

**Preprocessing:**

1. Reformat the data into weekly time series per store within a department then loop over every department.
2. Append the forecasting result for two months from 2011-03 to extent the training data to forecast the next future two months for test data until the training set contain all the data.

**Model 1:** Naive Model (Filling the missing values in training data with value 0, predict each weekly\_sales forecast using the sales of the last week)

**Model 2:** Seasonal Naive model (Filling the missing values in training data with value 0, predict the future weekly\_sales forecast using the sales value of the exact week of last year)

**Model 3:** Linear regression and seasonal dummy variables model (Filling the missing data with value 0 and make predictions using regression to model trend and seasonality of the time series where seasonality is handled by 51 dummy variables for weekly data)

**Running time:** 2.019174 hours

**Computer system:** Aspire V5-473PG, @1.80GHz 2.4GHz 8.00GB

Acknowledgment

Fold	Model 1	Model 2	Model 3
1	2078.726	2262.422	2042.401
2	2589.338	1787.081	1440.083
3	2253.936	1779.052	1434.716
4	2823.098	1716.117	1596.988
5	5156.012	2400.395	2327.638
6	4218.348	1696.900	1674.185
7	2269.904	2086.967	1718.577
8	2143.839	1750.28	1420.817
9	2221.145	1719.887	1430.801
10	2372.425	1680.956	1447.034
Overall Average:	2812.677	1888.006	1653.324