Untitled

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```r
library(jsonlite)
library(sf)
```

```
## Linking to GEOS 3.8.1, GDAL 3.2.1, PROJ 7.2.1
```

```r
library(ggplot2)
library(tidyverse)
```

```
## -- Attaching packages ------------------------------------- tidyverse 1.3.1 --
```

```
## v tibble  3.1.4     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1
## v purrr   0.3.4
```

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

```r
get_taxi_data <- function(tstamp) {
  url_tmp <- paste0("https://api.data.gov.sg/v1/transport/taxi-availability?date_time=",
                    format(tstamp, "%Y-%m-%dT%H:%M:%S"))
  data_tmp <- fromJSON(url_tmp)
  class(data_tmp) <- "taxi_json"
  data_tmp
}

summary.taxi_json <- function(object, ...) {
  cat(paste("Taxi count:", object$features$properties$taxi_count), "\n")
  cat(paste("Actual timestamp:", object$features$properties$timestamp), "\n")
}
as.data.frame.taxi_json <- function(x, row.names = NULL, optional = FALSE, ...){
  t_coords <- as.data.frame(x$features$geometry$coordinates[[1]])
  taxis <- st_as_sf(t_coords, coords=c(1,2))
  st_crs(taxis) <- 4326
  taxis <- st_transform(taxis, 3414)
  taxis
}

pln_areas<- readRDS("data/sg_planning_areas.rds")
dt1<- as.POSIXct("2021-01-10 09:00:00")
wet_day_locs<-get_taxi_data(dt1)
wet_day_sf <- as.data.frame(wet_day_locs)
wet_count <- st_contains(pln_areas, wet_day_sf) %>%
```

```
  sapply( FUN=length)


dt2 <- as.POSIXct("2021-01-17 09:00:00")
dry_day_locs <- get_taxi_data(dt2)
dry_day_sf <- as.data.frame(dry_day_locs)
dry_count <- st_contains(pln_areas, dry_day_sf) %>% sapply( FUN=length)

planning_area<-pln_areas$PLN_AREA_N %>% as_tibble()
```

```
taxi_count<-planning_area %>%
  rename(planning_area = value )%>%
    mutate(wetcount=wet_count)%>%
  mutate(drycount=dry_count)%>%
mutate(planning_area=reorder(planning_area,wetcount))
taxi_count
```

```
## # A tibble: 55 x 3
##    planning_area          wetcount drycount
##    <fct>                      <int>    <int>
##  1 BUKIT MERAH                   39      120
##  2 BUKIT PANJANG                 37       44
##  3 BUKIT TIMAH                    6       49
##  4 CENTRAL WATER CATCHMENT        1        8
##  5 CHANGI                         7       29
##  6 CHOA CHU KANG                 45       48
##  7 CLEMENTI                      27       31
##  8 HOUGANG                       80      111
##  9 JURONG EAST                   23       80
## 10 JURONG WEST                   54      130
## # ... with 45 more rows
```

```
ggplot()+
  geom_point(data=taxi_count, aes(x= wetcount, y = planning_area), color = "blue" )  +
  geom_segment(data=taxi_count,aes(x=wetcount, xend=drycount, y=planning_area, yend=planning_area) )+
  geom_point(data= taxi_count, aes(x= drycount, y= planning_area), colour="red") +
  ylab("Planning Area") +
  xlab("Taxi Count")+
  theme(axis.text.y=element_text(size=5))+
  annotate("segment",x=150,xend=160,y=5,yend=5,size=0.5)+
  annotate("point",x=150,y=5,colour="blue") +
  annotate("point",x=160,y=5,colour="red") +
  annotate("text", x=c(140,170), y=c(5,5), label=c("Wet Count","Dry Count"),size=2)
```