

NBA TEAM MANAGEMENT DATABASE

GROUP 7

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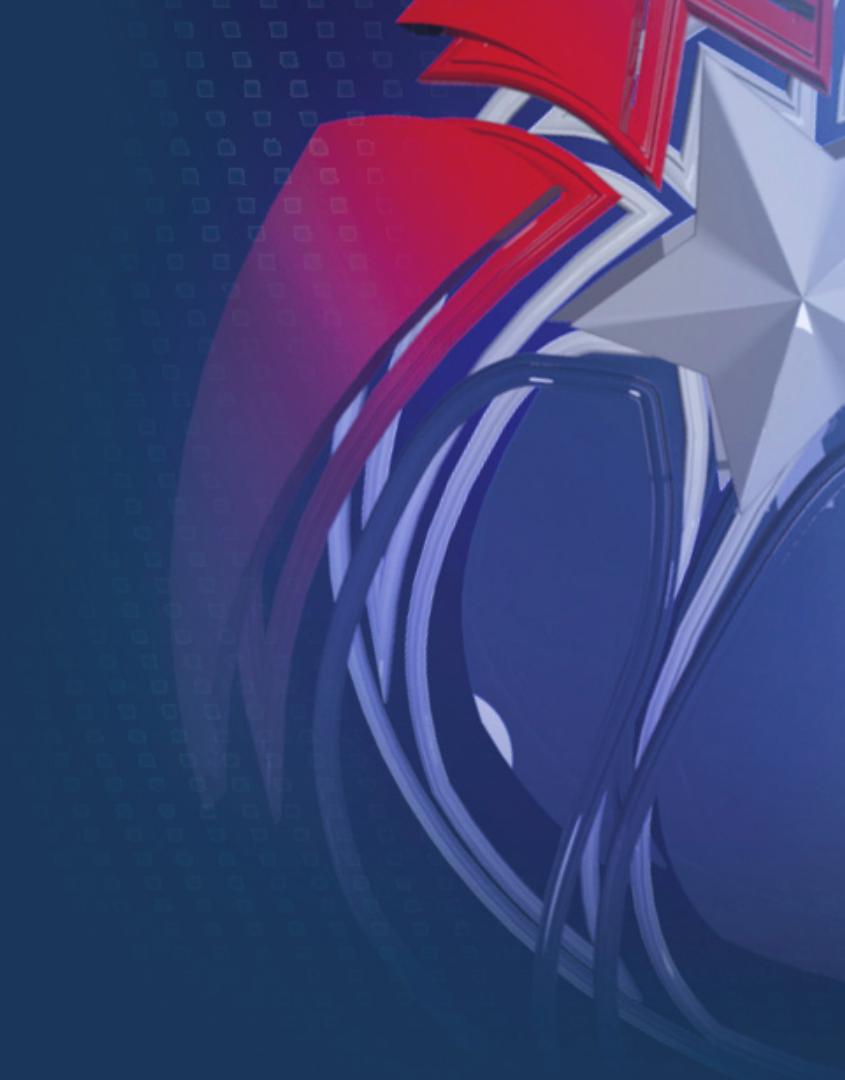


