CS598 - Project 1

Xiaoming Ji

Computer System

Hardware

- Dell Precision Tower 5810
- CPU: Intel Xeon E5-1607 @ 3.10GHz
- Memory: 32GB

Software

- OS: Windows 10 Professional 64bit
- R: 3.5.1
- R Packages:
  - forecast_8.4

```
## Loading required package: forecast
```

```
## Loading required package: tidyverse
```

```
## -- Attaching packages --------------------------------- tidyverse 1.2.1 --
```

```
## v ggplot2 3.1.0     v purrr   0.2.5
## v tibble  1.4.2     v dplyr   0.7.7
## v tidyr   0.8.2     v stringr 1.3.1
## v readr   1.1.1     v forcats 0.3.0
```

```
## -- Conflicts ------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
## Loading required package: kableExtra
```

```
## Loading required package: knitr
```

```
## [[1]]
## [1] TRUE
##
## [[2]]
## [1] TRUE
##
## [[3]]
## [1] TRUE
##
## [[4]]
## [1] TRUE
```

```
## Fold: 1
##
  |
  |                                                                      |   0%
  |
```

```
|=                                                                    |   1%
|
|==                                                                   |   2%
|
|==                                                                   |   4%
|
|===                                                                  |   5%
|
|====                                                                 |   6%
|
|=====                                                                |   8%
|
|======                                                               |   9%
|
|======                                                               |  10%
|
|=======                                                              |  11%
|
|========                                                             |  12%
|
|=========                                                            |  14%
|
|==========                                                           |  15%
|
|===========                                                          |  16%
|
|===========                                                          |  18%
|
|============                                                         |  19%
|
|=============                                                        |  20%
|
|==============                                                       |  21%
|
|===============                                                      |  22%
|
|==============                                                       |  24%
|
|================                                                     |  25%
|
|=================                                                    |  26%
|
|==================                                                   |  28%
|
|====================                                                 |  29%
|
|====================                                                 |  30%
|
|====================                                                 |  31%
|
|=====================                                                |  32%
|
|======================                                               |  34%
|
```

```
|======================                                |  35%
|
|=======================                               |  36%
|
|=======================                               |  38%
|
|========================                              |  39%
|
|========================                              |  40%
|
|=========================                             |  41%
|
|=========================                             |  42%
|
|=========================                             |  44%
|
|==========================                            |  45%
|
|==========================                            |  46%
|
|===========================                           |  48%
|
|===========================                           |  49%
|
|===========================                           |  50%
|
|============================                          |  51%
|
|============================                          |  52%
|
|============================                          |  54%
|
|=============================                         |  55%
|
|=============================                         |  56%
|
|=============================                         |  58%
|
|==============================                        |  59%
|
|==============================                        |  60%
|
|==============================                        |  61%
|
|===============================                       |  62%
|
|===============================                       |  64%
|
|================================                      |  65%
|
|================================                      |  66%
|
|=================================                     |  68%
|
```

```
  |=========================================                      |  69%
  |
  |==========================================                     |  70%
  |
  |==========================================                     |  71%
  |
  |===========================================                    |  72%
  |
  |============================================                   |  74%
  |
  |============================================                   |  75%
  |
  |=============================================                  |  76%
  |
  |=============================================                  |  78%
  |
  |==============================================                 |  79%
  |
  |==============================================                 |  80%
  |
  |===============================================                |  81%
  |
  |================================================               |  82%
  |
  |================================================               |  84%
  |
  |=================================================              |  85%
  |
  |==================================================             |  86%
  |
  |===================================================            |  88%
  |
  |====================================================           |  89%
  |
  |====================================================           |  90%
  |
  |=====================================================          |  91%
  |
  |======================================================         |  92%
  |
  |=======================================================        |  94%
  |
  |========================================================       |  95%
  |
  |=========================================================      |  96%
  |
  |==========================================================     |  98%
  |
  |============================================================== |  99%
  |
  |================================================================| 100%
## Parsed with column specification:
## cols(
```

```
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2079.     2262.       2042.
