ROLLING PIGGIES

In class we calculated a strategy for Pass the Pigs that you should keep rolling if you have 31 or fewer points in a round, and you should stop rolling once your total is at or above 32. Unfortunately, using this strategy, Mr. Coley was unable to defeat Antonio. What went wrong???

You task will be to try to find a strategy that will help Mr. Coley win the game. You will be testing three different strategies:

1. *Class Strategy of stopping at anything above 31*
2. *Personal Strategy found by analyzing your own data, excluding the rest of the class' data*
3. *Fanciful Strategy can be anything you like (examples below)*

For our purposes here, we will not be playing the game to the usual 100 points. Instead, we will be trying to maximize the number of points per round.

Due Date:

Point Value: 40 points

Report

Hypothesis: Your hypothesis will include two parts: a description of your Fanciful Strategy and the average number of points you expect per round (not per roll). Your strategy may take into consideration your score and the number of rolls in a round.

           Examples: *Stop rolling when I have 10 or more points.*
                          Stop rolling after two rolls.
                          Stop after three rolls or 15 points, whichever comes first.

Calculations: Calculate the stop-value of your Personal Strategy. Our formula is

$$SV = \frac{EV}{p(pigout)},$$

where *EV* is the expected value of one roll of pigs. You must calculate this for each member of your group.

Data: Play the game for 50 rounds with the Class Strategy, 50 rounds with your Personal Strategy, and 50 rounds with your Fanciful Strategy. Record the number of points scored in each round and find the average number of points scored per round for each strategy.

Questions:

1. Which of the three strategies would you recommend Mr. Coley use?
2. If you are using your Fanciful Strategy in the complete Pass the Pigs game to 100 points, are there other factors besides your score and number of rolls that should be taken into consideration? What are they and why?