CPSC 304 Project Cover Page

Milestone #: 4

Date: 2022/11/21

Group Number: 29

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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

2.

The SQL script is here (/project/src/SQLDDL.sql)

https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project_h5h3b_n4e0i_n9c3b/blob/main/project/src/SQLDDL.sql

It should run as long as none of the tables already exist. If those tables already exist, you would need to uncomment the "DROP TABLE" lines at the top.

3.

Our repo is here:

https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project_h5h3b_n4e0i_n9c3b

3.a)

Our final project is a database for hockey teams. There are tables with data for all the entities and relationships. There are functions for queries that insert, delete, update, and retrieve data for the Teams table (join also involves the Play table). There is also a GUI that can be used to trigger these functions. More detail for each query is in part 3.d and 3.e.

3.b)

The FDs in Teams and Tickets were removed. This is because they were arbitrarily made for Milestone 2 and didn't really make a lot of sense. Removing them also simplified the design.

3.c)

Schema:

<u>Underline</u> = Primary Key/Candidate Key (we only have one candidate key each) **Bold** = Foreign Key

Teams(<u>home_city: string</u>, <u>name: string</u>, net_worth: decimal, matches_played: int, wins: int, losses: int)

Team_Members(<u>home_city: string</u>, <u>team-name: string</u>, <u>sin: int</u>, member-name, age)

Coaches(sin: int)

Players(sin: int, jersey no.: int, role: string)

Play(home_city: string, name: string, match_id: int)

Train(coach-sin: int, player-sin: int)

Referees(id: int, name: string)

Oversee(ref_id: int, match_id: int)

Tickets(<u>ticket_id: int</u>, **sin.: int**, price: decimal, seat_no.: int, date_of_purchase: string, date_of_game: string)

Spectators(sin: int, name: string)

Watch(<u>match_id: int</u>, <u>sin: int</u>)

Matches(<u>match_id: int</u>, tournament-name: string, season: int, stadium-name: string, location: string, date_and_time: string)

Tournaments(<u>name</u>: string, <u>season</u>: int)

Stadiums(name: string, location: string)

Screenshots of tables after script is run:

Teams:

	₽ HOME_CITY ÷	₽ NAME ♦	■■ NET_WORTH ÷	■ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ≎
1	Vancouver	Canucks	100000			13
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		10
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000	1	12	13
6	Vancouver	Rocket	9001	8	11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12	8	20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10	8	18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933	8	13	21
15	Calgary	Skull	78730		11	11

Team_Members:

	₽ HOME_CITY ÷	₹ TEAM_NAME ÷	📭 SIN 🕏	■ MEMBER_NAME	■ AGE ÷
1	Vancouver	Canucks	123456789	Some Coach	44
2	Toronto	Maple Leafs	121212121	Sol Dudeguy	28
3	Montreal	Canadians	884974349	Big Bob	51
4	Edmonton	Oilers	1	Yoda	100
5	Calgary	Flames	339483239	Gigachad	69
6	Vancouver	Canucks	547932345	Some Player	21
7	Toronto	Maple Leafs	987654321	Ky Kooskey	23
8	Montreal	Canadians	7008009	Mudrock	29
9	Edmonton	Oilers	400400400	Luke	17
10	Calgary	Flames	483250283	Noob	18

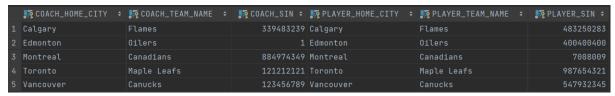
Coaches:

	₽ HOME_CITY ÷	₽ TEAM_NAME	
1	Calgary	Flames	339483239
2	Edmonton	Oilers	1
3	Montreal	Canadians	884974349
4	Toronto	Maple Leafs	121212121
5	Vancouver	Canucks	123456789

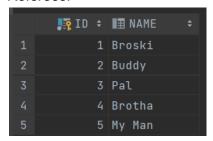
Players:

1 Vancouver Canucks 547932345 8 Forward 2 Toronto Maple Leafs 987654321 7 Defence 3 Montreal Canadians 7008009 1 Goalie 4 Edmonton 0ilers 400400400 4 Forward		₩ HOME_CITY ÷	₹ TEAM_NAME \$	📭 SIN 🕏	■ JERSEY_NO ÷	II ROLE ÷
Montreal Canadians 7008009 1 Goalie 4 Edmonton 0ilers 400400400 4 Forward	1	Vancouver	Canucks	547932345	8	Forward
4 Edmonton Oilers 400400400 4 Forward	2	Toronto	Maple Leafs	987654321	7	Defence
	3	Montreal	Canadians	7008009	1	Goalie
(07050007	4	Edmonton	Oilers	400400400	4	Forward
5 Calgary Flames 483250283 10 Defence	5	Calgary	Flames	483250283	10	Defence

