Name: First Last

Detroit Tigers Baseball Analytics Questionnaire

Please submit your responses via Box, with last name in all filenames.

1. Broadly, how would you structure Major League projections to provide distributions of outcomes rather than just point estimates? You do not need to provide code, just high-level structure. [250 words]
2. Can you provide a code snippet in your preferred programming language to fit a Bayesian linear regression model to predict a batter's on-base percentage (OBP) based on their batting average (AVG) and walks per plate appearance (BB/PA)? How would you interpret the results of this model and how could it be useful in evaluating a batter's performance?
3. For Question 3, please refer to the table below. [250 words]
    - The following pitches all come from the same pitcher. Rank them in regards to quality ("Stuff") from 1 to 3 (1 = Best, 3 = Worst) and explain your reasoning. Assume a consistent release point across all three.
    - What adjustments would you recommend, whether to individual pitches or the arsenal as a whole? What existing pitch would you adjust?

Pitch Type	Velocity	Spin Rate	Observed Spin Dir.	Spin Eff.	Horizontal Movement	Vertical Movement
FB	94.5	2352	1:14 (218°)	93%	11	17.3
SL	83.7	2853	8:01 (61°)	51%	-12	-2.6
CH	87.9	2151	1:48 (234°)	71%	14.5	4.3

4. For Question 4, please refer to the table below. [150 words]
    - Players A, B, and C are available to acquire (for this exercise assume positions are inconsequential, they are all the same handedness, that they are the same age and of similar cost). Please rank them from the player you are most interested in, to least interested in. Explain your reasoning.

	EV	LA	Swing%	Z-Contact%	O-Swing%	O-Contact%
Player A	88.9	12.9	43%	96%	29%	91%
Player B	89.1	13.1	45%	86%	25%	60%
Player C	93.0	12.1	49%	78%	32%	57%

5. Attached are pitch-level data. Please construct a model predicting the probability of a called strike and explain how you evaluated your model. Please include all code.