1) For the population, subset the Total Points (Total Pts) and Over/Under (OverUndr) to games where OT=0.

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

$$Y = \beta_0 + \beta_1 X + \varepsilon \quad Y \equiv \text{Total Pts} \quad X \equiv \text{OverUndr}$$

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

4) Obtain a histogram of $\varepsilon$. Does normally distributed errors seem reasonable?

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

6) Obtain 100,000 random samples of $n=25$ games

   and for each sample, save:

   $\hat\beta$, $\hat\sigma^2$, unique elements of $(X'X)^{-1}$

7) Obtain the empirical means of: $\hat\beta$, $\hat\sigma^2$, $(X'X)^{-1}$

   Compare the means of $\hat\beta$, and $\hat\sigma^2$ with $\beta$, $\sigma^2$.

8) Obtain the empirical variance-covariance matrix for $\hat\beta$

   Variance of $\hat\sigma^2$, compare with theoretical.

9) Plot the regression slopes versus intercepts from the simulations.