Add a basemap to a R markdown report using ggmap

Learning Objectives

After completing this tutorial, you will be able to:

- Create a quick basemap using ggmap

What you need

You need `R` and `RStudio` to complete this tutorial. Also you should have an `earth-analytics` directory setup on your computer with a `/data` directory with it.

- install **devtools**: `install.packages('devtools')`
- install **ggmap** from github: `devtools::install_github("dkahle/ggmap")`
- How to Setup R / RStudio
- Setup your working directory

```
# install devtools
#install.packages("devtools")
# install ggmap from dev space
# devtools::install_github("dkahle/ggmap")

library(ggmap)
```

Create basemap

First, let's create a basemap that shows the location of our stream gage.

```
myMap <- get_map(location = "Boulder, Colorado",
          source="google",
          maptype="terrain", crop=FALSE,
          zoom=6)
## Source : https://maps.googleapis.com/maps/api/staticmap?center=Boulder,+Colorado&zoom=6&size=640x640
## Source : https://maps.googleapis.com/maps/api/geocode/json?address=Boulder%2C%20Colorado
# plot map
ggmap(myMap)
```

Next, let's add a point to our map representing the location of our actual stream gage data.

Latitude: 40.051667 Longitude: 105.178333

USGS gage 06730200 40°03'06" 105°10'42"

```
# add points to your map
# creating a sample data.frame with your lat/lon points
lon <- c(-105.178333)
lat <- c(40.051667)
df <- as.data.frame(cbind(lon,lat))

# create a map with a point location for boulder.
ggmap(myMap) + labs(x = "", y = "") +
```

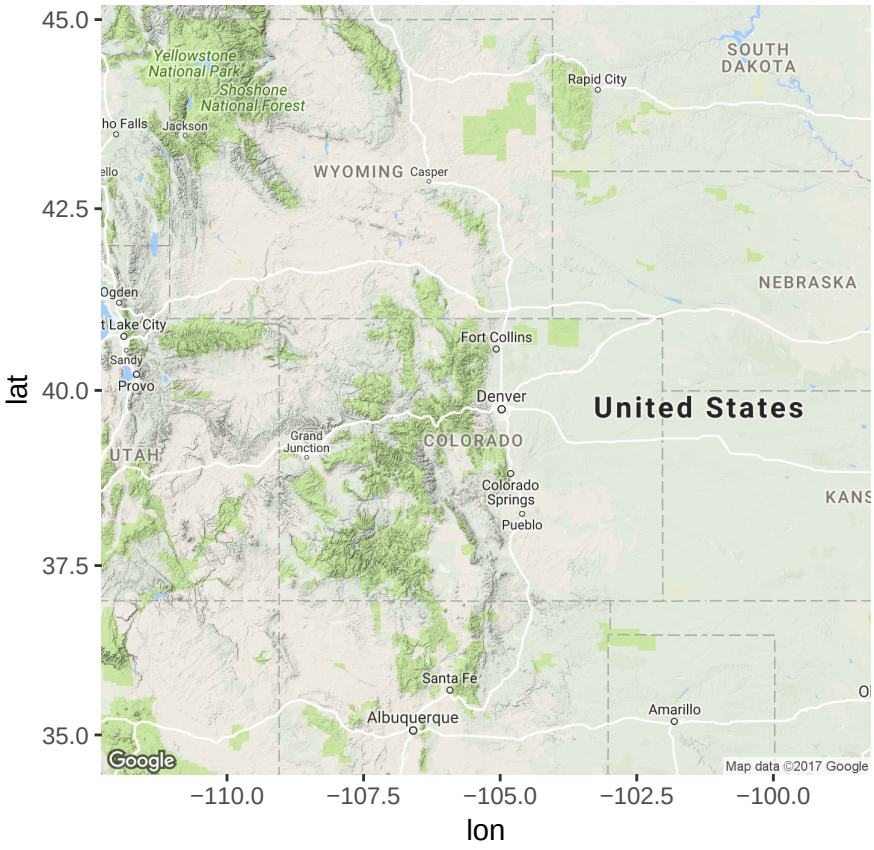

Figure 1: ggmap base plot

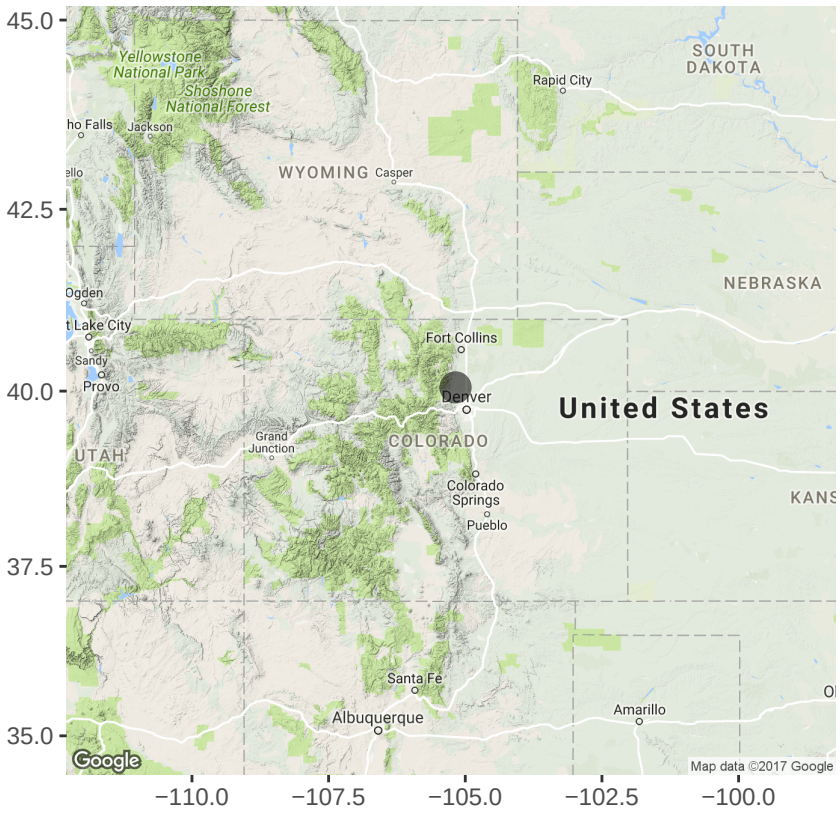

Figure 2: ggmap with location point on it.

```
geom_point(data = df, aes(x = lon, y = lat, fill = "red", alpha = 0.2), size = 5, shape = 19) +
guides(fill=FALSE, alpha=FALSE, size=FALSE)
```