Train:



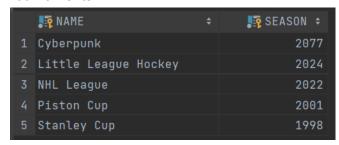
Referees:



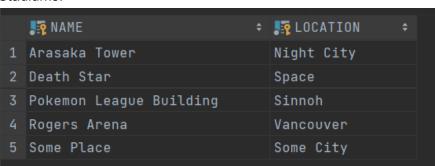
Spectators:



Tournaments:



Stadiums:



Tickets:

₹ TICKET_ID ÷	. ⊊SIN ≎	■ PRICE ≎	■ DATE_OF_PURCHASE	■■ SEAT_NO ÷	■■ DATE_OF_GAME	\$
1 123	196596859	20	2022-04-20		2022-04-31	
456	295060560	20	2010-01-19		2010-02-14	
789	309450503	32	1988-12-31		1989-01-24	
	980850440	32	2044-03-03		2044-03-04	
420	294454095	50	1999-11-14		1999-11-22	

Matches:

	MATCH_ID ÷	₹ TOURNAMENT_NAME	₽ SEASON ≎	₹ STADIUM_NAME ÷	. LOCATION ≎	■ DATE_AND_TIME ÷
1	1	Piston Cup	2001	Rogers Arena	Vancouver	2022-04-31 16:00
2	2	NHL League	2022	Some Place	Some City	2010-02-14 15:00
3	3	Little League Hockey	2024	Pokemon League Building	Sinnoh	1989-01-24 08:00
4		Stanley Cup	1998	Death Star	Space	2044-03-04 18:00
5		Cyberpunk	2077	Arasaka Tower	Night City	1999-11-22 21:00

Oversee:

	, REF_ID		, MATCH_ID	
1		1		1
2		2		2
3				
4				
5		5		5

Watch:

	₽ MATCH_ID		
1		1	196596859
2		1	980850440
3		2	196596859
4		2	295060560
5		2	980850440
6			196596859
7			309450503
8			980850440
9			196596859
10			980850440
11			196596859
12			294454095
13			980850440

Play:

	₽ HOME_CITY	‡	. ₹ NAME	‡	. ™ MATCH_ID	‡
1	Calgary		Flames			3
2	Calgary		Flames			
3	Edmonton		Oilers			2
4	Edmonton		Oilers			
5	Montreal		Canadians			3
6	Montreal		Canadians			
7	Toronto		Maple Leafs			1
8	Toronto		Maple Leafs			2
9	Vancouver		Canucks			1
10	Vancouver		Canucks			

3.d), **3.e)** a list of all sql queries used AND screenshots of the sample of the queries using the gui Combining 3.d) and 3.e), the screenshots of the sample queries are shown after each of the SQL queries. The code is here: (/project/src/database/DatabseConnectionHandler.java): https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project_h5h3b_n4e0i_n9c3b/blob/mai_n/project/src/database/DatabaseConnectionHandler.java

Insert:

Insertion is shown in the **insertTeam()** function. The user must provide all of the attributes of the new Team. Then, it inserts a new entry with the given data into the Teams table.

Before insert:

	₽ HOME_CITY ÷	₽ NAME ≎	■■ NET_WORTH ÷	■■ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ≎
1	Vancouver	Canucks	100000			13
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		10
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000		12	13
6	Vancouver	Rocket	9001	8	11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12	8	20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10	8	18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933	8	13	21
15	Calgary	Skull	78730	0	11	11

The insert input:



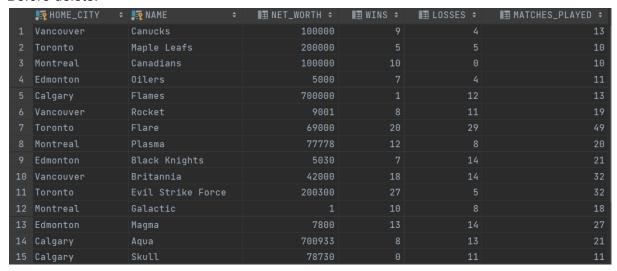
After insert (new entry at bottom):

