

IPL Match Data – Assignment 3

Background

We are working with an IPL 2017 dataset (Indian domestic cricket league). We have extracted this data in the form of a .csv file from kaggle. Then we have proceeded to convert this data from 0th Normal form to the 3rd Normal form through logical reasoning and elimination of redundancies and the partial dependencies. We have checked for the validity, completeness and correctness of this data.

Abstract

Now, we have converted our SQL database that we created previously to NoSQL using the ProjectB database. We have combined the 'Player' and 'Team' tables into a single 'Player_Team' collection. Also, we have combined the 'Venue', 'Match' and 'Result' tables into a single 'Match_Result' collection. The NoSQL database uses MongoDB. Then we have extracted tweets from twitter which contain relevant hash tags for the IPL 2017 season. Then, there is an explanation of the trending and popular tweets and users and how it provides an insight on the season.

Code

Using the database ProjectB to create collections in NoSQL from the tables in SQL.

Creating collection Player_Team and Match_Result

```
db.createCollection('Player_Team')
```

```
db.createCollection('Match_Result')
```

Inserting player data into the collection Player_Team

```
db.Player_Team.insertMany([
```

{_id:8, Player_Name: 'V Kohli', Date_of_Birth: ISODate("1988-11-05"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Captain' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:31, Player_Name: 'YK Pathan', Date_of_Birth: ISODate("1982-11-17"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:32, Player_Name: 'SR Watson', Date_of_Birth: ISODate("1981-06-17"), Country: 'Australia' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Captain' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:40, Player_Name: 'G Gambhir', Date_of_Birth: ISODate("1981-10-14"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Legbreak' , Role: 'Captain' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:46, Player_Name: 'RV Uthappa', Date_of_Birth: ISODate("1985-11-11"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Keeper' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:67, Player_Name: 'PP Chawla', Date_of_Birth: ISODate("1988-12-24"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Legbreak' , Role: 'Player' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:96, Player_Name: 'MK Pandey', Date_of_Birth: ISODate("1989-09-10"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:110, Player_Name: 'AB de Villiers', Date_of_Birth: ISODate("1984-02-17"), Country: 'South Africa' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:140, Player_Name: 'Iqbal Abdulla', Date_of_Birth: ISODate("1989-12-02"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:162, Player_Name: 'CH Gayle', Date_of_Birth: ISODate("1979-09-21"), Country: 'West Indies' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:232, Player_Name: 'UT Yadav', Date_of_Birth: ISODate("1987-10-25"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:236, Player_Name: 'Mandeep Singh', Date_of_Birth: ISODate("1991-12-18"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

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{_id:237, Player_Name: 'KM Jadhav', Date_of_Birth: ISODate("1985-03-26"), Country: 'India' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Keeper' , Player_Captain_ID:  
8, Team_id: 2, Team: 'Royal Challengers Bangalore'},
```

