

PRACTICAL EXERCISE 4

ON SQL SERVER MANAGEMENT STUDIO(SSMS)

1. View the first 100 rows of the dataset to understand its structure.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL query:

```
--1. View the first 100 rows of the dataset to understand its structure.  
  
select top(100) *  
FROM [master].[sa_soccer].[sa_soccer_dataset_advanced];
```

The Results pane shows the first 100 rows of the dataset. The columns are: player_name, team, date_of_birth, age, marital_status, number_of_kids, nationality, country_of_birth, position, preferred_foot, height_cm, weight_kg, jersey_number, injury_status, agent, and matches. The data includes players from various teams like Stellenbosch FC, Cape Town City, and Kaizer Chiefs.

player_name	team	date_of_birth	age	marital_status	number_of_kids	nationality	country_of_birth	position	preferred_foot	height_cm	weight_kg	jersey_number	injury_status	agent	matches
Siyanda Dlamini	Stellenbosch FC	1995-05-28	30	Widowed	0	South African	South African	Defender	Right	167	71	35	Recovering	SA Elite Agents	53
Thabo Ndlovu	Cape Town City	2004-06-01	21	Single	1	Zimbabwean	Zimbabwean	Forward	Right	183	73	40	Recovering	SoccerLink Africa	272
Vusi Molefe	Stellenbosch FC	2006-09-20	19	Single	0	Nigerian	Nigerian	Forward	Left	167	66	65	Recovering	PlayerFirst	398
Thembi Mahlangu	Bloemfontein Celtic	2004-02-08	21	Divorced	0	Zambian	Zambian	Goalkeeper	Left	166	93	24	Injured	None	135
Nokuthula Sihole	Polokwane City	2003-03-18	22	Divorced	3	Nigerian	Nigerian	Goalkeeper	Both	193	88	79	Injured	SoccerLink Africa	116
Thembi Sihole	Kaizer Chiefs	1989-02-14	36	Married	2	Nigerian	Nigerian	Goalkeeper	Left	193	79	54	Healthy	ProSport	279
Siyanda Mahlangu	Chippa United	1989-12-09	36	Single	0	Zambian	Zambian	Defender	Both	181	67	27	Healthy	SoccerLink Africa	18
Lerato Mashaba	Polokwane City	1998-01-31	27	Widowed	0	Ghanaian	Ghanaian	Forward	Right	181	65	85	Healthy	None	241
Nomusa Mahlangu	Polokwane City	1991-07-16	34	Divorced	0	Malawian	Malawian	Forward	Left	171	81	83	Recovering	PlayerFirst	322
Tumelo Khumalo	Kaizer Chiefs	1996-08-28	29	Married	4	Malawian	Malawian	Forward	Both	175	96	62	Healthy	None	252
Gugu Molefe	TS Galaxy	2007-01-29	18	Widowed	0	South African	South African	Defender	Left	188	85	32	Recovering	None	379
Thembi Mokoena	Stellenbosch FC	1995-07-03	30	Widowed	0	Zimbabwean	Zimbabwean	Goalkeeper	Right	175	92	42	Healthy	SoccerLink Africa	296
Thabo Sihole	Bloemfontein Celtic	2000-12-17	25	Single	0	Zimbabwean	Zimbabwean	Midfielder	Both	173	61	37	Recovering	ProSport	229
Gugu Mabena	SuperSport United	2000-09-19	25	Widowed	0	Zambian	Zambian	Goalkeeper	Right	176	68	96	Healthy	None	155

2. Count the total number of players in the dataset.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL query:

```
--2. Count the total number of players in the dataset.  
  
select count(*) as Total_Players_Count  
FROM [master].[sa_soccer].[sa_soccer_dataset_advanced];
```

The Results pane shows the result of the query:

