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IS465 C1
Team 6

Phase II - Part A

Player(Player_num, Name, Position, Injury_status, Birth_date, Years_of_experience, Salary, Height, Weight, Total_num_of_assists, Team_num)

Forward(Player_num, Type_of_forward, Total_num_of_goals, Plus_minus_score, Shooting_percentage)

Defenseman(Player_num, Total_num_of_blocked_shots, Total_num_of_hits, Total_num_of_takeaways, Total_num_of_goals)

Goaltender(Player_num, Save_percentage, Goals_against_average, Total_num_of_shutouts, Total_num_of_blocked_shots)

Team(Team_num, Name, Founding_year, City, State, Mascot, Num_of_Stanley_Cup_wins, Win_percentage)

Staff_Member(Staff_id, Name, Birth_date, Years_of_experience, Salary, Job_title, Team_num)

Coach(Staff_id, Num_of_awards received, Tactical_approach_type, Coach_type)

Manager(Staff_id, Num_of_staff_recruited, Num_of_players_traded, Manager_type)

Season(Season_num, Num_of_games, Start_date, End_date, Winning_team)

Game(Game_num, Num_of_attendees, Date, Result, Home_team_points, Away_team_points, Season_num, Arena_num)

Competes_In(Team_num, Game_num)

Referee(Referee_id, Name, Birth_date, Years_of_experience, Salary, Num_of_games_officiated, Total_num_of_penalties_given)

Oversees(Referee_id, Game_num)

Arena(Arena_num, City, State, Capacity)

Player(Team_num), Staff_Member(Team_num), Season(Winning_team), and Competes_In(Team_num) are foreign keys to Team(Team_num)

Forward(Player_num), Defenseman(Player_num), and Goaltender(Player_num) are foreign keys to Player(Player_num)

Coach(Staff_id) and Manager(Staff_id) are foreign keys to Staff_Member(Staff_id)

Game(Season_num) is a foreign key to Season(Season_num)

Game(Arena_num) is a foreign key to Arena(Arena_num)

Competes_In(Game_num) and Oversees(Game_num) are foreign keys to Game(Game_num)

Oversees(Referee_num) is a foreign key to Referee(Referee_num)

Phase II - Part B

Query 1

This query returns the average game attendance for each NHL team, ordered from highest to lowest.

Managers of the NHL can use this query to evaluate which teams might draw the biggest crowds. Having this information can influence ticket pricing decisions, as the NHL can increase prices when teams in higher demand are playing. Game attendance can also influence the NHL's decisions regarding the arena assignments of future games due to capacity restrictions.

Query | Query History

```
1  SELECT
2      Team.Name,
3      AVG(Game.Num_of_attendees) AS Avg_Attendance
4  FROM Team
5  JOIN Competes_In ON Team.Team_num = Competes_In.Team_num
6  JOIN Game ON Competes_In.Game_num = Game.Game_num
7  GROUP BY Team.Name
8  ORDER BY Avg_Attendance DESC;
```

Data Output | Messages | Notifications

Showing rows: 1 to 6 | Page No: 1 of 1

	name character varying (32)	avg_attendance numeric
1	Florida Panthers	18031.066666666667
2	Chicago Blackhawks	17966.933333333333
3	New York Islanders	17569.000000000000
4	Detroit Red Wings	17327.466666666667
5	Boston Bruins	17261.312500000000
6	Vegas Golden Knights	16889.133333333333

Query 2

Query | Query History

```
9
10  SELECT
11      Staff.Name,
12      Staff.Salary,
13      C.Num_of_awards_received,
14      Staff.Years_of_experience,
15      (Staff.Years_of_experience * 15000 + C.Num_of_awards_received * 10000) AS Expected_Salary,
16      Staff.Salary - (Staff.Years_of_experience * 15000 + C.Num_of_awards_received * 10000) AS Salary_Difference
17  FROM Staff_Member Staff
18  JOIN Coach C ON Staff.Staff_id = C.Staff_id
19  ORDER BY Salary_Difference;
20
21
```

