

Assignment6

LingzhouAo

3/28/2018

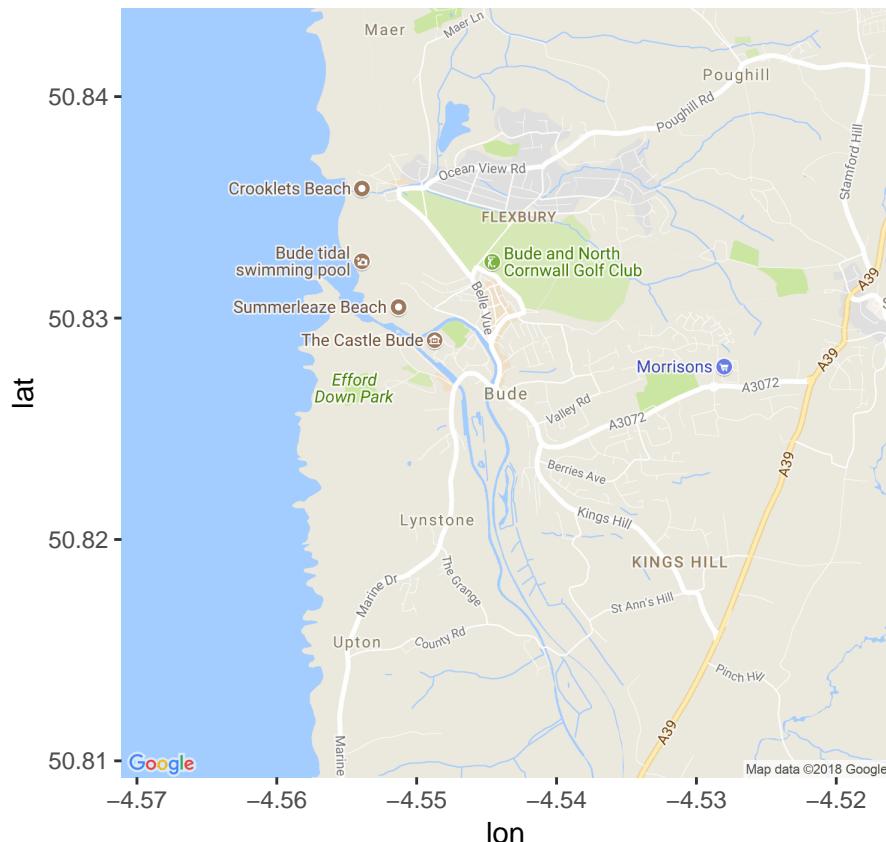
```
library(ggmap)

## Loading required package: ggplot2
suppressMessages(library("tidyverse"))
```

Road map of Bude

```
map_road <- get_googlemap(center =c(-4.543678,50.82664), zoom = 14, maptype = "roadmap")

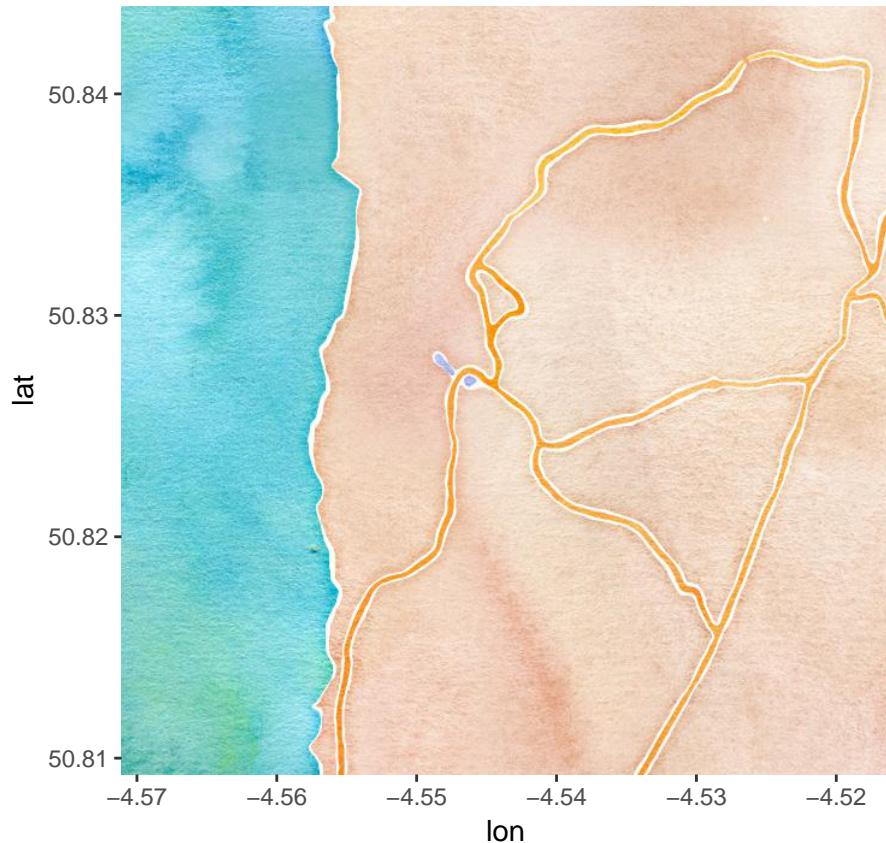
## Map from URL : http://maps.googleapis.com/maps/api/staticmap?center=50.82664,-4.543678&zoom=14&size=640x480
ggmap(map_road)
```



