SEIS 763

Machine Learning

Team Project

Processed Datasets

12/05/2021

# March 2013

## 17-Mar-2013 00:00:00 through 18-Mar-2013 23:59:00

### Table size

|  |  |
| --- | --- |
| 521 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 520 |
| NumTestSets | 1 |
| TrainSize | 416 |
| TestSize | 104 |

### CFM

|  |  |
| --- | --- |
| 0 | 26 |
| 1 | 77 |

Overall accuracy = 0.74038

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.74038 | 0 | 0 | 0 |
| 0.74038 | 0.74757 | 0.98718 | 0.85083 |

## 17-Mar-2013 00:00:00 through 23-Mar-2013 23:59:00

### Table size

|  |  |
| --- | --- |
| 3784 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 3783 |
| NumTestSets | 1 |
| TrainSize | 3027 |
| TestSize | 756 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 8 | 9 | 10 | 11 | 12 |
| -25.90 | -23.38 | -19.87 | -11.81 | -7.72 |
| 6.22 | 4.91 | 3.13 | 0 | 0 |
| 19.56 | 18.34 | 16.61 | 11.69 | 7.59 |

### CFM

|  |  |
| --- | --- |
| 33 | 203 |
| 8 | 512 |

Overall accuracy = 0.7209

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.7209 | 0.80488 | 0.13983 | 0.23827 |
| 0.7209 | 0.71608 | 0.98462 | 0.82915 |

## 17-Mar-2013 00:00:00 through 30-Mar-2013 23:59:00

### Table size

|  |  |
| --- | --- |
| 7409 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 7408 |
| NumTestSets | 1 |
| TrainSize | 5927 |
| TestSize | 1481 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 7 | 8 | 9 | 10 | 11 |
| -38.99 | -37.49 | -35.15 | -21.04 | -18.14 |
| 8.10 | 7.35 | 6.22 | 0 | 0 |
| 30.82 | 30.06 | 28.85 | 20.96 | 18.06 |

### CFM

|  |  |
| --- | --- |
| 47 | 415 |
| 16 | 1003 |

Overall accuracy = 0.70898

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.70898 | 0.74603 | 0.10173 | 0.17905 |
| 0.70898 | 0.70733 | 0.9843 | 0.82314 |

# March 2016

## 17-Mar-2016 00:00:00 through 18-Mar-2016 23:59:00

### Table size

|  |  |
| --- | --- |
| 2043 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 2042 |
| NumTestSets | 1 |
| TrainSize | 1643 |
| TestSize | 408 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 11 | 12 | 13 | 14 | 15 |
| -15.04 | -13.07 | -10.20 | -5.97 | -3.03 |
| 5.08 | 3.91 | 2.22 | 0 | 0 |
| 10.08 | 9.27 | 8.09 | 6.08 | 3.14 |

### CFM

|  |  |
| --- | --- |
| 48 | 111 |
| 15 | 234 |

Overall accuracy = 0.69118

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.69118 | 0.7619 | 0.30189 | 0.43243 |
| 0.69118 | 0.67826 | 0.93976 | 0.78788 |

## 17-Mar-2016 00:00:00 through 23-Mar-2016 23:59:00

### Table size

|  |  |
| --- | --- |
| 7640 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 7639 |
| NumTestSets | 1 |
| TrainSize | 6112 |
| TestSize | 1527 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | 13 | 14 | 15 | 16 |
| -14.11 | -12.36 | -9.78 | -6.44 | -3.96 |
| 3.79 | 2.83 | 1.41 | 0 | 0 |
| 10.39 | 9.60 | 8.43 | 6.50 | 4.02 |

### SE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | 13 | 14 | 15 | 16 |
| 44.34 | 41.10 | 37.86 | 34.48 | 35.08 |

### CFM

|  |  |
| --- | --- |
| 150 | 411 |
| 61 | 905 |

Overall accuracy = 0.6909

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.6909 | 0.7109 | 0.26738 | 0.3886 |
| 0.6909 | 0.68769 | 0.93685 | 0.79316 |