Content

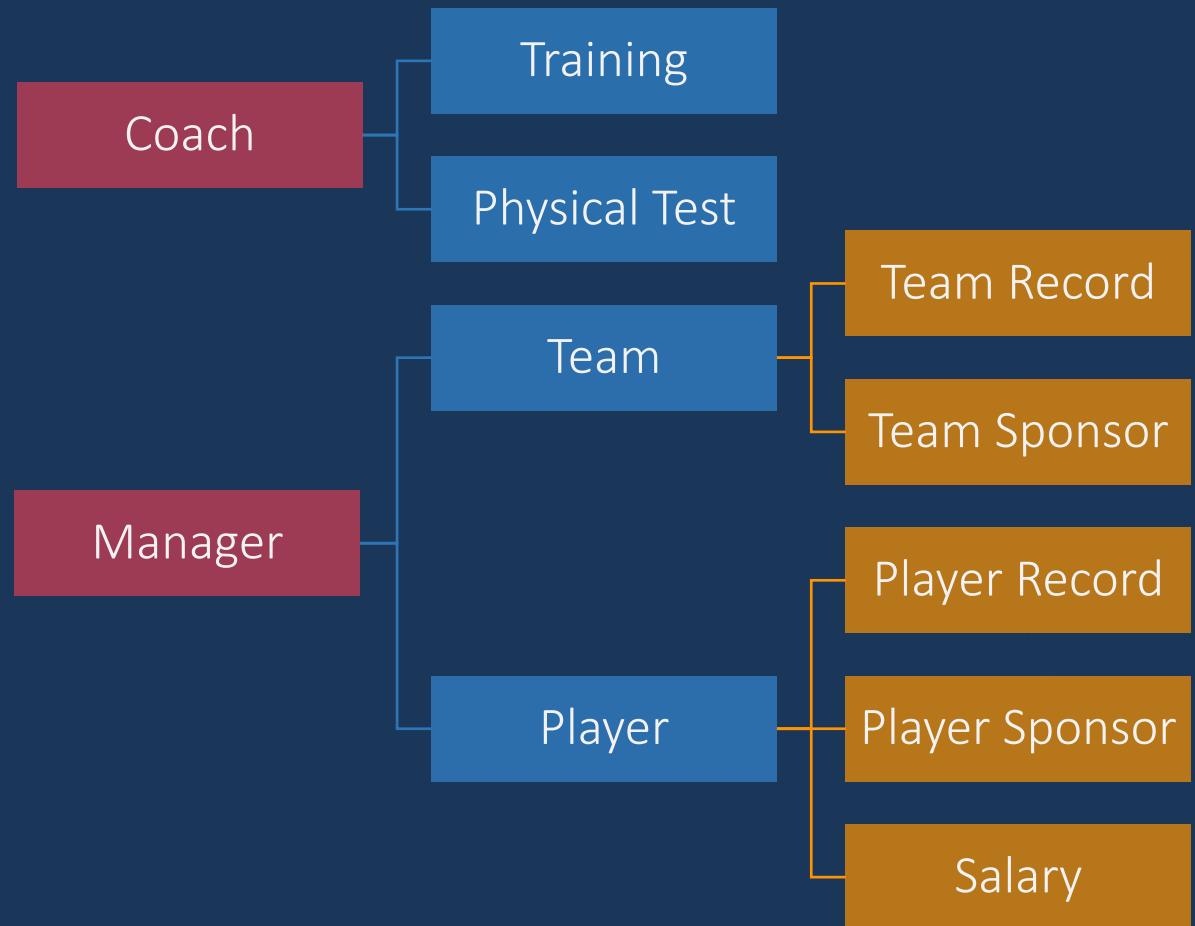
1. Database Background
2. Database Implementation
3. Descriptive Report & Data Mining