## Fold: 2
##
  |
  |                                                                      |   0%
  |
  |=                                                                     |   1%
  |
  |==                                                                    |   3%
  |
  |==                                                                    |   4%
  |
  |===                                                                   |   5%
  |
  |====                                                                  |   6%
  |
  |=====                                                                 |   8%
  |
  |======                                                                |   9%
  |
  |=======                                                               |  10%
  |
  |========                                                              |  12%
  |
  |========                                                              |  13%
  |
  |=========                                                             |  14%
  |
  |==========                                                            |  15%
  |
  |===========                                                           |  17%
  |
  |============                                                          |  18%
  |
  |============                                                          |  19%
  |
  |=============                                                         |  21%
  |
  |==============                                                        |  22%
  |
  |===============                                                       |  23%
  |
  |================                                                      |  24%
  |
```

```
|=================                                                     |  26%
|
|==================                                                    |  27%
|
|==================                                                    |  28%
|
|===================                                                   |  29%
|
|====================                                                  |  31%
|
|====================                                                  |  32%
|
|=====================                                                 |  33%
|
|=====================                                                 |  35%
|
|======================                                                |  36%
|
|======================                                                |  37%
|
|=======================                                               |  38%
|
|========================                                              |  40%
|
|========================                                              |  41%
|
|=========================                                             |  42%
|
|=========================                                             |  44%
|
|==========================                                            |  45%
|
|==========================                                            |  46%
|
|===========================                                           |  47%
|
|===========================                                           |  49%
|
|============================                                          |  50%
|
|============================                                          |  51%
|
|=============================                                         |  53%
|
|=============================                                         |  54%
|
|==============================                                        |  55%
|
|==============================                                        |  56%
|
|===============================                                       |  58%
|
|===============================                                       |  59%
|
```

```
|=======================================                          |  60%
|
|========================================                         |  62%
|
|=========================================                        |  63%
|
|==========================================                       |  64%
|
|==========================================                       |  65%
|
|============================================                     |  67%
|
|=============================================                    |  68%
|
|==============================================                   |  69%
|
|================================================                 |  71%
|
|=================================================                |  72%
|
|==================================================               |  73%
|
|==================================================               |  74%
|
|===================================================              |  76%
|
|====================================================             |  77%
|
|=====================================================            |  78%
|
|======================================================           |  79%
|
|======================================================           |  81%
|
|=======================================================          |  82%
|
|========================================================         |  83%
|
|=========================================================        |  85%
|
|==========================================================       |  86%
|
|===========================================================      |  87%
|
|============================================================     |  88%
|
|============================================================     |  90%
|
|=============================================================    |  91%
|
|==============================================================   |  92%
|
|================================================================  |  94%
|
```

```
  |=============================================================   |  95%
  |
  |=============================================================   |  96%
  |
  |==============================================================  |  97%
  |
  |============================================================== |  99%
  |
  |==============================================================| 100%
```

```
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2589.     1787.       1440.
