MAAC Water Polo Conference Database
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Overview

- Executive Summary
- Inside the Database
- Entity Relationship Diagram
- Table Description
- Views
  - Description and example
- Reports
  - Description and example
  - Problems
  - Enhancements
  - Table example with sample data

Executive Summary

The objective of this database project is to better understand what it takes to create a winning water polo team.

The database looks at the statistics of current players and programs within the Metro Atlantic Athletic Conference (MAAC).

The database can be utilized to understand what teams must do to succeed in their conference. Looking at trends of successful teams will also allow for the database to be used as a recruiting tool.
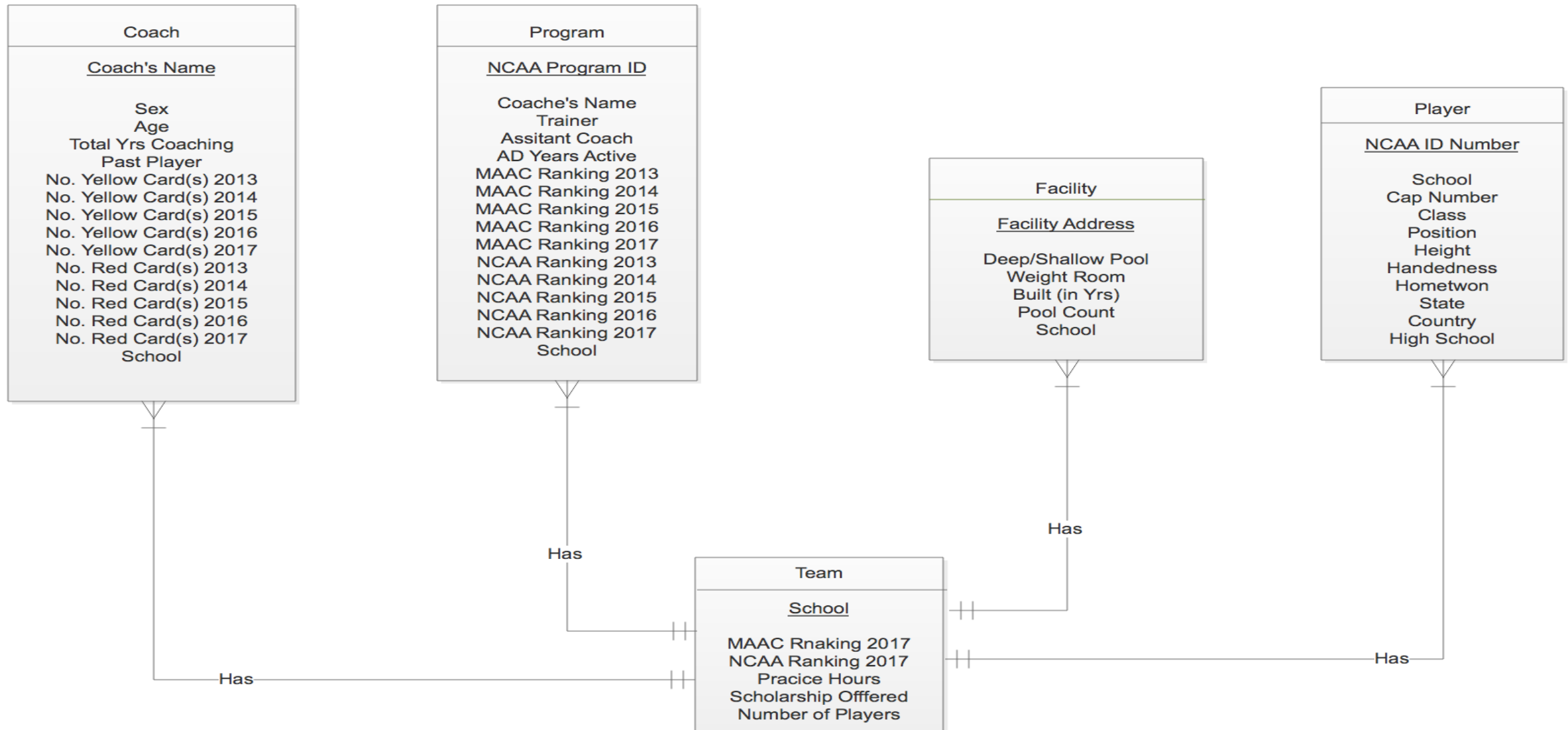
Inside the Database