Data Output | Messages | Notifications

Showing rows: 1 to 23 | Page No: 1 of 1

	name character varying (32)	salary integer	num_of_awards_received integer	years_of_experience integer	expected_salary integer	salary_difference integer
1	Trent Yawney	209849	1	22	340000	-130151
2	Dominique Ducharme	400000	5	27	455000	-55000
3	Tuomo Ruutu	300000	1	20	310000	-10000
4	Chris Kelly	347000	0	23	345000	2000
5	Benoit Desrosiers	250000	1	15	235000	15000
6	Sylvain Lefebvre	400000	3	23	375000	25000
7	Alex Tanguay	314831	1	18	280000	34831
8	Tommy Albelin	300000	0	17	255000	45000
9	John MacLean	350000	2	19	305000	45000
10	Jamie Kompon	445400	2	25	395000	50400

Total rows: 23 | Query complete 00:00:00.110 | CRLF | Ln 8, Col 22

This query returns the salaries of each of the coaches and their qualifications, which are the number of awards they received and their years of experience. The query then calculates each coach's expected salary based on their qualifications and the difference between their expected and actual salaries.

Managers of the NHL can use this information to ensure that the coaches are being fairly compensated based on their qualifications. Using the salary_difference column, these managers can easily identify underpaid coaches who might deserve a raise (those with a significant negative salary_difference) or overpaid coaches whose salaries need to be reviewed (those with a significant positive salary_difference).

Query 3

Query | Query History

```
21  SELECT P.Name, T.Name AS Team_Name, P.Total_num_of_assists AS Performance_Metric
22  FROM Player P
23  JOIN Team T ON P.Team_num = T.Team_num
24  WHERE P.Team_num IN (
25      SELECT Team_num
26      FROM Competes_In
27      JOIN Game ON Competes_In.Game_num = Game.Game_num
28      GROUP BY Team_num
29      ORDER BY AVG(Game.Num_of_attendees)
30      LIMIT 3
31  )
32  ORDER BY P.Total_num_of_assists DESC
33  LIMIT 10;
```

Data Output | Messages | Notifications

Showing rows: 1 to 10

	name character varying (32)	team_name character varying (32)	performance_metric integer
1	Patrick Kane	Detroit Red Wings	845
2	Mark Stone	Vegas Golden Knights	402
3	Jack Eichel	Vegas Golden Knights	369
4	Elias Lindholm	Boston Bruins	363
5	Vladimir Tarasenko	Detroit Red Wings	356
6	Dylan Larkin	Detroit Red Wings	328
7	Reilly Smith	Vegas Golden Knights	323
8	Tomas Hertl	Vegas Golden Knights	296
9	Jeff Petry	Detroit Red Wings	287
10	Shea Theodore	Vegas Golden Knights	279

This query first finds the 3 teams with the highest average game attendance using the subquery. Then, the query returns the top 10 players with the highest performance metric (defined as their total number of assists) who are from the teams that were identified by the subquery.

Managers of the NHL can use this information to determine which players should be the main focus of their national marketing campaigns. By using this information, the NHL can ensure that they are maximizing fan appeal by choosing players from popular teams, which is determined by the number of game attendees. In addition, they would also ensure that they are highlighting their star players with the best overall performance, which is determined through a performance metric.

Query 4

```
Query  Query History
39  SELECT Position,
40      COUNT(*) AS Total_Players,
41      COUNT(Injury_status = 'Injured') AS Injured_Players,
42      (COUNT(Injury_status = 'Injured') * 100.0 / COUNT(*)) AS Injury_Rate_Percentage
43  FROM Player
44  GROUP BY Position
45  ORDER BY Injury_Rate_Percentage DESC;
```

Data Output Messages Notifications

Showing rows: 1 to 3 Page No: 1 of 1

	position character varying (32)	total_players bigint	injured_players bigint	injury_rate_percentage numeric
1	Goaltender	15	3	20.0000000000000000
2	Defenseman	49	7	14.2857142857142857
3	Forward	86	11	12.7906976744186047

This query returns the number of injured players and the percentage of players that were injured across the three different types of players (goaltenders, defensemen, and forwards).

