Assignment 2

Part 1: Based on Handout 2 R, apply R to compare Kobe Bryant to the simulated independent shooter. Using `calc_streak`, to compute the streak lengths of `sim_basket`, and then answer the following questions. Make sure you include clear headings (e.g., Handout 2 R or Handout 2 SAS). For each part of the question, make sure you include the command line/code, then paste relevant output/results, and also comment on the output/results as needed (to answer the questions).

1. Describe the distribution of streak lengths. What is the typical streak length for this simulated independent shooter with a 45% shooting percentage? How long is the player's longest streak of baskets in 133 shots?
2. If you were to run the simulation of the independent shooter a second time, how would you expect its streak distribution to compare to the distribution from the question above? Exactly the same? Somewhat similar? Totally different? Explain your reasoning.
3. How does Kobe Bryant's distribution of streak lengths compare to the distribution of streak lengths for the simulated shooter? Using this comparison, do you have evidence that the hot hand model fits Kobe's shooting patterns? Explain.

Part 2: Based on Handout 2 SAS, apply SAS to answer the above questions. Make sure you include clear headings (e.g., Handout 2 R or Handout 2 SAS). For each part of the question, make sure you include the command line/code, then paste relevant output/results, and also comment on the output/results as needed (to answer the questions). Also see next page for the syntax for the **%calc_streak** macro.

Part 3: Save your file as *DA460_Assignment2_XXXXX.docx (or .pdf)* where *XXXXX* is the first five letters of your last name, and submit it online.

For part 2, the syntax for the **%calc_streak** macro is

```
%macro calc_streak(dset=, streakvar=, outset=);

data s1(keep=x);
    set &dset;
    if &streakvar="H" then x=1; else x=0;
run;

data xadd;
    x=0;
run;

data s2(keep=n);
    set xadd s1 xadd;
    n=_N_;
    if x=0;
run;

data &outset;
    set s2;
    retain lastn;
    if _N_=1 then lastn=n;
    else do;
        streak=n-lastn-1;
        lastn=n;
    end;
    if _N_=1 then delete;
run;

%mend;
```