

Sports Team

Management System

Milestone #: 4

Date: 05/04/23

Group Number: 62

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

3.

a.

Project Description:

Our project is a management tool for a sports organization to track their many players, teams, and individual performance across seasons to improve operation.

The domain of this project is team management and player optimization across any sports the organization is a part of.

Our database models the aspects of team management and optimization of our domain by allowing the application to be used by both Coaches, Players, and the organization itself to see coach history, player performance by season, create training schedules, choose the optimal team roster for a game etc.

b.

c.

After running the sql file provided in the repository, here are the screenshots of the schema and the individual tables showing what data is present in each relation:

Our schema has the tables:

1. Coach

COACHID	NAME	PHONENUMBER	SPECIALIZATION
C001	John Smith	555-1234	Offense
C002	Jane Doe	555-5678	Pitching
C003	Mike Johnson	555-2468	Shooting
C004	Sarah Lee	555-1357	Goalkeeping
C005	David Kim	555-7890	Skating
C006	b	555	a

2. Contributes

SCHEDULEID	COACHID
S001	C001
S002	C002
S003	C003
S004	C004
S005	C005

3. displaysPerformance

SEASON	PERFORMANCEPOINTS	PLAYERID
2022Spring	100	P001
2021Winter	80	P002
2020Spring	10	P003
2020Winter	80	P004
2020Spring	100	P005

4. Game

WHERE		ORDER BY			
	GAMEDATE		VENUE		OPPOSINGTEAM
1	2023-03-05 14:00:00.000000		Stadium A		Team B
2	2023-03-10 19:30:00.000000		Gymnasium B		Team C
3	2023-04-02 13:00:00.000000		Field C		Team D
4	2023-04-15 20:00:00.000000		Arena D		Team E
5	2023-05-07 15:30:00.000000		Field F		Team G

5. GameGroupAgenda

WHERE	
LEAGUE	AGENDA
1 MLS	Friendly
2 EPL	Finals
3 TDB	Semifinals
4 HGF	Championship
5 CAC	Premiers

6. GameSchedule

WHERE			ORDER BY		
SCHEDULEID	GROUPNAME	LEAGUE			
1 S001	Division A	MLS			
2 S002	Division B	EPL			
3 S003	Division C	TDB			
4 S004	Division D	HGF			
5 S005	Division E	CAC			

7. hasPhysicalCharacteristics

WHERE					ORDER BY			
DATECHECKED	AGE	WEIGHT	HEIGHT	PLAYERID				
1 2022-01-01 09:00:00.000000	23	180	72	P001				
2 2022-01-02 10:00:00.000000	27	210	76	P002				
3 2022-01-03 11:00:00.000000	21	150	66	P003				

8. Injury

WHERE				ORDER BY			
TIMEOFCURRENCE	CAUSE	OTHERPARTIESINVOLVED	TYPE				
1 2007-07-07 09:00:00.000000	Impact	Opponent Player	Concussion				
2 2023-02-28 15:00:00.000000	Collision	N/A	Sprain				
3 2023-02-27 19:15:00.000000	Collision	Teammate	Fracture				
4 2023-02-26 12:45:00.000000	Strain	N/A	Muscle tear				
5 2001-07-27 09:00:00.000000	Twist	Opponent Player	Dislocation				

9. numPlayers

WHERE		ORDER BY	
TYPE	NUMPLAYERS		
1 Soccer	11		
2 Basketball	5		
3 Football	11		
4 Baseball	9		
5 Hockey	6		

10. playerHasRankingIsInTeamFollows

	PLAYERID	NAME	POSITION	PLAYERNUMBER	PHONE NUMBER	RANKNUMBER	RANKTYPE	TEAMTYPE	TEAMNAME
1	P001	John Doe	Forward		7 555-1234		1 team	Soccer	The Lions
2	P002	Jane Smith	Defender		5 555-5678		4 national	Basketball	The Eagle
3	P003	Bob Johnson	Midfielder		10 555-9101		5 state	Football	The Giant
4	P004	Jahn Doe	Forward		8 558-1234		2 team	Soccer	The Lions
5	P005	Jehn Doe	Forward		9 552-1234		3 team	Soccer	The Lions

