OR 649 Sports Analytics

Assignment 1

1. Determine the ɣ that best fits the most recent NBA regular season and find the Pythagorean Win-Loss Percentage for all teams. Which two teams have over-performed and under-performed their expected WL%? (Identify 1 team with a positive deviation and 1 team with a negative deviation.)

http://www.basketball-reference.com/leagues/NBA_2016.html

1a. By looking at those teams' game outcomes, what theory or theories might explain their respective deviations?

2. Determine the ɣ that best fits the most recent NFL regular season and find the Pythagorean Win-Loss Percentage for all teams. Which two teams have over-performed and under-performed their expected WL%? (Identify 1 team with a positive deviation and 1 team with a negative deviation.)

http://www.pro-football-reference.com/years/2015/

2a. By looking at those teams' game outcomes, what theory or theories might explain their respective deviations?

2b. What are some unique properties of football that may violate the assumptions in Pythagorean Wins?

3. Presume the Toronto Blue Jays were 6 games back in the American League East standings and effectively in 3rd place on the "trade deadline" – the July 31st deadline for trades between teams during a season that do not pass through the waiver process. This is typically when teams that are in the running for playoff success ("buyers") trade away young prospect players in exchange for proven veterans on weaker teams ("sellers").

Blue Jays General Manager Alex Anthopoulos has come to you for an analysis to decide whether the Jays should be buyers or sellers. He says the record strongly suggests they should be sellers. Perform the analysis based on the information below and briefly explain your recommendation to buy or to sell.

Here are the standings and relevant information as of July 31.

Tm	W	L	W-L%	Games Back	RS	RA
NYY	58	44	0.569	--	498	441
BAL	52	50	0.51	6	448	400
TOR	53	51	0.51	6	550	446
TBR	51	53	0.49	8	372	387
BOS	46	58	0.442	13	432	500

4. Install R Studio.