DATABASE BACKGROUND



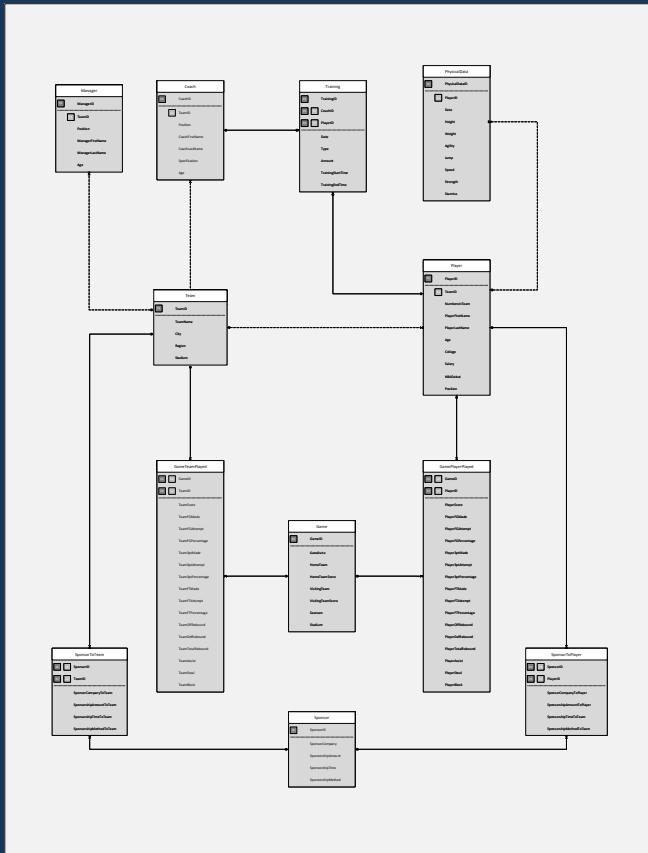
Business Structure



Business Purpose

- ✓ Generate descriptive reports
- ✓ Customize and optimize training plan
- ✓ Investigate profitable operating strategy

Database Design - ERD





DATABASE IMPLEMENTATION



Computed Column - Win or Lose

```
-- Computed Column  
-- WinOrLose In dbo.GameTeamPlayed  
  
CREATE FUNCTION dbo.WinOrLose(@gameID INT, @teamID INT)  
RETURNS VARCHAR(30)  
AS  
BEGIN  
    DECLARE @WinOrLose VARCHAR(30);  
    SELECT @WinOrLose =  
        CASE WHEN  
            @teamID = (SELECT Temp.TeamID  
                       FROM (SELECT TOP 1 TeamID, TeamScore  
                             FROM dbo.GameTeamPlayed  
                            WHERE GameID = @gameID  
                            GROUP BY TeamID, TeamScore  
                            ORDER BY TeamScore DESC  
                        ) AS [Temp])  
                THEN 'W'  
            ELSE 'L'  
        END;  
    RETURN @WinOrLose;  
END  
  
-- Add a computed column WinOrLose to the dbo.GameTeamPlayed  
ALTER TABLE dbo.GameTeamPlayed  
    ADD WinOrLose AS (dbo.WinOrLose(GameID, TeamID));
```



GameID	TeamID	TeamScore	WinOrLose
1	1	90	W
1	2	83	L
2	2	85	L
2	3	86	W
3	3	85	W
3	4	70	L
4	1	90	W
4	4	70	L
5	1	92	W
5	3	70	L
6	2	87	W
6	4	70	L

Table-Level CHECK Constraint

```
-- Table-level CHECK Constraint
-- Create a function, which will return the number of sponsorship to a player
CREATE FUNCTION CheckSponsorToPlayer (@playerID INT)
RETURNS SMALLINT
AS
BEGIN
    DECLARE @Count SMALLINT=0;
    SELECT @Count = COUNT(SponsorID)
        FROM dbo.SponsorToPlayer
        WHERE PlayerID = @playerID;
    RETURN @Count;
END;

-- Add table-level CHECK constraint based on the new function for the SponsorToPlayer table
ALTER TABLE dbo.SponsorToPlayer
ADD CONSTRAINT BanMoreSponsorToPlayer
CHECK (dbo.CheckSponsorToPlayer(PlayerID) <= 1);
```

```
564 -- To check if sponsor to player is more than 1, cannot add more
565 INSERT INTO dbo.SponsorToPlayer
566     VALUES
567         (2,1,'Nike',60,3,'Shoes') ;
568
569 -- Housekeeping
```

Msg 547, Level 16, State 0, Line 565
The INSERT statement conflicted with the CHECK constraint "BanMoreSponsorToPlayer". The conflict occurred in database "Group7_NBA Team Management",
The statement has been terminated.



