GEO_Code - Garmin Example

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Get the Garmin Activity Data

Garmin is one of manu fitness trackers on the market. The event data from Garmin was download from my personal account. Source of data https://connect.garmin.com/modern/activity/4153631405.

```
##Load the data
dfRaw <- readTCX("./Garmin_Activity_Data/activity_4153631405.tcx")
```

Clean Data

There are columns that do not contain data, all NA values. Additionally, there are 9 data points (rows) that contain NA values for the latitude and longitude. The NA values are removed.

```
#Remove columns with NA Values
df <- dfRaw[, -c(9:11)]
#There are 9 rows with NA value in Lat and Lon
df <- df[!is.na(df$latitude), ] #Note:  The NA rows same for both lat and lon
kable(head(df), format = "markdown", padding = 0)
```

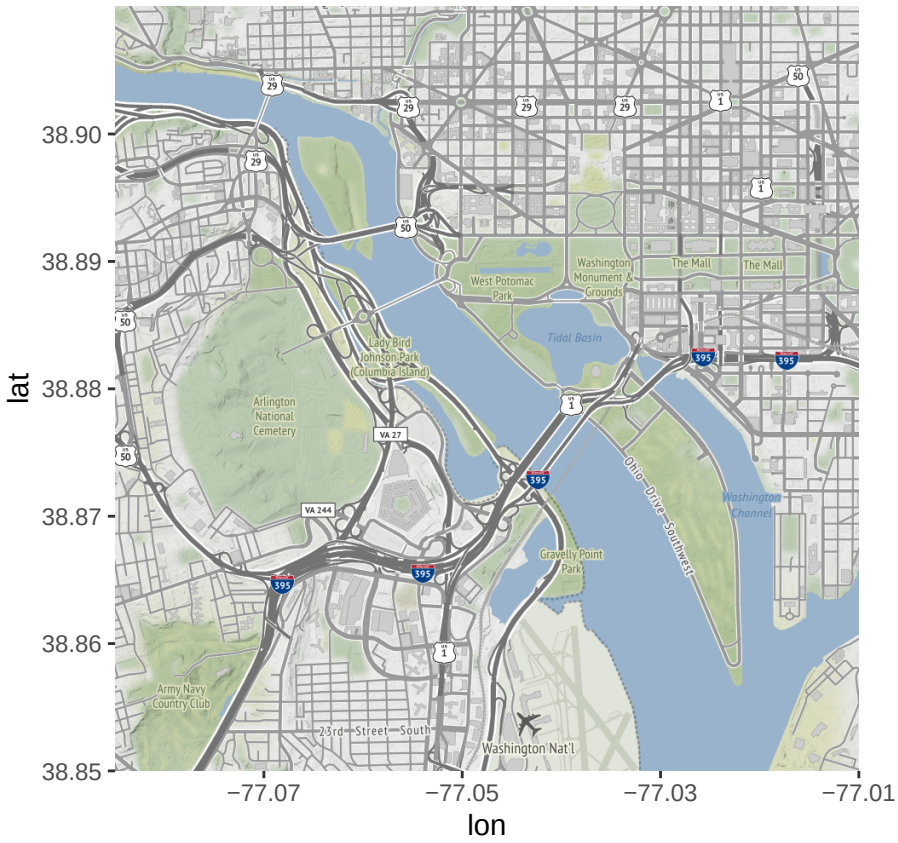
time	latitude	longitude	altitude	distance	heart_rate	speed	cadence_running
2019-10-13 12:54:37	38.87413	-77.05274	5.6	0.00	83	0.849	59
2019-10-13 12:54:38	38.87415	-77.05274	5.6	1.69	84	1.316	59
2019-10-13 12:54:48	38.87431	-77.05286	5.2	22.05	84	2.482	78
2019-10-13 12:54:49	38.87433	-77.05287	5.2	24.55	87	2.491	79
2019-10-13 12:54:52	38.87438	-77.05292	5.0	31.70	91	2.398	79
2019-10-13 12:54:54	38.87442	-77.05295	4.8	36.51	96	2.379	79

