

Assignment-2

CS482/502 Database Management Systems I

Spring 2021

Assignment: Relational Algebra + SQL

Assume that you are given the following relational schemas for the basketball team at NMSU.

- Player (ID: integer, Name: varchar (64), Birthday: date, Address: varchar (128), Email: varchar (32), PhoneNumber: char (10), PlayPos: varchar (16))
- Manager (ID: integer, LoginID: varchar (16), Name: varchar (64), Password: varchar (8), Birthday: date, Address: varchar (128), Email: varchar (32), PhoneNumber: char (10))
- ManagerCertificate (ManagerID: integer, CertificateId: integer, Certificate: blob) - Foreign key: ManagerID references Manager (ID)
- Doctor (Email: varchar (32), Name: varchar (64), PhoneNumber: char (10))
- TakeExam (PlayerID: integer, DocEmail: varchar (32), TestDate: date, TestResult: varchar (256))
 - Foreign key: PlayerID references Player (ID)
 - Foreign key: DocEmail references Doctor (Email)
- Stats (PlayerID: integer, Year: char (4), TotalPoints: integer, ASPG: integer)
 - Foreign key: PlayerID references Player (ID)
- Training (TrainingName: varchar (256), Instruction: varchar (256), TimePeriodInHour: integer)
- AssignTraining (PlayerID: integer, ManagerID: integer, TrainingName: varchar (256))
 - Foreign key: PlayerID references Player (ID)
 - Foreign key: ManagerID references Manager (ID)
 - Foreign key: TrainingName references Training (TrainingName)
- Game (GameID: integer, Date: date, Result: varchar (16), PlayingVenue: varchar (256), OpponentTeam: varchar (32))
- Play (PlayerID: integer, GameID: integer)
 - Foreign key: PlayerID references Player (ID)
 - Foreign key: GameID references Game (GameID)

Q1) Write a **Relational Algebra** query for each of the following:

- 1.) Show the names, ID's and emails of all players whose play position is "Middle".
 - 2.) Show the total points that player "Lobo Louie" has scored each year (assume there is only one Lobo Louie).
 - 3.) Show the names of every player who has played a game at "PanAm" and lost (Result = "lose").
 - 4.) Find the average points scored by all players.
 - 5.) Find the maximum points scored in each year.
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Q2) Assume that you are given the following relational schemas.

- Members (memb_no int (3), name varchar (64))
- books (isbn int (6), title varchar (64), authors varchar (128), publisher varchar (128))
- borrowed (memb_no int (3), isbn int (6))

Write an **SQL Query** for each of the following.

1. Show the title of the books in which Sam borrowed.
2. Show the details of members whose name does not start with "a".
3. Find the number of books borrowed by "Sam".
4. Show the details of members whose name contains "m".
5. Find the distinct publisher name of the book which has been borrowed by "Kim".