```
{_id:255, Player_Name: 'STR Binny', Date_of_Birth: ISODate("1984-06-03"), Country: 'India' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID:  
8, Team_id: 2, Team: 'Royal Challengers Bangalore'},
```

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{_id:257, Player_Name: 'IR Jaggi', Date_of_Birth: ISODate("1989-01-27"), Country: 'India' , Batting_Style:  
'Right-hand bat' , Bowling_Style: 'Legbreak googly' , Role: 'Player' , Player_Captain_ID: 40, Team_id: 1,  
Team: 'Kolkata Knight Riders'}})
```

```
db.Player_Team.insertMany([
```

```
{_id:270, Player_Name: 'S Aravind', Date_of_Birth: ISODate("1984-04-08"), Country: 'India' ,  
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Left-arm medium-fast' , Role: 'Player' , Player_Captain_ID:  
8, Team_id: 2, Team: 'Royal Challengers Bangalore'},
```

```
{_id:276, Player_Name: 'Shakib Al Hasan', Date_of_Birth: ISODate("1987-03-24"), Country: 'Bangladesh'  
, Batting_Style: 'Left-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' ,  
Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},
```

```
{_id:308, Player_Name: 'SA Yadav', Date_of_Birth: ISODate("1990-09-14"), Country: 'India' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID:  
40, Team_id: 1, Team: 'Kolkata Knight Riders'},
```

```
{_id:311, Player_Name: 'HV Patel', Date_of_Birth: ISODate("1990-11-23"), Country: 'India' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID:  
8, Team_id: 2, Team: 'Royal Challengers Bangalore'},
```

```
{_id:315, Player_Name: 'SP Narine', Date_of_Birth: ISODate("1988-05-26"), Country: 'West Indies' ,  
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID:  
40, Team_id: 1, Team: 'Kolkata Knight Riders'},
```

```
{_id:322, Player_Name: 'P Negi', Date_of_Birth: ISODate("1993-01-06"), Country: 'India' , Batting_Style:  
'Left-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' , Player_Captain_ID: 8, Team_id:  
2, Team: 'Royal Challengers Bangalore'},
```

```
{_id:336, Player_Name: 'CA Lynn', Date_of_Birth: ISODate("1990-04-10"), Country: 'Australia' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' ,  
Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},
```

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{_id:344, Player_Name: 'AS Rajpoot', Date_of_Birth: ISODate("1993-12-04"), Country: 'India' ,  
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID:  
40, Team_id: 1, Team: 'Kolkata Knight Riders'},
```

```
{_id:369, Player_Name: 'Sachin Baby', Date_of_Birth: ISODate("1988-12-18"), Country: 'India' ,
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:371, Player_Name: 'NM Coulter-Nile', Date_of_Birth: ISODate("1987-10-11"), Country: 'Australia' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 40,
Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:382, Player_Name: 'YS Chahal', Date_of_Birth: ISODate("1990-07-23"), Country: 'India' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Legbreak googly' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:417, Player_Name: 'TM Head', Date_of_Birth: ISODate("1993-12-29"), Country: 'Australia' ,
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:452, Player_Name: 'S Badree', Date_of_Birth: ISODate("1981-03-09"), Country: 'West Indies' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Legbreak' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:458, Player_Name: 'TA Boult', Date_of_Birth: ISODate("1989-07-22"), Country: 'New Zealand' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Left-arm fast-medium' , Role: 'Player' ,
Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:461, Player_Name: 'AF Milne', Date_of_Birth: ISODate("1992-04-13"), Country: 'New Zealand' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'}}])
```

```
db.Player_Team.insertMany([
```

```
{_id:462, Player_Name: 'Kuldeep Yadav', Date_of_Birth: ISODate("1994-12-14"), Country: 'India' ,
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Slow left-arm chinaman' , Role: 'Player' ,
Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:470, Player_Name: 'A Choudhary', Date_of_Birth: ISODate("1990-01-28"), Country: 'India' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Left-arm medium' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:474, Player_Name: 'Avesh Khan', Date_of_Birth: ISODate("1996-12-13"), Country: 'India' ,
Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium-fast' , Role: 'Player' ,
Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:475, Player_Name: 'B Stanlake', Date_of_Birth: ISODate("1994-11-04"), Country: 'Australia' ,
Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 8,
Team_id: 2, Team: 'Royal Challengers Bangalore'},
```

```
{_id:478, Player_Name: 'C de Grandhomme', Date_of_Birth: ISODate("1986-07-22"), Country: 'New Zealand', Batting_Style: 'Right-hand bat', Bowling_Style: 'Right-arm fast-medium', Role: 'Player', Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:479, Player_Name: 'CR Woakes', Date_of_Birth: ISODate("1989-03-02"), Country: 'England', Batting_Style: 'Right-hand bat', Bowling_Style: 'Right-arm fast-medium', Role: 'Player', Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:480, Player_Name: 'DM Bravo', Date_of_Birth: ISODate("1989-02-06"), Country: 'West Indies', Batting_Style: 'Left-hand bat', Bowling_Style: 'Right-arm medium-fast', Role: 'Player', Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:491, Player_Name: 'SP Jackson', Date_of_Birth: ISODate("1986-09-27"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'NULL', Role: 'Keeper', Player_Captain_ID: 40, Team_id: 1, Team: 'Kolkata Knight Riders'},

