

# MA 615 Final Project

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```
## Registered S3 method overwritten by 'geojsonsf':
##   method      from
##   print.geojson geojson

##
##   'geojsonio'

## The following object is masked from 'package:base':
##
##   pretty

## Linking to GEOS 3.9.3, GDAL 3.5.2, PROJ 8.2.1; sf_use_s2() is TRUE

## Data (c) OpenStreetMap contributors, ODbL 1.0. https://www.openstreetmap.org/copyright

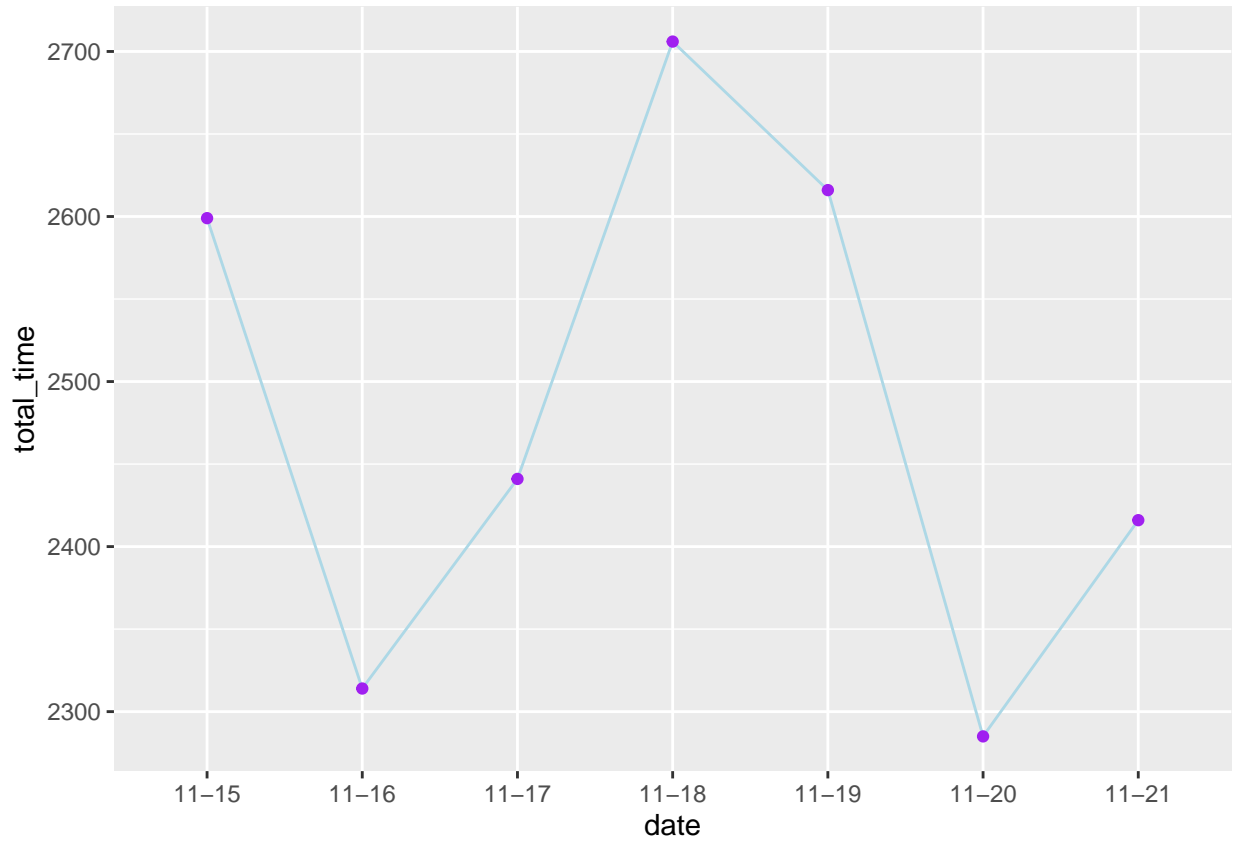
##
##   'dplyr'

## The following objects are masked from 'package:stats':
##
##   filter, lag

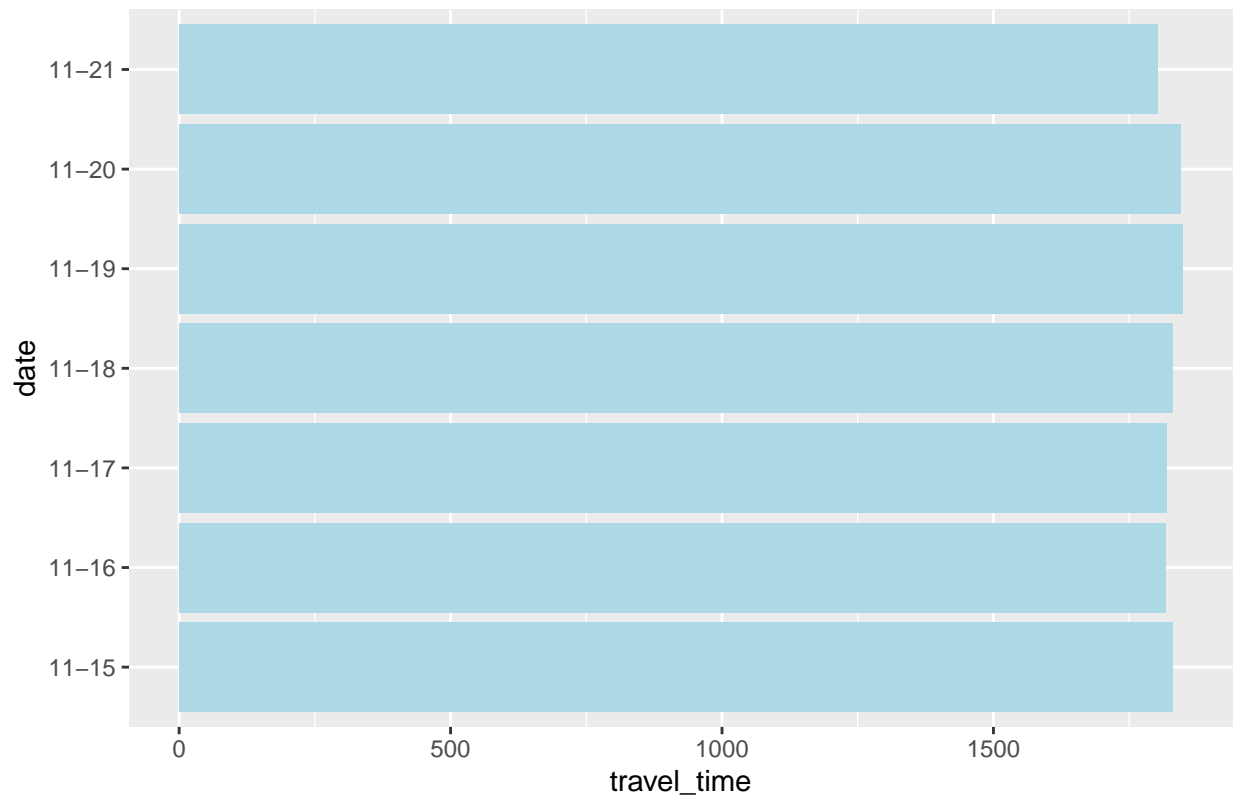
## The following objects are masked from 'package:base':
##
##   intersect, setdiff, setequal, union
```