Find the range of Lat and Lon

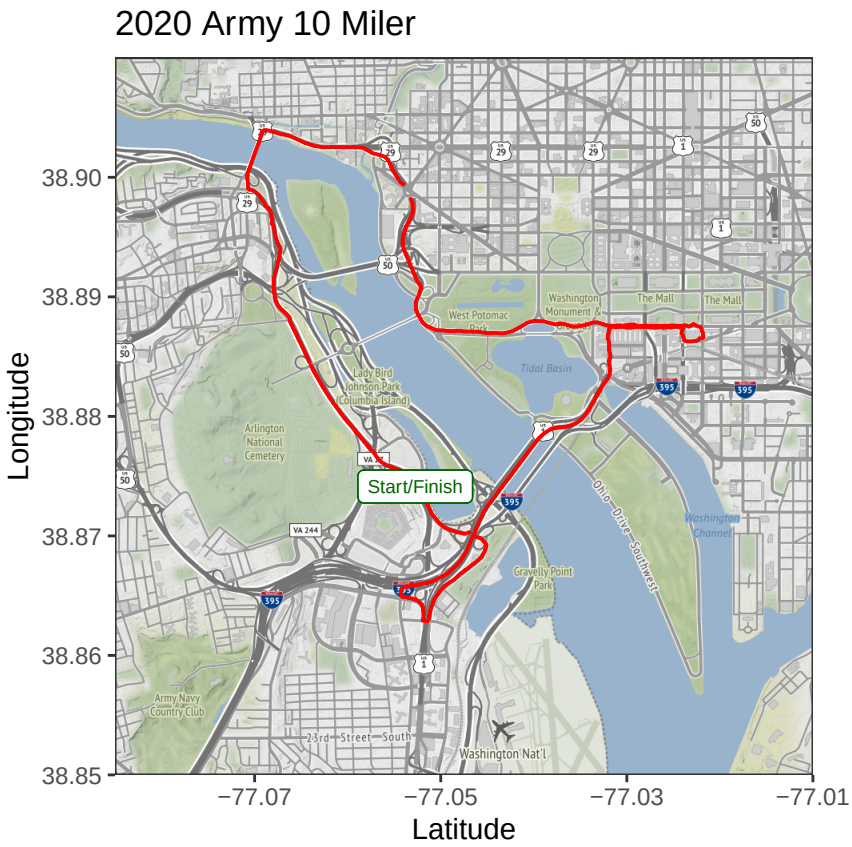
Check out the base map

The

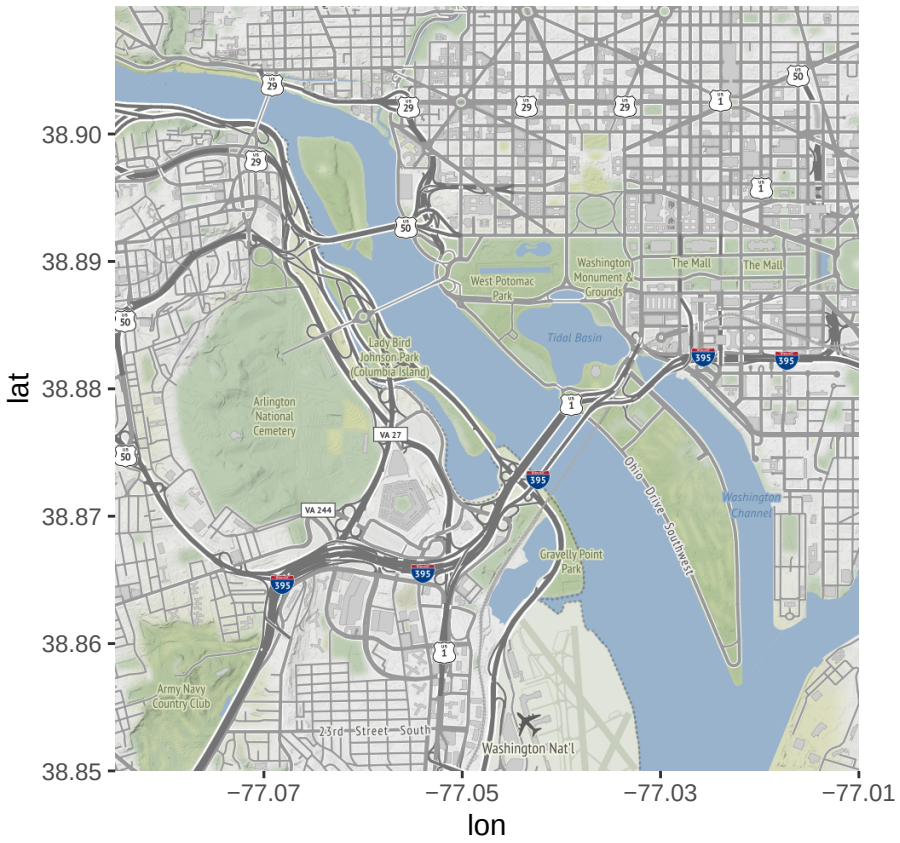
```
map1 <- ggmap(base)
map1
```



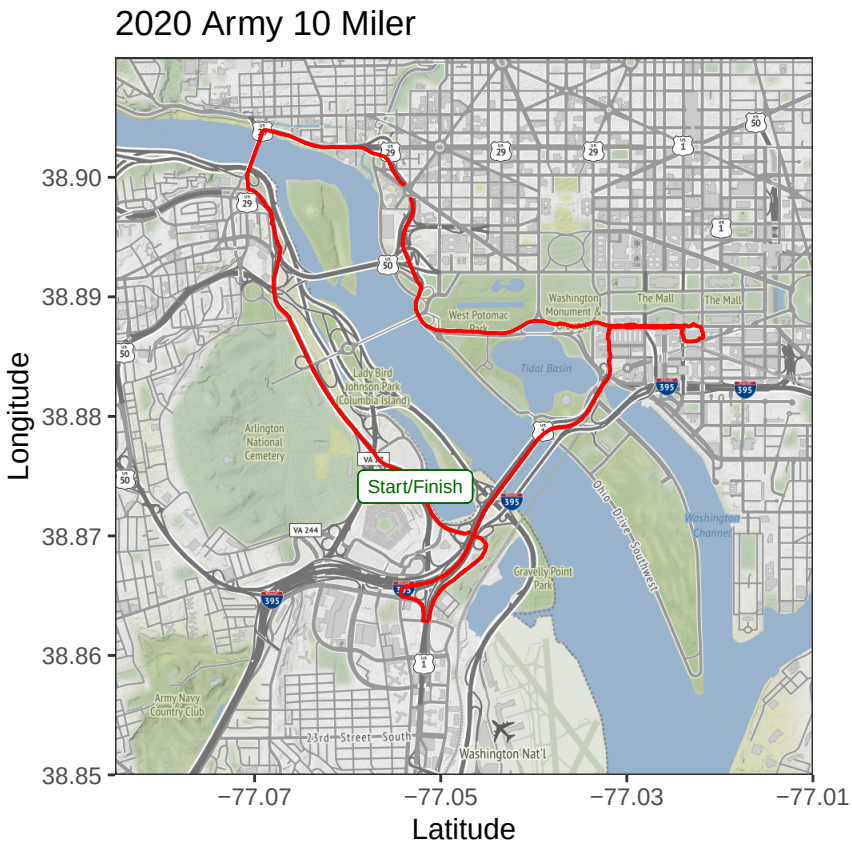

```
map1 <- ggmap(base) +
   geom_point(data = df, aes(x = longitude, y = latitude), shape = 20,
              color="red", cex = 0.25) +
   geom_label(x = df$longitude[1], y = df$latitude[1], position = "nudge", label = "Start/Finish", angl
   labs(x="Latitude", y="Longitude", title="2020 Army 10 Miler") +
   theme_bw()
map1
```


2020 Army 10 Miler
Longitude
38.90
38.89
38.88
38.87
38.86
38.85
−77.07
−77.05
−77.03
−77.01
Latitude
Start/Finish
Arlington National Cemetery
Lady Bird Johnson Park
Columbia Island
West Potomac Park
Washington Monument &
The Mall
Tidal Basin
Ohio Drive Southwest
Washington Channel
Gravelly Point Park
Army Navy Country Club
23rd Street South
Washington Nat'l

```
ggmap(base2)
```




```
map2 <- ggmap(base2) +
   geom_point(data = df, aes(x = longitude, y = latitude), shape = 20,
              color="red", cex = 0.25) +
   geom_label(x = df$longitude[1], y = df$latitude[1], position = "nudge", label = "Start/Finish", angl
   labs(x="Latitude", y="Longitude", title="2020 Army 10 Miler") +
   theme_bw()
map2
```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The Mall
Tidal Basin
Ohio Drive Southwest
Washington Channel
Gravelly Point Park
Army Navy Country Club
23rd Street South
Washington Nat'l
VA 244
395
50
29
1

FIN