Watercolor map of Bude

```
map_watercolor <- get_map(location =c(-4.543678,50.82664),source="stamen", zoom = 14, maptype = "watercolor"

## Map from URL : http://maps.googleapis.com/maps/api/staticmap?center=50.82664,-4.543678&zoom=14&size=640x480&maptype=watercolor
## Map from URL : http://tile.stamen.com/watercolor/14/7983/5496.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7984/5496.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7985/5496.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7986/5496.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7983/5497.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7984/5497.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7985/5497.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7986/5497.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7983/5498.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7984/5498.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7985/5498.jpg
## Map from URL : http://tile.stamen.com/watercolor/14/7986/5498.jpg
ggmap(map_watercolor)
```



Road map

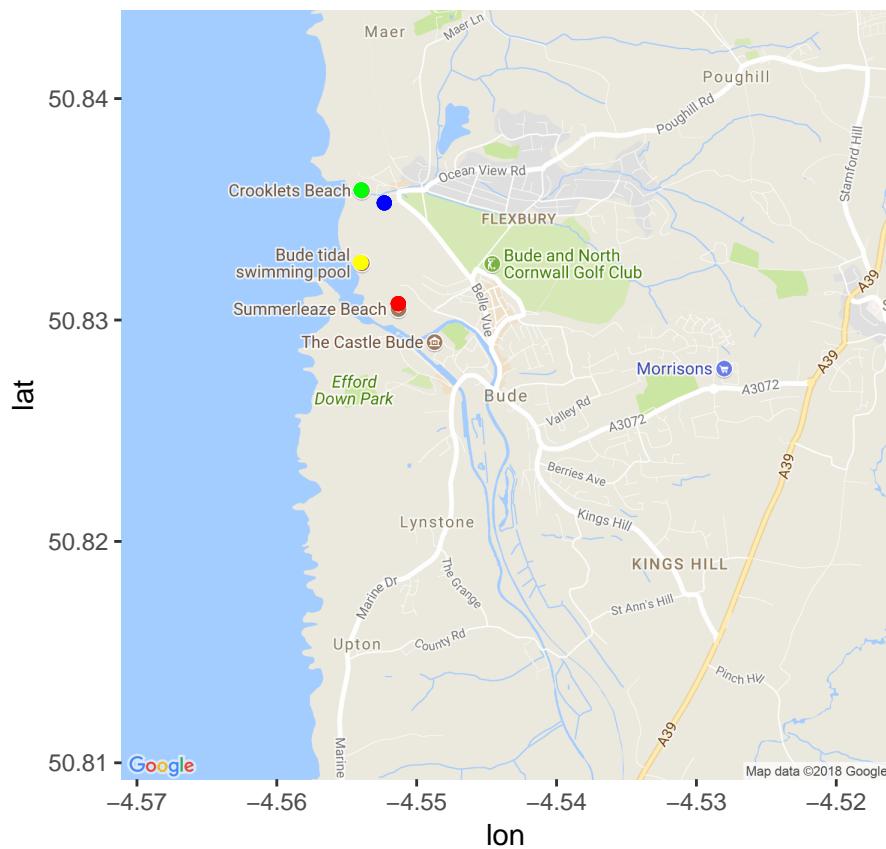
Red: Summerleaze Beach

Blue: Bude North Cornwall Cricket Club

Green: Crooklets Beach

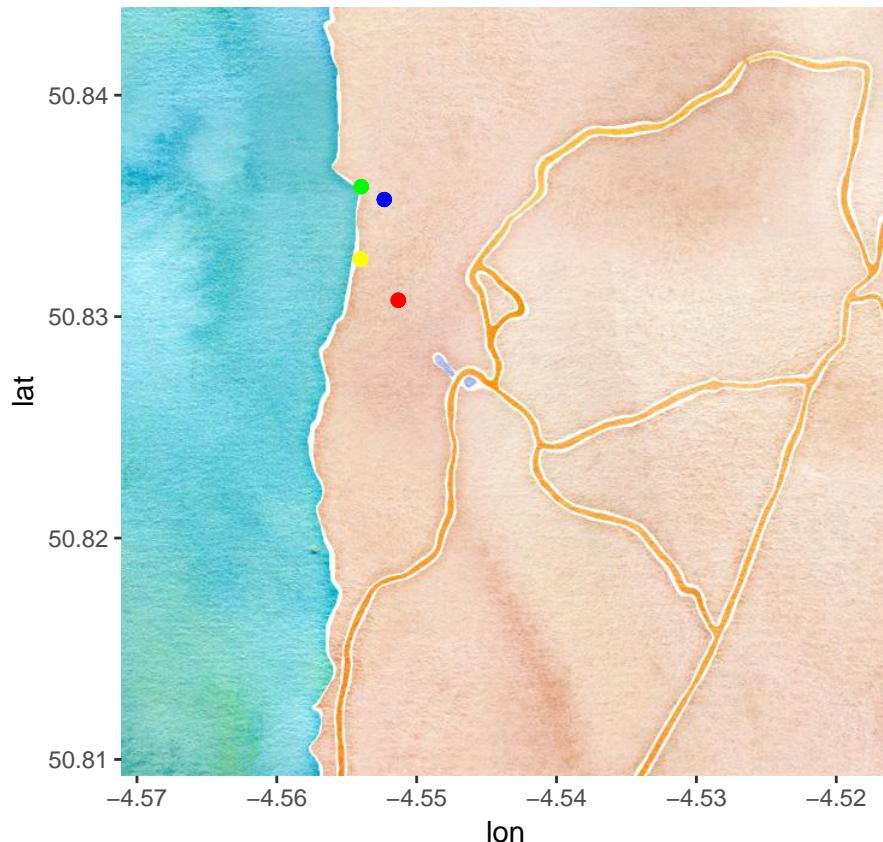
Yellow: Bude tidal swimming pool

```
ggmap(map_road) +
  geom_point(
    aes(x = -4.551312 , y = 50.83074),
    color = "red", size = 2) +
  geom_point(
    aes(x = -4.552314 , y = 50.835289),
    color = "blue", size = 2) +
  geom_point(
    aes(x = -4.553962 , y = 50.83587),
    color = "green", size = 2) +
  geom_point(
    aes(x = -4.5540, y = 50.8326),
    color = "yellow", size = 2)
```



Watercolor map

```
ggmap(map_watercolor) +
  geom_point(
    aes(x = -4.551312 , y = 50.83074),
    color = "red", size = 2) +
  geom_point(
    aes(x = -4.552314 , y = 50.835289),
    color = "blue", size = 2) +
  geom_point(
    aes(x = -4.553962 , y = 50.83587),
    color = "green", size = 2) +
  geom_point(
    aes(x = -4.5540, y = 50.8326),
    color = "yellow", size = 2)
```