	₽ HOME_CITY ÷	₽ NAME ÷	■■ NET_WORTH ÷	■ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ÷
1	Vancouver	Canucks	100000			13
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		10
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000		12	13
6	Vancouver	Rocket	9001		11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12		20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10		18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933		13	21
15	Calgary	Skull	78730		11	11
16	NewCity	NewName				

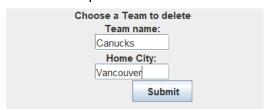
Delete:

Deletion is shown in the **deleteTeam()** function. The user must provide the key of the team to be deleted (home_city, name). Then, the team with that key is deleted from the table.

Before delete:



The delete input:



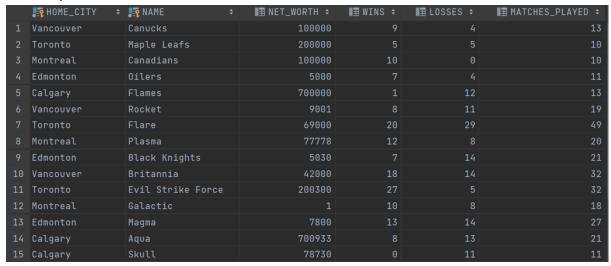
After delete (Vancouver Canucks is gone from the top):

	₽ HOME_CITY ÷		■■ NET_WORTH ‡	∎≣ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ÷
1	Toronto	Maple Leafs	200000			10
2	Montreal	Canadians	100000	10		10
3	Edmonton	Oilers	5000			11
4	Calgary	Flames	700000		12	13
5	Vancouver	Rocket	9001		11	19
6	Toronto	Flare	69000	20	29	49
7	Montreal	Plasma	77778	12		20
8	Edmonton	Black Knights	5030		14	21
9	Vancouver	Britannia	42000	18	14	32
10	Toronto	Evil Strike Force	200300	27		32
11	Montreal	Galactic		10		18
12	Edmonton	Magma	7800	13	14	27
13	Calgary	Aqua	700933		13	21
14	Calgary	Skull	78730		11	11

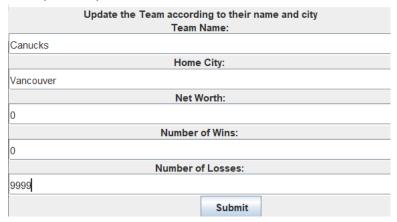
Update:

Updating is shown in the **updateTeams()** function. The user must provide the key for an existing team, and values for all the attributes of that team. Then, the team with the given key will be updated to have all of the provided new values.

Before update:



The update input:



After update (Vancouver Canucks is updated at the top):

			· ·			
	₽ HOME_CITY ÷	₽ NAME ÷	■■ NET_WORTH ≎	■■ WINS ÷	II LOSSES ≎	■■ MATCHES_PLAYED ÷
1	Vancouver	Canucks			9999	9999
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		19
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000		12	13
6	Vancouver	Rocket	9001		11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12		20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10		18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933		13	21
15	Calgary	Skull	78730	0	11	11

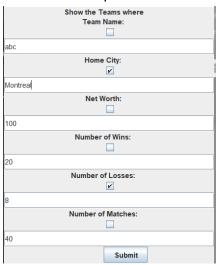
Selection:

Selection is shown in the **selectionTeams()** function. The user must input the attributes of Teams that they want to select based on, and also input what they want those attributes to be equal to (this selection function only allows the condition to be =). Then, they will receive an output of the entries in Teams with the specified conditions.

The Teams table:

	₽ HOME_CITY ÷	₽ NAME ≎	■■ NET_WORTH ÷	■ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ≎
1	Vancouver	Canucks	100000			13
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		10
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000	1	12	13
6	Vancouver	Rocket	9001	8	11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12	8	20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10	8	18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933	8	13	21
15	Calgary	Skull	78730	0	11	11

The selection input:

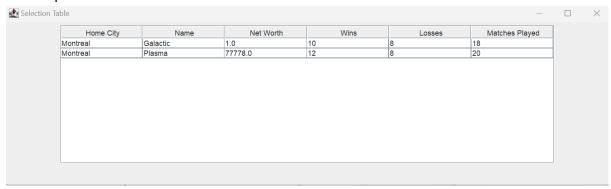


The output of selecting for selecting teams in Montreal with 8 losses:

