mapping.R

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```
library(ggmap)
```

```
## Loading required package: ggplot2
```

```
library(tidyverse)
```

```
## Warning: package 'tidyverse' was built under R version 3.4.2
```

```
## -- Attaching packages ---------------------------------- tidyverse 1.2.1 --
```

```
## <U+221A> tibble  1.4.2     <U+221A> purrr   0.2.4
## <U+221A> tidyr   0.8.0     <U+221A> dplyr   0.7.4
## <U+221A> readr   1.1.1     <U+221A> stringr 1.3.0
## <U+221A> tibble  1.4.2     <U+221A> forcats 0.2.0
```

```
## Warning: package 'tibble' was built under R version 3.4.3
```

```
## Warning: package 'tidyr' was built under R version 3.4.3
```

```
## Warning: package 'purrr' was built under R version 3.4.2
```

```
## Warning: package 'dplyr' was built under R version 3.4.2
```

```
## Warning: package 'stringr' was built under R version 3.4.3
```

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

```
# simple mapping with ggmap

# get a water map for Bude
gc <- geocode("Bude")
```

```
## Information from URL : http://maps.googleapis.com/maps/api/geocode/json?address=Bude&sensor=false
```

```
map_water <- get_map(gc, source="stamen", maptype = "watercolor",zoom=14)
```

```
## Map from URL : http://maps.googleapis.com/maps/api/staticmap?center=50.826636,-4.543678&zoom=14&size=
```

```
## 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
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## Map from URL : http://tile.stamen.com/watercolor/14/7985/5497.jpg
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## Map from URL : http://tile.stamen.com/watercolor/14/7986/5497.jpg
```
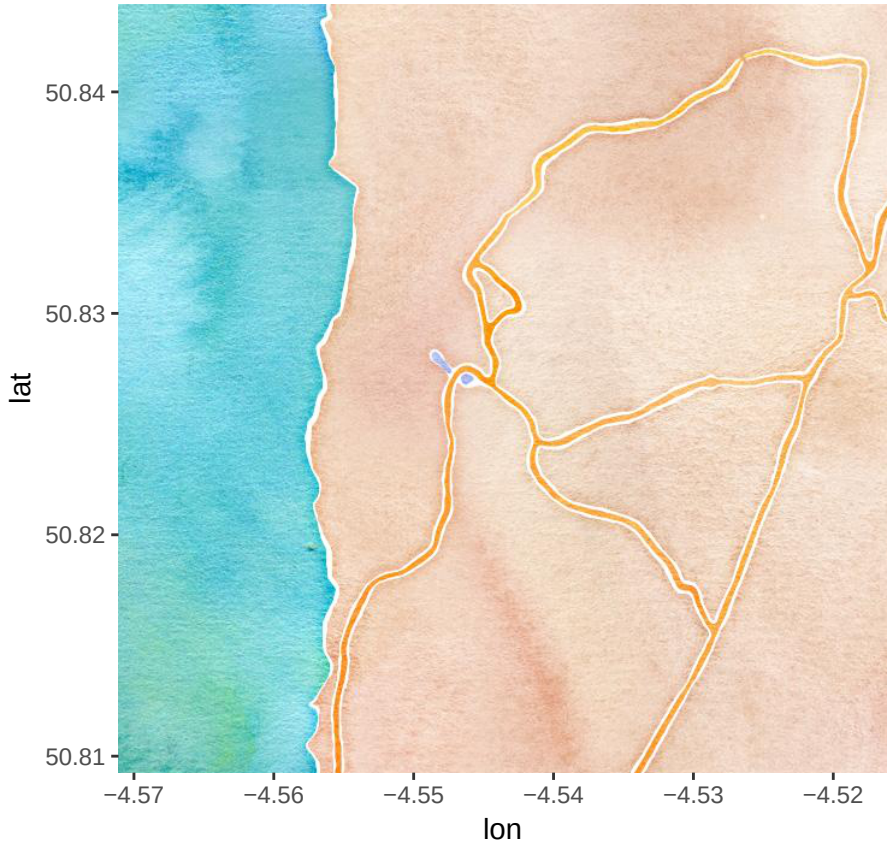
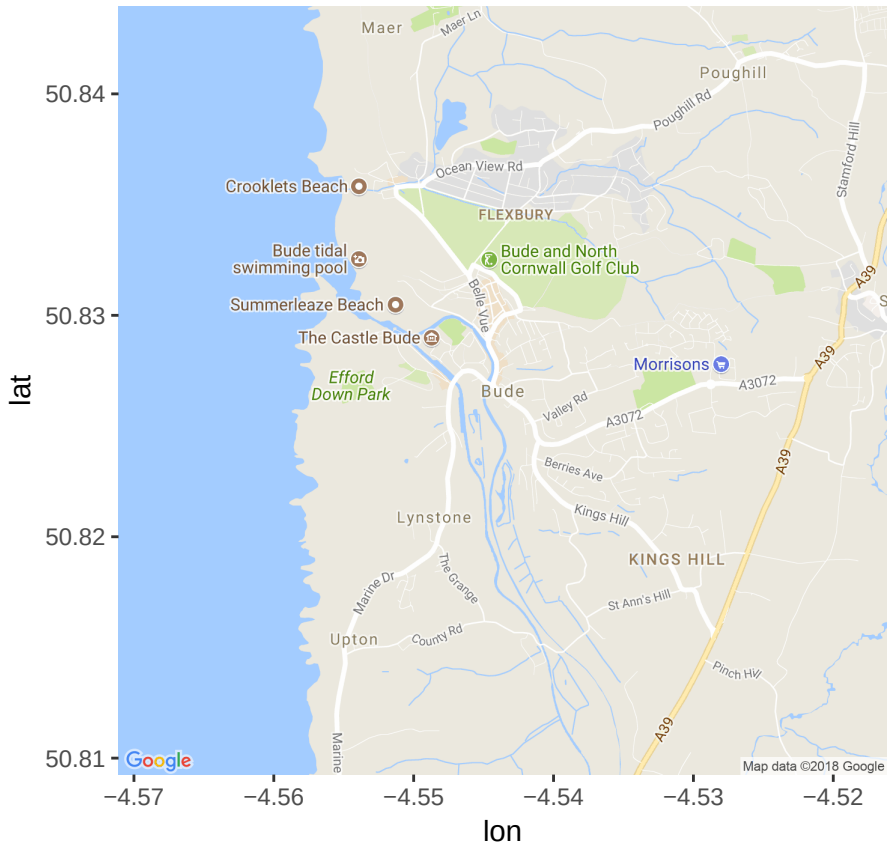

