Andrew Abbott

Unit 9 Live Session HW

July 11, 2016

1. According to the SAS output the least squares regression line for using payroll to predict number of wins is:

For each million dollars of payroll a team spends its number of wins should increase by 0.1056 while a team with no payroll would likely win 71.472 games. I think the Astros tried that a few years ago.

| **Parameter** | **Estimate** | **Standard Error** | **t Value** | **Pr > |t|** | **95% Confidence Limits** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Intercept** | 71.47204757 | 4.95489528 | 14.42 | <.0001 | 61.32240470 | 81.62169044 |
| **PAYROLL** | 0.10559238 | 0.05070210 | 2.08 | 0.0465 | 0.00173383 | 0.20945093 |

1. The slope of the regression line is significantly different from zero (p-value = 0.0465).
2. The C.I. for the slope is (0.00173, 0.20945) and for the intercept (61.3224, 81.6217)
3. A 95% CI for the expected number of wins for a team with $100 million payroll is (78.00, 86.06).

A 95% PI for the number of wins for a team with $100 million payroll is (60.31, 103.76).

A confidence interval is where the mean of all $100 million payroll teams would be expected. A prediction interval if for one individual team of $100 million payroll.

| **Obs** | **TEAM** | **PAYROLL** | **WINS** | **PredictedVal** | **Residuals** | **ConfLower** | **ConfUpper** | **PredictLower** | **PredictUpper** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **31** | NEW | 100 | . | 82.0313 | . | 78.0040 | 86.0586 | 60.3075 | 103.755 |