Total_Players_Count
300

3. List all unique teams in the league.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--3. List all unique teams in the league.  
Select distinct team  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]
```

The Results pane shows the output of the query, listing 16 unique teams:

team
1 AmaZulu FC
2 Bloemfontein Celtic
3 Cape Town City
4 Chippa United
5 Golden Arrows
6 Kaizer Chiefs
7 Mamelodi Sundowns
8 Moroka Swallows
9 Orlando Pirates
10 Polokwane City
11 Richards Bay FC
12 Royal AM
13 Sekhukhune United
14 Stellenbosch FC
15 SuperSport United
16 TS Galaxy

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-52H3VMH0 (16.0 RTM) | LAPTOP-52H3VMH0\njabul... master 00:00:00 | Row: 1, Col: 1 16 rows".

4. Count how many players are in each team

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--4. Count how many players are in each team.  
select team,  
count(*) as total_players  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
  
group by team  
order by count(*) desc;
```

The Results pane shows the output of the query, listing 16 teams and their total number of players:

team	total_players
1 Polokwane City	27
2 Golden Arrows	23
3 AmaZulu FC	22
4 Chippa United	21
5 Stellenbosch FC	20
6 SuperSport United	20
7 TS Galaxy	20
8 Kaizer Chiefs	20
9 Mamelodi Sundowns	19
10 Moroka Swallows	19
11 Royal AM	18
12 Sekhukhune United	17
13 Bloemfontein Celtic	17
14 Cape Town City	15
15 Richards Bay FC	13
16 Stellenbosch FC	13

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-52H3VMH0 (16.0 RTM) | LAPTOP-52H3VMH0\njabul... master 00:00:00 | Row: 1, Col: 1 16 rows".

5. Identify the top 10 players with the most goals.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--5. Identify the top 10 players with the most goals.
select top(10)player_name,
sum(goals) as total_goals
FROM [katro_soccer] [dbo] [sa_soccer_dataset_advanced]
group by player_name
order by sum(goals) desc;
```

The Results pane shows the following data:

	player_name	total_goals
1	Vusi Radebe	285
2	Ayanda Sithole	246
3	Kagiso Phiso	242
4	Karabo Phiso	222
5	Thabo Sithole	182
6	Zanele Phiso	172
7	Mandla Baloyi	170
8	Khanyi Nkosi	167
9	Thabo Ndlovu	167
10	Gugu Tahabalela	148

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\njabul... master 00:00:00 Row: 1, Col: 1 10 rows

6. Find the average salary for players in each team.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--6. Find the average salary for players in each team.
select
Team,
round(Avg(average_salary_zar),2) as Avg_salary
FROM [katro_soccer] [dbo] [sa_soccer_dataset_advanced]
group by team;
```

The Results pane shows the following data:

	Team	Avg_salary
1	AmaZulu FC	172467.57
2	Bloemfontein Celtic	163683.84
3	Cape Town City	208407.43
4	Chippa United	180947.63
5	Golden Arrows	199057.64
6	Kaizer Chiefs	188954.46
7	Mamelodi Sundowns	194404.48
8	Moroka Swallows	186786.83
9	Orlando Pirates	178570.59
10	Polokwane City	171736.88
11	Richards Bay FC	193006.2
12	Royal AM	209078.33
13	Sekhukhune United	169945.16
14	Stellenbosch FC	182326.73
15	SuperSport United	195482.98

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\njabul... master 00:00:00 Row: 1, Col: 1 16 rows

7. Retrieve the top 10 players with the highest market value.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor contains the following SQL code:

```
--7. Retrieve the top 10 players with the highest market value.  
Select top(10)  
    player_name,  
    market_value_zar  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
order by market_value_zar desc
```

The Results pane displays the following data:

	player_name	market_value_zar
1	Ayanda Mabaso	24979190
2	Lebogang Mabena	24887822
3	Gugu Mashaba	24868294
4	Kagiso Mokoena	24550182
5	Botumelo Radebe	24540830
6	Thabo Ndozi	24380712
7	Spho Mashaba	24342132
8	Lerato Ngobeni	24231618
9	Thabo Tshabalala	24229792
10	Lerato Tshabalala	24226786

The status bar at the bottom indicates: "Query executed successfully." and "LAPTOP-52H3VMH0 (16.0 RTM) | LAPTOP-52H3VMH0\njabul... | master | 00:00:00 | Row: 1, Col: 1 | 10 rows".