# The earliest train in one day on the Orange Line that runs the full distance of each month

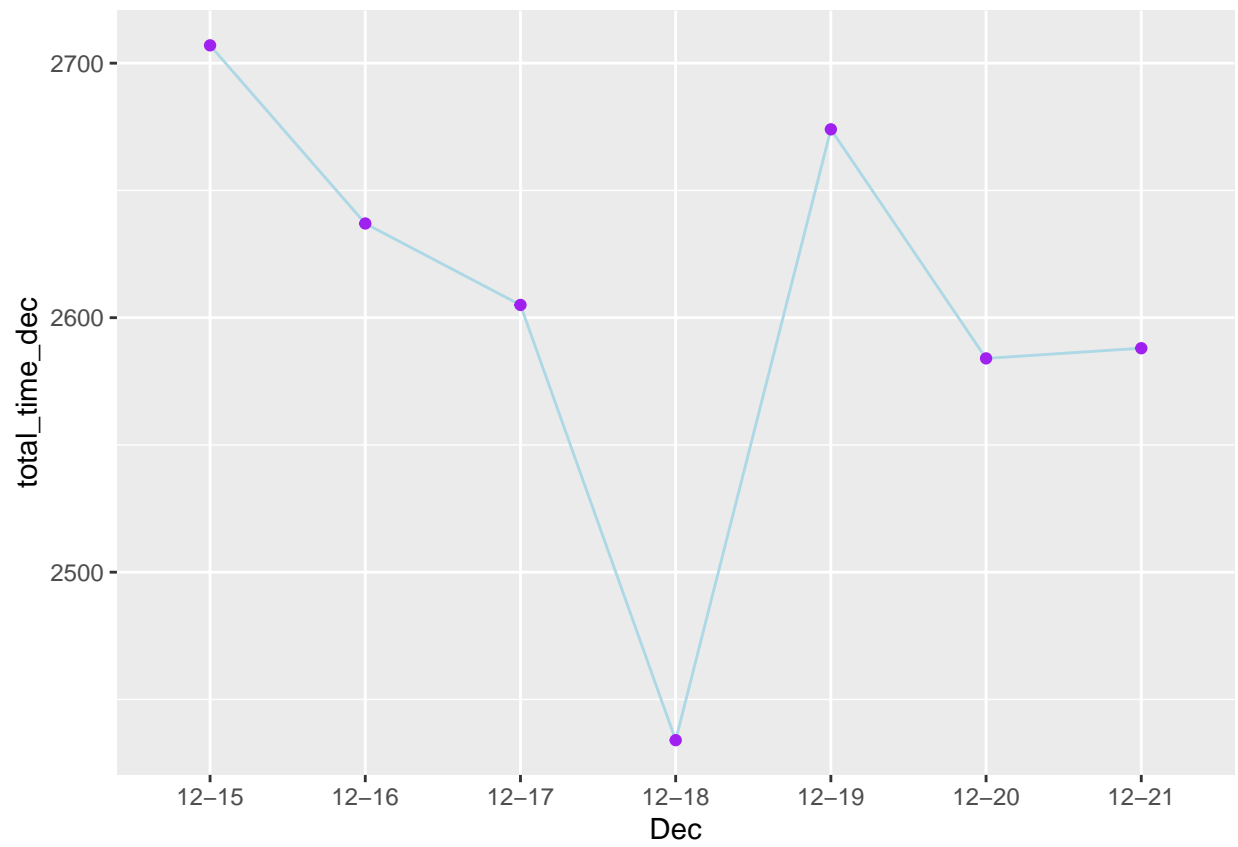
November 2021



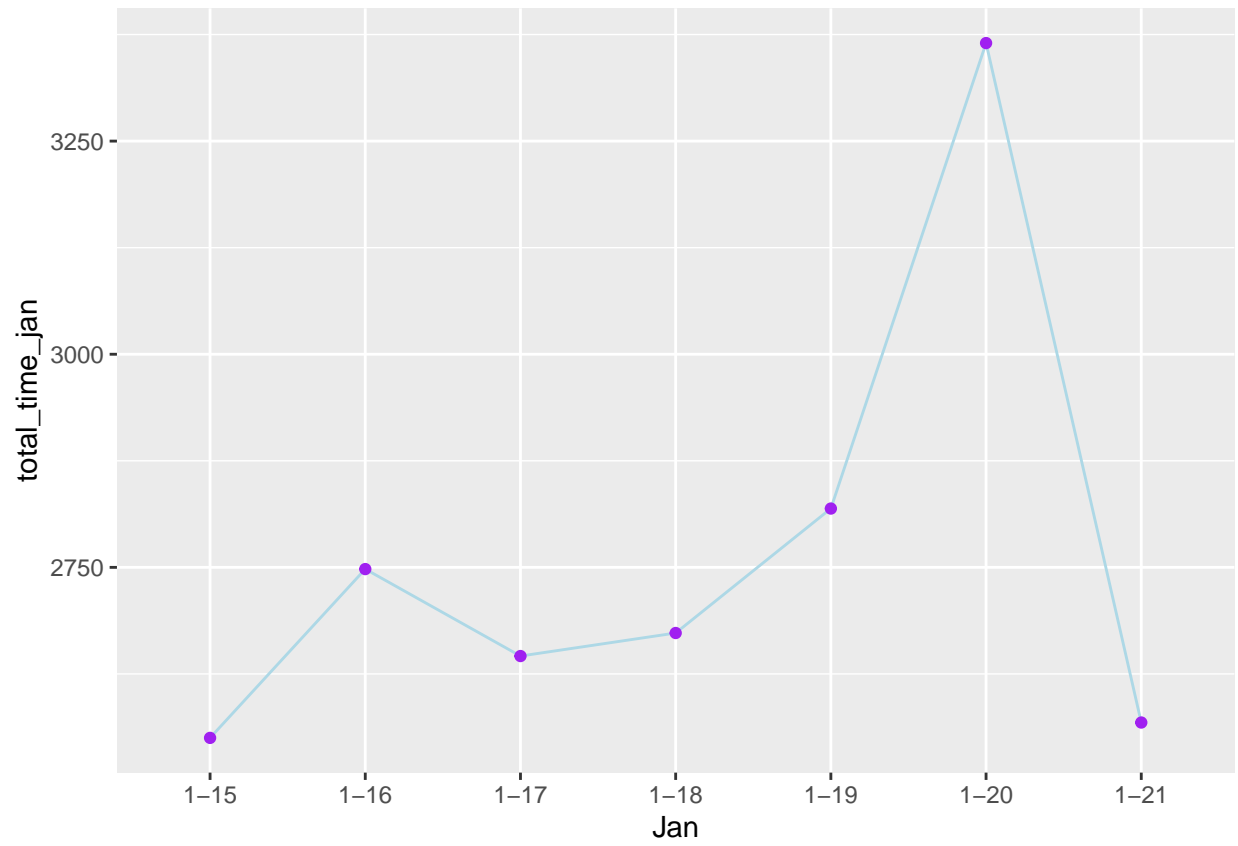
From 70001 to 70279



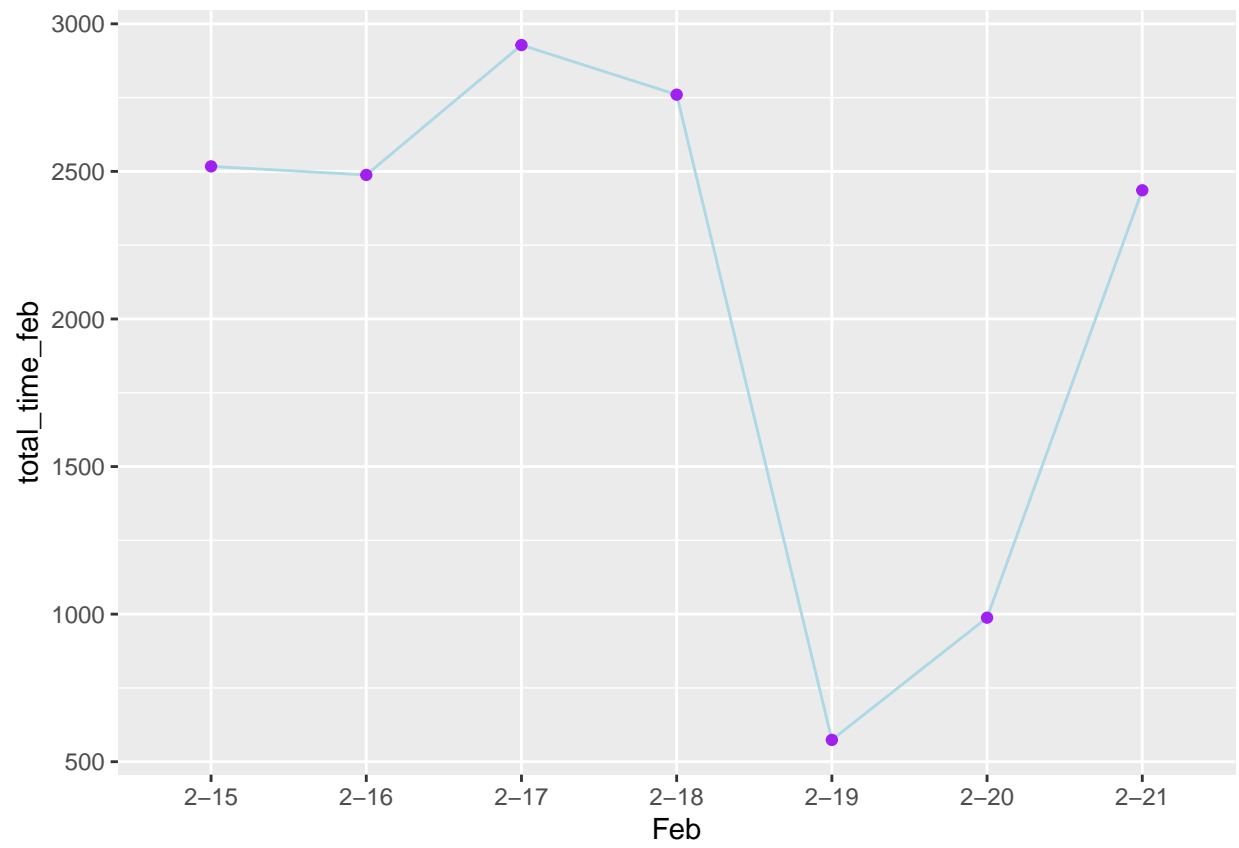
##December2021



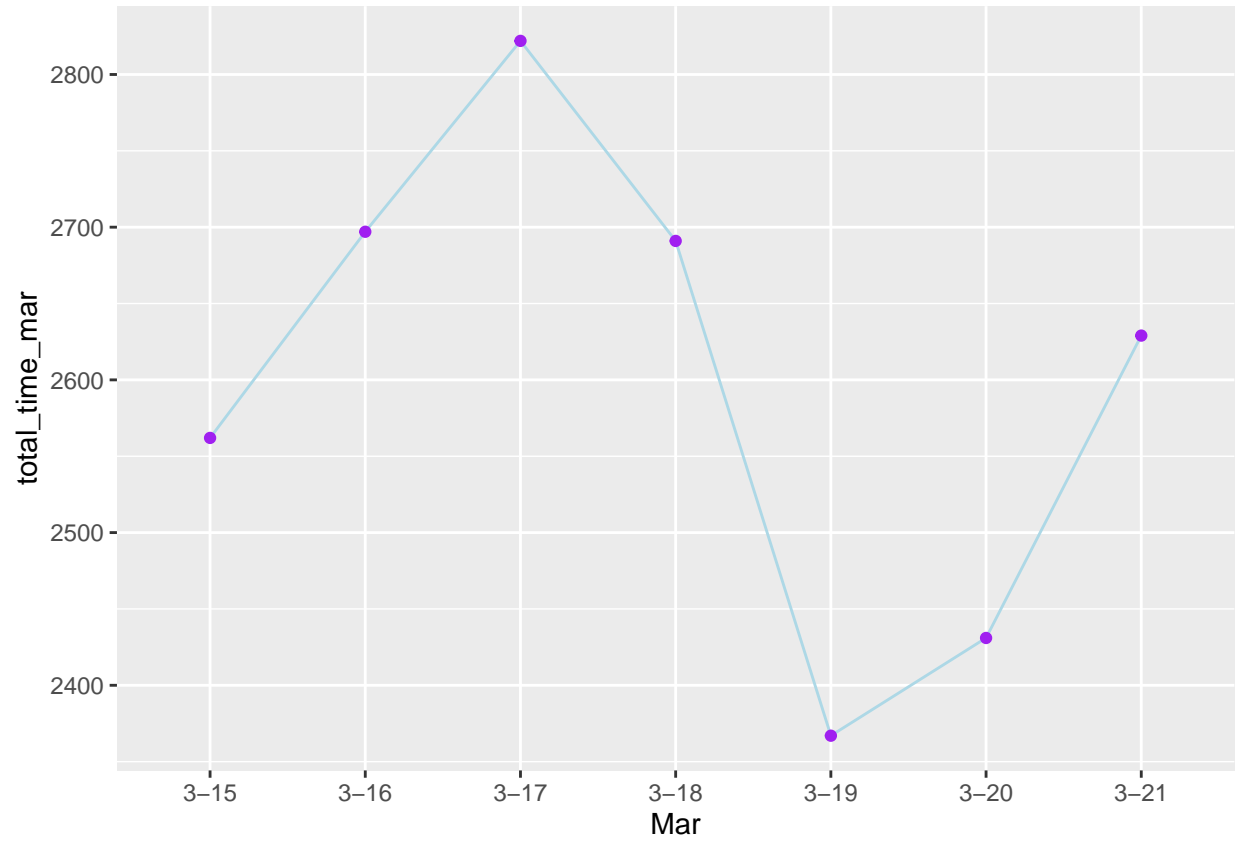
## January



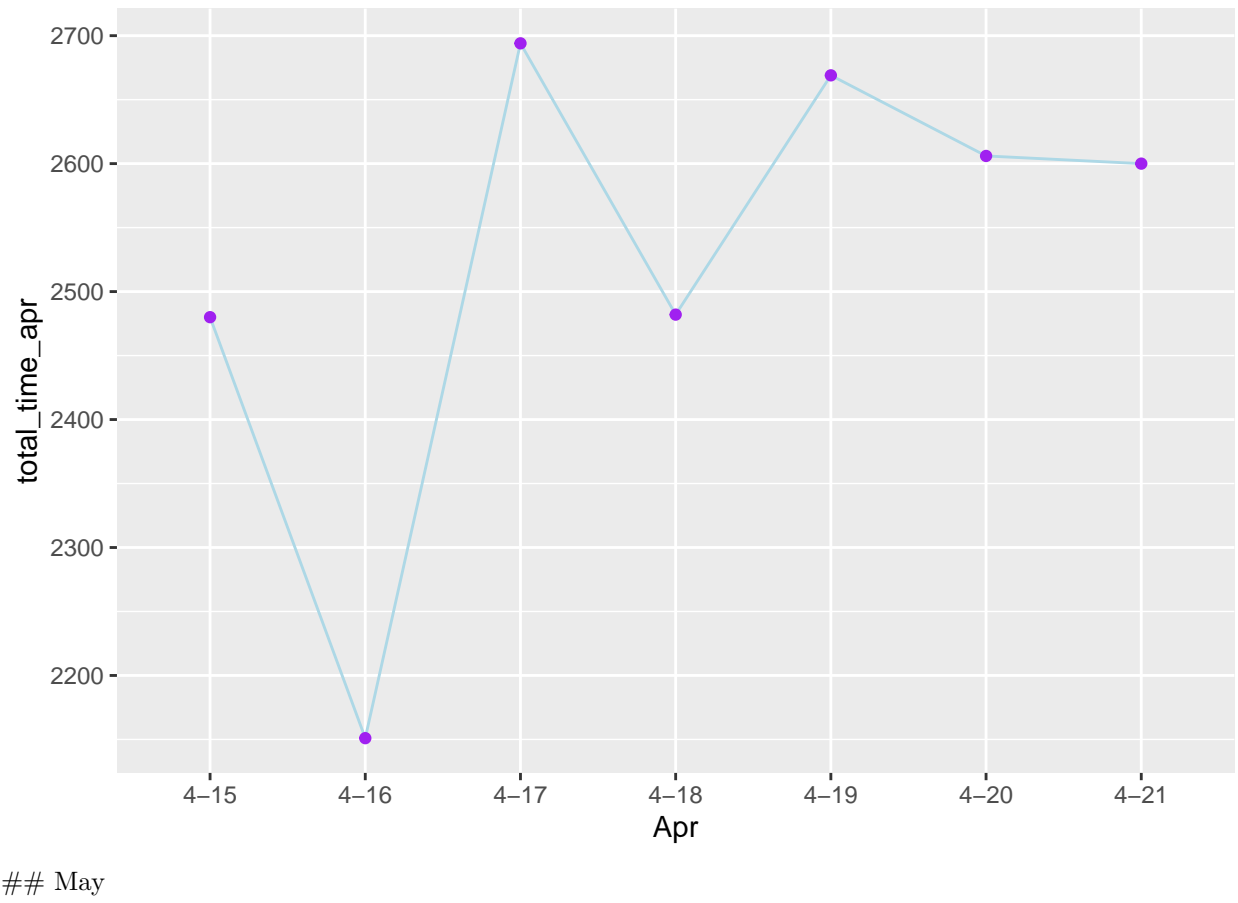
