WorldMapsLab

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World Maps Lab

Import Data

```
WorldData = read_csv("~/CSVs/WorldData.csv")
```

```
## New names:
## * `` -> ...1
```

```
## Rows: 4945 Columns: 6
```

```
## -- Column specification --------------------------------------------------------
## Delimiter: ","
## chr (3): Country.Name, Country.Code, region
## dbl (3): ...1, Year, PPP
```

```
##
## i Use `spec()` to retrieve the full column specification for this data.
## i Specify the column types or set `show_col_types = FALSE` to quiet this message.
```

```
head(WorldData)
```

```
## # A tibble: 6 x 6
##    ...1 Country.Name Country.Code  Year   PPP region
##   <dbl> <chr>        <chr>        <dbl> <dbl> <chr>
## 1     1 Afghanistan  AFG           2002 0.215 Afghanistan
## 2     2 Afghanistan  AFG           2003 0.215 Afghanistan
## 3     3 Afghanistan  AFG           2004 0.239 Afghanistan
## 4     4 Afghanistan  AFG           2005 0.247 Afghanistan
## 5     5 Afghanistan  AFG           2006 0.256 Afghanistan
## 6     6 Afghanistan  AFG           2007 0.306 Afghanistan
```

```
world = map_data("world")
head(world)
```

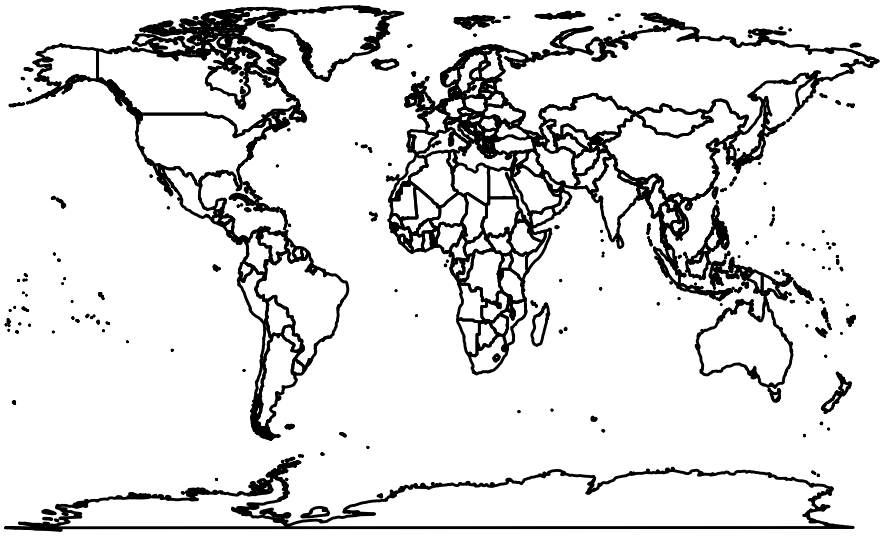
```
##        long      lat group order region subregion
## 1 -69.89912 12.45200     1     1  Aruba      <NA>
## 2 -69.89571 12.42300     1     2  Aruba      <NA>
## 3 -69.94219 12.43853     1     3  Aruba      <NA>
## 4 -70.00415 12.50049     1     4  Aruba      <NA>
## 5 -70.06612 12.54697     1     5  Aruba      <NA>
## 6 -70.05088 12.59707     1     6  Aruba      <NA>
```

```
data("world.cities")
head(world.cities)
```

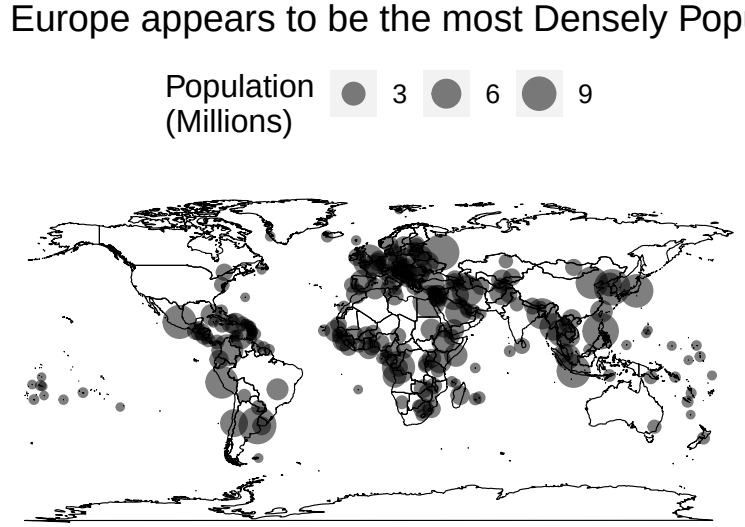
```
##                  name country.etc   pop   lat  long capital
## 1 'Abasan al-Jadidah   Palestine  5629 31.31 34.34       0
## 2 'Abasan al-Kabirah   Palestine 18999 31.32 34.35       0
## 3       'Abdul Hakim    Pakistan 47788 30.55 72.11       0
## 4 'Abdullah-as-Salam      Kuwait 21817 29.36 47.98       0
## 5              'Abud   Palestine  2456 32.03 35.07       0
## 6            'Abwein   Palestine  3434 32.03 35.20       0
```