## Fold: 3
##
  |
  |                                                              |   0%
  |
  |=                                                             |   1%
  |
  |==                                                            |   3%
  |
  |==                                                            |   4%
  |
  |===                                                           |   5%
  |
  |====                                                          |   6%
  |
  |=====                                                         |   8%
  |
  |======                                                        |   9%
  |
  |=======                                                       |  10%
  |
  |=======                                                       |  11%
  |
  |========                                                      |  13%
  |
  |=========                                                     |  14%
  |
  |==========                                                    |  15%
  |
  |===========                                                   |  16%
  |
  |============                                                  |  18%
```

```
|
|============                                                   |  19%
|
|=============                                                  |  20%
|
|==============                                                 |  22%
|
|===============                                                |  23%
|
|================                                               |  24%
|
|================                                               |  25%
|
|=================                                              |  27%
|
|==================                                             |  28%
|
|===================                                            |  29%
|
|====================                                           |  30%
|
|=====================                                          |  32%
|
|=====================                                          |  33%
|
|======================                                         |  34%
|
|=======================                                        |  35%
|
|========================                                       |  37%
|
|========================                                       |  38%
|
|=========================                                      |  39%
|
|=========================                                      |  41%
|
|==========================                                     |  42%
|
|==========================                                     |  43%
|
|===========================                                    |  44%
|
|============================                                   |  46%
|
|============================                                   |  47%
|
|=============================                                  |  48%
|
|==============================                                 |  49%
|
|==============================                                 |  51%
|
|===============================                                |  52%
```

```
|
|==================================                                    |  53%
|
|==================================                                    |  54%
|
|===================================                                   |  56%
|
|===================================                                   |  57%
|
|====================================                                  |  58%
|
|====================================                                  |  59%
|
|=====================================                                 |  61%
|
|=====================================                                 |  62%
|
|======================================                                |  63%
|
|======================================                                |  65%
|
|=======================================                               |  66%
|
|=======================================                               |  67%
|
|========================================                              |  68%
|
|========================================                              |  70%
|
|=========================================                             |  71%
|
|=========================================                             |  72%
|
|==========================================                            |  73%
|
|==========================================                            |  75%
|
|==========================================                            |  76%
|
|===========================================                           |  77%
|
|===========================================                           |  78%
|
|============================================                          |  80%
|
|============================================                          |  81%
|
|============================================                          |  82%
|
|=============================================                         |  84%
|
|=============================================                         |  85%
|
|==============================================                        |  86%
```

```
  |
  |=============================================================        |  87%
  |
  |==============================================================       |  89%
  |
  |==============================================================       |  90%
  |
  |===============================================================      |  91%
  |
  |================================================================     |  92%
  |
  |==================================================================   |  94%
  |
  |===================================================================  |  95%
  |
  |==================================================================== |  96%
  |
  |===================================================================== |  97%
  |
  |====================================================================== |  99%
  |
  |=======================================================================| 100%
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2254.     1779.       1435.
## Fold: 4
##
  |
  |                                                                      |   0%
  |
  |=                                                                     |   1%
  |
  |==                                                                    |   3%
  |
  |==                                                                    |   4%
  |
  |===                                                                   |   5%
  |
  |====                                                                  |   6%
  |
  |=====                                                                 |   8%
  |
  |======                                                                |   9%
  |
```

```
|=======                                                |  10%
|
|=======                                                |  11%
|
|========                                               |  13%
|
|=========                                              |  14%
|
|==========                                             |  15%
|
|===========                                            |  16%
|
|============                                           |  18%
|
|============                                           |  19%
|
|==============                                         |  20%
|
|==============                                         |  22%
|
|================                                       |  23%
|
|================                                       |  24%
|
|================                                       |  25%
|
|==================                                     |  27%
|
|==================                                     |  28%
|
|====================                                   |  29%
|
|====================                                   |  30%
|
|======================                                 |  32%
|
|====================                                   |  33%
|
|======================                                 |  34%
|
|=======================                                |  35%
|
|========================                               |  37%
|
|========================                               |  38%
|
|=========================                              |  39%
|
|=========================                              |  41%
|
|==========================                             |  42%
|
|===========================                            |  43%
|
```

```
|============================                          |  44%
|
|=============================                         |  46%
|
|=============================                         |  47%
|
|==============================                        |  48%
|
|==============================                        |  49%
|
|===============================                       |  51%
|
|================================                      |  52%
|
|================================                      |  53%
|
|================================                      |  54%
|
|=================================                     |  56%
|
|=================================                     |  57%
|
|==================================                    |  58%
|
|==================================                    |  59%
|
|===================================                   |  61%
|
|===================================                   |  62%
|
|====================================                  |  63%
|
|====================================                  |  65%
|
|=====================================                 |  66%
|
|=====================================                 |  67%
|
|======================================                |  68%
|
|======================================                |  70%
|
|=======================================               |  71%
|
|=======================================               |  72%
|
|========================================              |  73%
|
|========================================              |  75%
|
|=========================================             |  76%
|
|=========================================             |  77%
|
```

```
  |=================================================               |  78%
  |
  |==================================================              |  80%
  |
  |==================================================              |  81%
  |
  |==================================================              |  82%
  |
  |===================================================             |  84%
  |
  |===================================================             |  85%
  |
  |====================================================            |  86%
  |
  |====================================================            |  87%
  |
  |=====================================================           |  89%
  |
  |=====================================================           |  90%
  |
  |======================================================          |  91%
  |
  |=======================================================         |  92%
  |
  |========================================================        |  94%
  |
  |=========================================================       |  95%
  |
  |==========================================================      |  96%
  |
  |==========================================================      |  97%
  |
  |============================================================    |  99%
  |
  |================================================================| 100%
```

```
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2823.     1716.       1597.