The Metro Atlantic Athletic Conference consists of eight women's water polo teams. The eight teams are: Wagner, Marist, Iona, Virginia Military, Sienna, Villanova, La Salle, and St. Francis.
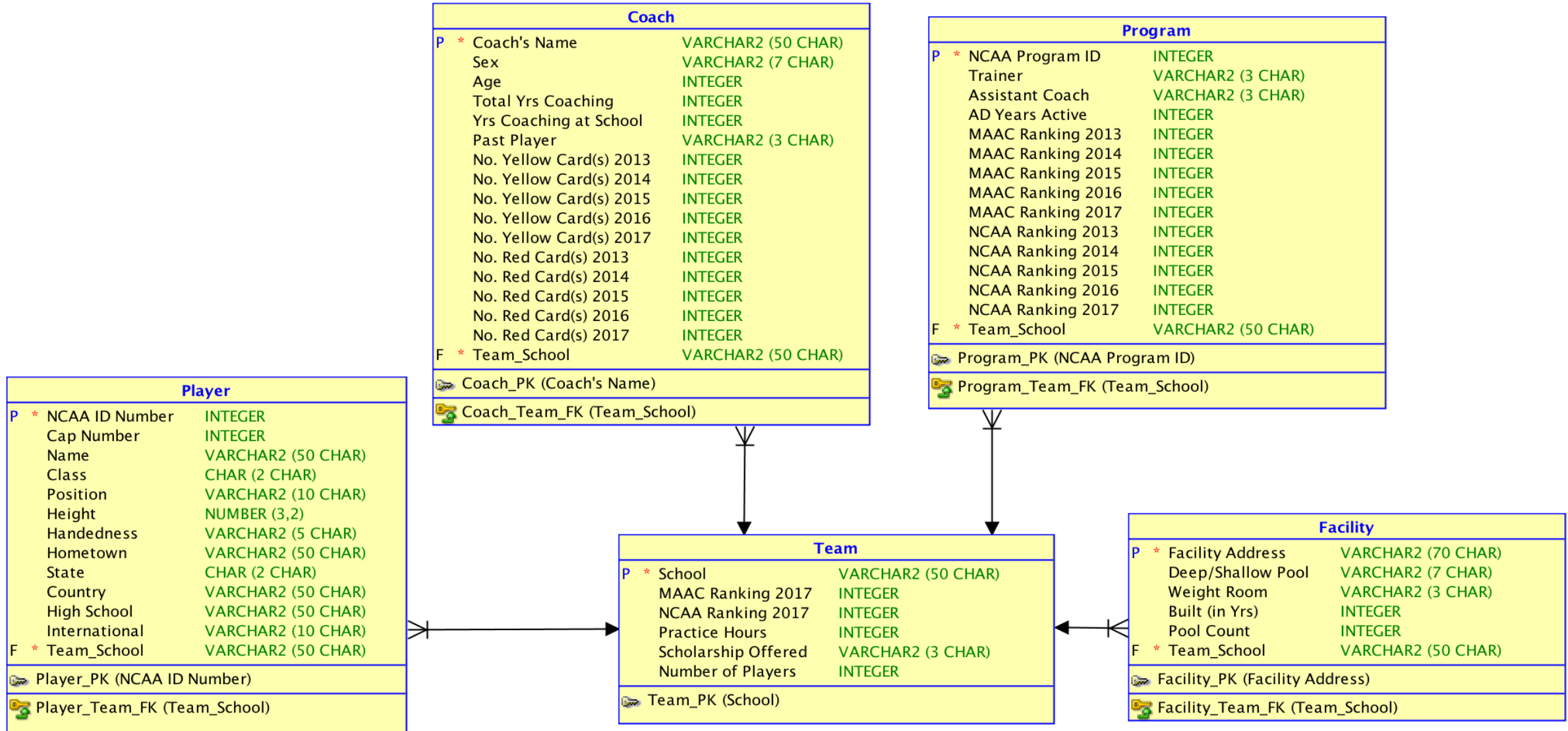
The tables in the SQL database include:

- Team: Current MAAC and NCAA Ranking, Number of Practice Hours, Scholarships Offered, Number of Players