	TEAMNAME	DIVISION	SCHEDULEID						
	The Lions	Premier League	S001						
	The Eagles	U14	S002						
	The Giants	North	S003						
	The Lions	Premier League	S001						
	The Lions	Premier League	S001						

11. Plays

WHERE ORDER BY				
TYPE	NAME	DIVISION	GAMEDATE	OPPOSINGTEAM
1 Basketball	The Eagles	U14	2023-03-05 14:00:00.000000	Team B
2 Football	The Giants	North	2023-04-02 13:00:00.000000	Team D
3 Soccer	The Giants	Nationals	2023-03-10 19:30:00.000000	Team C

12. Specialization

WHERE	
SPECIALIZATION	TYPE
1 Offense	Football
2 Pitching	Baseball
3 Shooting	Basketball
4 Goalkeeping	Soccer
5 Skating	Hockey
6 a	Hockey

13. SportsSchedule

WHERE ORDER BY			
SCHEDULEID	STARTTIME	ENDTIME	SEASON
1 S001	2022-05-01 09:00:00.000000	2022-05-01 11:00:00.000000	2022Spring
2 S002	2022-05-08 10:00:00.000000	2022-05-08 12:00:00.000000	2022Spring
3 S003	2022-05-15 11:00:00.000000	2022-05-15 13:00:00.000000	2022Spring
4 S004	2022-05-22 12:00:00.000000	2022-05-22 14:00:00.000000	2022Spring
5 S005	2022-05-29 13:00:00.000000	2022-05-29 15:00:00.000000	2022Spring
6 S006	2022-01-01 09:00:00.000000	2022-01-01 11:00:00.000000	2021Winter
7 S007	2022-01-02 09:00:00.000000	2022-01-02 11:00:00.000000	2021Winter
8 S008	2022-01-03 09:00:00.000000	2022-01-03 11:00:00.000000	2021Winter
9 S009	2022-01-04 09:00:00.000000	2022-01-04 11:00:00.000000	2021Winter
10 S010	2022-01-05 09:00:00.000000	2022-01-05 11:00:00.000000	Winter

14. Sustains

WHERE ORDER BY			
CAUSE	TIMEOFCURRENCE	OTHERPARTIESINVOLVED	PLAYERID
1 Impact	2007-07-07 09:00:00.000000	Opponent Player	P001
2 Collision	2023-02-27 19:15:00.000000	Teammate	P003
3 Collision	2023-02-28 15:00:00.000000	N/A	P002

15. Team

WHERE			ORDER BY		
	TYPE	NAME		DIVISION	
1	Baseball	Based		National League	
2	Basketball	The Eagles		U14	
3	Football	The Giants		North	
4	Hockey	Icebreakers		U21 Division	
5	Soccer	The Lions		Premier League	

16. TrainingSchedule

WHERE			ORDER BY		
	SCHEDULEID	GOAL		GROUPNAME	
1	S006	Group A		Pitching	
2	S007	Group B		Goalkeeping	
3	S008	Group C		Fielding	
4	S009	Group D		Cardio	
5	S010	Group E		Weight Training	

17. Trains

WHERE			ORDER BY		
	PLAYERID	COACHID			
1	P001	C005			
2	P002	C001			
3	P003	C002			

18. Treatment

WHERE			ORDER BY		
	TYPE	TREATMENT			
1	Concussion	Rest			
2	Sprain	Elevation			
3	Fracture	Surgery			
4	Muscle tear	Physiotherapy			
5	Dislocation	Surgery			

d.

A list of the SQL queries used in the code and the file name and line numbers they can be found at:

1. Insert

Our insert query allows a user to input a new Coach, taking the Coach ID, name, phone number and specialization as input. This occurs in the file DatabaseConnectionHandler.java and in the function insertCoach(CoachModel model) at Line 125

2. Update

Our update query allows a user to update any column of an already existing Coach, taking the Coach ID as input. This occurs in the file DatabaseConnectionHandler.java and in the function updateCoach at Line 194

3. Delete

Our delete with cascade query allows a user to delete an already existing specialization, which will in turn delete any coach with that specialization. This occurs in the file DatabaseConnectionHandler.java and in the function deleteSpecialization(String specialization) at Line 171

4. Selection

Our selection query allows a user to select all coaches. This occurs in the file DatabaseConnectionHandler.java and in the function getCoachInfo() at Line 223

5. Division

Our division query allows us to input a team name and get in return all the coaches that have coached every player in the team. This occurs in the file DatabaseConnectionHandler.java and in the function coachedAllPlayersInGivenTeam(String givenTeamName) at Line 316.

6. Projection

Our projection query allows a user to input a game season and in return get the respective players who played in that season, their rankings, and their performance points. This occurs in the file DatabaseConnectionHandler.java and in the function getRankingsBySeason(String givenSeason) at Line 250

7. Join

Our join query joins on SportsSchedule, Coach, and Contributes, to find all the Schedules made by a given coach which is inputted by the user. This occurs in the file DatabaseConnectionHandler.java and in the function getAllSchedulesMadeByCoach(String coachID) at Line 283

8. Aggregation with Group By

Our aggregation with group by query groups the players by their team names, and returns a count of the number of players in each team. This occurs in the file DatabaseConnectionHandler.java and in the function showCountOfAllTeams() at the Line 403

9. Aggregation with Having

Our aggregation with having query gives us the High Performing Teams in our organization. For our purposes, a high performing team is defined as any team where the players have an average of performance points ≥ 50 . This occurs in the file DatabaseConnectionHandler.java and in the function getHighPerformingTeams() at the Line 435

10. Nested Aggregation with Group By

Our nested aggregation with group by query returns the team with the best performance in the organization. This occurs in the file DatabaseConnectionHandler.java and in the function getBestPerformingTeam() at the Line 508

e.

Screenshots demonstrating the functionality of each query using the GUI with before and after screenshots of the SQL tables:

1. Insert:

Insert new test Coach tuple with the values:

coachID: C999

Name: name

phoneNumber: 123-1234

Specializaton: Offense

Before:

The screenshot shows the Oracle SQL Developer interface with the COACH table selected. The table has columns: COACHID, NAME, PHONENUMBER, and SPECIALIZATION. There are 11 rows of data. The data is as follows:

	COACHID	NAME	PHONENUMBER	SPECIALIZATION
1	C001	John Smith	555-1234	Offense
2	C002	Jane Doe	555-5678	Pitching
3	C003	Mike Johnson	555-2468	Shooting
4	C004	Sarah Lee	555-1357	Goalkeeping
5	C005	David Kim	555-7890	Skating
6	C999	name	123-1234	Offense
7	C123	asdsda	122-1234	Offense
8	C1234	asdsda	122-1234	Offense
9	c123	asd	asd	Offense
10	C99999	asd	asd	Skating
11	C999992	update	uuuu	Offense

Query In UI:

SPORTS ORGANIZATION MANAGEMENT TOOL

INSERT A COACH

CoachID * C1999 Name * asd Phone Number * asd Specialization * Skating

UPDATE A COACH

CoachID * Name * Phone Number *

File Edit View Navigate Code Refactor Build Run Tools Git Window Help

dbhost.students.cs.ubc.ca ORA_ZJASPER tables COACH Application

Project Full Requests

Y WHERE ORDER BY

COACHID : NAME : PHONENUMBER : SPECIALIZATION

1	C001	John Smith	555-1234	Offense
2	C002	Jane Doe	555-5678	Pitching
3	C003	Mike Johnson	555-2468	Shooting
4	C004	Sarah Lee	555-1357	Goalkeeping
5	C005	David Kim	555-7890	Skating
6	C999	name	123-1234	Offense
7	C123	asdsda	122-1234	Offense
8	C1234	asdsda	122-1234	Offense
9	c123	asd	asd	Offense
10	C99999	asd	asd	Skating
11	C999992	update	uuuuu	Offense
12	C1999	asd	asd	Skating

ORA_ZJASPER tables COACH CONTRIBUTES GAME GROUPSPEFIC GAME GROUPSPEFIC GAME GROUPSPEFIC HASHPHYSICAL INJURY NUMPLAYERS PLAYERSRAN PLAYS SPECIALIZATION SPORTSCHEDU SUSTAINS TEAM TRAININGSCHED TRANS TREATMENT

