R Notebook

Lab 1- Thomas Weil

In this Lab I will

1.Learn to use Rmarkdown

2.Review R mechanics

3.Review vector and raster data

Load in Libraries and Check Version

```
version
```

```
##                _
## platform       x86_64-apple-darwin15.6.0
## arch           x86_64
## os             darwin15.6.0
## system         x86_64, darwin15.6.0
## status
## major          3
## minor          5.1
## year           2018
## month          07
## day            02
## svn rev        74947
## language       R
## version.string R version 3.5.1 (2018-07-02)
## nickname       Feather Spray
```

```
library(sf)          # classes and functions for vector data
```

```
## Warning: package 'sf' was built under R version 3.5.2
```

```
## Linking to GEOS 3.6.1, GDAL 2.1.3, PROJ 4.9.3
```

```
library(raster)
```

```
## Warning: package 'raster' was built under R version 3.5.2
```

```
## Loading required package: sp
```

```
library(spData)        # load geographic data
library(spDataLarge)
library(devtools)
```

```
## Loading required package: usethis
```

```
library(rasterVis)
```

```
## Warning: package 'rasterVis' was built under R version 3.5.2
```

```
## Loading required package: lattice
```

```
## Loading required package: latticeExtra
```

```
## Loading required package: RColorBrewer
```

```
devtools::install_github("Nowosad/spDataLarge")
```

```
## Skipping install of 'spDataLarge' from a github remote, the SHA1
(f7e86543) has not changed since last install.
##   Use `force = TRUE` to force installation
```

Create SP and SF version of World Data frame

```
library(sp)
world_sp = as(world, Class = "Spatial")
world_sf = st_as_sf(world_sp)
```

Create plot of asia boundaries by making a union of all the different maps of asia

```
world_asia = world[world$continent == "Asia", ]
asia = st_union(world_asia)
asia
```

```
## Geometry set for 1 feature
## geometry type:  MULTIPOLYGON
## dimension:      XY
## bbox:           xmin: 26.04335 ymin: -10.35999 xmax: 145.5431 yma
x: 55.38525
## epsg (SRID):    4326
## proj4string:    +proj=longlat +datum=WGS84 +no_defs
```

```
## MULTIPOLYGON (((120.295 -10.25865, 118.9678 -9....
```

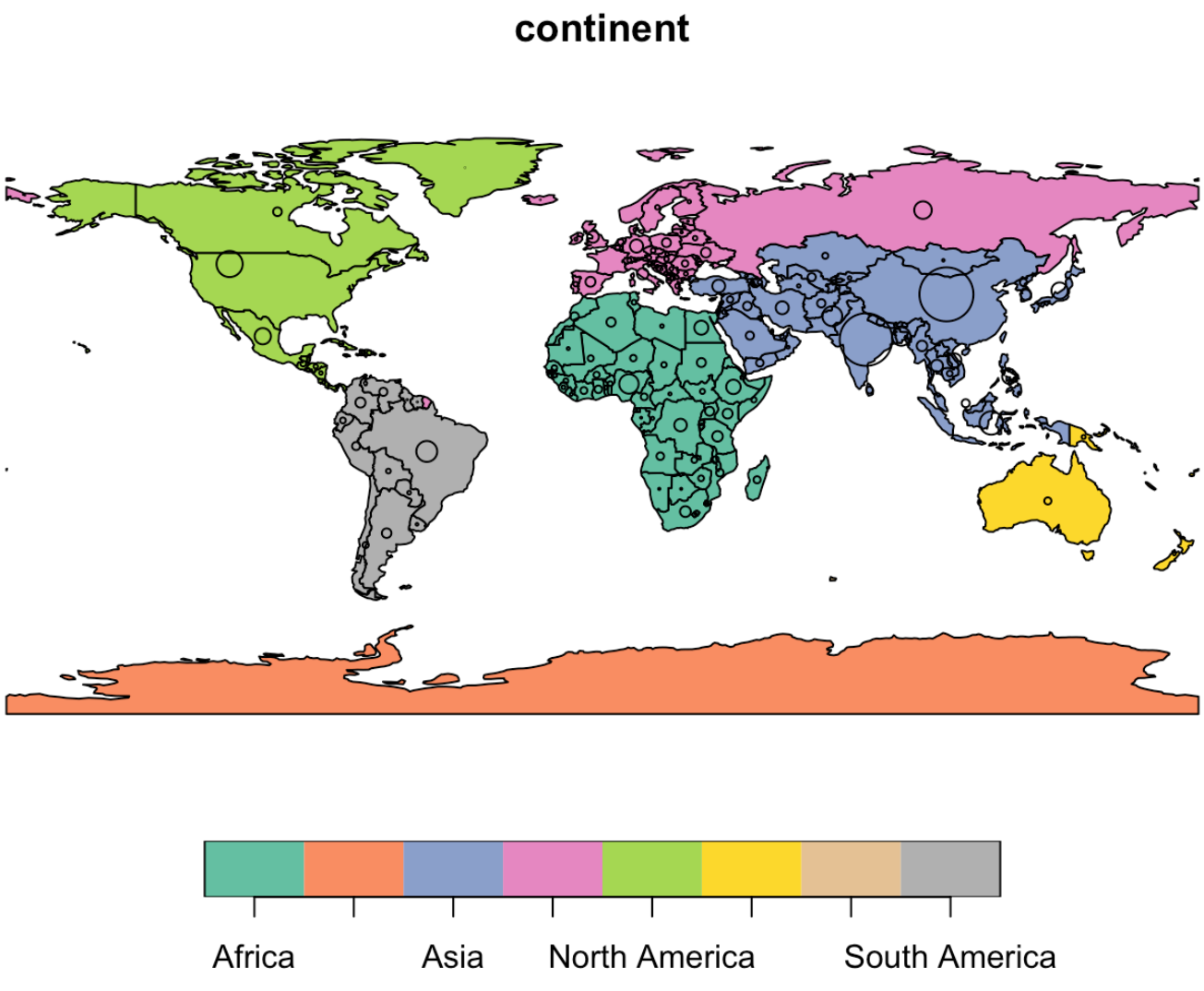
Create a plot of the world with circles demarkating population

```
plot(world["continent"], reset = FALSE)
cex = sqrt(world$pop) / 10000
world_cents = st_centroid(world, of_largest = TRUE)
```

```
## Warning in st_centroid.sf(world, of_largest = TRUE): st_centroid
assumes
## attributes are constant over geometries of x
```

```
## Warning in st_centroid.sfc(st_geometry(x), of_largest_polygon =
## of_largest_polygon): st_centroid does not give correct centroids
for longitude/
## latitude data
```

```
plot(st_geometry(world_cents), add = TRUE, cex = cex)
```



Create and plot new raster

```
new_raster2 = raster(nrows = 6, ncols = 6, res = 0.5,
                     xmn = -1.5, xmx = 1.5, ymn = -1.5, ymx = 1.5,
                     vals = 1:36)
plot(new_raster2)
```