DAT 5140 Statistics and Business Analytics

Module 2: Sampling Principles & Probability

Lab 1: Probability Lab

Our investigation will focus on the performance of one player: Kobe Bryant of the Los Angeles Lakers. His performance against the Orlando Magic in the 2009 NBA finals earned him the title Most Valuable Player and many spectators commented on how he appeared to show a hot hand. Let’s load some data from those games and look at the first several rows.

In this data frame, every row records a shot taken by Kobe Bryant. If he hit the shot (made a basket), a hit, H, is recorded in the column named basket, otherwise a miss, M, is recorded.

Just looking at the string of hits and misses, it can be difficult to gauge whether or not it seems like Kobe was shooting with a hot hand. One way we can approach this is by considering the belief that hot hand shooters tend to go on shooting streaks. For this lab, we define the length of a shooting streak to be the number of consecutive baskets made until a miss occurs.

For example, in Game 1 Kobe had the following sequence of hits and misses from his nine shot attempts in the first quarter:

H M | M | H H M | M | M | M

Within the nine shot attempts, there are six streaks, which are separated by a “|” above. Their lengths are one, zero, two, zero, zero, zero (in order of occurrence).

# What does a streak length of 1 mean, i.e. how many hits and misses are in a streak of 1? What about a streak length of 0?

[Type Your Answer Here]

# What was Kobe’s longest streak length? What was it? And in what game?

[Type Your Answer Here]

# What was Kobe’s hit to miss ratio in all the games against Orlando?

[Type Your Answer Here]

# Are there quarters where Kobe’s hit to miss ratio is better than others? What quarters?

[Type Your Answer Here]

# Were there games where Kobe’s hit to miss ratio bettered other games? What were the game ratios and which was the best?

[Type Your Answer Here]

# How about his performance on overtime? What are your thoughts?

[Type Your Answer Here]