REGRESSION IN-CLASS PROJECT - NBA over/under and TOTAL POINTS

1) For the population, subset the Total Points (TotalPts) and Over/Under (OvrUndr) to Games where OT=0

2) Obtain the Parameters: $\beta_0, \beta_1, \sigma^2$ for the model

$Y = \beta_0 + \beta_1 X + \varepsilon$ $\quad Y \equiv$ TotalPts $\quad X \equiv$ OvrUndr

3) Obtain a Plot of ε vs $\beta_0 + \beta_1$ - Does constant variance seem reasonable?

4) Obtain a histogram of ε - Does normally distributed errors seem reasonable?

5) Set the seed to the combined first 3 digits of your UFIDs

6) Obtain 100000 random samples of $n=25$ games and for each sample, save:
$\hat{\beta}$, s^2, unique elements of $(X'X)^{-1}$

7) Obtain the empirical means of: $\hat{\beta}$, s^2, $(X'X)^{-1}$
Compare the means of $\hat{\beta}$, and s^2 w/ β, σ^2

8) Obtain the empirical variance-covariance matrix for $\hat{\beta}$, Variance of s^2, Compare with theoretical

9) Plot the regression slopes versus intercepts from the simulations