- Program: Trainers, Assistant Coach, MAAC Ranking (by year), NCAA Ranking (by year), Total Years the School's Athletic Director has been Present

- Coach: Name, Female/Male, Coach as a Past Player, Age, experience coaching, how long they have been coaching at that school, yellow card count for the year, red card count for the year

- Player: Name, Class, Handedness, Hometown, State, International Status, High School, Height, Position

- Facility: Shallow or Deep Pool, Weight Room, Year the Facility was Built, Number of Pools

Entity Relationship Database I

Entity Relationship Database II

Coach

P *	Coach's Name	VARCHAR2 (50 CHAR)
	Sex	VARCHAR2 (7 CHAR)
	Age	INTEGER
	Total Yrs Coaching	INTEGER
	Yrs Coaching at School	INTEGER
	Past Player	VARCHAR2 (3 CHAR)
	No. Yellow Card(s) 2013	INTEGER
	No. Yellow Card(s) 2014	INTEGER
	No. Yellow Card(s) 2015	INTEGER
	No. Yellow Card(s) 2016	INTEGER
	No. Yellow Card(s) 2017	INTEGER
	No. Red Card(s) 2013	INTEGER
	No. Red Card(s) 2014	INTEGER
	No. Red Card(s) 2015	INTEGER
	No. Red Card(s) 2016	INTEGER
	No. Red Card(s) 2017	INTEGER
F *	Team_School	VARCHAR2 (50 CHAR)

Coach_PK (Coach's Name)

Coach_Team_FK (Team_School)

Program

P *	NCAA Program ID	INTEGER
	Trainer	VARCHAR2 (3 CHAR)
	Assistant Coach	VARCHAR2 (3 CHAR)
	AD Years Active	INTEGER
	MAAC Ranking 2013	INTEGER
	MAAC Ranking 2014	INTEGER
	MAAC Ranking 2015	INTEGER
	MAAC Ranking 2016	INTEGER
	MAAC Ranking 2017	INTEGER
	NCAA Ranking 2013	INTEGER
	NCAA Ranking 2014	INTEGER
	NCAA Ranking 2015	INTEGER
	NCAA Ranking 2016	INTEGER
	NCAA Ranking 2017	INTEGER
F *	Team_School	VARCHAR2 (50 CHAR)

Program_PK (NCAA Program ID)

Program_Team_FK (Team_School)

Player

P *	NCAA ID Number	INTEGER
	Cap Number	INTEGER
	Name	VARCHAR2 (50 CHAR)
	Class	CHAR (2 CHAR)
	Position	VARCHAR2 (10 CHAR)
	Height	NUMBER (3,2)
	Handedness	VARCHAR2 (5 CHAR)
	Hometown	VARCHAR2 (50 CHAR)
	State	CHAR (2 CHAR)
	Country	VARCHAR2 (50 CHAR)
	High School	VARCHAR2 (50 CHAR)
	International	VARCHAR2 (10 CHAR)
F *	Team_School	VARCHAR2 (50 CHAR)

Player_PK (NCAA ID Number)

Player_Team_FK (Team_School)

Team

P *	School	VARCHAR2 (50 CHAR)
	MAAC Ranking 2017	INTEGER
	NCAA Ranking 2017	INTEGER
	Practice Hours	INTEGER
	Scholarship Offered	VARCHAR2 (3 CHAR)
	Number of Players	INTEGER

Team_PK (School)

Facility

P *	Facility Address	VARCHAR2 (70 CHAR)
	Deep/Shallow Pool	VARCHAR2 (7 CHAR)
	Weight Room	VARCHAR2 (3 CHAR)
	Built (in Yrs)	INTEGER
	Pool Count	INTEGER
F *	Team_School	VARCHAR2 (50 CHAR)

Facility_PK (Facility Address)

Facility_Team_FK (Team_School)

Key Definitions

- MAAC Conference: The MAAC is on of several regional athletic conferences in the United States. The MAAC is governed by the NCAA. The MAAC stands for the Metro Atlantic Athletic Conference and it consists of eight teams (Wagner, Marist, Iona, Virginia Military, Sienna, Villanova, La Salle, and St. Francis).

- AD: Athletic Director

- Yellow Card: A yellow card in water polo is almost exclusively given to coaches by a referee as a warning when a coach's behavior is inappropriate.