View - Rank of Team Ave. Score

```
-- VIEW  
-- Rank of Team Average Scores  
  
DROP VIEW dbo.TeamAverageScoreRanking_vw;  
  
CREATE VIEW dbo.TeamAverageScoreRanking_vw  
AS  
    SELECT RANK() OVER (ORDER BY AVG(gt.TeamScore) DESC) AS [Rank],  
        TeamName, Region, AVG(gt.TeamScore) AS [TeamAvgScore]  
    FROM dbo.GameTeamPlayed gt  
    JOIN dbo.Team t  
    ON gt.TeamID = t.TeamID  
    GROUP BY TeamName, Region
```



Rank	TeamName	Region	TeamAvgScore
1	Warriors	Western	90
2	Rockets	Western	85
3	Celtics	Eastern	80
4	Cavaliers	Eastern	70

View - Rank of Team W/L in Region of NBA

```
-- VIEW  
-- Rank of Team in Region of NBA  
DROP VIEW dbo.TeamRankInRegion_vw;  
  
CREATE VIEW dbo.TeamRankInRegion_vw  
AS  
    SELECT TeamName,  
           Region,  
           COUNT(CASE WHEN gt.WinOrLose = 'W' THEN 1 END) AS GameWon,  
           RANK() OVER (PARTITION BY Region ORDER BY  
                           COUNT(CASE WHEN gt.WinOrLose = 'W' THEN 1 END) DESC)  
                  AS [RankInRegion]  
    FROM dbo.GameTeamPlayed gt  
    JOIN dbo.Team t  
    ON gt.TeamID = t.TeamID  
    GROUP BY t.TeamName, t.Region;
```



TeamName	Region	GameWon	RankInRegion
Celtics	Eastem	2	1
Cavaliers	Eastem	0	2
Warriors	Westem	3	1
Rockets	Westem	1	2

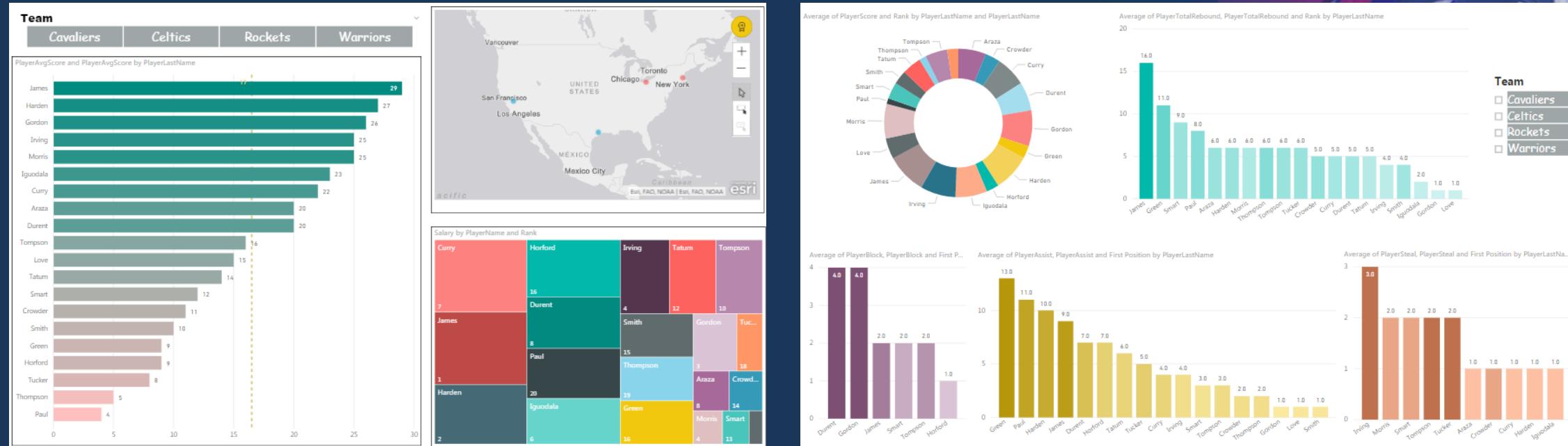




DESCRIPTIVE REPORT & DATA MINING



POWER BI - Descriptive Reports



[ONLINE REPORT](#)