Console Output:

Montreal Plasma 77778.0 12 8 20 Montreal Galactic 1.0 10 8 18

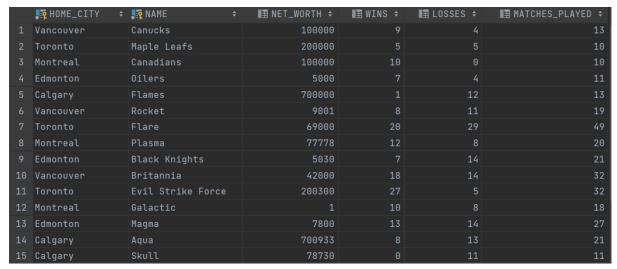
Gui Output:



Projection:

Projection is shown in the **projectionTeams()** function. It is hard coded to project the home_city, name, and net_worth columns from the Teams table.

The Teams table:



The projection input:

Display attributes Team Name,	Display attributes Team Name, Home City, Net Worth for Teams					
	Submit					

The output of the projection:

Console Output:

Vancouver Canucks 100000.0

Toronto Maple Leafs 200000.0

Montreal Canadians 100000.0

Edmonton Oilers 5000.0

Calgary Flames 700000.0

Vancouver Rocket 9001.0

Toronto Flare 69000.0

Montreal Plasma 77778.0

Edmonton Black Knights 5030.0

Vancouver Britannia 42000.0

Toronto Evil Strike Force 200300.0

Montreal Galactic 1.0

Edmonton Magma 7800.0

Calgary Aqua 700933.0

Calgary Skull 78730.0

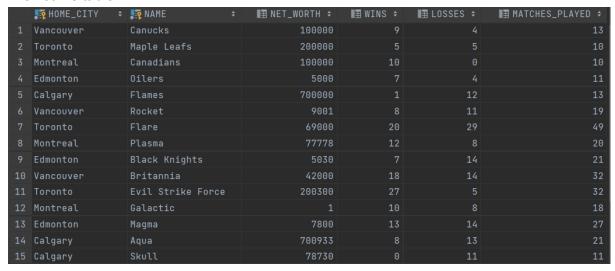
Gui Output:

Home City	Name	Net Worth	
Vancouver	Canucks	100000.0	4
Toronto	Maple Leafs	200000.0	
Montreal	Canadians	100000.0	
Edmonton	Oilers	5000.0	
Calgary	Flames	700000.0	
Vancouver	Rocket	9001.0	=
Toronto	Flare	69000.0	
Montreal	Plasma	77778.0	
Edmonton	Black Knights	5030.0	
Vancouver	Britannia	42000.0	
Toronto	Evil Strike Force	200300.0	
Montreal	Galactic	1.0	
Edmonton	Magma	7800.0	<u> </u>

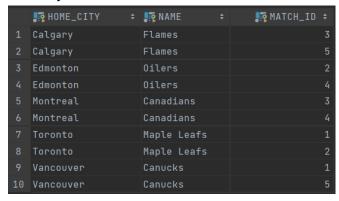
Join:

Joining is shown in the **joinTeamsPlays()** function. It joins Teams and Play. The user inputs a match_id, and the function joins Play and Team where the play's match_id matches the user's inputs. Then, it outputs the resulting teams' home_city, name, wins, and losses.

The Teams table:



The Play table:



The join input:

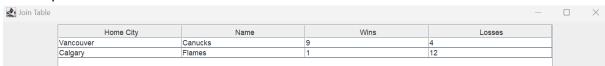


The output of the join with match id = 5:

Console Output

Vancouver Canucks 9 4 Calgary Flames 1 12

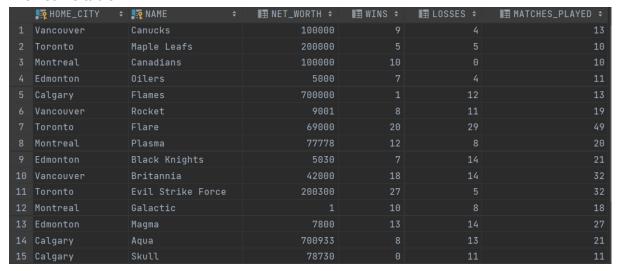
Gui Output:



Aggregation with Group By:

Aggregation with group by is shown in the **aggregationGBTeams()** function. It takes a user input of an operator (such as min or max) and an attribute from Teams. Then, it returns each city with the value of the given attribute that matches the given operator.