## Fold: 5
##
  |
  |                                                                 |   0%
  |
  |=                                                                |   1%
```

```
|
|==                                                    |   2%
|
|==                                                    |   4%
|
|===                                                   |   5%
|
|====                                                  |   6%
|
|=====                                                 |   7%
|
|======                                                |   9%
|
|======                                                |  10%
|
|=======                                               |  11%
|
|========                                              |  12%
|
|=========                                             |  14%
|
|==========                                            |  15%
|
|==========                                            |  16%
|
|==========                                            |  17%
|
|============                                          |  19%
|
|============                                          |  20%
|
|==============                                        |  21%
|
|==============                                        |  22%
|
|===============                                       |  23%
|
|================                                      |  25%
|
|=================                                     |  26%
|
|==================                                    |  27%
|
|==================                                    |  28%
|
|====================                                  |  30%
|
|====================                                  |  31%
|
|=====================                                 |  32%
|
|======================                                |  33%
|
|======================                                |  35%
```

```
|
|=======================                                |  36%
|
|=======================                                |  37%
|
|========================                               |  38%
|
|========================                               |  40%
|
|=========================                              |  41%
|
|=========================                              |  42%
|
|==========================                             |  43%
|
|==========================                             |  44%
|
|===========================                            |  46%
|
|===========================                            |  47%
|
|============================                           |  48%
|
|============================                           |  49%
|
|=============================                          |  51%
|
|=============================                          |  52%
|
|==============================                         |  53%
|
|==============================                         |  54%
|
|===============================                        |  56%
|
|===============================                        |  57%
|
|================================                       |  58%
|
|================================                       |  59%
|
|=================================                      |  60%
|
|=================================                      |  62%
|
|==================================                     |  63%
|
|==================================                     |  64%
|
|===================================                    |  65%
|
|===================================                    |  67%
|
|====================================                   |  68%
```

```
  |
  |=============================================                     |  69%
  |
  |=============================================                     |  70%
  |
  |==============================================                    |  72%
  |
  |==============================================                    |  73%
  |
  |==============================================                    |  74%
  |
  |===============================================                   |  75%
  |
  |================================================                  |  77%
  |
  |================================================                  |  78%
  |
  |================================================                  |  79%
  |
  |=================================================                 |  80%
  |
  |=================================================                 |  81%
  |
  |==================================================                |  83%
  |
  |==================================================                |  84%
  |
  |==================================================                |  85%
  |
  |===================================================               |  86%
  |
  |====================================================              |  88%
  |
  |====================================================              |  89%
  |
  |=====================================================             |  90%
  |
  |=====================================================             |  91%
  |
  |======================================================            |  93%
  |
  |======================================================            |  94%
  |
  |=======================================================           |  95%
  |
  |========================================================          |  96%
  |
  |========================================================          |  98%
  |
  |========================================================= |  99%
  |
  |==========================================================| 100%
## Parsed with column specification:
```

```
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     5156.     2400.       2328.
