Goal: To analyze the first six SEC conference games for all teams, and to survey the public opinion in order to predict the outcome of the Kentucky v Arkansas (2/28), Kentucky v Georgia (3/3), and LSU v Arkansas (3/7) games.

Due Date: 11:59pm March 12, 2015 uploaded as a PDF file to Blackboard.

Description:
You may choose to work either individually or in groups of at most four people. If you work in a group, you must clearly indicate in your report who was in your group and each turn in your own copy in your own words.

This project is divided into two phases. Each phase can be done separately and you should make sure you allow sufficient time to complete everything.

Phase I:
• Read the example of the Ratings Power Index (RPI) provided at the end of this document.
• Download the dataset for the written project from either Blackboard or the course webpage.
• Using the data from the first six SEC conference games each team has played, produce a table that ranks the SEC according to the RPI scores.
  Your table should look like:
  Rank  Team  WP  OWP  OOWP  RPI
• Highlight the following seven teams in your table: Kentucky, South Carolina, Florida, Georgia, LSU, Arkansas, and Texas A&M.
• Use your RPI ranking to predict who will win in:
  Kentucky v Arkansas
  Kentucky v Georgia
  LSU v Arkansas
• Read ESPN’s article on the Basketball Power Index:
  http://espn.go.com/mens-college-basketball/story/_/id/7561413/bpi-college-basketball-power-index-explained
• Write no more than 150 words explaining whether RPI makes for a good predictor of game results.

Phase II:
• Survey 25 – 50 different people. Have each person produce a complete ranking of the following seven teams: Kentucky, South Carolina, Florida, Georgia, LSU, Arkansas, and Texas A&M.
• Present your results in a preference schedule.
• Pick one voting method that we have discussed in class and apply it to your data to produce a ranking of the seven teams.
• Explain in no more than 150 words why your chosen method is appropriate.
• Use the results from your survey to predict who will win in:
  Kentucky v Arkansas
  Kentucky v Georgia
  LSU v Arkansas
• In no more than 300 words discuss the similarities and differences between Ranking and Voting in this situation.
• After the results of the three games have been announced, in no more than 300 words discuss how your predictions did.
Small RPI Example:

RPI is calculated by the following formula:

\[ RPI = (WP \times 0.25) + (OWP \times 0.5) + (OOWP \times 0.25) \]

WP is the winning percentage
OWP is the opponents’ winning percentage
OOWP is the opponents’ opponents’ winning percentage

WP is calculated as follows.
Each win counts as 1 and then is multiplied by 1.4 if the win was on the road (away), or multiplied by 0.6 if it was at home. The sum of all of the wins is then divided by the number of games played (6 in our case), weighted appropriately for home and away.

OWP is calculated as follows.
For each opponent to the team in question, calculate their winning percentage (without home or away weighting) when you remove the match up in question. Add these up and then divide by the number of games considered for that opponent.
If a team is played twice, then include it twice in the average.

OOWP is calculated as follows.
Calculate the average of your opponents’ OWP scores.

### Sample Data:

<table>
<thead>
<tr>
<th>Team A versus</th>
<th>Team B versus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Location</td>
<td>Score</td>
</tr>
<tr>
<td>B Home</td>
<td>L 40 – 37</td>
</tr>
<tr>
<td>B Away</td>
<td>W 51 – 23</td>
</tr>
<tr>
<td>C Away</td>
<td>L 50 – 60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Team C versus</th>
<th>Team D versus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Location</td>
<td>Score</td>
</tr>
<tr>
<td>A Home</td>
<td>W 60 – 50</td>
</tr>
<tr>
<td>D Away</td>
<td>W 70 – 15</td>
</tr>
<tr>
<td>D Home</td>
<td>L 51 – 52</td>
</tr>
</tbody>
</table>

Winning Percentages:

- Team A WP = \( \frac{1.4}{0.6+1.4+1.4} \) = 0.411765
- Team B WP = \( \frac{1.4}{1.4+0.6+0.6} \) = 0.538462
- Team C WP = \( \frac{0.6+1.4}{0.6+1.4+0.6} \) = 0.76923
- Team D WP = \( \frac{1.4+1.4}{1.4+0.6+1.4} \) = 0.823529

Opponent’s Winning Percentages:

- Team A OWP = \( \frac{0+0+0.5}{3} \) = 0.16666
- B has WP = \( \frac{0}{1} \) = 0
- C has WP = \( \frac{1+0}{2} \) = 0.5

- Team B OWP = \( \frac{0+0+0.5}{3} \) = 0.16666
- A has WP = \( \frac{0}{1} \) = 0
- D has WP = \( \frac{0+1}{2} \) = 0.5
Team C OWP = (0.5+1.0+1.0)/3 = 0.83333
A has WP = (0+1)/2 = 0.5
D has WP = (1)/1 = 1.0

Team D OWP = (0.5 + 1.0 + 1.0)/3 = 0.83333
B has WP = (1+0)/2 = 0.5
C has WP = (1)/1 = 1.0

Team A OOWP = (0.16666 + 0.16666 + 0.83333)/3 = 0.38888
Team B OOWP = (0.16666 + 0.16666 + 0.83333)/3 = 0.38888
Team C OOWP = (0.16666 + 0.83333 + 0.83333)/3 = 0.61111
Team D OOWP = (0.16666 + 0.83333 + 0.83333)/3 = 0.61111

RPI Table
\[
\begin{array}{cccccc}
\text{Rank} & \text{Team} & \text{WP} & \text{OWP} & \text{OOWP} & \text{RPI} \\
1 & D & 0.823529 & 0.83333 & 0.61111 & 0.7753 \\
2 & C & 0.76923 & 0.83333 & 0.61111 & 0.7618 \\
3 & B & 0.538462 & 0.16666 & 0.38888 & 0.3152 \\
4 & A & 0.411765 & 0.16666 & 0.38888 & 0.2834 \\
\end{array}
\]