

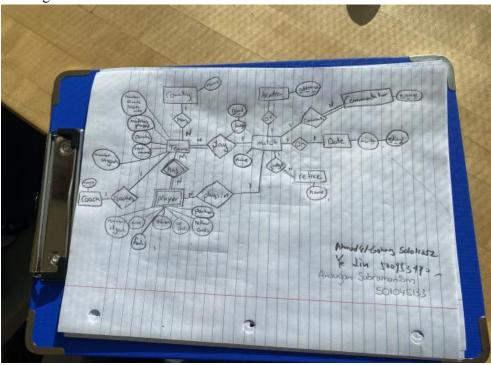
Course Number	CPS510
Course Title	Database Systems I
Semester/Year	F2022
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TA Name	Tabbasum Sultan
Section No.	03
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http://www.ryerson.ca/content/dam/senate/policies/pol60.pdf

ER Diagram:



Tables:

Crew (CrewName, Occupation, Age)

info(city name, location address, date time)

Coach(Age, CoachName, CoachTeam, CoachRecord, CoachCountry)

teams(numberof_wins, numberof_lost int, country_name, <u>TeamName</u>, matplayed, points, numbeof_goal, <u>CoachName</u>)

Players (PlayerNum, <u>PlayerName</u>, PlayerPosition, NumOfRedCards, NumOfYellowCards, Goals, Fouls, <u>TeamName</u>)

Queries and Views:

Join Queries

SELECT COACH.COACHNAME, TEAMS.TEAMNAME, TEAMS.NUMBEOF_GOALS, PLAYERS.PLAYERNAME, PLAYERS.GOALS FROM (PLAYERS

INNER JOIN TEAMS ON (PLAYERS.GOALS >= TEAMS.NUMBEOF_GOALS) AND (PLAYERS.TEAM NAME = TEAMS.TEAMNAME))

INNER JOIN COACH ON COACH.COACHNAME = TEAMS.COACH NAME

SELECT TEAMS.number of _usins, TEAMS.number of _lost, TEAMS.matplayed, Coach.CoachRecord, Coach.CoachName

FROM TEAMS

LEFT JOIN COACH ON (TEAMS.TeamName != COACH.CoachCountry) AND ((Coach.CoachTeam = TEAMS.TEAMNAME) AND (TEAMS.numberof_wins > TEAMS.numberof_lost));

SELECT TEAMS.country_name, TEAMS.numberof_wins, TEAMS.numberof_lost, PLAYERS.PlayerName, PLAYERS.goals, PLAYERS.PlayerPosition FROM TEAMS INNER JOIN PLAYERS
ON PLAYERS.Team_Name = TEAMS.TeamName;

Views

CREATE VIEW TopScorers AS SELECT PLAYERNAME, GOALS FROM PLAYERS ORDER BY GOALS DESC;

CREATE VIEW TopRedCards AS SELECT DISTINCT PLAYERNAME, NumOfRedCards FROM PLAYERS ORDER BY NumOfRedCards DESC;

CREATE VIEW TeamslostAlot AS
SELECT country_name, TeamName, number of_wins
FROM TEAMS
WHERE number of wins<number of lost;

Unix shell Implementation:



Main page:

Functional Dependencies:

3rd Normal Formal: Normalization 3NF/ BCNF by Algorithm:

Advanced Queries and Views:

SELECT CoachTeam, CoachCountry FROM Coach WHERE CoachCountry='Canada' UNION SELECT country_name, TeamName FROM teams WHERE country_name ='Canada' ORDER BY CoachTeam;

SELECT COUNT(Occupation) From Crew;

SELECT TeamName FROM teams WHERE TeamName = 'GER' MINUS SELECT Team_Name FROM Players; Normalization of the database/ Functional Dependencies:

FD (Crew) - CrewName -> Occupation, Age

FD (info) - city name ->location address, date time

FD (Coach) - CoachName -> Age, CoachTeam, CoachRecord, CoachCountry

FD (teams) - TeamName -> country_name, number of_wins, number of_lost, matplayed, points, number of goals, Coach Name

country_name -> TeamName, number of wins, number of lost, matplayed, points, number of goals, Coach Name

FD (Players) - PlayerNum, PlayerName -> PlayerPosition, NumOfRedCards, NumOfYellowCards, Goals, Fouls, Team Name

Normalization / 3NF:

FD (info) - date_time city_name-> location_address FD (teams) - TeamName -> country_name, Coach_Name

points -> number of wins, number of lost, matplayed, points, numbe of goals

country name -> TeamName,

Normalization/ BCNF:

FD (Crew) - CrewName -> Occupation, Age

CrewName is an independent attribute that determines all attributes of the table, so this relation is already in BCNF.

FD (info) - city_name ->location_address, date_time city_name is an independent attribute that determines all attributes of the table, so this relation is already in BCNF.