## Fold: 6
##
  |
  |                                                                      |   0%
  |
  |=                                                                     |   1%
  |
  |==                                                                    |   2%
  |
  |==                                                                    |   4%
  |
  |===                                                                   |   5%
  |
  |====                                                                  |   6%
  |
  |=====                                                                 |   8%
  |
  |======                                                                |   9%
  |
  |======                                                                |  10%
  |
  |=======                                                               |  11%
  |
  |========                                                              |  12%
  |
  |=========                                                             |  14%
  |
  |==========                                                            |  15%
  |
  |===========                                                           |  16%
  |
  |===========                                                           |  18%
  |
  |============                                                          |  19%
  |
  |=============                                                         |  20%
  |
  |==============                                                        |  21%
  |
  |===============                                                       |  22%
  |
  |================                                                      |  24%
```

```
|
|================                                                 |  25%
|
|=================                                                |  26%
|
|==================                                               |  28%
|
|===================                                              |  29%
|
|====================                                             |  30%
|
|====================                                             |  31%
|
|=====================                                            |  32%
|
|======================                                           |  34%
|
|======================                                           |  35%
|
|=======================                                          |  36%
|
|=======================                                          |  38%
|
|========================                                         |  39%
|
|========================                                         |  40%
|
|=========================                                        |  41%
|
|=========================                                        |  42%
|
|==========================                                       |  44%
|
|==========================                                       |  45%
|
|===========================                                      |  46%
|
|============================                                     |  48%
|
|============================                                     |  49%
|
|============================                                     |  50%
|
|=============================                                    |  51%
|
|=============================                                    |  52%
|
|==============================                                   |  54%
|
|==============================                                   |  55%
|
|===============================                                  |  56%
|
|===============================                                  |  58%
```

```
|
|====================================                                  |  59%
|
|=====================================                                 |  60%
|
|======================================                                |  61%
|
|======================================                                |  62%
|
|=======================================                               |  64%
|
|========================================                              |  65%
|
|========================================                              |  66%
|
|=========================================                             |  68%
|
|=========================================                             |  69%
|
|==========================================                            |  70%
|
|==========================================                            |  71%
|
|===========================================                           |  72%
|
|============================================                          |  74%
|
|============================================                          |  75%
|
|=============================================                         |  76%
|
|=============================================                         |  78%
|
|==============================================                        |  79%
|
|==============================================                        |  80%
|
|===============================================                       |  81%
|
|================================================                      |  82%
|
|================================================                      |  84%
|
|=================================================                     |  85%
|
|=================================================                     |  86%
|
|==================================================                    |  88%
|
|===================================================                   |  89%
|
|===================================================                   |  90%
|
|====================================================                  |  91%
```

```
  |
  |=============================================================     |  92%
  |
  |==============================================================    |  94%
  |
  |===============================================================   |  95%
  |
  |================================================================  |  96%
  |
  |================================================================  |  98%
  |
  |================================================================= |  99%
  |
  |==================================================================| 100%
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     4218.     1697.       1674.
