Homework 4

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**Problem 1(15 Points)**: Consider relations R(A, B, C) with n tuples, and relation S(C,D,E) with m tuples. What arethe relation **schema** for T1 and T2

1. T1= R **X** S

T1 = (A, B, R.C, S.C, D, E)

1. T2 = R **⋈** S

T2 = (A, B, C, D, E)

**Problem2 (15 Points)**: Given the following NBA game relation Game(Home, Guest, Home\_Score, Guest\_Score)

|  |  |  |  |
| --- | --- | --- | --- |
| Home | Guest | Home\_Score | Guest\_Score |
| Lakers | Rockets | 110 | 96 |
| Magic | Thunder | 98 | 88 |
| Heat | Clippers | 89 | 99 |
| Bulls | Spurs | 87 | 89 |
| Warriors | Nets | 108 | 100 |

Write a SQL query to return all home teams that win the game.

SELECT

Home,

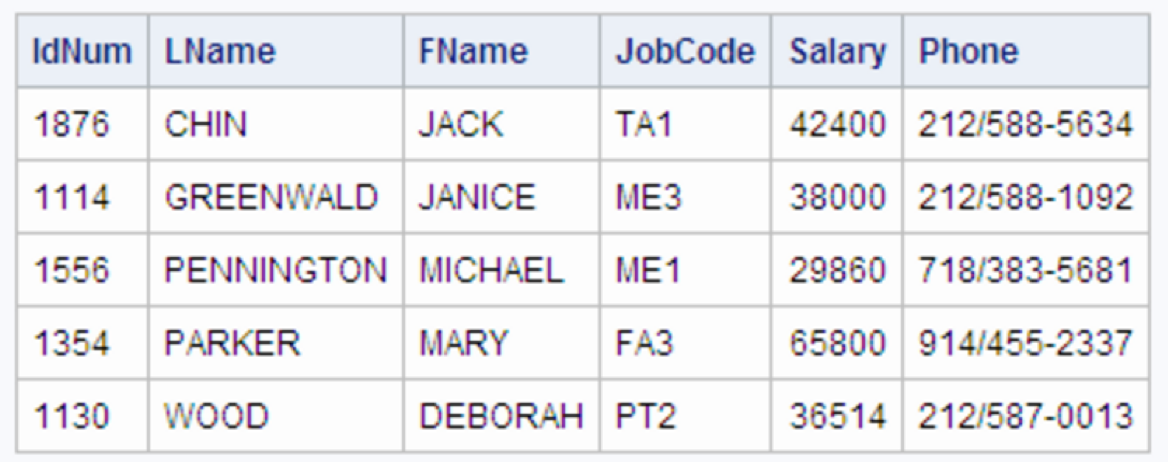
Home\_Score AS WinningScore

FROM Game

WHERE Home\_Score > Guest Score

**Problem3 (25 Points)**: Below is an employee relation, named Employees. The data type of IdNum and JobCode is int, and the data type of LName, FName, JobCode, Phone are varchar(100). Based on the employees relation, write **one** sql query to query tuples of employee with the following requirements

1. The query results should only contain attributes LName, FName, JobCode
2. LName and FName need to be renamed as Last\_Name and First\_Name respectively
3. The query should only return employees whose Phone contain ‘58



SELECT

LName AS Last\_Name,

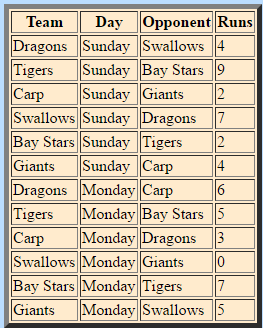
FName AS First\_Name,

JobCode

FROM Employees

WHERE Phone = ‘%588%’

**Problem4 (25 Points)**: The table Scores(Team, Day, Opponent, Runs) gives the scores in the Baseball League for two consecutive days. The data in this table is as follows:



Write an SQL query to find all teams that have more runs in Sunday than Monday.

SELECT

s1.Team

s1.Day,

s1.Runs

FROM

Scores s1,

Scores s2

WHERE

s1.Day = ‘Sunday’ AND

s1.Runs > s2.Runs

GROUP BY

s1.Team,

s1.Day,

s1.Runs

**Problem5 (20 Points)**: Given the following relations:

Students(sid, first\_name, last\_name, major, department)

Departments(id, name, college)

Note: department in Students is the department id, not name.

Write a SQL query using **IN** operator to find all students in the department of ECSSE and AE

SELECT

(Students.first\_name + ‘ ‘ + Students.last\_name) AS Student,

Students.major AS Major

FROM

Students

WHERE Students.department IN (

SELECT

Id

FROM

Departments

WHERE Departments.name IN (‘ECSSE’, ‘AE’)

)