Maps with routes

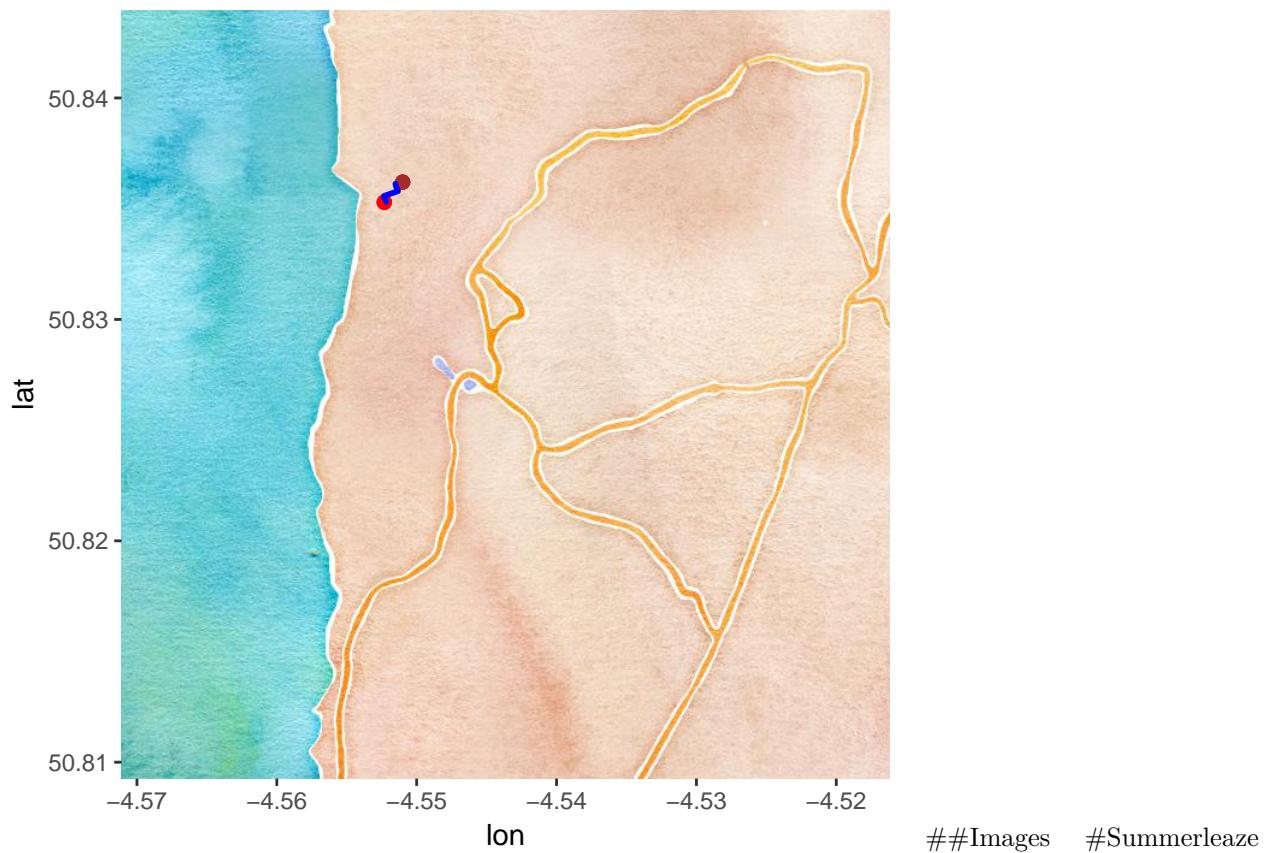
```
from <- "Bude North Cornwall Cricket Club"
to <- "Crooklets Inn"
route_df <- route(from, to, structure = "route")  
## Information from URL : http://maps.googleapis.com/maps/api/directions/json?origin=Bude+North+Cornwall+
```

```
ggmap(map_road) +
  geom_point(aes(x = -4.552314 , y = 50.835289), color = "red", size = 2) +
  geom_point(aes(x = -4.5510 , y = 50.8362), color = "brown", size = 2) +
  geom_path(aes(x = lon, y = lat), colour = "blue", size = 1, data = route_df, lineend = "round")
```



Watercolor map with routes

```
ggmap(map_watercolor) +
  geom_point(aes(x = -4.552314 , y = 50.835289), color = "red", size = 2) +
  geom_point(aes(x = -4.5510 , y = 50.8362), color = "brown", size = 2) +
  geom_path(aes(x = lon, y = lat), colour = "blue", size = 1, data = route_df, lineend = "round")
```





Beach

Crooklets Beach

Bude North Cornwall Cricket Club

Bude tidal swimming pool



Figure 1:



Figure 2:



Figure 3: