



PRAG ANALYTICS

COMPLEX PROBLEMS, PRAGMATIC SOLUTIONS

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Background

Users:

- 1) Coaches/support staff
- 2) Team Performance Analysts

Data Source:

The data sources that we have used are the yearly scores available from 1995 to 2023 from the below website of the matches played by UMD against various opponents at different locations.

<https://umterps.com/sports/softball/schedule>



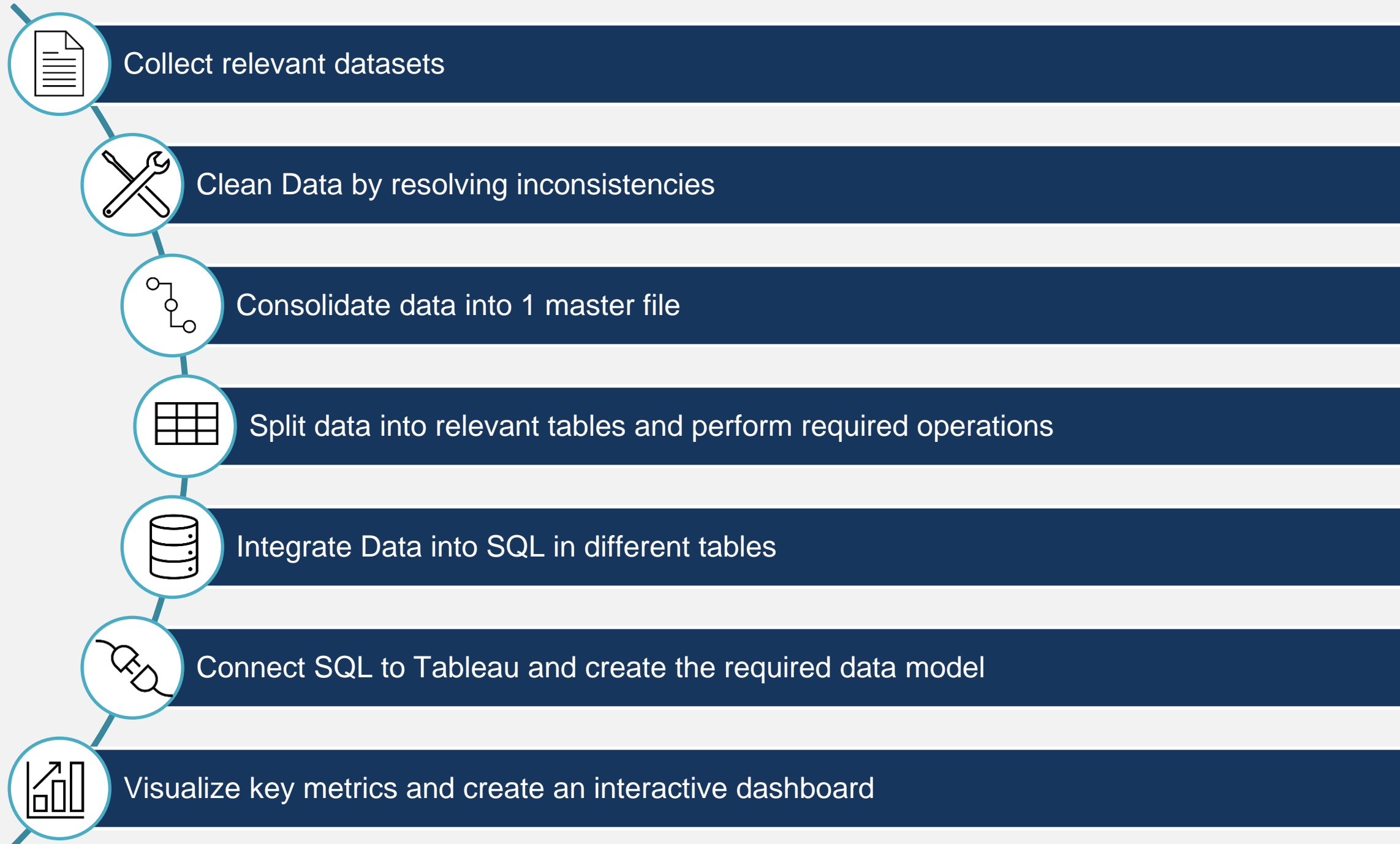
Mission Statement

Provide key insights by analyzing the historical trends of matches for the University of Maryland Softball team.

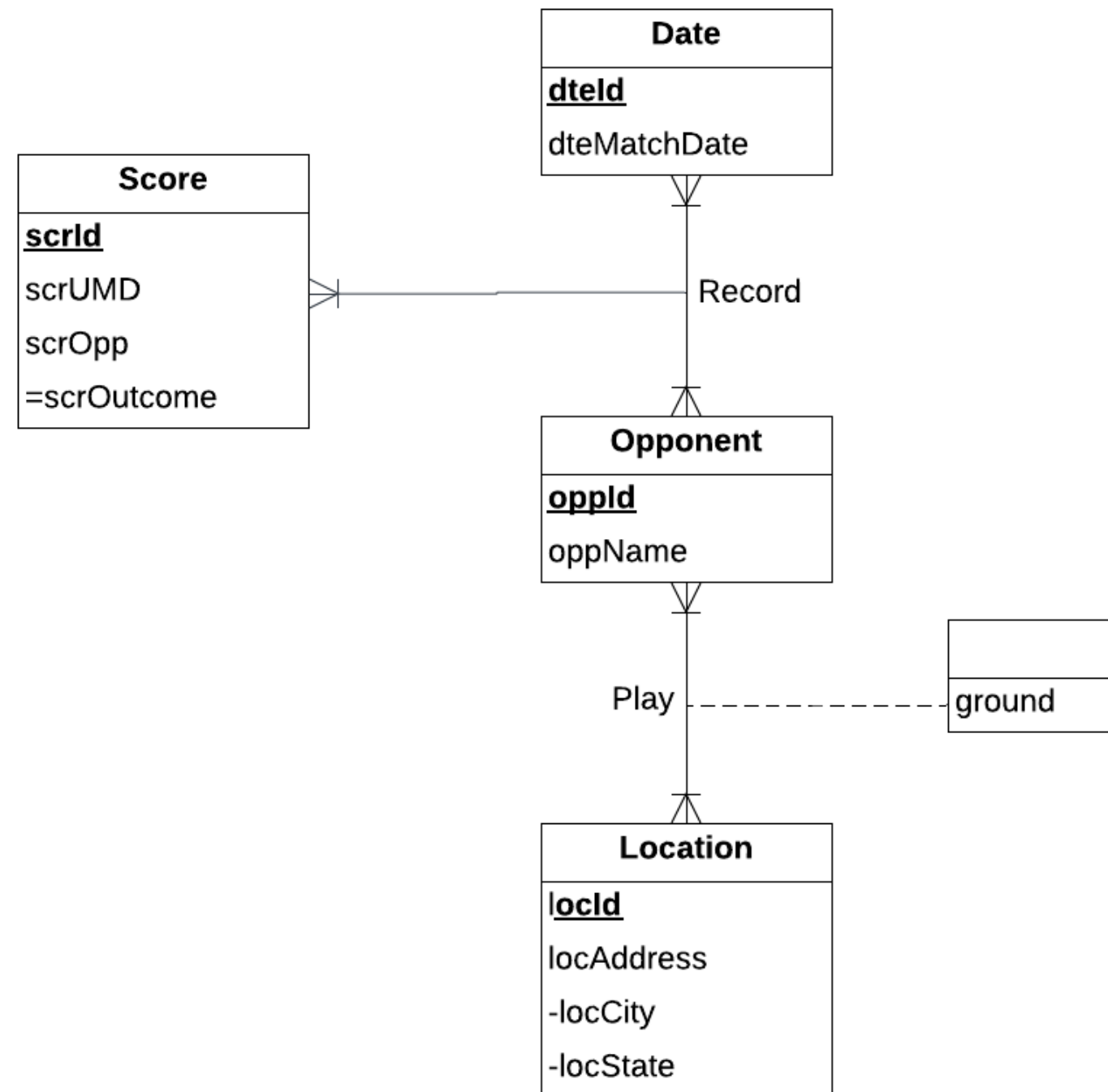
Mission Objectives

- To find the general win/loss statistics for all games played against different opponents.
- To calculate the success rate and forecasted trends in different years based on wins and losses.
- To identify the top 5 wins by scores to showcase the top victories of the team over the years.
- To identify the top 5 losses by scores to showcase the worst losses of the team over the years to provide actionable feedback for the team.
- To enable the softball coaching team to make concrete and justifiable conclusions based on the findings of the analysis.

Business Tasks and Processes



ER Diagram



Relational Schema

- Opponent (**oppld**, oppName)
- Date (**dteId**, dteMatchDate)
- Location (**locId**, locCity, locState)
- Score (**scrId**, scrUMD, scrOpp, scrOutcome)
- Record (**oppld**, **dteId**, **scrId**)
- Play (**playId**, *oppld*, *locId*, ground)

Create Table

```
CREATE TABLE Record (  
  oppId CHAR(5) NOT NULL,  
  dteId CHAR(5) NOT NULL,  
  scrId CHAR(5) NOT NULL,  
  CONSTRAINT pk_Record_oppId_dteId_scrId PRIMARY KEY(oppId,  
  dteId,scrId),  
  CONSTRAINT fk_Record_oppId FOREIGN KEY(oppId)  
    REFERENCES [Opponent](oppId)  
    ON DELETE NO ACTION ON UPDATE CASCADE,  
  CONSTRAINT fk_Record_dteId FOREIGN KEY(dteId)  
    REFERENCES [Date](dteId)  
    ON DELETE NO ACTION ON UPDATE CASCADE,  
  CONSTRAINT fk_Record_scrId FOREIGN KEY(scrId)  
    REFERENCES [Score] (scrId)  
    ON DELETE NO ACTION ON UPDATE CASCADE,  
)
```

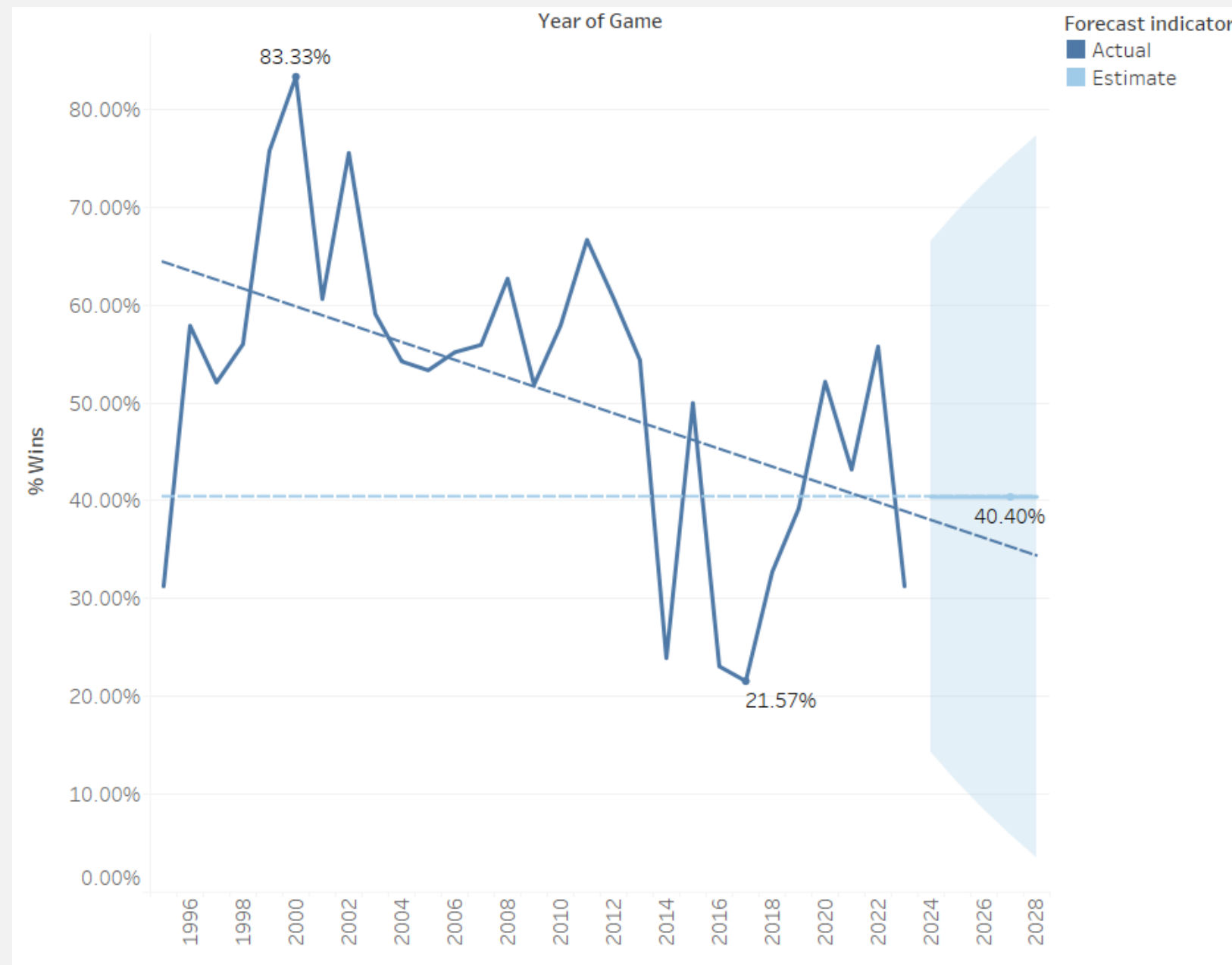
Business Transactions –

1) What is the total percentage of wins in each year?

```
WITH CalNum AS (  
  SELECT YEAR(d.dteMatchDate) AS 'Year of Game' , COUNT(r.scrId) AS 'Total Wins'  
  FROM Record r, Date d, Score s  
  WHERE d.dteId = r.dteId AND s.scrUMD>s.scrOpp AND r.scrId = s.scrId  
  GROUP BY YEAR(d.dteMatchDate)  
) ,  
CalDen AS (  
  SELECT YEAR(d.dteMatchDate) AS 'Year of Game', COUNT(r.scrId) AS 'Total Matches Played'  
  FROM Record r, Date d  
  WHERE d.dteId = r.dteId  
  GROUP BY YEAR(d.dteMatchDate)  
)  
SELECT c1.[Year of Game], ROUND(100*CONVERT(FLOAT ,c1.[Total Wins])/CONVERT(FLOAT ,  
c2.[Total Matches Played]),2) AS 'Win percentage'  
FROM CalNum c1, CalDen c2  
WHERE c1.[Year of Game] = c2.[Year of Game]  
ORDER BY c1.[Year of Game]
```


Business Transactions –

1) What is the total percentage of wins in each year?



Results			Messages	
	Year of Game	Win percentage		
1	1995	31.25		
2	1996	57.89		
3	1997	52.08		
4	1998	56		
5	1999	75.76		
6	2000	83.33		
7	2001	60.61		
8	2002	75.56		

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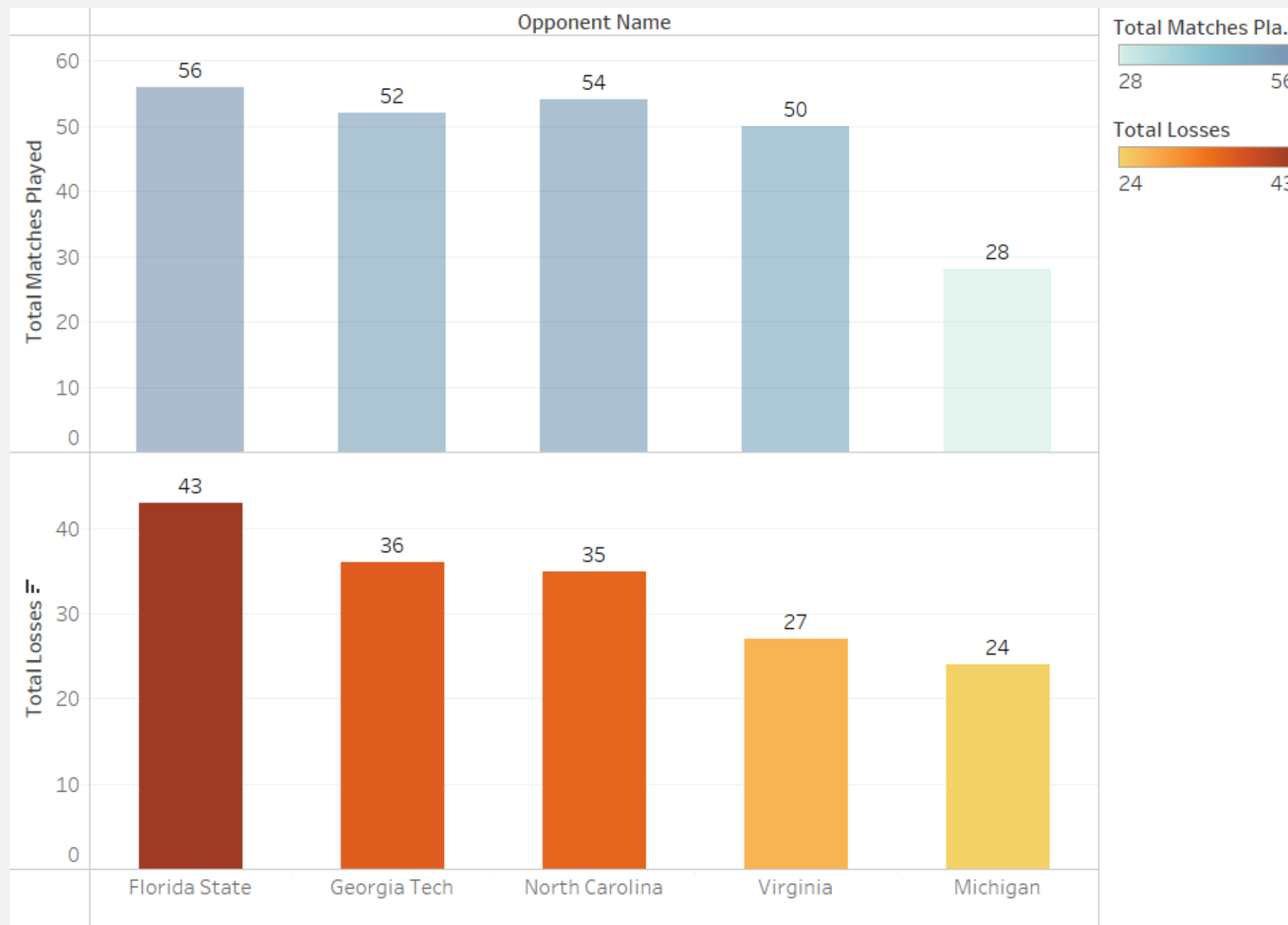
Business Transactions –

2) What are the Top 5 teams that beat UMD the maximum time over the years?

```
WITH TotalMatches AS (  
  SELECT o.oppName AS 'Opponent Name', COUNT(r.scrId) AS 'Total Matches Played'  
  FROM Record r, Opponent o  
  WHERE o.oppId = r.oppId  
  GROUP BY o.oppName  
) ,  
MatchesLost AS (  
  SELECT o.oppName AS 'Opponent Name', COUNT(r.scrId) AS 'Total Losses'  
  FROM Record r, Opponent o, Score s  
  WHERE o.oppId = r.oppId AND s.scrUMD < s.scrOpp AND r.scrId = s.scrId  
  GROUP BY o.oppName  
)  
  
SELECT TOP (5) m.[Opponent Name], m.[Total Losses], t.[Total Matches Played] AS 'Total  
Matches Played'  
FROM TotalMatches t, MatchesLost m  
WHERE m.[Opponent Name] = t.[Opponent Name]  
ORDER BY m.[Total Losses] DESC
```

Business Transactions –

2) What are the Top 5 teams that beat UMD the maximum time over the years?



Results		Messages	
	Opponent Name	Total Losses	Total Matches Played
1	Florida State	43	56
2	Georgia Tech	36	52
3	North Carolina	35	54
4	Virginia	27	50
5	Michigan	24	28

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