SPORTS ORGANIZATION MANAGEMENT TOOL

INSERT A COACH

CoachID * C1999 Name * asd Phone Number * asd Specialization * Skating

UPDATE A COACH

2. Update

Update already existing Coach tuple

Before:

	COACHID	NAME	PHONENUMBER	SPECIALIZATION
1	C001	John Smith	555-1234	Offense
2	C002	Jane Doe	555-5678	Pitching
3	C003	Mike Johnson	555-2468	Shooting
4	C004	Sarah Lee	555-1357	Goalkeeping
5	C005	David Kim	555-7890	Skating
6	C006	b	555	a

Query In UI:

File Edit View Navigate Code Refactor Build Run Tools Git Window Help

dbhost.students.cs.ubc.ca ORA_ZJASPER tables COACH Application

Project Full Requests

Y WHERE ORDER BY

COACHID : NAME : PHONENUMBER : SPECIALIZATION

1	C001	John Smith	555-1234	Offense
2	C002	Jane Doe	555-5678	Pitching
3	C003	Mike Johnson	555-2468	Shooting
4	C004	Sarah Lee	555-1357	Goalkeeping
5	C005	David Kim	555-7890	Skating
6	C999	name	123-1234	Offense
7	C123	asdsda	122-1234	Offense
8	C1234	asdsda	122-1234	Offense
9	c123	asd	asd	Offense
10	C99999	asd	asd	Skating
11	C999992	update	uuuuu	Offense
12	C1999	123	123	Skating

ORA_ZJASPER tables COACH CONTRIBUTES GAME GROUPSPEFIC GAME GROUPSPEFIC GAME GROUPSPEFIC HASHPHYSICAL INJURY NUMPLAYERS PLAYERSRAN PLAYS SPECIALIZATION SPORTSCHEDU SUSTAINS TEAM TRAININGSCHED TRANS TREATMENT

SPORTS ORGANIZATION MANAGEMENT TOOL

INSERT A COACH

CoachID * C1999 Name * asd Phone Number * asd Specialization * Skating

UPDATE A COACH

CoachID * C1999 Name * 123 Phone Number * 3 Specialization * Skating

3. Delete

Delete with cascade Specialization tuple

Before:

COACHID	NAME	PHONENUMBER	SPECIALIZATION
C001	John Smith	555-1234	Offense
C002	Jane Doe	555-5678	Pitching
C003	Mike Johnson	555-2468	Shooting
C004	Sarah Lee	555-1357	Goalkeeping
C005	David Kim	555-7890	Skating
C006	b	555	a

WHERE	
SPECIALIZATION	TYPE
Offense	Football
Pitching	Baseball
Shooting	Basketball
Goalkeeping	Soccer
Skating	Hockey
a	Hockey

Query In UI and After Tables:

The screenshot displays two windows. On the left is the Oracle Database SQL Developer interface, showing a query in the SQL tab:

```

SELECT * FROM SPECIALIZATION WHERE SPECIALIZATION = 'a';
  
```

On the right is a browser window titled "SPORTS ORGANIZATION MANAGEMENT TOOL". It contains two forms:

- UPDATE A COACH**: Fields for CoachID, Name, Phone Number, and Specialization. The Specialization field has a dropdown menu showing the options: Offense, Pitching, Shooting, Goalkeeping, Skating, and a selected option 'a'.
- DELETE A SPECIALIZATION**: A field labeled "Specialization" containing the value 'a'.

Both the SQL Developer and the browser display the same data from the initial table:

COACHID	NAME	PHONENUMBER	SPECIALIZATION
C001	John Smith	555-1234	Offense
C002	Jane Doe	555-5678	Pitching
C003	Mike Johnson	555-2468	Shooting
C004	Sarah Lee	555-1357	Goalkeeping
C005	David Kim	555-7890	Skating

4. Selection:

Select Coach by Coach Name

Query In UI: We have a drop down query allowing the user to see the possible options for coaches and choosing any one. Once the coach name is selected, they can see all the corresponding information for that coach.

