**National University of Computer and Emerging Sciences, Lahore Campus**

**Course: Database Systems Course Code:** 

**Program: BS (Computer Science) Semester: Spring 2023 Due Date: Thursday, 9 February 2023 Total Marks: 15**

**Section: BCS-4J Page(s): 1**

**Instruction/Notes:** You are not allowed to copy from each other. **Plagiarism** would be checked. Submit it in hard copy. Use proper assignment sheets to solve.

**Deadline is Thursday, 9th February 7, 2023.**

**Question#1**

**a. Write DDL script to create all the required tables. Also add primary keys in tables. (Do not create foreign key constraints inside Create Table statements)(5 Marks)**

Movie (movieId, title, rating, releaseYear, directorId)

Director (directorId, firstName, lastName)

Actor (actorId, firstName, lastName)

MovieActor (actorId, movieId)

**Solution:**

CREATE TABLE Movie (

movieId INT PRIMARY KEY,

title VARCHAR(255) NOT NULL,

rating DECIMAL(3, 2) NOT NULL,

releaseYear INT NOT NULL,

directorId INT NOT NULL

);

CREATE TABLE Director (

directorId INT PRIMARY KEY,

firstName VARCHAR(255) NOT NULL,

lastName VARCHAR(255) NOT NULL

);

CREATE TABLE Actor (

actorId INT PRIMARY KEY,

firstName VARCHAR(255) NOT NULL,

lastName VARCHAR(255) NOT NULL

);

CREATE TABLE MovieActor (

actorId INT NOT NULL,

movieId INT NOT NULL,

PRIMARY KEY (movieId)

);

ALTER TABLE Actor

ADD CONSTRAINT fk\_actor\_Id

FOREIGN KEY (actorId)

REFERENCES MovieActor (actorId);

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**b. Create foreign constraints using alter table statement. Also consider the following constraints for foreign key.(5 Marks)**

1. If a director id is deleted, then it is deleted for Movie as well.

2. If a movie id is updated, then it is updated for MovieActor as well.

3. If an actor id is updated, then it is updated for MovieActor as well.

**Solution:**

ALTER TABLE Movie

ADD CONSTRAINT fk\_Movie\_Director

FOREIGN KEY (directorId) REFERENCES Director(directorId)

ON DELETE CASCADE;

ALTER TABLE MovieActor

ADD CONSTRAINT fk\_MovieActor\_Movie

FOREIGN KEY (movieId) REFERENCES Movie(movieId)

ON UPDATE CASCADE;

ALTER TABLE MovieActor

ADD CONSTRAINT fk\_MovieActor\_Actor

FOREIGN KEY (actorId) REFERENCES Actor(actorId)

ON UPDATE CASCADE;

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**c. Alter the tables so that the following requirements are fulfilled(5 Marks)**

1. A new column “dateOfBirth” having datatype date for Actor table is required.

2. Title of each Movie needs to be unique.

3. The rating of each movie cannot be greater than 5.

4. Directors first and last Name cannot be NULL.

**Solution:**

1. ALTER TABLE Actor ADD COLUMN dateOfBirth DATE;
2. ALTER TABLE Movie ADD CONSTRAINT unique\_title UNIQUE (title);
3. ALTER TABLE Movie ADD CONSTRAINT rating\_check CHECK (rating <= 5);
4. ALTER TABLE Director ALTER COLUMN firstName SET NOT NULL;
5. ALTER TABLE Director ALTER COLUMN lastName SET NOT NULL;

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