```
## Map from URL : http://tile.stamen.com/watercolor/14/7983/5498.jpg
```

```
## 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_water)
```

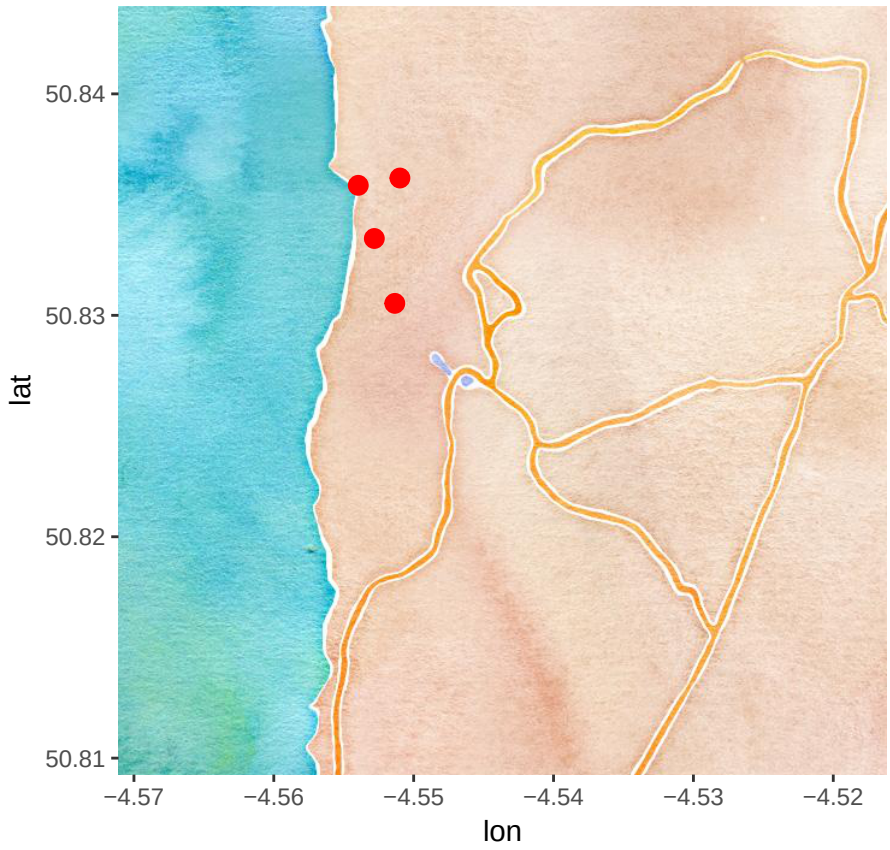



```
# get a road map for Bude
map_road <- get_map(gc, source="google", maptype = "roadmap",zoom=14)
```

```
## Map from URL : http://maps.googleapis.com/maps/api/staticmap?center=50.826636,-4.543678&zoom=14&size=
ggmap(map_road)
```




```
#mark points for crooklets Beach, Summerleaze Beach, cricket-Bude and THe Heron on watermap
#gc1 <- geocode("Crooklets Beach, Bude")
#gc2 <- geocode("Summerleaze Beach, Bude, UK")
#gc3 <- geocode("Bude North Cornwall Cricket Club, Bude, UK")
#gc4 <- geocode("Crooklets Inn, Bude,UK")

lon <- c(-4.553962,-4.551349,-4.552814,-4.550984)
lat <- c(50.83587,50.83054,50.83347,50.8362)

df <- as.data.frame(cbind(lon,lat))

ggmap(map_water) +
  geom_point(
    aes(x = df$lon, y = df$lat),
    data = df, color = "red", size = 3
  )
```




```
#mark points for crooklets Beach,Summerleaze Beach,cricket-Bude, crooklets Inn and shortest distance on

from <- "Bude North Cornwall Cricket Club, Bude, UK"
to <- "Crooklets Inn, Bude"
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_path(
    aes(x = lon, y = lat), color = "red", size = 2,
    data = route_df, lineend = "round")+
  geom_point(aes(x=df$lon, y=df$lat),
             data=df, color = "red", size=2)
```


Maer
Maer Ln
Poughill
Poughill Rd
Stamford Hill
Ocean View Rd
Crooklets Beach
FLEXBURY
Bude tidal swimming pool
Bude and North Cornwall Golf Club
Summerleaze Beach
Belle Vue
A39
The Castle Bude
Morrisons
Efford Down Park
Bude
A3072
Valley Rd
Berries Ave
Kings Hill
Lynstone
KINGS HILL
Marine Dr
The Grange
St Ann's Hill
Upton
County Rd
Pinch Hw
Marine
Google
Map data ©2018 Google
50.84
50.83
50.82
50.81
−4.57
−4.56
−4.55
−4.54
−4.53
−4.52
lat
lon