8. Calculate the average passing accuracy for each position.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor contains the following SQL code:

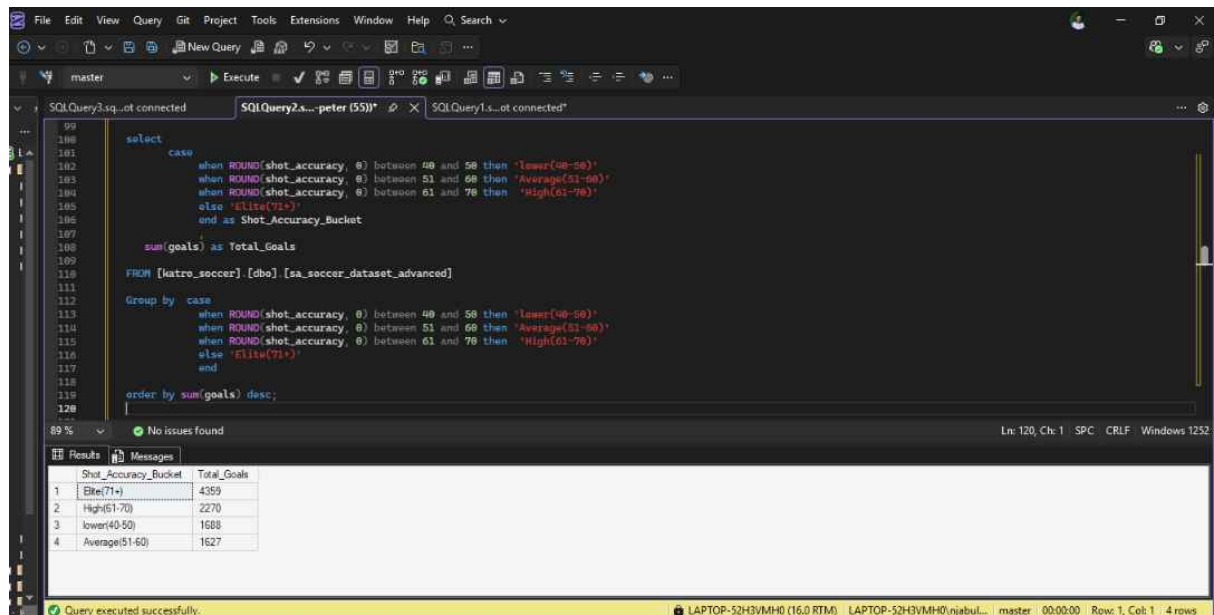
```
--8. Calculate the average passing accuracy for each position.  
select position,  
    preferred_foot,  
    round( Avg(passing_accuracy),0) as Average_passing_accuracy  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
group by position,preferred_foot  
order by round( Avg(passing_accuracy),0) desc;
```

The Results pane displays the following data:

	position	preferred_foot	Average_passing_accuracy
1	Midfielder	Right	86
2	Goalkeeper	Left	85
3	Forward	Right	85
4	Goalkeeper	Right	84
5	Defender	Left	84
6	Forward	Both	83
7	Goalkeeper	Both	83
8	Midfielder	Both	82
9	Midfielder	Left	82
10	Defender	Right	82
11	Defender	Both	82
12	Forward	Left	81

The status bar at the bottom indicates: "Query executed successfully." and "LAPTOP-52H3VMH0 (16.0 RTM) | LAPTOP-52H3VMH0\njabul... | master | 00:00:00 | Row: 1, Col: 1 | 12 rows".

9. Compare shot accuracy with goals to find correlations.



The screenshot shows a SQL query in SQL Server Enterprise Manager. The query is a SELECT statement with a CASE statement for shot accuracy buckets and a SUM of goals. The results are displayed in a table with 4 rows.