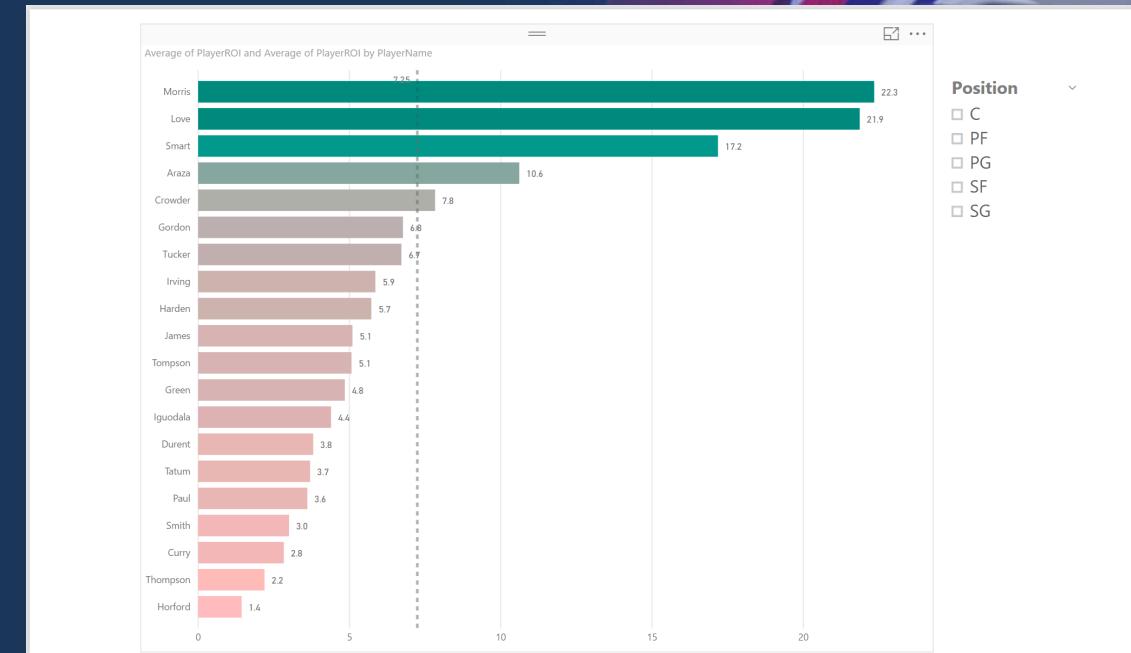
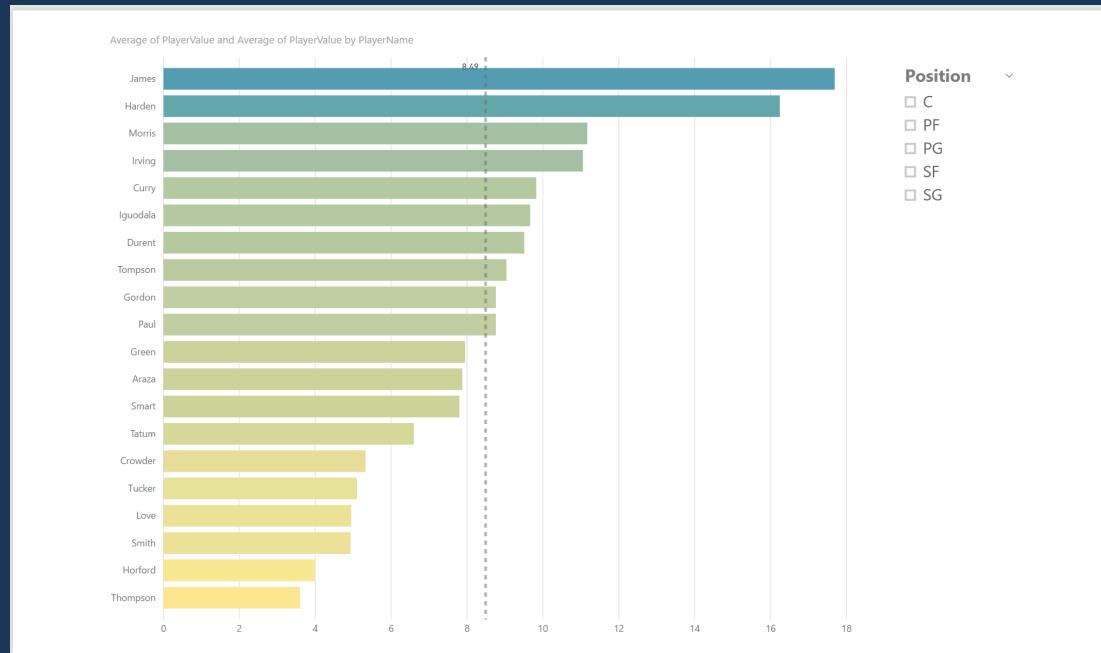