## Fold: 7
##
  |
  |                                                                  |   0%
  |
  |=                                                                 |   1%
  |
  |==                                                                |   2%
  |
  |==                                                                |   4%
  |
  |===                                                               |   5%
  |
  |====                                                              |   6%
  |
  |=====                                                             |   8%
  |
  |======                                                            |   9%
  |
  |======                                                            |  10%
  |
  |=======                                                           |  11%
  |
  |========                                                          |  12%
  |
  |=========                                                         |  14%
  |
```

```
|==========                                                    |  15%
|
|===========                                                   |  16%
|
|===========                                                   |  18%
|
|============                                                  |  19%
|
|=============                                                 |  20%
|
|==============                                                |  21%
|
|===============                                               |  22%
|
|==============                                                |  24%
|
|================                                              |  25%
|
|=================                                             |  26%
|
|==================                                            |  28%
|
|===================                                           |  29%
|
|====================                                          |  30%
|
|====================                                          |  31%
|
|=====================                                         |  32%
|
|======================                                        |  34%
|
|======================                                        |  35%
|
|=======================                                       |  36%
|
|======================                                        |  38%
|
|========================                                      |  39%
|
|=========================                                     |  40%
|
|==========================                                    |  41%
|
|===========================                                   |  42%
|
|===========================                                   |  44%
|
|============================                                  |  45%
|
|=============================                                 |  46%
|
|==============================                                |  48%
|
```

```
|================================                      |  49%
|
|================================                      |  50%
|
|=================================                     |  51%
|
|=================================                     |  52%
|
|==================================                    |  54%
|
|==================================                    |  55%
|
|===================================                   |  56%
|
|===================================                   |  58%
|
|====================================                  |  59%
|
|====================================                  |  60%
|
|=====================================                 |  61%
|
|=====================================                 |  62%
|
|======================================                |  64%
|
|======================================                |  65%
|
|=======================================               |  66%
|
|=======================================               |  68%
|
|========================================              |  69%
|
|========================================              |  70%
|
|=========================================             |  71%
|
|=========================================             |  72%
|
|==========================================            |  74%
|
|==========================================            |  75%
|
|===========================================           |  76%
|
|===========================================           |  78%
|
|============================================          |  79%
|
|============================================          |  80%
|
|=============================================         |  81%
|
```

```
  |=================================================          |  82%
  |
  |==================================================         |  84%
  |
  |===================================================        |  85%
  |
  |====================================================       |  86%
  |
  |======================================================     |  88%
  |
  |=======================================================    |  89%
  |
  |========================================================   |  90%
  |
  |=========================================================  |  91%
  |
  |==========================================================  |  92%
  |
  |============================================================  |  94%
  |
  |============================================================= |  95%
  |
  |============================================================== |  96%
  |
  |================================================================ |  98%
  |
  |================================================================= |  99%
  |
  |==================================================================| 100%
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2270.     2087.       1613.
## Fold: 8
##
  |
  |                                                                  |   0%
  |
  |=                                                                 |   1%
  |
  |==                                                                |   2%
  |
  |==                                                                |   4%
  |
  |===                                                               |   5%
```

```
|
|====                                                   |   6%
|
|=====                                                  |   8%
|
|======                                                 |   9%
|
|======                                                 |  10%
|
|=======                                                |  11%
|
|========                                               |  12%
|
|=========                                              |  14%
|
|==========                                             |  15%
|
|===========                                            |  16%
|
|===========                                            |  18%
|
|============                                           |  19%
|
|=============                                          |  20%
|
|=============                                          |  21%
|
|===============                                        |  22%
|
|===============                                        |  24%
|
|================                                       |  25%
|
|==================                                     |  26%
|
|==================                                     |  28%
|
|====================                                   |  29%
|
|====================                                   |  30%
|
|====================                                   |  31%
|
|====================                                   |  32%
|
|======================                                 |  34%
|
|======================                                 |  35%
|
|========================                               |  36%
|
|========================                               |  38%
|
|========================                               |  39%
```

```
|
|=========================                                |  40%
|
|=========================                                |  41%
|
|==========================                               |  42%
|
|==========================                               |  44%
|
|===========================                              |  45%
|
|===========================                              |  46%
|
|============================                             |  48%
|
|============================                             |  49%
|
|============================                             |  50%
|
|=============================                            |  51%
|
|=============================                            |  52%
|
|==============================                           |  54%
|
|==============================                           |  55%
|
|===============================                          |  56%
|
|===============================                          |  58%
|
|================================                         |  59%
|
|================================                         |  60%
|
|=================================                        |  61%
|
|=================================                        |  62%
|
|==================================                       |  64%
|
|==================================                       |  65%
|
|===================================                      |  66%
|
|====================================                     |  68%
|
|====================================                     |  69%
|
|=====================================                    |  70%
|
|=====================================                    |  71%
|
|======================================                   |  72%
```

```
  |
  |================================================                  |  74%
  |
  |================================================                  |  75%
  |
  |=================================================                 |  76%
  |
  |=================================================                 |  78%
  |
  |==================================================                |  79%
  |
  |==================================================                |  80%
  |
  |===================================================               |  81%
  |
  |===================================================               |  82%
  |
  |===================================================               |  84%
  |
  |====================================================              |  85%
  |
  |====================================================              |  86%
  |
  |=====================================================             |  88%
  |
  |=====================================================             |  89%
  |
  |=====================================================             |  90%
  |
  |======================================================            |  91%
  |
  |======================================================            |  92%
  |
  |=======================================================           |  94%
  |
  |=======================================================           |  95%
  |
  |========================================================          |  96%
  |
  |========================================================          |  98%
  |
  |========================================================          |  99%
  |
  |==================================================================| 100%
```

```
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
```

```
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2144.     1750.       1336.