{_id:495, Player_Name: 'TS Mills', Date_of_Birth: ISODate("1992-08-12"), Country: 'England', Batting_Style: 'Right-hand bat', Bowling_Style: 'Left-arm fast', Role: 'Player', Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'},

{_id:496, Player_Name: 'Vishnu Vinod', Date_of_Birth: ISODate("1993-12-02"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'NULL', Role: 'Keeper', Player_Captain_ID: 8, Team_id: 2, Team: 'Royal Challengers Bangalore'}}}
```

```
db.Player_Team.insertMany([
```

```
{_id:15, Player_Name: 'Z Khan', Date_of_Birth: ISODate("1978-10-07"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'Left-arm fast-medium', Role: 'Captain', Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:62, Player_Name: 'WP Saha', Date_of_Birth: ISODate("1984-10-24"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'NULL', Role: 'Keeper', Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:84, Player_Name: 'I Sharma', Date_of_Birth: ISODate("1988-09-02"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'Right-arm fast-medium', Role: 'Player', Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:100, Player_Name: 'SE Marsh', Date_of_Birth: ISODate("1983-07-09"), Country: 'Australia', Batting_Style: 'Left-hand bat', Bowling_Style: 'Slow left-arm orthodox', Role: 'Player', Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:136, Player_Name: 'A Mishra', Date_of_Birth: ISODate("1982-11-24"), Country: 'India', Batting_Style: 'Right-hand bat', Bowling_Style: 'Legbreak', Role: 'Player', Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},
```

{_id:191, Player_Name: 'AD Mathews', Date_of_Birth: ISODate("1987-06-02"), Country: 'Sri Lanka' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:207, Player_Name: 'AP Tare', Date_of_Birth: ISODate("1987-11-07"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'NULL' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:216, Player_Name: 'EJG Morgan', Date_of_Birth: ISODate("1986-09-10"), Country: 'England' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:293, Player_Name: 'S Nadeem', Date_of_Birth: ISODate("1989-08-12"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:296, Player_Name: 'VR Aaron', Date_of_Birth: ISODate("1989-10-29"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:305, Player_Name: 'GJ Maxwell', Date_of_Birth: ISODate("1988-10-14"), Country: 'Australia' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Captain' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:307, Player_Name: 'MN Samuels', Date_of_Birth: ISODate("1981-02-05"), Country: 'West Indies' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:320, Player_Name: 'DA Miller', Date_of_Birth: ISODate("1989-06-10"), Country: 'South Africa' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:329, Player_Name: 'Gurkeerat Singh', Date_of_Birth: ISODate("1990-06-29"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:339, Player_Name: 'KK Nair', Date_of_Birth: ISODate("1991-12-06"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:345, Player_Name: 'M Vohra', Date_of_Birth: ISODate("1993-07-18"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:347, Player_Name: 'Mohammed Shami', Date_of_Birth: ISODate("1990-09-03"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:350, Player_Name: 'CH Morris', Date_of_Birth: ISODate("1987-04-30"), Country: 'South Africa' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:351, Player_Name: 'SV Samson', Date_of_Birth: ISODate("1994-11-11"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'NULL' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:364, Player_Name: 'MM Sharma', Date_of_Birth: ISODate("1988-09-18"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:367, Player_Name: 'Sandeep Sharma', Date_of_Birth: ISODate("1993-05-18"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:372, Player_Name: 'CJ Anderson', Date_of_Birth: ISODate("1990-12-13"), Country: 'New Zealand' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Left-arm medium-fast' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:374, Player_Name: 'AR Patel', Date_of_Birth: ISODate("1994-01-20"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:390, Player_Name: 'R Tewatia', Date_of_Birth: ISODate("1993-05-20"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Legbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:393, Player_Name: 'SS Iyer', Date_of_Birth: ISODate("1994-12-06"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Legbreak googly' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:395, Player_Name: 'Anureet Singh', Date_of_Birth: ISODate("1988-03-02"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:405, Player_Name: 'PJ Cummins', Date_of_Birth: ISODate("1993-05-08"), Country: 'Australia' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:408, Player_Name: 'CR Brathwaite', Date_of_Birth: ISODate("1988-07-18"), Country: 'West Indies' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:409, Player_Name: 'MP Stoinis', Date_of_Birth: ISODate("1989-08-16"), Country: 'Australia' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:415, Player_Name: 'MJ Guptill', Date_of_Birth: ISODate("1986-09-30"), Country: 'New Zealand' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:420, Player_Name: 'RR Pant', Date_of_Birth: ISODate("1997-10-04"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'NULL' , Role: 'Keeper' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:421, Player_Name: 'SW Billings', Date_of_Birth: ISODate("1991-06-15"), Country: 'England' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'NULL' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:422, Player_Name: 'KC Cariappa', Date_of_Birth: ISODate("1994-04-13"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Legbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:424, Player_Name: 'Swapnil Singh', Date_of_Birth: ISODate("1991-01-22"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Slow left-arm orthodox' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:425, Player_Name: 'J Yadav', Date_of_Birth: ISODate("1990-01-22"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:427, Player_Name: 'HM Amla', Date_of_Birth: ISODate("1983-03-31"), Country: 'South Africa' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:473, Player_Name: 'AR Bawne', Date_of_Birth: ISODate("1992-12-17"), Country: 'India' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm offbreak' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:482, Player_Name: 'K Rabada', Date_of_Birth: ISODate("1995-05-25"), Country: 'South Africa' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Right-arm fast' , Role: 'Player' , Player_Captain_ID: 15, Team_id: 4, Team: 'Delhi Daredevils'},

{_id:484, Player_Name: 'MJ Henry', Date_of_Birth: ISODate("1991-12-14"), Country: 'New Zealand' , Batting_Style: 'Right-hand bat' , Bowling_Style: 'Right-arm fast-medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'},

{_id:493, Player_Name: 'T Natarajan', Date_of_Birth: ISODate("1991-05-27"), Country: 'India' , Batting_Style: 'Left-hand bat' , Bowling_Style: 'Left-arm medium' , Role: 'Player' , Player_Captain_ID: 305, Team_id: 3, Team: 'Kings XI Punjab'}

}}

Inserting Match data into the collection Match_Result

```
db.Match_Result.insert([

{ _id:1082617, Home_Team_id : '1', Away_Team_id: 2, Match_Date: ISODate("2017-04-23"),
Venue_Name: 'Eden Gardens', Venue_City: 'Kolkata', Winner_id: 1, Win_Type: 'Runs', Win_Margin: 82,
Man_of_the_Match: '371'},

{ _id:1082636, Home_Team_id : '2', Away_Team_id: '1', Match_Date: ISODate("2017-05-07"),
Venue_Name: 'M Chinnaswamy Stadium', Venue_City: 'Bangalore', Winner_id: 1, Win_Type: 'Wickets',
Win_Margin: 6, Man_of_the_Match: '315'}

])


db.Match_Result.insert([

{ _id:1082595, Home_Team_id : '2', Away_Team_id: '4', Match_Date: ISODate("2017-04-08"),
Venue_Name: 'M Chinnaswamy Stadium', Venue_City: 'Bangalore', Winner_id: 2, Win_Type: 'Runs',
Win_Margin: 15, Man_of_the_Match: '237'},

{ _id:1082598, Home_Team_id : '3', Away_Team_id: '2', Match_Date: ISODate("2017-04-10"),
Venue_Name: 'Holkar Cricket Stadium', Venue_City: 'Indore', Winner_id: 3, Win_Type: 'Wickets',
Win_Margin: 8, Man_of_the_Match: '374'},

{ _id:1082601, Home_Team_id : '1', Away_Team_id: '3', Match_Date: ISODate("2017-04-13"),
Venue_Name: 'Eden Gardens', Venue_City: 'Kolkata', Winner_id: 1, Win_Type: 'Wickets', Win_Margin: 8,
Man_of_the_Match: '315'},

{ _id:1082605, Home_Team_id : '4', Away_Team_id: '3', Match_Date: ISODate("2017-04-15"),
Venue_Name: 'Feroz Shah Kotla', Venue_City: 'Delhi', Winner_id: 4, Win_Type: 'Runs', Win_Margin: 51,
Man_of_the_Match: '372'},

{ _id:1082608, Home_Team_id : '4', Away_Team_id: '1', Match_Date: ISODate("2017-04-17"),
Venue_Name: 'Feroz Shah Kotla', Venue_City: 'Delhi', Winner_id: 1, Win_Type: 'Wickets', Win_Margin:
4, Man_of_the_Match: '371'},

{ _id:1082622, Home_Team_id : '1', Away_Team_id: '4', Match_Date: ISODate("2017-04-28"),
Venue_Name: 'Eden Gardens', Venue_City: 'Kolkata', Winner_id: 1, Win_Type: 'Wickets', Win_Margin: 7,
Man_of_the_Match: '40'},

{ _id:1082626, Home_Team_id : '3', Away_Team_id: '4', Match_Date: ISODate("2017-04-30"),
Venue_Name: 'Punjab Cricket Association IS Bindra Stadium Mohali', Venue_City: 'Mohali', Winner_id:
3, Win_Type: 'Wickets', Win_Margin: 10, Man_of_the_Match: '367'},

{ _id:1082633, Home_Team_id : '2', Away_Team_id: '3', Match_Date: ISODate("2017-05-05"),
Venue_Name: 'M Chinnaswamy Stadium', Venue_City: 'Bangalore', Winner_id: 3, Win_Type: 'Runs',
Win_Margin: 19, Man_of_the_Match: '367'},
```

```
{_id:1082639, Home_Team_id : '3', Away_Team_id: '1', Match_Date: ISODate("2017-05-09"),
Venue_Name: 'Punjab Cricket Association IS Bindra Stadium Mohali', Venue_City: 'Mohali', Winner_id:
3, Win_Type: 'Runs', Win_Margin: 14, Man_of_the_Match: '364'},

{_id:1082646, Home_Team_id : '4', Away_Team_id: '2', Match_Date: ISODate("2017-05-14"),
Venue_Name: 'Feroz Shah Kotla', Venue_City: 'Delhi', Winner_id: 2, Win_Type: 'Runs', Win_Margin: 10,
Man_of_the_Match: '311'}
```

Aggregate and print out only the Man of the match of each Match played.

```
db.Match_Result.aggregate([
  { $lookup:
    {
      "from": "Player_Team",
      "localField": "Man_of_the_Match",
      "foreignField": "_id",
      "as": "ManofThematch"
    }
  },
  {
    $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$ManofThematch", 0 ] }, "$$ROOT" ] } }
  },
  {
    $project: {
      ManofThematch: 0,
      "Date_of_Birth" : 0,
      "Country" : 0,
      "Batting_Style" : 0,
      "Bowling_Style" : 0,
```

```

"Role" : 0,

"Player_Captain_ID" : 0,

"Team_id" : 0,

"Team" : 0

}

```

```

}

```

```

]).pretty()

```

```

C:\Program Files\MongoDB\Server\4.2\bin\mongo.exe
> use ProjectB
switched to db ProjectB
> db.createCollection('Player_Team')
{
  "ok" : 0,
  "errmsg" : "a collection 'ProjectB.Player_Team' already exists",
  "code" : 48,
  "codeName" : "NamespaceExists"
}
> db.createCollection('Match_Result')
{
  "ok" : 0,
  "errmsg" : "a collection 'ProjectB.Match_Result' already exists",
  "code" : 48,
  "codeName" : "NamespaceExists"
}
> db.Match_Result.aggregate([
...   { $lookup:
...     {
...       "from": "Player_Team",
...       "localField": "Man_of_the_Match",
...       "foreignField": "_id",
...       "as": "ManofThematch"
...     }
...   },
...   {
...     $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$ManofThematch", 0 ] }, "$$ROOT" ] } }
...   },
...   {
...     $project: {
...       ManofThematch: 0,
...       "Date_of_Birth" : 0,
...       "Country" : 0,
...       "Batting_Style" : 0,
...       "Bowling_Style" : 0,
...       "Role" : 0,
...       "Player_Captain_ID" : 0,
...       "Team_id" : 0,
...       "Team" : 0
...     }
...   }
... ]).pretty()
{
  "_id" : 1082617,
  "Player_Name" : "NM Coulter-Nile",
  "Home_Team_id" : 1,
  "Away_Team_id" : 2,
  "Match_Date" : ISODate("2017-04-23T00:00:00Z"),
  "Venue_Name" : "Eden Gardens",
  "Venue_City" : "Kolkata",

```

```
C:\Program Files\MongoDB\Server\4.2\bin\mongo.exe
> use ProjectB
switched to db ProjectB
> db.createCollection('Player_Team')
{
  "ok" : 0,
  "errmsg" : "a collection 'ProjectB.Player_Team' already exists",
  "code" : 48,
  "codeName" : "NamespaceExists"
}
> db.createCollection('Match_Result')
{
  "ok" : 0,
  "errmsg" : "a collection 'ProjectB.Match_Result' already exists",
  "code" : 48,
  "codeName" : "NamespaceExists"
}
> db.Match_Result.aggregate([
...   { $lookup:
...     {
...       "from": "Player_Team",
...       "localField": "Man_of_the_Match",
...       "foreignField": "_id",
...       "as": "ManofThematch"
...     }
...   },
...   {
...     $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$ManofThematch", 0 ] }, "$$ROOT" ] } }
...   },
...   {
...     $project: {
...       ManofThematch: 0,
...       "Date_of_Birth" : 0,
...       "Country" : 0,
...       "Batting_Style" : 0,
...       "Bowling_Style" : 0,
...       "Role" : 0,
...       "Player_Captain_ID" : 0,
...       "Team_id" : 0,
...       "Team" : 0
...     }
...   }
... ]).pretty()
{
  "_id" : 1082617,
  "Player_Name" : "NM Coulter-Nile",
  "Home_Team_id" : 1,
  "Away_Team_id" : 2,
  "Match_Date" : ISODate("2017-04-23T00:00:00Z"),
  "Venue_Name" : "Eden Gardens",
  "Venue_City" : "Kolkata",
}
```

Group by type of wins.

```
db.Match_Result.aggregate([
    {
        $group:
        {
            _id: "$Win_Type",
            count:{$sum:1}
        }
    }
]).pretty()
```



```

        "WinnerName" : 0,
        "Date_of_Birth" : 0,
        "Batting_Style": 0,
        "Country" : 0,
        "Bowling_Style" : 0,
        "Role" : 0,
        "Player_Captain_ID" : 0,
        "Team_id" : 0,
        "Player_Name" : 0
    }
},
{
    $group:
    {
        _id: "$Team",
        count:{$sum:1}
    }
}
]).pretty()

```