Data Mining - Customized Training Plan



[More details are available on the Power BI](#)

Data Mining - Player Value ROI



[More details are available on the Power BI](#)



APPENDIX



Paired Samples Test - Training & Physical Data

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Jump1	88.12	50	1.223	.173
	Jump2	98.20	50	5.002	.707
Pair 2	Strength1	291.70	50	1.705	.241
	Strength2	319.38	50	17.398	2.460
Pair 3	Stamina1	7.00	50	.000	.000
	Stamina2	7.74	50	.723	.102

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	Jump1 & Jump2	50	-.057	.692
Pair 2	Strength1 & Strength2	50	.853	.000
Pair 3	Stamina1 & Stamina2	50	.	.

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
				Lower	Upper						
Pair 1	Jump1 - Jump2	-10.080	5.217	.738	-11.563	-8.597	-13.662	.49	.000		
Pair 2	Strength1 - Strength2	-27.680	15.967	2.258	-32.218	-23.142	-12.258	.49	.000		
Pair 3	Stamina1 - Stamina2	-.740	.723	.102	-.945	-.535	-7.236	.49	.000		



Paired Samples Test - Training & Record

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	TotalRebound1	.980	50	.4281	.0605
	TotalRebound2	5.100	50	1.8979	.2684
Pair 2	Block1	.920	50	.2740	.0388
	Block2	1.780	50	.6158	.0871
Pair 3	Assist1	5.120	50	.8241	.1165
	Assist2	5.160	50	.7384	.1044

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	TotalRebound1 & TotalRebound2	50	-.023	.876
Pair 2	Block1 & Block2	50	.135	.348
Pair 3	Assist1 & Assist2	50	.270	.058

Paired Samples Test

	Paired Differences					t	df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference							
				Lower	Upper						
Pair 1	TotalRebound1 - TotalRebound2	-4.1200	1.9550	.2765	-4.6756	-3.5644	-14.902	.49	.000		
Pair 2	Block1 - Block2	-.8600	.6392	.0904	-1.0417	-.6783	-9.514	.49	.000		
Pair 3	Assist1 - Assist2	-.0400	.9467	.1339	-.3091	.2291	-.299	.49	.766		

A large, stylized NBA logo graphic is positioned on the right side of the slide. It features a red ribbon-like shape forming an arrow pointing upwards and to the left, set against a blue circular background. In the top right corner, there is a white star with blue and red highlights. The overall design is dynamic and modern.

Q&A



THANK YOU