- Red Card: A red card is issues almost exclusively to a coach by a referee after a Yellow card (a warning) has been issues, and when their behavior becomes so inappropriate that they must leave the pool.
  - Looking at the number of yellow and red cards that are issues to a head coach may be a good indicator of the coaching style that coach uses.

- NCAA Ranking: A NCAA Ranking determines the team's national standing at the end of each water polo season.

- Past Player: Determines if the coach played collegiately.

- Deep/Shallow Pool: The depth of the pool is important because the game's rules change if the pool is shallow. This may influence the choice of recruits; especially goalies who are most effected by a shallow end, where the goals are larger and goalies must jump off the bottom of the pool to block the ball during games.

Key Definitions Cont'd

- <u>MAAC Ranking</u>: The conference ranking is important because only the first-place team in the MAAC Conference gets a bid to the NCAA Championship Tournament.

- <u>Positon</u>: The position of the player is an important part of recruiting. There are five general positions in water polo, including: center, defender, attacker, utility, and goalie.

- <u>Center</u>: Player that plays two meters from the goal line. Teams often don't need more than two centers on a collegiate.

- <u>Defender</u>: This position defends the center. Often need about three defenders on a collegiate team.

- <u>Attacker</u>: An outside player. Often drives towards the cage and creates plays. This positon can often "post-up" meaning they can be used as a temporary center player. A collegiate team is predominately made up of attackers and utility players.

- <u>Utility</u>: Often times small and fast players who are known to be outside shooters. They often play on the perimeter and should be able to fill most positions in the pool except for center and goalie.

- <u>Goalie</u>: Defends the goal. Collegiate teams usually have two to three goalies.

- <u>Handedness</u>: Field players can only touch the ball with one hand at a time. Most players are right-handed, but left handed players add are important to a team because left handed players have a better angle when shooting the ball on the right side of the water polo goal.

- <u>Pool Count</u>: Represents the number of pools on a campus.

- <u>Practice Hours</u>: Practice hours represent how many hours per week a team practices.

Sample Data: Team Table

	SCHOOL	MAAC Ranking 2017	NCAA Ranking 2017	Practice Hours	Scholarship Offered	Number of Players
1	Wagner	1	18	30	Yes	21
2	Marist	2	24	30	Yes	19
3	Iona	3	(null)	30	Yes	16
4	VMI	4	(null)	26	Yes	16
5	St. Fra...	6	(null)	20	Yes	14
6	Siena	7	(null)	20	Yes	12
7	La Salle	8	(null)	20	Yes	13
8	Villanova	5	(null)	20	Yes	21

Sample Data: Player Table

	NCAA ID...	Cap...	NAME	CLASS	POSITI...	HEIGHT	HAND...	HOMETOWN	STATE	COU...	High School	INT...	TEAM...
1	123456	1	Katherine Ca...	FR	Goalie	5.8	R	Regina	SK	CAN	Dr. Martin Leboldus HS	Yes	Wagner
2	123457	1	Sophia Spengler	SO	Goalie	5.7	R	Kailua	HI	USA	La Jardin Academy	No	Wagner
3	123458	1	Anna Ward	SR	Goalie	5.11	R	Grayslake	IL	USA	Mundelein HS	No	Wagner
4	123459	2	Elise Begg	SR	Attacker	5.9	R	Newbury Park	CA	USA	Newbury Park HS	No	Wagner
5	123450	3	Franciska Mi...	SO	Attacker	5.7	R	Budapest	(null)	HUN	Pasaretu Gimnazium	Yes	Wagner
6	123454	4	Julia Luciani	FR	Utility	5.7	R	Montreal	QC	CAN	The Study	Yes	Wagner
7	123453	5	Kristy Donkin	FR	Utility	5.9	R	Sydney	(null)	AUS	Mackellar Girls Campus	Yes	Wagner
8	123452	6	Allison Long	FR	Attacker	5.6	R	Huntington...	CA	USA	Huntington Beach HS	No	Wagner
9	123451	7	Erica Hardy	JR	Attacker	5.7	L	Montreal	QC	CAN	St. Thomas HS	Yes	Wagner
10	121212	8	Malia Josephson	FR	Attacker	5.5	R	Auckland	(null)	NZL	St. Cuthberts College	Yes	Wagner
11	131313	9	Abby Irving	JR	Attacker	5.6	R	Brentwood Bay	BC	CAN	Canadian Sport School	Yes	Wagner
12	141414	10	Natalie Kayton	JR	Center	5.1	R	Agoura	CA	USA	Agoura HS	No	Wagner
13	151515	11	Jacqui Sjogren	SO	Attacker	5.7	L	Queensland	(null)	AUS	St. Andrews Anglican ...	Yes	Wagner
14	161616	12	Kimberly Watson	SR	Utility	5.7	R	Pointe-Claire	QC	CAN	John Rennie HS	Yes	Wagner
15	171717	13	Sarah Limanni	JR	Attacker	5.4	R	Mohnton	PA	USA	Governor Mifflin HS	No	Wagner
16	181818	15	Serena Thurman	FR	Attacker	5.3	R	San Diego	CA	USA	Grossmont HS	No	Wagner