## Fold: 9
##
  |
  |                                                                      |   0%
  |
  |=                                                                     |   1%
  |
  |==                                                                    |   2%
  |
  |==                                                                    |   4%
  |
  |===                                                                   |   5%
  |
  |====                                                                  |   6%
  |
  |=====                                                                 |   8%
  |
  |======                                                                |   9%
  |
  |======                                                                |  10%
  |
  |=======                                                               |  11%
  |
  |========                                                              |  12%
  |
  |=========                                                             |  14%
  |
  |==========                                                            |  15%
  |
  |===========                                                           |  16%
  |
  |===========                                                           |  18%
  |
  |============                                                          |  19%
  |
  |==============                                                        |  20%
  |
  |==============                                                        |  21%
  |
  |===============                                                       |  22%
  |
  |===============                                                       |  24%
  |
  |================                                                      |  25%
  |
  |==================                                                    |  26%
  |
  |==================                                                    |  28%
  |
  |====================                                                  |  29%
  |
```

```
|==================                                                    |  30%
|
|===================                                                   |  31%
|
|====================                                                  |  32%
|
|======================                                                |  34%
|
|=======================                                               |  35%
|
|========================                                              |  36%
|
|========================                                              |  38%
|
|=========================                                             |  39%
|
|==========================                                            |  40%
|
|==========================                                            |  41%
|
|===========================                                           |  42%
|
|===========================                                           |  44%
|
|============================                                          |  45%
|
|=============================                                         |  46%
|
|==============================                                        |  48%
|
|==============================                                        |  49%
|
|===============================                                       |  50%
|
|===============================                                       |  51%
|
|================================                                      |  52%
|
|==================================                                    |  54%
|
|===================================                                   |  55%
|
|====================================                                  |  56%
|
|====================================                                  |  58%
|
|=====================================                                 |  59%
|
|======================================                                |  60%
|
|======================================                                |  61%
|
|=======================================                               |  62%
|
```

```
|=======================================                 |  64%
|
|========================================                |  65%
|
|=========================================               |  66%
|
|==========================================              |  68%
|
|===========================================             |  69%
|
|============================================            |  70%
|
|============================================            |  71%
|
|=============================================           |  72%
|
|==============================================          |  74%
|
|==============================================          |  75%
|
|===============================================         |  76%
|
|================================================        |  78%
|
|================================================        |  79%
|
|=================================================       |  80%
|
|==================================================      |  81%
|
|==================================================      |  82%
|
|===================================================     |  84%
|
|====================================================    |  85%
|
|=====================================================   |  86%
|
|======================================================  |  88%
|
|======================================================  |  89%
|
|======================================================  |  90%
|
|======================================================= |  91%
|
|======================================================== |  92%
|
|========================================================== |  94%
|
|=========================================================== |  95%
|
|============================================================|  96%
|
```

```
  |=================================================================  |  98%
  |
  |=================================================================== |  99%
  |
  |====================================================================| 100%
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2221.     1720.       1274.
