN KEY (eid) REFERENCES Movies(eid) ON DELETE CASCADE); |
|  |  |

Screenshot of Successful Table Creations