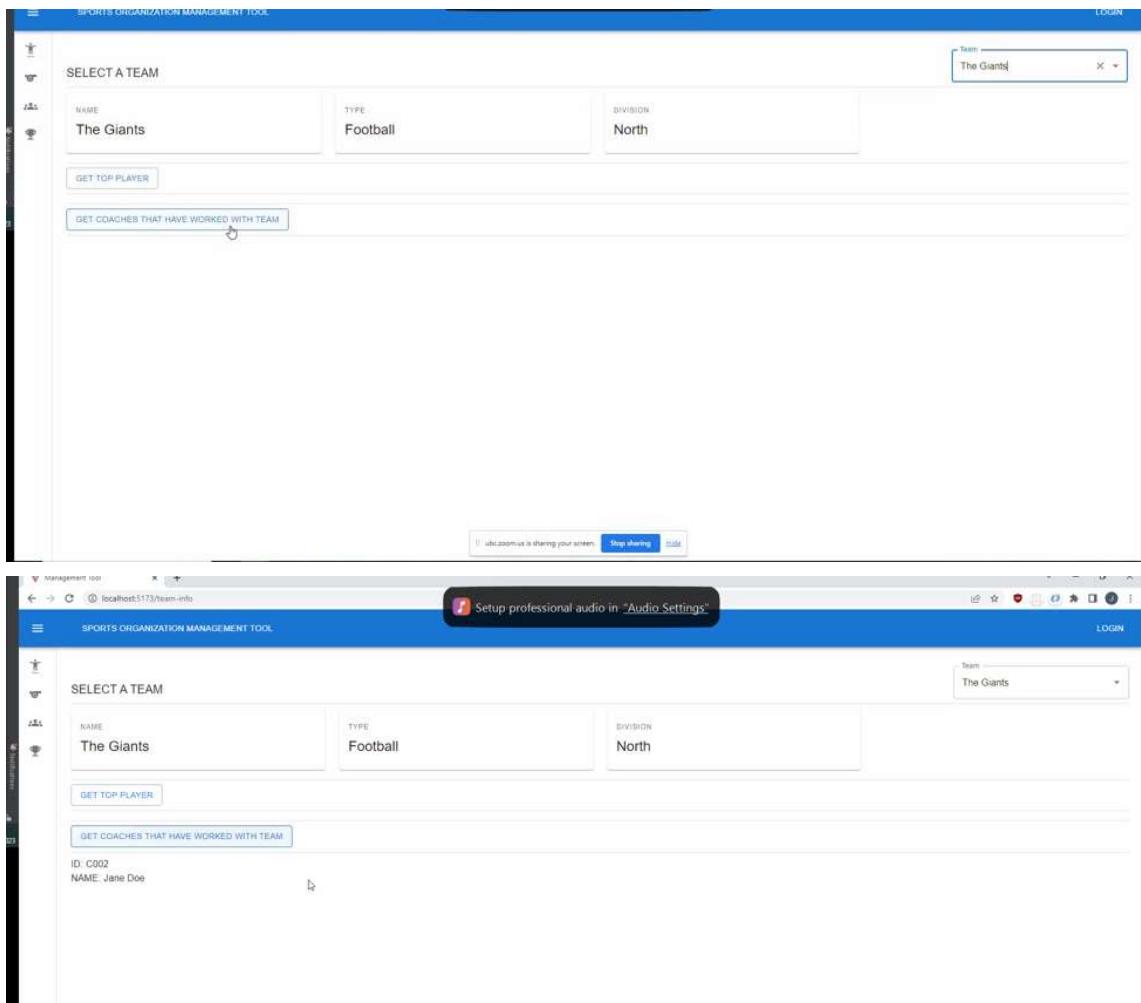
The screenshots illustrate the user interface for selecting a coach:

- Screenshot 1:** The initial state shows a dropdown menu labeled "Coach" with a placeholder value. Below it are four input fields: COACHID, NAME, PHONENUMBER, and SPECIALIZATION.
- Screenshot 2:** The "Coach" dropdown is open, displaying a list of names: John Smith, Jane Doe, Mike Johnson, Sarah Lee, David Kim, and b. The name "John Smith" is highlighted.
- Screenshot 3:** The "Coach" dropdown now shows "John Smith" as the selected value. The input fields below are populated with data corresponding to John Smith: COACHID "C001", NAME "John Smith", PHONENUMBER "555-1234", and SPECIALIZATION "Offense".