## Fold: 10
##
  |
  |                                                                   |   0%
  |
  |=                                                                  |   1%
  |
  |==                                                                 |   2%
  |
  |==                                                                 |   4%
  |
  |===                                                                |   5%
  |
  |====                                                               |   6%
  |
  |=====                                                              |   8%
  |
  |======                                                             |   9%
  |
  |======                                                             |  10%
  |
  |=======                                                            |  11%
  |
  |========                                                           |  12%
  |
  |=========                                                          |  14%
  |
  |==========                                                         |  15%
  |
  |===========                                                        |  16%
  |
  |===========                                                        |  18%
  |
  |============                                                       |  19%
  |
  |=============                                                      |  20%
```

```
|
|==============                                                  |  21%
|
|===============                                                 |  22%
|
|================                                                |  24%
|
|================                                                |  25%
|
|==================                                              |  26%
|
|==================                                              |  28%
|
|====================                                            |  29%
|
|====================                                            |  30%
|
|====================                                            |  31%
|
|======================                                          |  32%
|
|======================                                          |  34%
|
|========================                                        |  35%
|
|========================                                        |  36%
|
|========================                                        |  38%
|
|=========================                                       |  39%
|
|=========================                                       |  40%
|
|==========================                                      |  41%
|
|==========================                                      |  42%
|
|==========================                                      |  44%
|
|===========================                                     |  45%
|
|===========================                                     |  46%
|
|============================                                    |  48%
|
|============================                                    |  49%
|
|============================                                    |  50%
|
|=============================                                   |  51%
|
|=============================                                   |  52%
|
|==============================                                  |  54%
```

```
|
|=====================================                              |  55%
|
|======================================                             |  56%
|
|======================================                             |  58%
|
|=======================================                            |  59%
|
|========================================                           |  60%
|
|=========================================                          |  61%
|
|==========================================                         |  62%
|
|==========================================                         |  64%
|
|===========================================                        |  65%
|
|============================================                       |  66%
|
|=============================================                      |  68%
|
|==============================================                     |  69%
|
|===============================================                    |  70%
|
|===============================================                    |  71%
|
|================================================                   |  72%
|
|=================================================                  |  74%
|
|==================================================                 |  75%
|
|===================================================                |  76%
|
|===================================================                |  78%
|
|====================================================               |  79%
|
|=====================================================              |  80%
|
|======================================================             |  81%
|
|=======================================================            |  82%
|
|=======================================================            |  84%
|
|========================================================           |  85%
|
|=========================================================          |  86%
|
|==========================================================         |  88%
```

```
  |
  |=============================================================       |  89%
  |
  |=============================================================       |  90%
  |
  |=============================================================       |  91%
  |
  |=============================================================       |  92%
  |
  |=============================================================       |  94%
  |
  |=============================================================       |  95%
  |
  |=============================================================       |  96%
  |
  |=============================================================       |  98%
  |
  |=============================================================       |  99%
  |
  |=============================================================       | 100%
```

```
## Parsed with column specification:
## cols(
##   Store = col_integer(),
##   Dept = col_integer(),
##   Date = col_date(format = ""),
##   Weekly_Sales = col_double(),
##   IsHoliday = col_logical()
## )
```

```
## # A tibble: 1 x 3
##   model_one model_two model_three
##       <dbl>     <dbl>       <dbl>
## 1     2372.     1681.       1226.
```

```
##  elapsed
## 3050.012
```

```
##   model_one   model_two model_three
##    2812.677    1888.006    1596.564
```

Fold	Naive	SNaive	Dynamic
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	1612.517
8	2143.839	1750.283	1336.266
9	2221.145	1719.887	1274.407
10	2372.425	1680.956	1226.439

Computation time: 3050.012 seconds