FD (Coach) - CoachName -> Age, CoachTeam, CoachRecord, CoachCountry

CoachName and CoachTeam are both primary attributes since they can determine all attributes in the Coach table. These two attributes determine the rest of the attributes with no transitivity. So this relation is already in BCNF.

FD (Players) - PlayerNum, PlayerName -> PlayerPosition, NumOfRedCards, NumOfYellowCards, Goals, Fouls, Team_Name

This relation is already in BCNF.

Compute PlayerNum, PlayerName+

- = {PlayerNum,PlayerName}
- = {PlayerNum,PlayerName,Team Name}
- = {PlayerNum,PlayerName,Team_Name, PlayerPosition, NumOfRedCards, NumOfYellowCards, Goals, Fouls}

FD (teams) - TeamName -> country_name, Coach_Name points -> numberof_wins, numberof_lost, matplayed, points, numbeof_goals country_name -> TeamName, matplayed

This relation is already in BCNF.

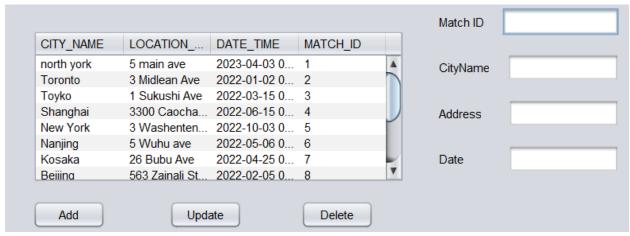
Compute TeamName+

- = {TeamName}
- = {TeamName,country_name, Coach_Name, points}
- = {TeamName,country_name, Coach_Name,points, number of wins, number of lost, matplayed, points, number of goals}
- = {TeamName,country_name, Coach_Name,points, number of_wins, number of_lost, matplayed, points, number of_goals, country_name, TeamName, matplayed}

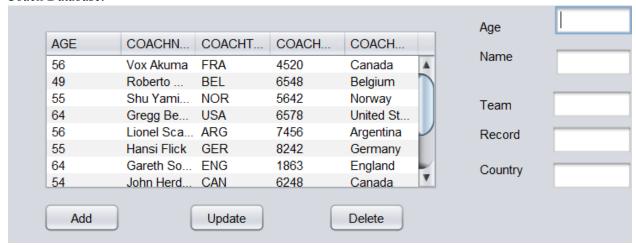
GUI:

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Info	O Select Info	
Crew	O Select Crew	Drop Table
Coach	O Select Coach	Delete Table
Teams	O Select Tea	
Players	O Select Play	

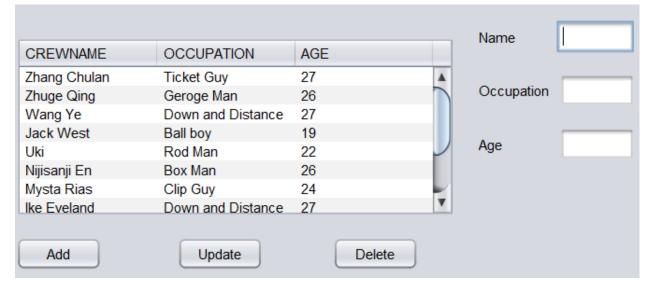
Info Database:



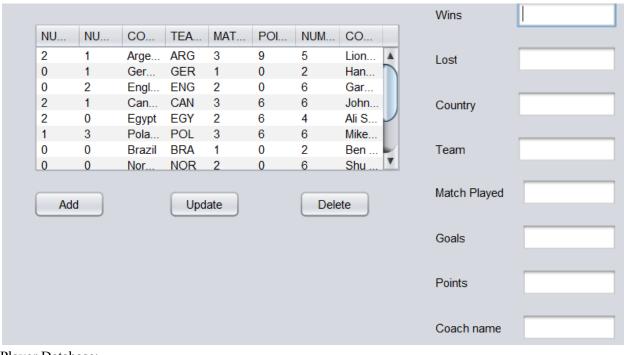
Coach Database:



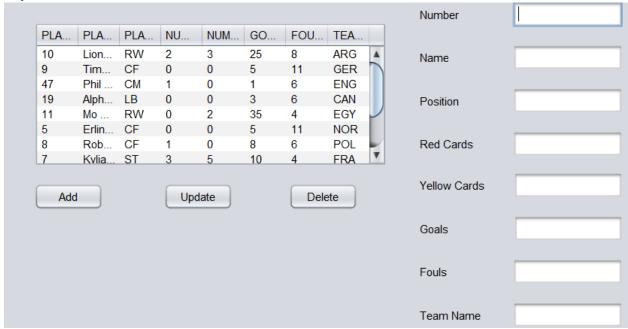
Crew Database:



Team Database:



Player Database:



Codes are provided in the zip file with the submission.