## 17-Mar-2016 00:00:00 through 30-Mar-2016 23:59:00

### Table size

|  |  |
| --- | --- |
| 14704 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 14703 |
| NumTestSets | 1 |
| TrainSize | 11763 |
| TestSize | 2940 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | 13 | 14 | 15 | 16 |
| -13.48 | -11.85 | -9.34 | -6.77 | -4.22 |
| 2.74 | 1.88 | 0.59 | 0 | 0 |
| 10.80 | 10.03 | 8.82 | 6.83 | 4.28 |

### SE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 12 | 13 | 14 | 15 | 16 |
| 112.87 | 109.045 | 102.11 | 96.01 | 90.20 |

### CFM

|  |  |
| --- | --- |
| 267 | 744 |
| 114 | 1815 |

Overall accuracy = 0.70816

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.70816 | 0.70079 | 0.26409 | 0.38362 |
| 0.70816 | 0.70926 | 0.9409 | 0.80882 |

# March 2019

## 17-Mar-2019 00:00:00 through 18-Mar-2019 23:59:00

### Table size

|  |  |
| --- | --- |
| 2528 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 2527 |
| NumTestSets | 1 |
| TrainSize | 2022 |
| TestSize | 505 |

### Lambda Data Table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | 17 | 18 | 19 | 20 |
| -11.40 | -8.84 | -5.58 | -1.71 | 0 |
| 5.04 | 3.66 | 1.93 | 0 | 0 |
| 6.37 | 5.20 | 3.66 | 1.70 | 0 |

### SE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 16 | 17 | 18 | 19 | 20 |
| 28.39 | 24.03 | 19.26 | 14.55 | 13.49 |

### CFM

|  |  |
| --- | --- |
| 90 | 136 |
| 32 | 247 |

Overall accuracy = 0.66733

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.66733 | 0.7377 | 0.39823 | 0.51724 |
| 0.66733 | 0.64491 | 0.8853 | 0.74622 |

## 17-Mar-2019 00:00:00 through 23-Mar-2019 23:59:00

### Table size

|  |  |
| --- | --- |
| 9238 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 9237 |
| NumTestSets | 1 |
| TrainSize | 7390 |
| TestSize | 1847 |

### Lambda Data Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| -23.42 | -21.38 | -18.45 | -14.28 | -8.63 | -3.37 | 0 |
| 8.19 | 7.20 | 5.75 | 3.73 | 1.18 | 0 | 0 |
| 15.26 | 14.21 | 12.73 | 10.57 | 7.46 | 3.37 | 0 |

### SE

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 52.00 | 48.64 | 44.14 | 38.50 | 32.95 | 28.07 | 29.17 |

### CFM

|  |  |
| --- | --- |
| 372 | 419 |
| 119 | 937 |

Overall accuracy = 0.70872

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.70872 | 0.75764 | 0.47029 | 0.58034 |
| 0.70872 | 0.691 | 0.88731 | 0.77695 |

## 17-Mar-2019 00:00:00 through 30-Mar-2019 23:59:00

### Table size

|  |  |
| --- | --- |
| 18719 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 18718 |
| NumTestSets | 1 |
| TrainSize | 14975 |
| TestSize | 3743 |

### Lambda Data Table

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| -46.57 | -44.74 | -41.91 | -37.66 | -31.54 | -23.29 | -10.75 |
| 17.26 | 16.32 | 14.86 | 12.65 | 9.41 | 4.93 | 0 |
| 29.35 | 28.46 | 27.09 | 25.05 | 22.16 | 18.40 | 10.78 |

### SE

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| 74.62 | 72.29 | 68.79 | 63.82 | 57.21 | 49.18 | 42.40 |

### CFM

|  |  |
| --- | --- |
| 714 | 871 |
| 245 | 1913 |

Overall accuracy = 0.70184

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.70184 | 0.74453 | 0.45047 | 0.56132 |
| 0.70184 | 0.68714 | 0.88647 | 0.77418 |

# March 2021

## 17-Mar-2021 00:00:00 through 18-Mar-2021 23:59:00

### Table size

|  |  |
| --- | --- |
| 2876 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 2875 |
| NumTestSets | 1 |
| TrainSize | 2300 |
| TestSize | 575 |