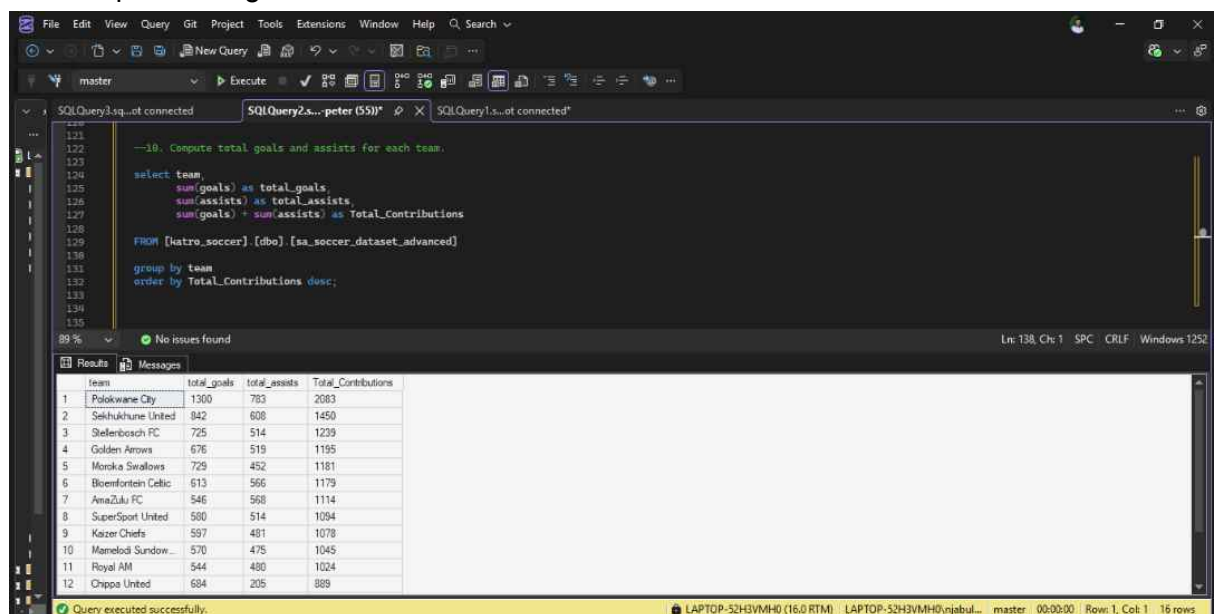
```
select
    case
        when ROUND(shot_accuracy, 0) between 40 and 50 then 'Lower(40-50)'
        when ROUND(shot_accuracy, 0) between 51 and 60 then 'Average(51-60)'
        when ROUND(shot_accuracy, 0) between 61 and 70 then 'High(61-70)'
        else 'Elite(71+)'
    end as Shot_Accuracy_Bucket
    , sum(goals) as Total_Goals
FROM [Katro_soccer].[dbo].[sa_soccer_dataset_advanced]

Group by case
    when ROUND(shot_accuracy, 0) between 40 and 50 then 'Lower(40-50)'
    when ROUND(shot_accuracy, 0) between 51 and 60 then 'Average(51-60)'
    when ROUND(shot_accuracy, 0) between 61 and 70 then 'High(61-70)'
    else 'Elite(71+)'
end

order by sum(goals) desc;
```

Shot_Accuracy_Bucket	Total_Goals
Elite(71+)	4359
High(61-70)	2270
Lower(40-50)	1688
Average(51-60)	1627

10. Compute total goals and assists for each team.



The screenshot shows a SQL query in SQL Server Enterprise Manager. The query is a SELECT statement with SUM of goals and assists, and a SUM of both. The results are displayed in a table with 12 rows.