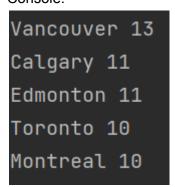
The Teams table:

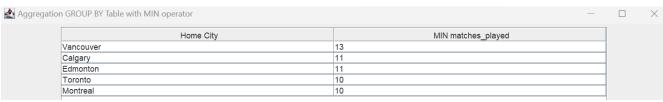


The input:



The output, where the operator was "min" and the attribute was "matches_played": Console:





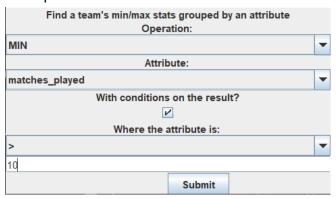
Aggregation with Having:

Aggregation with having is shown in the **aggregationHavingTeams()** function. It takes a user input of an operator (such as min or max) and an attribute from Teams. It also takes a condition to filter the output by. Then, it returns each city with the value of the given attribute that matches the given operator and condition.

The Teams table:

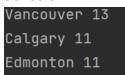
	₽ HOME_CITY \$	₽ NAME ≎	■■ NET_WORTH ÷	■■ WINS ÷	■ LOSSES ÷	■■ MATCHES_PLAYED ÷
1	Vancouver	Canucks	100000			13
2	Toronto	Maple Leafs	200000			10
3	Montreal	Canadians	100000	10		10
4	Edmonton	Oilers	5000			11
5	Calgary	Flames	700000		12	13
6	Vancouver	Rocket	9001	8	11	19
7	Toronto	Flare	69000	20	29	49
8	Montreal	Plasma	77778	12	8	20
9	Edmonton	Black Knights	5030		14	21
10	Vancouver	Britannia	42000	18	14	32
11	Toronto	Evil Strike Force	200300	27		32
12	Montreal	Galactic		10	8	18
13	Edmonton	Magma	7800	13	14	27
14	Calgary	Aqua	700933	8	13	21
15	Calgary	Skull	78730		11	11

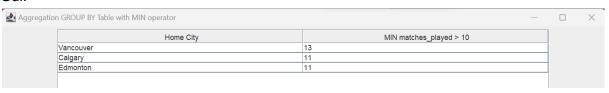
The input:



The output, where the operation was "min", the attribute was "matches_played", and there was a condition saying the attribute had to be > 10:

Console:

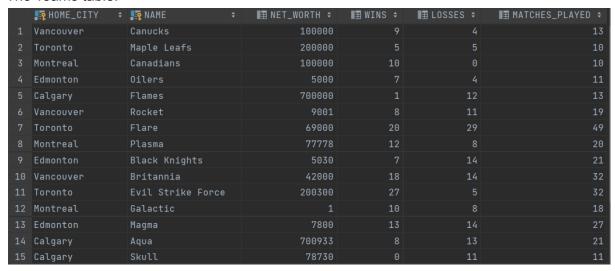




Nested Aggregation with Group By:

Nested aggregation with group by is shown in the **aggregateNested()** function. It is hard coded to output the home_city with the lowest amount of wins in Teams.

The Teams table:



The input:

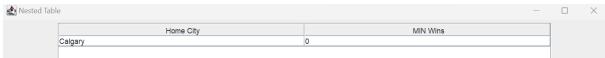
Find team for which their minimum number of wins is the minimum o.

Submit

The output:

Console:

Calgary 0



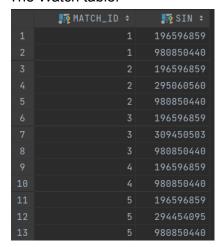
Division:

Division is shown in the **divisionSpectators()** function. The function finds all spectators who have watched all matches.

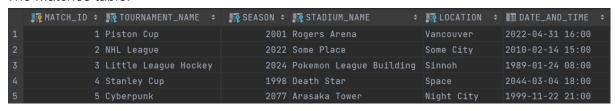
The Spectators table:



The Watch table:



The Matches table:

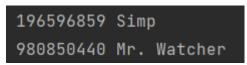


The input:



The output of the function:

Console:





4.

Our README is here:

 $\frac{https://github.students.cs.ubc.ca/CPSC304-2022W-T1/project_h5h3b_n4e0i_n9c3b/blob/main/README.md$