Managers of the NHL can use this information to make decisions about where to focus their efforts regarding game regulations designed to prevent their players' injuries. Looking at the output of the query, the NHL can easily figure out which types of players have the highest injury rates (goaltenders) and can then create more regulations targeted towards them in order to reduce their injury rate.

Query 5

This query identifies the NHL teams that have won more Stanley Cups than the average across the league and returns the number of Stanley Cups won for each of those teams.

```
Query  Query History
48  SELECT Name, Num_of_Stanley_Cup_wins
49  FROM Team
50  WHERE Num_of_Stanley_Cup_wins > (
51      SELECT AVG(Num_of_Stanley_Cup_wins)
52      FROM Team
53  )
54  ORDER BY Num_of_Stanley_Cup_wins DESC;
```

Data Output Messages Notifications

Showing rows: 1 to 3 Page No: 1 of 1

	name character varying (32)	num_of_stanley_cup_wins integer
1	Detroit Red Wings	11
2	Boston Bruins	6
3	Chicago Blackhawks	6

Managers of the NHL can use this information to determine which teams have consistently been most successful, influencing their strategies regarding fan engagement, marketing campaigns, and sponsorship opportunities. In addition, the NHL can use this information to determine whether one or a few teams are winning significantly more than the rest, which would signal to them a need for better league parity.

Query 6

Query | Query History

```
56  -- Query 6
57  SELECT P.Name, P.Player_num, P.Position,
58      F.Type_of_forward, F.Total_num_of_goals,
59      T.Name AS Team_name
60  FROM Forward F
61  JOIN Player P ON F.Player_num = P.Player_num
62  JOIN Team T ON P.Team_num = T.Team_num
63  ORDER BY F.Total_num_of_goals DESC;
64
```

Data Output | Messages | Notifications

Showing rows: 1 to 86 | Page No: 1 of 1

	name character varying (32)	player_num integer	position character varying (32)	type_of_forward character varying (32)	total_num_of_goals integer	team_name character varying (32)
1	Patrick Kane	54	Forward	Right Wing	490	Detroit Red Wings
2	Brad Marchand	135	Forward	Center	422	Florida Panthers
3	David Pastrnak	12	Forward	Right Wing	385	Boston Bruins
4	Vladimir Tarasenko	64	Forward	Right Wing	303	Detroit Red Wings
5	Sam Reinhart	137	Forward	Center	291	Florida Panthers
6	Anders Lee	85	Forward	Left Wing	287	New York Islanders
7	Aleksander Barkov	128	Forward	Center	285	Florida Panthers
8	Kyle Palmieri	89	Forward	Center	269	New York Islanders
9	Bo Horvat	84	Forward	Center	266	New York Islanders
10	Brandon Saad	113	Forward	Left Wing	265	Vegas Golden Knights
11	Tomas Hertl	106	Forward	Center	251	Vegas Golden Knights
12	Alex DeBrincat	53	Forward	Right Wing	247	Detroit Red Wings
13	Nick Foligno	30	Forward	Left Wing	244	Chicago Blackhawks

The query returns the different types of top performing forwards by using their total number of goals scored.

Managers of the NHL can use this information to help enhance marketing and fan engagement through dynamic promotional campaigns and social media content. By showcasing the forwards with the highest goals scored in advertisements and integrating their stats, the NHL can build excitement for upcoming games. These analytics can allow for special advertisements, such as social media posts highlighting players reaching milestones goals, in order to drive ticket sales.