```
C:\Program Files\MongoDB\Server\4.2\bin\mongo.exe
> db.Match_Result.aggregate([
...   { $lookup:
...     {
...       "from": "Player_Team",
...       "localField": "Winner_id",
...       "foreignField": "Team_id",
...       "as": "WinnerName"
...     }
...   },
...   {
...     $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$WinnerName", 0 ] }, "$$ROOT" ] } }
...   },
...   {
...     $project: {
...       "WinnerName": 0,
...       "Date_of_Birth": 0,
...       "Batting_Style": 0,
...       "Country": 0,
...       "Bowling_Style": 0,
...       "Role": 0,
...       "Player_Captain_ID": 0,
...       "Team_id": 0,
...       "Player_Name": 0
...     }
...   },
...   { $group:
...     {
...       _id: "$Team",
...       count: { $sum: 1 }
...     }
...   },
...   { $pretty() }
... ]).pretty()
{ "_id" : "Kolkata Knight Riders", "count" : 5 }
{ "_id" : "Royal Challengers Bangalore", "count" : 2 }
{ "_id" : "Delhi Daredevils", "count" : 1 }
{ "_id" : "Kings XI Punjab", "count" : 4 }
```

***# Reversing the query aggregateing Player_Team and Match_Result. Finding all the man of the match.
(This is to show the connection between 2 collections)***

```
db.Player_Team.aggregate([
  { $lookup:
    {
      "from": "Match_Result",
      "localField": "_id",
      "foreignField": "Man_of_the_Match",
      "as": "SubColl"
    }
  },
  {
    $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$SubColl", 0 ] }, "$$ROOT" ] } }
  },
  {
```

```

$project: {
    "_id": 0,
    "Home_Team_id": 0,
    "Away_Team_id": 0,
    "Match_Date": 0,
    "Venue_Name": 0,
    "Venue_City": 0,
    "Winner_id": 0,
    "Win_Type": 0,
    "Win_Margin": 0
}
},
{
    $match:
        {
            "Man_of_the_Match": {
                $gte: 0
            }
        }
},
{
    $group:
    {
        "_id": "$Player_Name"
    }
}
]).pretty()

```



```
C:\Program Files\MongoDB\Server\4.2\bin\mongo.exe
> db.Player_Team.aggregate([
...   { $lookup:
...     {
...       "from": "Match_Result",
...       "localField": "_id",
...       "foreignField": "Man_of_the_Match",
...       "as": "SubColl"
...     }
...   },
...   {
...     $replaceRoot: { newRoot: { $mergeObjects: [ { $arrayElemAt: [ "$SubColl", 0 ] }, "$$ROOT" ] } }
...   },
...   {
...     $project: {
...       "_id": 0,
...       "Home_Team_id": 0,
...       "Away_Team_id": 0,
...       "Match_Date": 0,
...       "Venue_Name": 0,
...       "Venue_City": 0,
...       "Winner_id": 0,
...       "Win_Type": 0,
...       "Win_Margin": 0
...     }
...   },
...   {
...     $match:
...     {
...       "Man_of_the_Match": {
...         $gte: 0
...       }
...     }
...   },
...   { $group:
...     {
...       "_id": "$Player_Name"
...     }
...   }
... ]).pretty()
{ "_id" : "G Gambhir" }
{ "_id" : "MS Coulter-Nile" }
{ "_id" : "PV Sharma" }
{ "_id" : "AR Patel" }
{ "_id" : "CJ Anderson" }
{ "_id" : "Sandeep Sharma" }
{ "_id" : "KH Jadhav" }
{ "_id" : "RV Patel" }
{ "_id" : "SP Narine" }
```

Citation

- <https://stackoverflow.com/questions/35813854/how-to-join-multiple-collections-with-lookup-in-mongodb>
- <https://www.pythoncentral.io/introduction-to-tweepy-twitter-for-python/>
- <https://www.tweepy.org/>
- <https://www.twitter.com/>
- <https://developer.twitter.com/en>

Conclusion

We have successfully converted the SQL database to a NoSQL database.