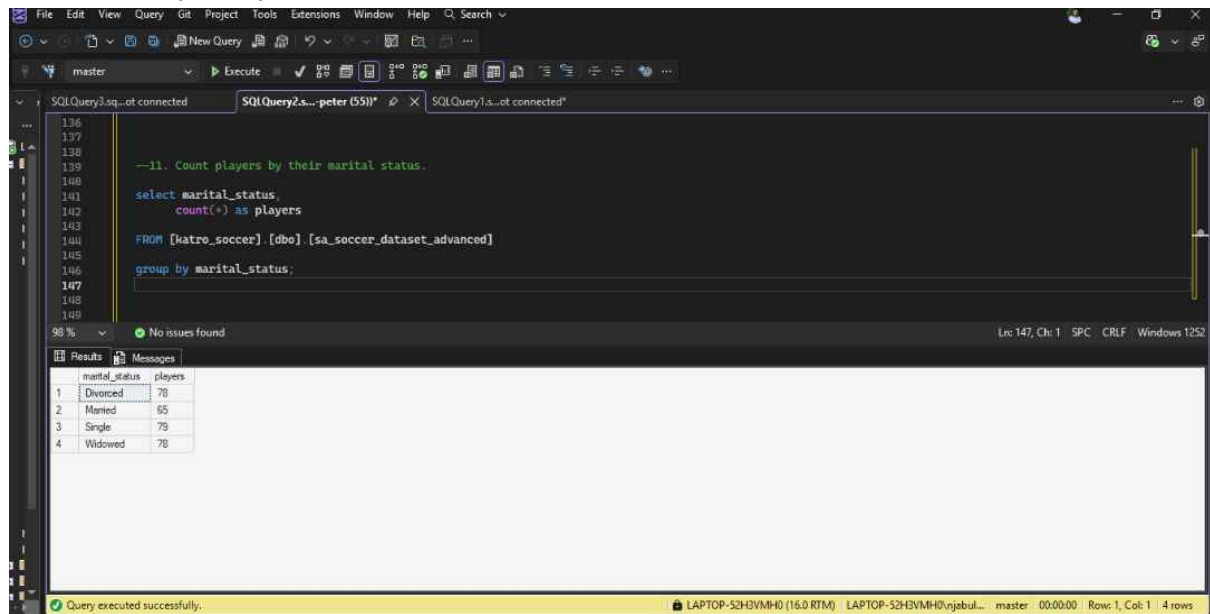
```
--10. Compute total goals and assists for each team.

select team,
    sum(goals) as total_goals,
    sum(assists) as total_assists,
    sum(goals) + sum(assists) as Total_Contributions
FROM [Katro_soccer].[dbo].[sa_soccer_dataset_advanced]

group by team
order by Total_Contributions desc;
```

team	total_goals	total_assists	Total_Contributions
1 Polokwane City	1300	783	2083
2 Sekhukhune United	842	608	1450
3 Stellenbosch FC	725	514	1239
4 Golden Arrows	676	519	1195
5 Morka Swallows	729	452	1181
6 Bloemfontein Celtic	613	566	1179
7 AmaZulu FC	546	568	1114
8 SuperSport United	580	514	1094
9 Kaizer Chiefs	597	481	1078
10 Mamelodi Sundown...	570	475	1045
11 Royal AM	544	480	1024
12 Chippa United	684	205	889

11. Count players by their marital status.



The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

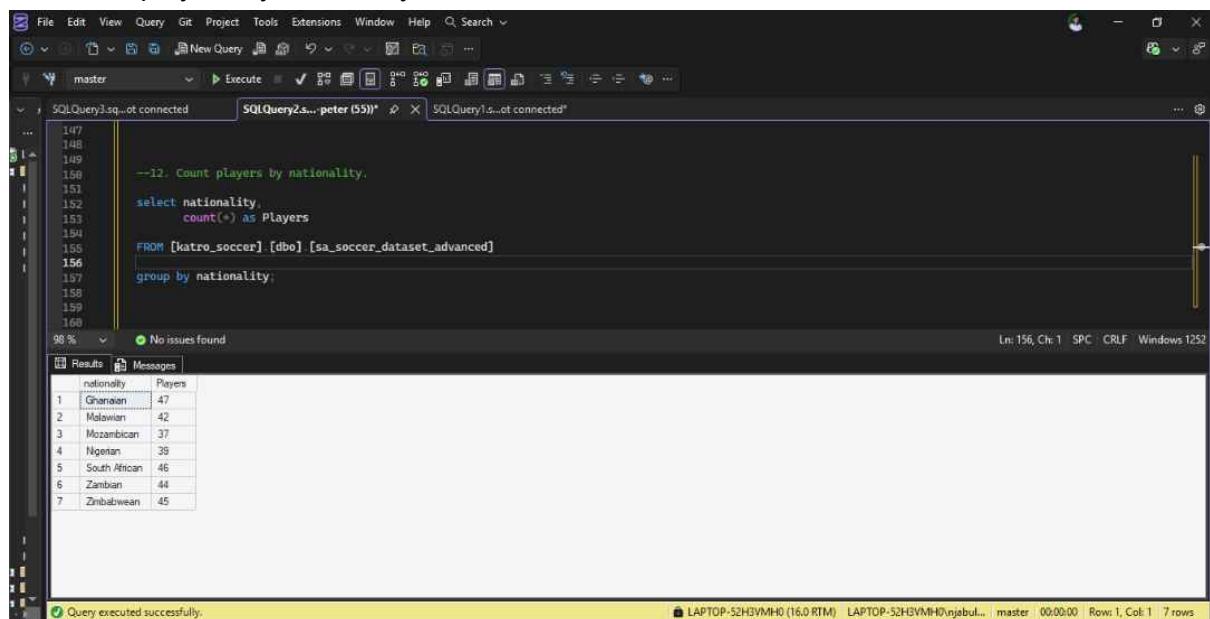
```
--11. Count players by their marital status.  
select marital_status,  
       count(*) as players  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
group by marital_status;
```

The query results are displayed in a table with the following data:

marital_status	players
Divorced	78
Married	65
Single	79
Widowed	78

The status bar at the bottom indicates: "Query executed successfully. LAPTOP-S2H3VMH0 (16.0 RTM) LAPTOP-S2H3VMH0\njebul... master 00:00:00 Row: 1, Col: 1 4 rows".

12. Count players by nationality



The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--12. Count players by nationality.  
select nationality,  
       count(*) as Players  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
group by nationality;
```

The query results are displayed in a table with the following data:

nationality	Players
Ghanaian	47
Malawian	42
Mozambican	37
Nigerian	39
South African	46
Zambian	44
Zimbabwean	45

The status bar at the bottom indicates: "Query executed successfully. LAPTOP-S2H3VMH0 (16.0 RTM) LAPTOP-S2H3VMH0\njebul... master 00:00:00 Row: 1, Col: 1 7 rows".

13. Find average market value grouped by nationality.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--13. Find average market value grouped by nationality.  
select nationality,  
       round(avg(market_value_zar),2) as Average_Market_value  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
Group by nationality;
```

The Results pane shows the following data:

	nationality	Average_Market_value
1	Ghanaian	12298308.01
2	Malawian	11727296.01
3	Mozambican	14736203.47
4	Nigerian	15069261.35
5	South African	12037870.2
6	Zambian	12777043.09
7	Zimbabwean	10367909.47

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\njabul... master 00:00:00 Rows: 1, Col: 1 7 rows

14. Determine how many player contracts end in each year.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--14. Determine how many player contracts end in each year.  
select contract_end_year,  
       count(*) as Players  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
group by contract_end_year;
```

The Results pane shows the following data:

	contract_end_year	Players
1	2026	63
2	2027	70
3	2028	52
4	2029	50
5	2030	65

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\njabul... master 00:00:00 Rows: 1, Col: 1 5 rows

15. Identify players whose contracts end next year.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--15. Identify players whose contracts end next year.  
  
select Player_Name,  
       contract_end_year  
  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
  
WHERE Contract_End_Year = YEAR(GETDATE()) + 1;
```

The query results are displayed in a table with the following data:

Player_Name	contract_end_year
Syanda Dlamini	2026
Vusi Molefe	2026
Nokuthula Sithole	2026
Syanda Mahlangu	2026
Nomsa Mahlangu	2026
Thembu Mokoena	2026
Thabo Sithole	2026
Kagiso Phiso	2026
Thembu Tshabalala	2026
Manda Baloyi	2026
Tumelo Mokoena	2026
Thembu Mashaba	2026

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-32H3VMH0 (16.0 RTM) LAPTOP-32H3VMH0\njabul... master 00:00:00 Row: 1, Col: 1 63 rows".

