

# Appendix. SPARQL Queries

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## Inferences

Stadium where the match will be played based on who is the home team

```
insert
{
?match la:hasStadium ?stadium
}
where {
?match rdf:type la:Match .
```

```

?match la:hasHomeTeam ?hometeam .
?hometeam la:hasStadium ?stadium .
}

```

```

Select ?match ?stadium where {
?match rdf:type la:Match .
?match la:hasStadium ?stadium .
}

```

Matches from a season based on the match property belongsToSeason

```

prefix la:<http://www.laligaprediction.com/>
insert {
  ?season la:hasMatch ?match
}
where {
?match la:belongsToSeason ?season
}

```

```

select * where {
?season la:hasMatch ?team
}

```

City of a football team based on the location of their stadium

```

insert{
  ?team la:belongsToCity ?city
}
where {
?stadium rdf:type la:Stadium .
?stadium la:belongsToCity ?city.
?stadium la:hasTeam ?team .
}

```

```

Select * where {
?team rdf:type la:Team .
?team la:belongsToCity ?city
}

```

Winner of a season based on the number of points gained in all the respective season matches

Part 1:

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

prefix la:<http://www.laligaprediction.com/>

Select ?season (MAX(?temporada) as ?ganador) where {

Select ?season ?team (SUM(?total) as ?temporada) where {

{

Select ?season ?team (SUM(?points) as ?total) where {

?season rdf:type la:Season .

?match rdf:type la:Match .

?match la:belongsToSeason ?season .

?match la:hasHomeTeam ?team .

?match la:hasStatistics ?stats .

?stats la:hasHP ?points .

}

GroupBY ?team ?season

}

Union

{

Select ?season ?team (SUM(?points) as ?total) where {

?season rdf:type la:Season .

?match rdf:type la:Match .

?match la:belongsToSeason ?season .

?match la:hasAwayTeam ?team .

?match la:hasStatistics ?stats .

?stats la:hasAP ?points .

}

GroupBY ?team ?season

}

}

GroupBY ?season ?team

}

GroupBY ?season

Part 2:

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

prefix la:<http://www.laligaprediction.com/>

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>

Select ?season ?team ?temporada where {

{

```

Select ?season ?team (SUM(?total) as ?temporada) where {
{
  Select ?season ?team (SUM(?points) as ?total) where {
    ?season rdf:type la:Season .
    ?match rdf:type la:Match .
    ?match la:belongsToSeason ?season .
    ?match la:hasHomeTeam ?team .
    ?match la:hasStatistics ?stats .
    ?stats la:hasHP ?points .
  }
  GroupBY ?team ?season
}
Union
{
  Select ?season ?team (SUM(?points) as ?total) where {
    ?season rdf:type la:Season .
    ?match rdf:type la:Match .
    ?match la:belongsToSeason ?season .
    ?match la:hasAwayTeam ?team .
    ?match la:hasStatistics ?stats .
    ?stats la:hasAP ?points .
  }
  GroupBY ?team ?season
}
}
GroupBY ?season ?team
}
FILTER(?season=la:Season_2012-2013 && ?temporada=100)
}

```

## Individual Comparison

Match score last 5 years (i.e. with Sevilla and Valencia)

```

prefix la:<http://www.laligaprediction.com/>
select ?Season ?home_Team ?home_Goals ?away_Goals ?away_Team
where {
  ?match la:hasHomeTeam la:Team_Sevilla .
  la:Team_Sevilla la:hasName ?home_Team .

```

```

?match la:belongsToSeason ?sseason .
?sseason la:hasName ?Season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?away_Team .
?match la:hasStatistics ?Stats .
?Stats la:hasHG ?home_Goals .
?Stats la:hasAG ?away_Goals .
}
ORDER BY ?Season

```

## Goals scored and goals received per team

```

prefix la:<http://www.laligaprediction.com/>
select ?homeTeam (SUM(?goA) as ?Goals_Scored_ht) (SUM(?goB) as ?Goals_Received_ht)
?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
?Stats la:hasHG ?goA .
?Stats la:hasAG ?goB .
}
groupby ?homeTeam ?awayTeam

```

## Shots per team

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_Shots_hpm) as ?Average_Shots_ht)
(round(?Avg_Shots_apm) as ?Average_Shots_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?shots_h)/?Matches as
?Avg_Shots_hpm) (SUM(?shots_a)/?Matches as ?Avg_Shots_apm) ?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
}
}

```

```

?Stats la:hasHS ?shots_h .
?Stats la:hasAS ?shots_a .
}
groupby ?homeTeam ?awayTeam
}

```

## Shots on target

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_ShotsT_hpm) as ?Average_Shots_on_Target_ht)
(round(?Avg_ShotsT_apm) as ?Average_Shots_on_Target_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?shotsT_h)/?Matches as
?Avg_ShotsT_hpm) (SUM(?shotsT_a)/?Matches as ?Avg_ShotsT_apm) ?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
?Stats la:hasHST ?shotsT_h .
?Stats la:hasAST ?shotsT_a .
}
groupby ?homeTeam ?awayTeam
}

```

## Fouls committed

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_Fouls_hpm) as ?Average_Fouls_pMatch_ht)
(round(?Avg_Fouls_apm) as ?Average_Fouls_pMatch_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?fouls_h)/?Matches as
?Avg_Fouls_hpm) (SUM(?fouls_a)/?Matches as ?Avg_Fouls_apm) ?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
?Stats la:hasHF ?fouls_h .
?Stats la:hasAF ?fouls_a .
}
}

```

```

}
groupby ?homeTeam ?awayTeam
}

```

## Corner Kicks

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_Corner_Kicks_hpm) as
?Average_Corner_Kicks_pMatch_ht) (round(?Avg_Corner_Kicks_apm) as
?Average_Corner_Kicks_pMatch_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?corners_h)/?Matches as
?Avg_Corner_Kicks_hpm) (SUM(?corners_a)/?Matches as ?Avg_Corner_Kicks_apm)
?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
?Stats la:hasHC ?corners_h .
?Stats la:hasAC ?corners_a .
}
groupby ?homeTeam ?awayTeam
}

```

## Yellow Cards

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_Yellow_Cards_hpm) as
?Average_Yellow_Cards_pMatch_ht) (round(?Avg_Yellow_Cards_apm) as
?Average_Yellow_Cards_pMatch_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?yellowC_h)/?Matches as
?Avg_Yellow_Cards_hpm) (SUM(?yellowC_a)/?Matches as ?Avg_Yellow_Cards_apm)
?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
}
}

```

```

?Stats la:hasHY ?yellowC_h .
?Stats la:hasAY ?yellowC_a .
}
groupby ?homeTeam ?awayTeam
}

```

## Red cards

```

prefix la:<http://www.laligaprediction.com/>
select ?Matches ?homeTeam (round(?Avg_Red_Cards_hpm) as
?Average_Red_Cards_pMatch_ht) (round(?Avg_Red_Cards_apm) as
?Average_Red_Cards_pMatch_at) ?awayTeam where{
select (count(distinct ?match) as ?Matches) ?homeTeam (SUM(?redC_A)/?Matches as
?Avg_Red_Cards_hpm) (SUM(?redC_B)/?Matches as ?Avg_Red_Cards_apm) ?awayTeam
where {
?match la:hasHomeTeam la:Team_Sevilla .
la:Team_Sevilla la:hasName ?homeTeam .
?match la:belongsToSeason ?sseason .
?sseason la:hasName ?season .
?match la:hasAwayTeam la:Team_Valencia .
la:Team_Valencia la:hasName ?awayTeam .
?match la:hasStatistics ?Stats .
?Stats la:hasHR ?redC_A .
?Stats la:hasAR ?redC_B .
}
groupby ?homeTeam ?awayTeam
}

```

## Group Comparison

### Total number of games at Home/Away

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la:<http://www.laligaprediction.com/>
Select (COUNT(?match) as ?numberMatches) where {
?match rdf:type la:Match .
?season rdf:type la:Season.
?match la:belongsToSeason ?season .
?match la:hasHomeTeam la:Team_Real_Madrid .
FILTER(?season=la:Season_2011-2012)
}

```



## Wins/Ties/Loses at Home/Away

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la:<http://www.laligaprediction.com/>
Select (COUNT(?points) as ?wins) where {
?match rdf:type la:Match .
?season rdf:type la:Season.
?match la:belongsToSeason ?season .
?match la:hasHomeTeam la:Team_Real_Madrid .
?match la:hasStatistics ?stats .
?stats la:hasHP ?points
FILTER(?points=3 && ?season=la:Season_2011-2012)
}
```

## Points at Home/Away

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la:<http://www.laligaprediction.com/>
Select (SUM(?points) as ?totalPoints) where {
?match rdf:type la:Match .
?season rdf:type la:Season.
?match la:belongsToSeason ?season .
?match la:hasHomeTeam la:Team_Real_Madrid .
?match la:hasStatistics ?stats .
?stats la:hasHP ?points
FILTER(?season=la:season_2011-2012)
}
```

## Total number of goals scored and received at Home/Away

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la:<http://www.laligaprediction.com/>
Select (SUM(?goals) as ?goalsScored) (SUM(?goalsR) as ?goalsReceived) where {
?match rdf:type la:Match .
?season rdf:type la:Season.
?match la:belongsToSeason ?season .
?match la:hasHomeTeam la:Team_Real_Madrid .
?match la:hasStatistics ?stats .
?stats la:hasHG ?goals .
?stats la:hasAG ?goalsR .
FILTER(?season=la:Season_2011-2012)
}
```

## Prediction

### Probabilities of home win, draw and away win

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la: <http://www.laligaprediction.com/>
Select ?season ?match ?betset ((?totalAway/?Total)*100 as ?homeWins)
((?totalTie/?Total)*100 as ?Tie) ((?totalHome/?Total)*100 as ?awayWins) where {
Select ?season ?match ?betset ((?totalHome + ?totalTie + ?totalAway) as ?Total) ?totalHome
?totalTie ?totalAway where {
Select ?season ?match ?betset (SUM(?homeWins) as ?totalHome) (SUM(?tie) as ?totalTie)
(SUM(?awayWins) as ?totalAway) where {
?match rdf:type la:Match .
?season rdf:type la:Season.
?match la:belongsToSeason ?season .
?match la:hasHomeTeam la:Team_Levante .
?match la:hasAwayTeam la:Team_Real_Madrid .
?match la:hasBetSet ?betset .
?betset la:hasBet ?bets .
?bets la:hasOdds1 ?homeWins .
?bets la:hasOddsX ?tie .
?bets la:hasOdds2 ?awayWins .
FILTER(?season=la:Season_2011-2012)
}
GROUPBY ?season ?match ?betset ?homeGoals ?awayGoals
}
}
```

### Predicted score

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
prefix la: <http://www.laligaprediction.com/>
SELECT (ROUND(?homeTeam) as ?homePrediction) (ROUND(?awayTeam) as
?awayPrediction) where {
SELECT ((?totalHome/?matches) as ?homeTeam) ((?totalAway/?matches) as ?awayTeam)
where {
Select (COUNT(?match) as ?matches) (SUM(?homeGoals) as ?totalHome)
(SUM(?awayGoals) as ?totalAway) where {
?match rdf:type la:Match .
?season rdf:type la:Season .
```

```
?season la:hasMatch ?match.  
?match la:hasHomeTeam la:Team_Zaragoza .  
?match la:hasAwayTeam la:Team_Real_Madrid .  
?match la:hasStatistics ?stats .  
?stats la:hasHG ?homeGoals .  
?stats la:hasAG ?awayGoals .  
}  
}  
}
```