Sample Data: Facility Table

	Facility Address	Deep/Shallow Pool	Weight Room	Built (in Yrs)	Pool Count	TEAM_SCHOOL
1	1 Campus Rd, Staten Island, NY 10301	Both	Yes	16	1	Wagner
2	3399 North Rd, Poughkeepsie, NY 12601	Both	Yes	27	1	Marist
3	715 North Ave, New Rochelle, NY 10801	Shallow	Yes	21	1	Iona
4	319 Letcher Ave, Lexington, VA 24450	Shallow	Yes	19	1	VMI
5	800 E. Lancaster Avenue, Villanova, PA 19085	Both	Yes	15	1	Villanova
6	180 Remsen St, Brooklyn, NY 11201	Shallow	Yes	10	1	St. Francis Brooklyn
7	515 Loudon Rd, Albany, NY 12211	Both	Yes	25	1	Siena
8	1900 W Olney Ave, Philadelphia, PA 19141	Shallow	Yes	41	1	La Salle

Sample Data: Coach Table

	Coach's Name	SEX	AGE	Total ...	Yrs Coac...	Past Player	No. Yellow Card(s...					No. Red Card(s...	N...				TEAM_SCHOOL
1	Chris Radm...	Male	42	20	8	No	0	1	3	6	4	0	0	1	0	0	Wagner
2	Ryan Pryor	Male	41	11	4	No	(null)	0	1	0	1	(null)	0	0	0	0	VMI
3	Brian Kelly	Male	48	26	26	Yes	1	2	3	2	2	0	0	0	0	0	Iona
4	Megan Husak	Female	38	10	6	Yes	0	0	0	0	1	0	0	0	0	0	St. Francis...
5	Rob Mida	Male	40	17	9	No	0	0	0	0	0	0	0	0	0	0	Villanova
6	Chris Vidale	Male	36	10	3	Yes	(null)	...	4	6	5	(null)	(...	1	1	0	Marist
7	Paul Macht	Male	60	26	3	No	(null)	...	0	0	0	(null)	(...	0	0	0	La Salle
8	Tamara Perea	Female	28	6	1	Yes	(null)	...	...	...	1	(null)	(...	...	...	0	Siena

Sample Data: Program Table

	NCAA...	TRAINER	Assista...	AD Year...	MAAC...	MAAC ...	MAAC ...	MAAC...	MAAC...	NCAA ...	NCAA...	NCAA...	NCAA...	NCAA...	TEAM_SCHOOL
1	1000	Yes	Yes	7	1	1	1	1	1	24	23	23	20	18	Wagner
2	2000	Yes	Yes	30	2	2	2	2	2	(null)	(null)	25	24	24	Marist
3	3000	Yes	Yes	19	3	3	3	3	3	(null)	(null)	(null)	(null)	(null)	Iona
4	4000	Yes	No	15	4	4	4	4	4	(null)	(null)	(null)	(null)	(null)	VMI
5	5000	Yes	Yes	26	6	6	6	6	6	(null)	(null)	(null)	(null)	(null)	Villanova
6	8000	Yes	Yes	20	8	8	8	8	8	(null)	(null)	(null)	(null)	(null)	La Salle
7	6000	Yes	Yes	8	5	5	5	5	5	(null)	(null)	(null)	(null)	(null)	St. Francis...
8	7000	Yes	No	2	7	7	7	7	7	(null)	(null)	(null)	(null)	(null)	Siena

Query Examples and Sample Outputs

- Wagner has won the MAAC Conference from 2013 to 2017. Therefore, looking at Wagner's data will highlight important characteristics of a winning team within the MAAC.
  - EX: Wagner has several international players, therefore recruiting international players could be beneficial for programs.
- The height of a recruit is typically considered when recruiting women for certain positions. Often goalies are thought to be lengthy and tall.
- Coaches might be more vocal towards referees during games. An overly vocal coach may have a negative effect on a team during a game or it may benefit a team's outcome.

Sample Outputs Cont'd

Teams with international players.

```
Select Name, Team_School
From Player
Where International = 'Yes';
```

Script Output ✕   ▶ **Query Result** ✕

📌 🖨 🔁 ❌ SQL | All Rows Fetched: 15 in 0.047 seconds

	NAME	TEAM_SCHOOL
1	Katherine Campbell	Wagner
2	Franciska Milo-Sidlo	Wagner
3	Julia Luciani	Wagner
4	Kristy Donkin	Wagner
5	Erica Hardy	Wagner
6	Malia Josephson	Wagner
7	Abby Irving	Wagner
8	Jacqui Sjogren	Wagner
9	Kimberly Watson	Wagner
10	Daisy Nankervis	Wagner
11	Megan Clarke	Marist
12	Diana Carballo	Marist
13	Jordan Van Reeken	Iona
14	Kelsey Snelgar	St. Francis Brooklyn
15	Vladana Maksimovic	St. Francis Brooklyn

Sample Outputs Cont'd

Height in feet and inches of the average goalie.

Teams with players over 5'11"

```sql
SELECT AVG(Height)
FROM Player, Team
WHERE Position = 'Goalie';
```

Script Output ✕ | ▶ Query Result ✕ | ▶ Query Result 1 ✕

📌 🖨 🔁 ❌ SQL | All Rows Fetched: 1 in 0.033 seconds

AVG(HEIGHT)
1 5.5952941176470588235294117647058235294

```sql
SELECT Name, team_school, height, position
From Player
WHERE Height >= 6.0;
```

cript Output ✕ | ▶ Query Result ✕ | ▶ Query Result 1 ✕

🖨 🔁 ❌ SQL | All Rows Fetched: 4 in 0.021 seconds

NAME	TEAM_SCHOOL	HEIGHT	POSITION
1 Isabel French	VMI	6	Goalie
2 Maria Breen	Villanova	6	Attacker
3 Camille Oswald	Villanova	6.2	Center
4 Terez Touhey	Siena	6.1	Utility

Sample Outputs Cont'd

Coach's sum of Red Card and Yellow Card for 2017 compared to MAAC Ranking

```sql
SELECT coach.team_school, program."MAAC Ranking 2017", coach."No. Red Card(s) 2017", coach."No. Yellow Card(s) 2017"
FROM Coach
INNER JOIN program
ON coach.team_school = program.team_school;
```

Script Output X   Query Result X

SQL | All Rows Fetched: 8 in 2.651 seconds

	TEAM_SCHOOL	MAAC Ranking 2014	No. Red Card(s) 2014	No. Yellow Card(s) 2014
1	Wagner	1	0	1
2	Marist	2	(null)	(null)
3	Iona	3	0	2
4	VMI	4	0	0
5	Villanova	6	0	0
6	La Salle	8	(null)	(null)
7	St. Francis Brooklyn	5	0	0
8	Siena	7	(null)	(null)

Future Enhancements

- The current iteration of my data model centers on the Metro Atlantic Athletic Conference. Adding conferences such as the Big Ten, the MPSF, and the IVY League would provide a larger dataset, ultimately refining future recruiting efforts.

- Future enhancements would include compiling data prior to 2013, in order to examine long term trends both within and across conference play.

- Direct contact with coaching staffs would underscore program needs, thereby expanding the criteria for future modeling while customizing the database for each school.

Known Problems

- Only using data from the MAAC Conference is a limited data sample and may not be representative of what is needed to create a winning team in other conferences.
  - Looking at the MPSF Conference would be beneficial because it consists of several top nationally ranked programs.
- Data needs to be verified in order to provide valid conclusions. As data is often self-reported by programs or players.
  - Ex: Height is a self-reported by a player and that information is posted to a team's website.