### Lambda Data Table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| -79.93 | -78.50 | -76.26 | -72.83 | -68.25 | -62.40 | -52.83 | -38.19 | -22.18 | -2.79 |
| 44.22 | 43.40 | 42.12 | 40.14 | 37.47 | 34.03 | 28.44 | 19.89 | 10.41 | 0 |
| 35.75 | 35.13 | 34.16 | 32.71 | 30.81 | 28.39 | 24.42 | 18.31 | 11.78 | 2.81 |

### SE

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 32.80 | 32.25 | 31.18 | 29.71 | 28.20 | 25.93 | 22.40 | 16.64 | 9.20 | 1.28 |

### CFM

|  |  |
| --- | --- |
| 235 | 51 |
| 52 | 237 |

Overall accuracy = 0.82087

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.82087 | 0.81882 | 0.82168 | 0.82024 |
| 0.82087 | 0.82292 | 0.82007 | 0.82149 |

### Figure 1 – Cross-Validated Deviance of Lasso Fit

Chart, scatter chart

Description automatically generated

### Figure 2 – Trace Plot of Coefficients Fit by Lasso

Diagram

Description automatically generated

## 17-Mar-2021 00:00:00 through 23-Mar-2021 23:59:00

### Table size

|  |  |
| --- | --- |
| 10065 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 10064 |
| NumTestSets | 1 |
| TrainSize | 8052 |
| TestSize | 2012 |

### Lambda Data Table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| -81.79 | -80.08 | -77.43 | -73.42 | -68.43 | -61.64 | -49.58 | -33.15 | -14.42 | 0 |
| 48.06 | 47.05 | 45.46 | 43.05 | 40.01 | 35.89 | 28.61 | 18.71 | 7.73 | 0 |
| 33.77 | 33.08 | 32.01 | 30.42 | 28.46 | 25.79 | 21.01 | 14.48 | 6.72 | 0.026 |

### SE

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 68.25 | 66.72 | 64.33 | 62.25 | 55.58 | 49.11 | 40.15 | 22.94 | 7.77 | 2.24 |

### CFM

|  |  |
| --- | --- |
| 817 | 188 |
| 206 | 801 |

Overall accuracy = 0.80417

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.80417 | 0.79863 | 0.81294 | 0.80572 |
| 0.80417 | 0.80991 | 0.79543 | 0.80261 |

### Figure 1 – Cross-Validated Deviance of Lasso Fit

Chart

Description automatically generated

### Figure 2 – Trace Plot of Coefficients Fit by Lasso

Chart, diagram

Description automatically generated

## 17-Mar-2021 00:00:00 through 30-Mar-2021 23:59:00

### Table size

|  |  |
| --- | --- |
| 20108 | 7 |

### Data Stats

|  |  |
| --- | --- |
| NumObservations | 20107 |
| NumTestSets | 1 |
| TrainSize | 16086 |
| TestSize | 4021 |

### Lambda Data Table

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
| -92.54 | -91.73 | -90.90 | -90.07 | -89.24 | -88.40 | -87.55 | -86.71 | -85.86 | -84.85 |
| 58.48 | 57.98 | 57.48 | 56.96 | 56.44 | 55.91 | 55.38 | 54.84 | 54.30 | 53.65 |
| 34.07 | 33.75 | 33.43 | 33.12 | 32.80 | 32.50 | 32.18 | 31.88 | 31.57 | 31.21 |

### SE

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 |
| 50.71 | 50.24 | 49.76 | 49.29 | 48.81 | 48.34 | 47.86 | 47.39 | 46.91 | 46.29 |

### CFM

|  |  |
| --- | --- |
| 1693 | 328 |
| 438 | 1562 |

Overall accuracy = 0.8095

|  |  |  |  |
| --- | --- | --- | --- |
| accuracy | precision | recall | Fscore |
| 0.8095 | 0.79446 | 0.8377 | 0.81551 |
| 0.8095 | 0.82646 | 0.781 | 0.80308 |

### Figure 1 – Cross-Validated Deviance of Lasso Fit

Chart

Description automatically generated

### Figure 2 – Trace Plot of Coefficients Fit by Lasso

Chart, diagram

Description automatically generated

*Note: Red column identifies the programs preferred Lambda.*