5. Division:

Select Coach Who Coached All Players In Given Team

Query In UI: Select Coach who coached all members of team The Eagles or Giants



6. Projection:

Get Rankings By Season

Query In UI: On selecting a season from the dropdown, the user can see all the players who played in that season, their ranking, as well as their teams.

The screenshot shows a web browser window titled "Management Tool" with the URL "localhost:8080/options/coaches". The page is titled "SPORTS ORGANIZATION MANAGEMENT TOOL" and features a sidebar with icons for users, teams, and trophies. The main content area is titled "SELECT A SEASON" and contains a table with columns: Rank, ID, Name, and Team. To the right of the table is a dropdown menu labeled "Season" with the following options: 2022Spring, 2020Spring, 2021Winter, and 2020Winter. The "2020Spring" option is highlighted.

This screenshot is identical to the one above, but the "Season" dropdown menu is now open, displaying the same four options: 2022Spring, 2020Spring, 2021Winter, and 2020Winter. The "2020Spring" option is still highlighted.

This screenshot shows the final step of selecting the season. The "Season" dropdown menu is now closed, and the value "2020Spring" is displayed in the input field. The main content area shows the table with two rows of data: Bob Johnson (Rank 5, ID P003, Team The Giants) and Jehr Doe (Rank 3, ID P005, Team The Lions).

7. Join:

Get All Schedules Made By Coach

Query In UI: This is the join query joining SportsSchedule and Coach. The player has to choose a Coach and then corresponding to that coach, they get to see all the schedules the coach has made once they press “Display Schedules”.

The screenshots illustrate the 'SELECT A COACH' feature of the application. In the first screenshot, a modal window prompts the user to select a coach. In the second screenshot, the user has selected 'John Smith' from the dropdown menu, and the application displays his details and a list of his assigned schedules.

ID	START	END	SEASON
S001	2022-05-01 09:00:00	2022-05-01 11:00:00	2022Spring

8. Aggregation with Group By:

Show Count Of All Teams

Query In UI: Show count of all teams is a query that shows us the different teams with their team names and displays the number of players in each team.

Management Tool | localhost:8080/options/coaches | +

localhost:5173/admin

UBC Student Servic... Gmail Canvas ubc mail Piazza Co-op CPSC 320 STAT 302 MATH 340 worklearn research Mathematics Appli...

SPORTS ORGANIZATION MANAGEMENT TOOL

Coaches

LOGIN GET ALL COACHES

ID	START	END	SEASON
----	-------	-----	--------

TEAMS

REFRESH PLAYER COUNT

NAME	PLAYER COUNT
------	--------------

Management Tool | localhost:8080/options/coaches | +

localhost:5173/admin

UBC Student Servic... Gmail Canvas ubc mail Piazza Co-op CPSC 320 STAT 302 MATH 340 worklearn research Mathematics Appli...

SPORTS ORGANIZATION MANAGEMENT TOOL

Coaches

LOGIN GET ALL COACHES

ID	START	END	SEASON
----	-------	-----	--------

TEAMS

REFRESH PLAYER COUNT

NAME	PLAYER COUNT
The Eagles	1
The Giants	1
The Lions	3

9. Aggregation with Having:

Show High Performing Teams

Query In UI: Shows the “Top Teams” on the teams page of the UI. These are the teams with players having high average performance points ≥ 50 .

The screenshot shows a web browser window titled "Management Tool" with the URL "localhost:8080/options/coaches". The main content area is titled "SPORTS ORGANIZATION MANAGEMENT TOOL". On the left, there is a sidebar with icons for Overview, Top Team, and Top Players. The "OVERVIEW" section displays "TOP TEAM" and "The Lions". The "TOP TEAMS" section shows two cards: "The Eagles" and "The Lions". Each card has a lock icon and a "VIEW" button. There are "REFRESH" buttons at the top right of each section.

10. Nested Aggregation with Group By:

Show Best Performing Team

Query In UI: Shows the Best Performing Team in the organization. This is the team with highest average performance points of the players.

This screenshot is identical to the one above, showing the "TOP TEAMS" section of the "Sports Organization Management Tool". It displays "The Lions" as the best performing team with a high average performance point. The interface includes "REFRESH" buttons for both the overview and top teams sections.