16. Summarize the number of players by injury status.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--16. Summarize the number of players by injury status.  
  
select injury_status  
       count(*) as players  
  
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]  
  
group by injury_status;
```

The query results are displayed in a table with the following data:

injury_status	players
Healthy	59
Injured	97
Recovering	104

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-32H3VMH0 (16.0 RTM) LAPTOP-32H3VMH0\njabul... master 00:00:00 Row: 1, Col: 1 3 rows".

17. Calculate goals per match ratio for each player.

The screenshot shows a SQL Server Enterprise Manager window with a query editor. The query is as follows:

```
--17. Calculate goals per match ratio for each player.
select player_name,
       sum(goals) AS total_goals,
       matches_played,
       -- Calculate ratio: Goals / Matches
       -- We multiply by 1.0 to avoid "Integer Division"
       CAST(sum(goals) * 1.0 / NULLIF(matches_played, 0) AS DECIMAL(18, 0)) AS goals_per_match
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]
GROUP BY
    player_name,
    matches_played;
```

The query results are displayed in a table with the following data:

	player_name	total_goals	matches_played	goals_per_match
1	Mpho Zulu	5	1	5
2	Thembi Zulu	72	3	24
3	Thabo Mthembu	88	5	18
4	Thembi Ndlovu	0	5	0
5	Karabo Hlongwane	3	8	0
6	Lindwe Radebe	3	8	0
7	Gugu Tshabalala	57	9	6
8	Lindwe Zulu	34	11	3
9	Lindwe Mabaso	67	13	5
10	Tumelo Ngobeni	4	15	0
11	Khanyi Radebe	10	17	1
12	Siyanda Mahlangu	5	18	0

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-S2H3VMH0 (16.0 RTM) LAPTOP-S2H3VMH0/njabul... master 00:00:00 Row: 1, Col: 1 300 rows".

18. Count how many players are managed by each agent

The screenshot shows a SQL Server Enterprise Manager window with a query editor. The query is as follows:

```
--18. Count how many players are managed by each agent.
select agent,
       count(*) as Players
FROM [katro_soccer].[dbo].[sa_soccer_dataset_advanced]
group by agent;
```

The query results are displayed in a table with the following data:

	agent	Players
1	Name	62
2	PlayerFirst	63
3	ProSport	62
4	SA Elite Agents	51
5	SoccerLink Africa	62

The status bar at the bottom indicates "Query executed successfully." and "LAPTOP-S2H3VMH0 (16.0 RTM) LAPTOP-S2H3VMH0/njabul... master 00:00:00 Row: 1, Col: 1 5 rows".

19. Calculate average height and weight by player position.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--19. Calculate average height and weight by player position.
select position,
       avg(height_cm) as average_height,
       avg(weight_kg) as average_weight
from [katro_soccer].[dbo].[sa_soccer_dataset_advanced]
group by position;
```

The Results pane shows the following data:

	position	average_height	average_weight
1	Defender	182	78
2	Forward	179	78
3	Goalkeeper	179	78
4	Midfielder	179	76

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\ngabul... master 00:00:00 Row: 1, Col: 1 4 rows

20. Identify players with the highest combined goals and assists.

The screenshot shows the SQL Server Enterprise Manager interface. The query editor displays the following SQL code:

```
--20. Identify players with the highest combined goals and assists.
select player_name,
       sum(goals) as total_goals,
       sum(assists) as total_assists,
       -- Combined goals and assists
       (sum(goals) + sum(assists)) as total_contributions
from [katro_soccer].[dbo].[sa_soccer_dataset_advanced]
group by player_name
order by (sum(goals) + sum(assists)) desc;
```

The Results pane shows the following data:

	player_name	total_goals	total_assists	total_contributions
1	Vusi Radebe	285	150	435
2	Ayanda Sithole	246	165	411
3	Kagiso Phiri	242	111	353
4	Karabo Phiri	222	113	335
5	Thabo Sithole	182	87	269
6	Khanyi Ndlovu	70	183	253
7	Zanele Phiri	172	72	244
8	Mandla Bakoyi	170	71	241
9	Thabo Ndlovu	167	62	229
10	Gugu Tshabalala	148	80	228
11	Thembu Dlamini	101	125	226
12	Khanyi Nkomo	167	50	217

The status bar at the bottom indicates: Query executed successfully. LAPTOP-52H3VMH0 (16.0 RTM) LAPTOP-52H3VMH0\ngabul... master 00:00:00 Row: 1, Col: 1 203 rows