## February



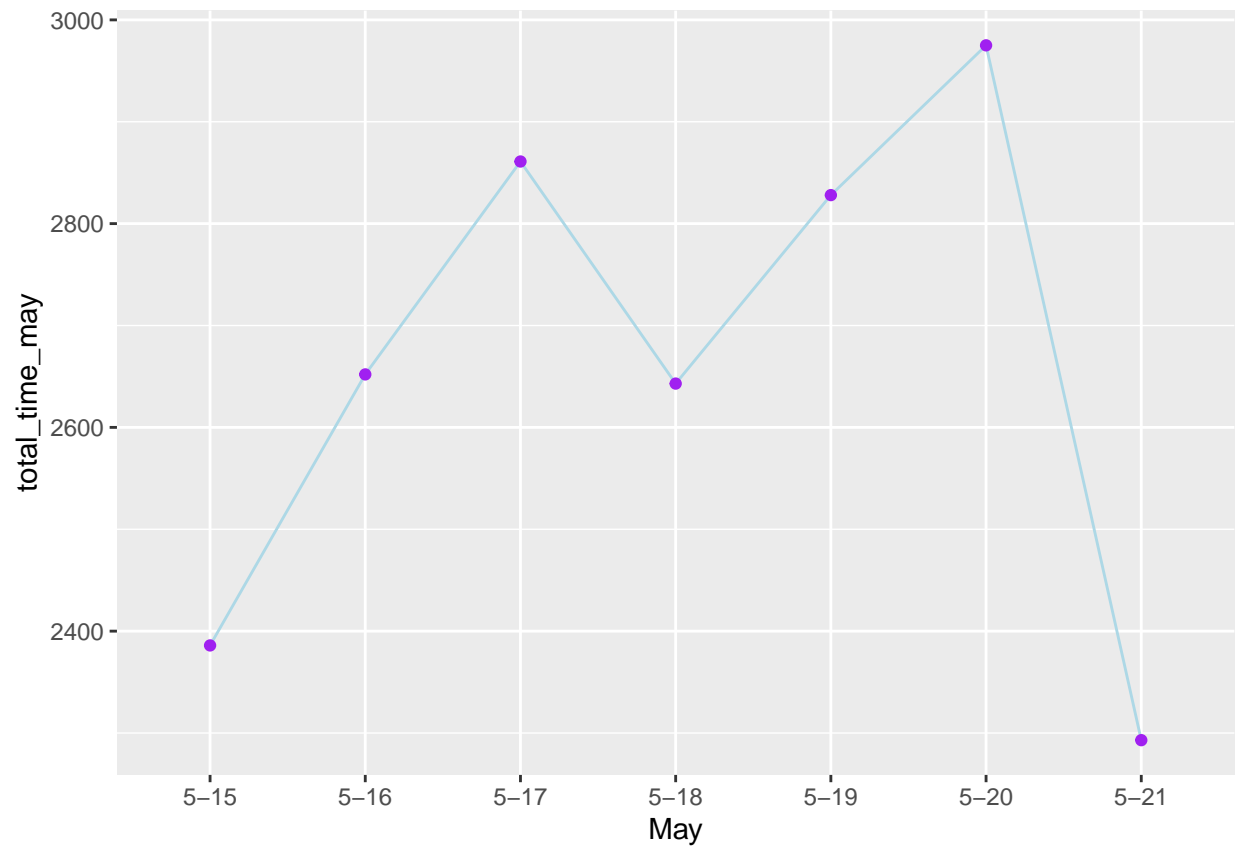
March



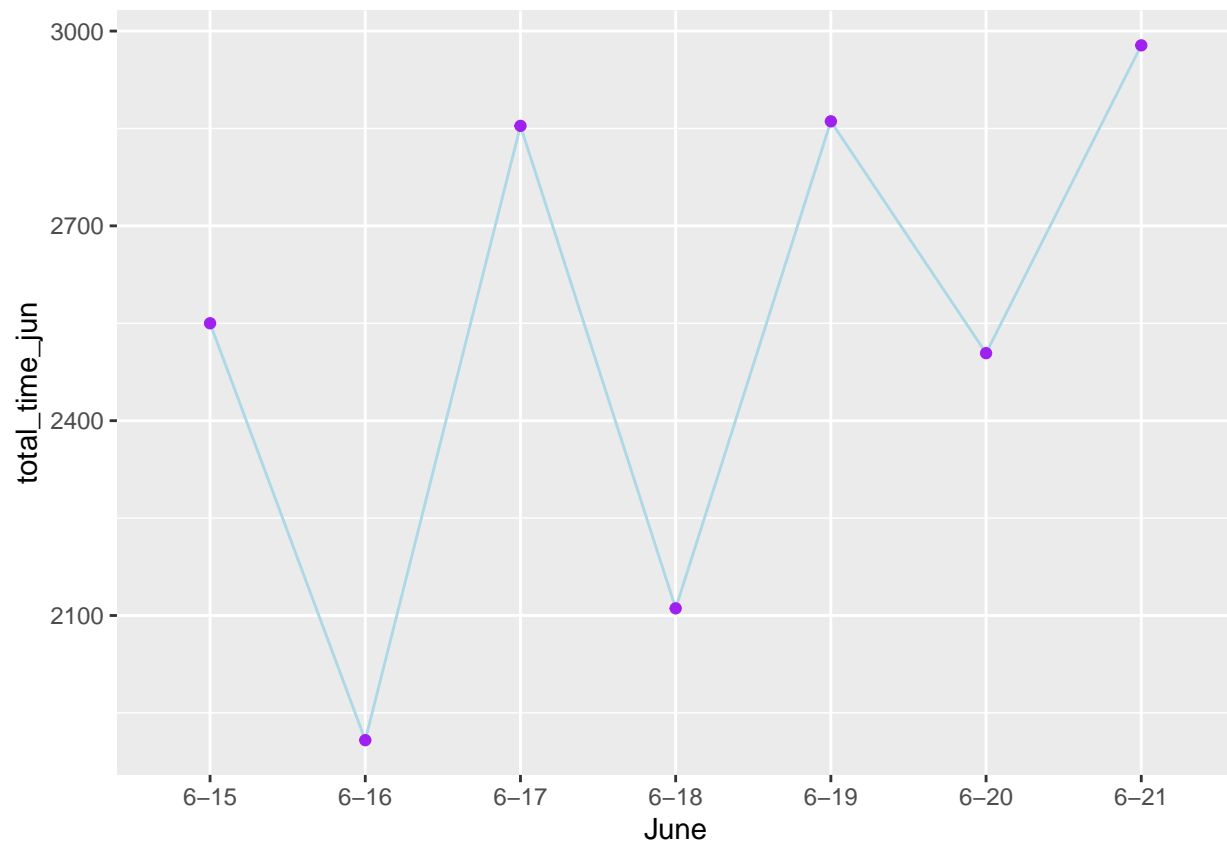
## April



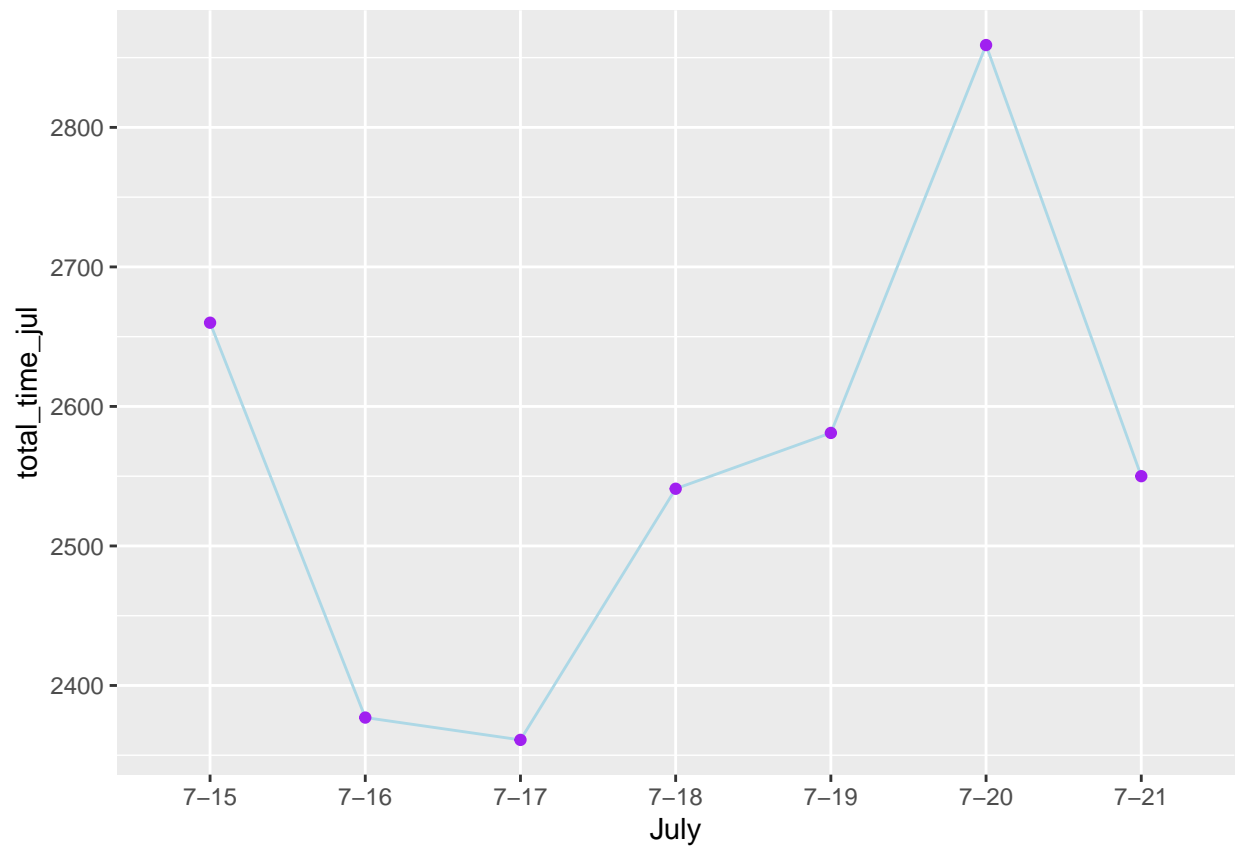




## June

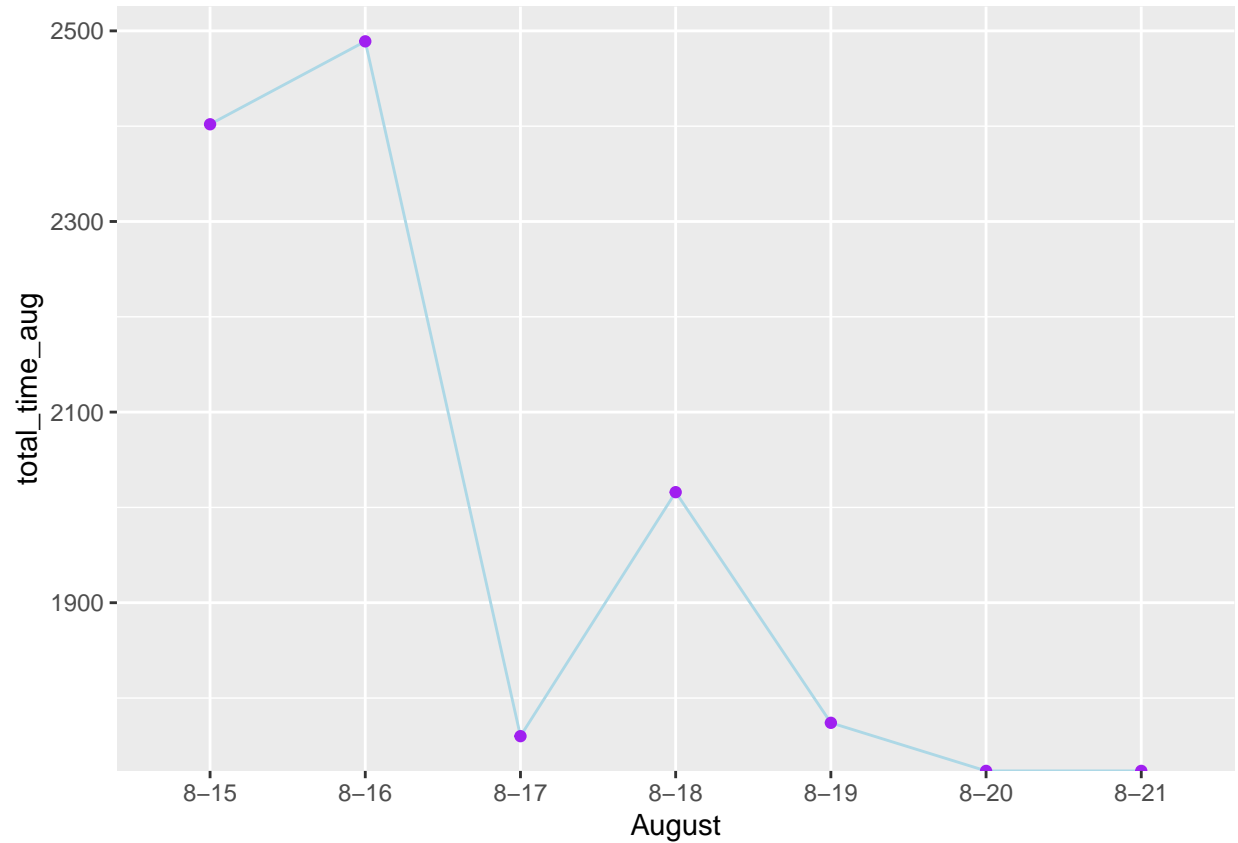


## July



## August

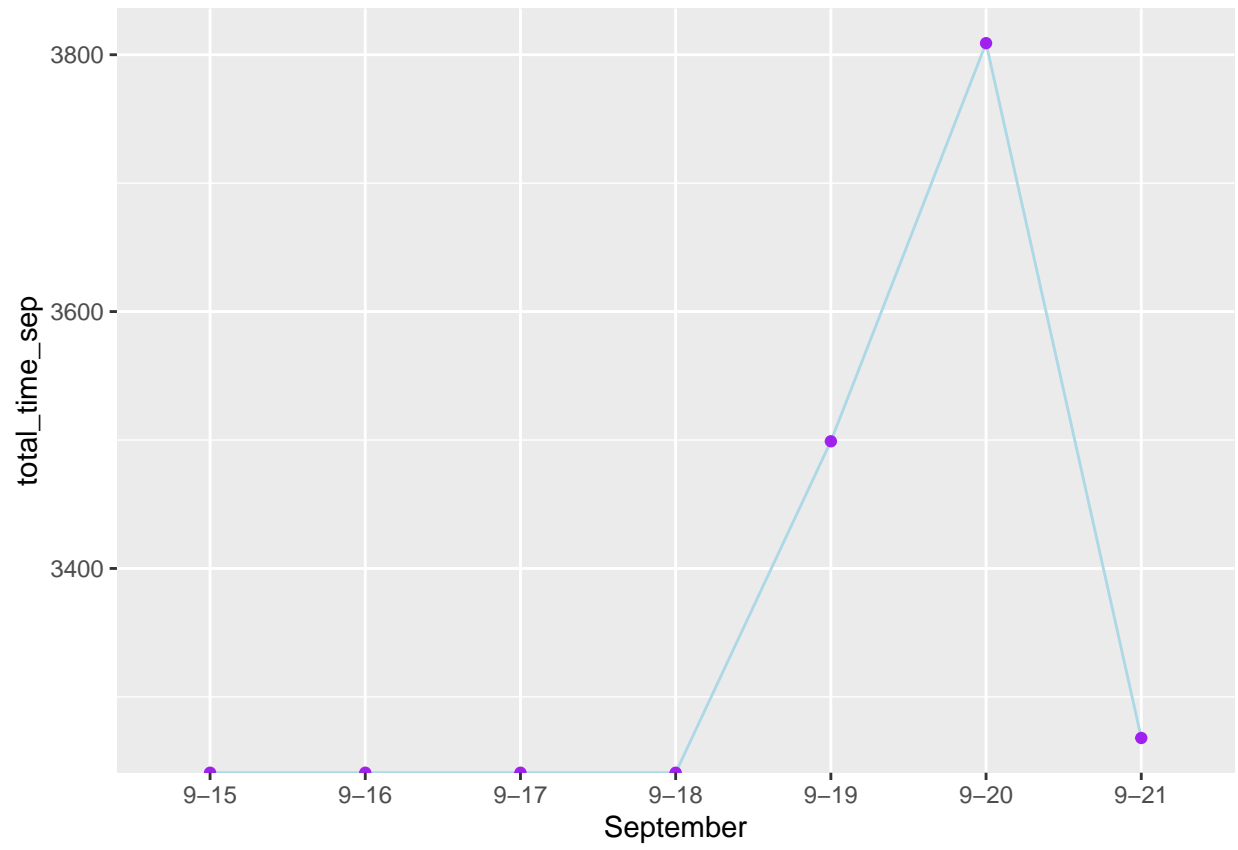
```
## Warning in min(aug20_1$to_stop_id): min      ;  Inf
## Warning in min(aug20_2$end_time_sec): min      ;  Inf
## Warning in max(aug20_4$travel_time_sec): max      -Inf
## Warning in min(aug21_1$to_stop_id): min      ;  Inf
## Warning in min(aug21_2$end_time_sec): min      ;  Inf
## Warning in max(aug21_4$travel_time_sec): max      -Inf
```



## September

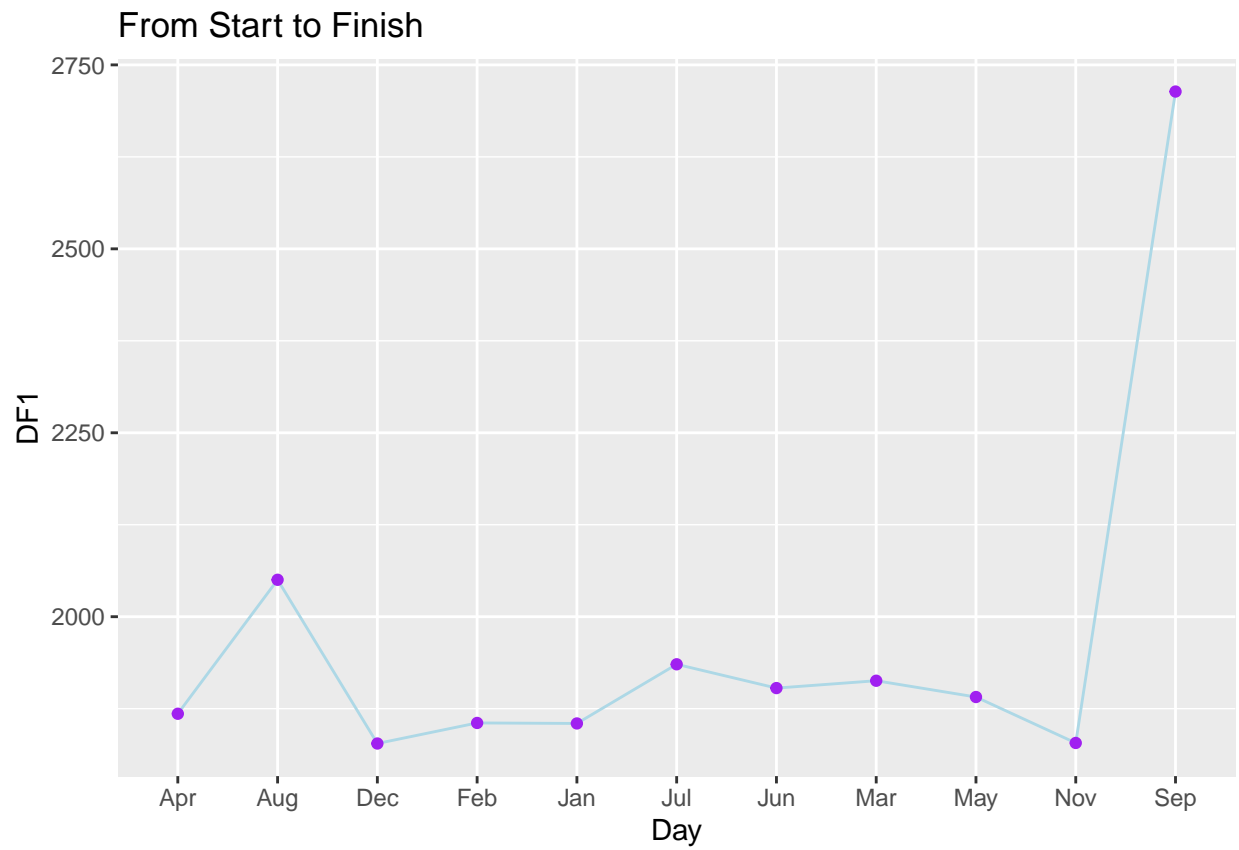
```
## Warning in min(s15_1$to_stop_id): min      ;  Inf
## Warning in min(s15_2$end_time_sec): min      ;  Inf
## Warning in max(s15_4$travel_time_sec): max      -Inf
## Warning in min(s16_1$to_stop_id): min      ;  Inf
## Warning in min(s16_2$end_time_sec): min      ;  Inf
## Warning in max(s16_4$travel_time_sec): max      -Inf
## Warning in min(s17_1$to_stop_id): min      ;  Inf
## Warning in min(s17_2$end_time_sec): min      ;  Inf
## Warning in max(s17_4$travel_time_sec): max      -Inf
## Warning in min(s18_1$to_stop_id): min      ;  Inf
## Warning in min(s18_2$end_time_sec): min      ;  Inf
```

```
## Warning in max(s18_4$travel_time_sec): max      -Inf
```



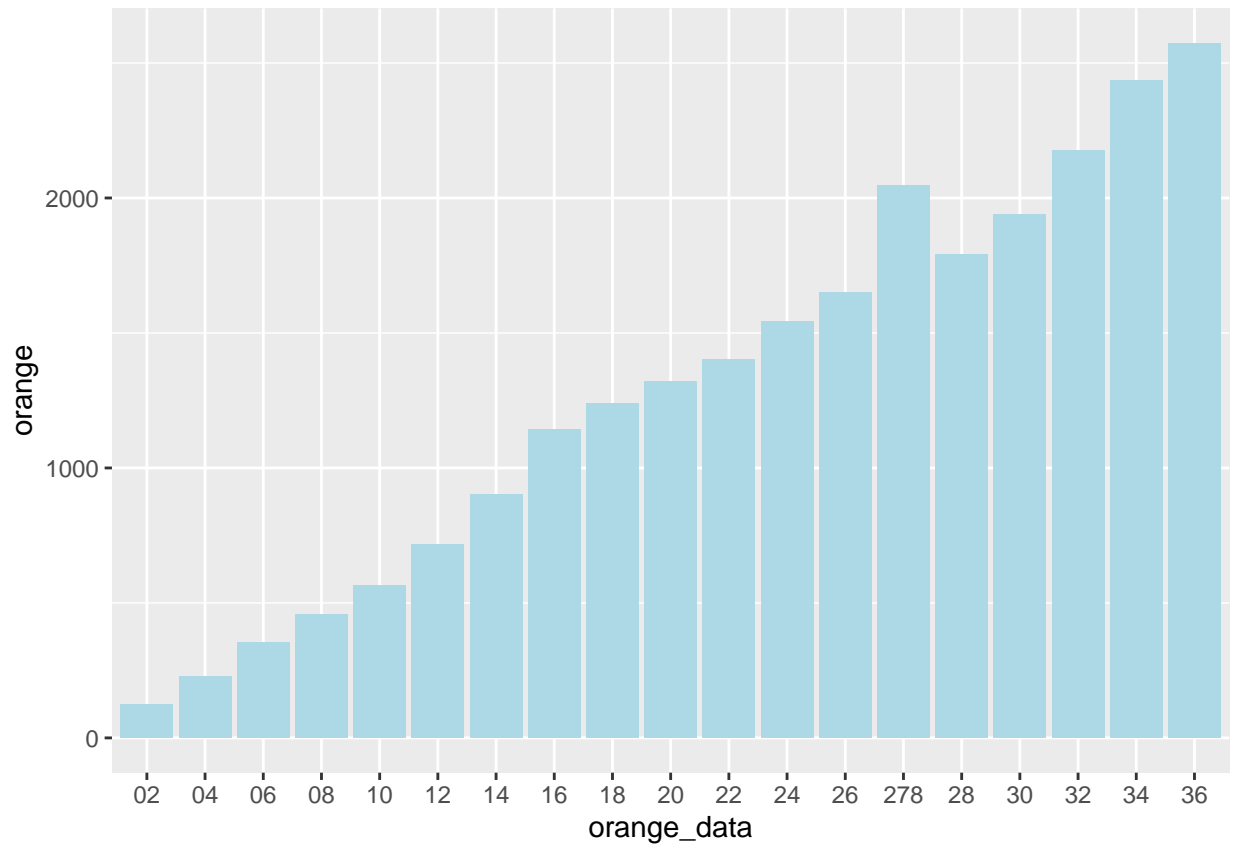
## Aggregate

The mean time of all trains runs the full



This plot shows the time that train takes to run the full length of the Orange Line for each month.

The average travel time between stop\_id 70001 and each stop



I took the data from the 15th to the 21st of each month and averaged the combined data to get the following graph, which shows that as the id increases, the time between each site and 70001 gradually increases.