Graphs

```
# World Map Outline
gf_polygon(lat~long,data=world,group=~group,color="black",size=0.5, fill=NA)
```



```
# Adding Cities
gf_point(lat~long,data=subset(world.cities,capital==1),size=~pop/1000000,alpha=0.5) %>%
gf_polygon(lat~long,data=world,group=~group,color="black",size=0.2, fill=NA) %>%
  gf_refine(coord_equal()) %>%
  gf_labs(size="Population\n(Millions)",title="\n  Europe appears to be the most Densely Populated Area
  gf_theme(legend.position="top")
```



```r
# Cities in County
gf_point(lat~long,data=subset(world.cities,country.etc=="Poland"),size=~pop/1000000,
         alpha=0.5) %>%
  gf_point(lat~long,data=subset(world.cities,country.etc=="Poland" & capital==1),
           color="red") %>%
  gf_polygon(lat~long,data=subset(world,region=="Poland"),group=~group,
             color="black",size=0.2, fill=NA) %>%
  gf_refine(coord_equal()) %>%
  gf_labs(size="Population\n(Millions)",
          title="\tWarsaw has the Highest Population in Poland")
```

```
## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, : font
## width unknown for character 0x9

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, : font
## width unknown for character 0x9

## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, : font
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## Warning in grid.Call(C_textBounds, as.graphicsAnnot(x$label), x$x, x$y, : font
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## width unknown for character 0x9

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## width unknown for character 0x9

## Warning in grid.Call.graphics(C_text, as.graphicsAnnot(x$label), x$x, x$y, :
## font width unknown for character 0x9
```
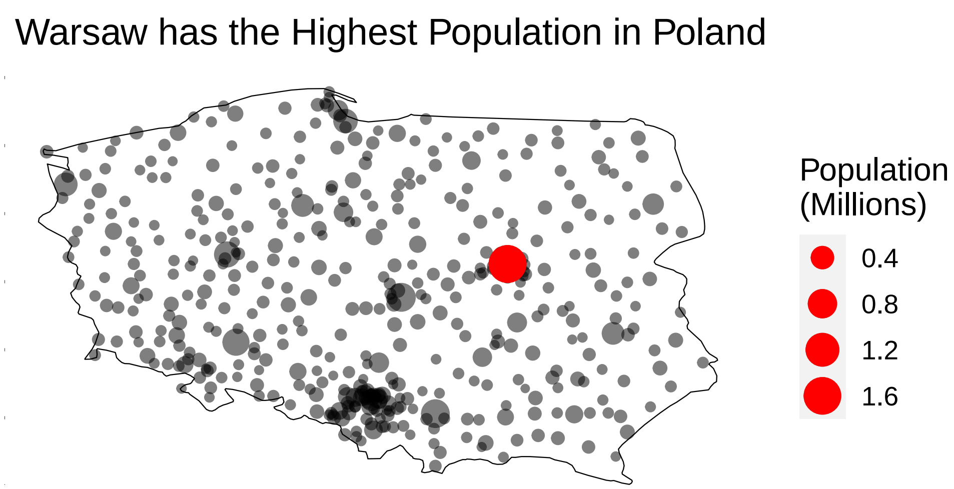



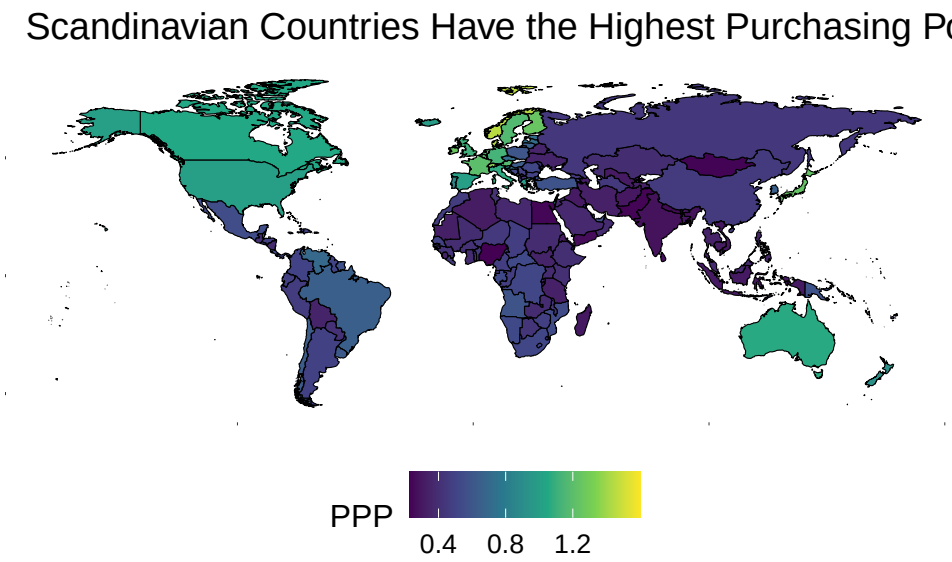

```r
# Fill by Country
NewWorld = full_join(world,WorldData)
```

```
## Joining, by = "region"
```

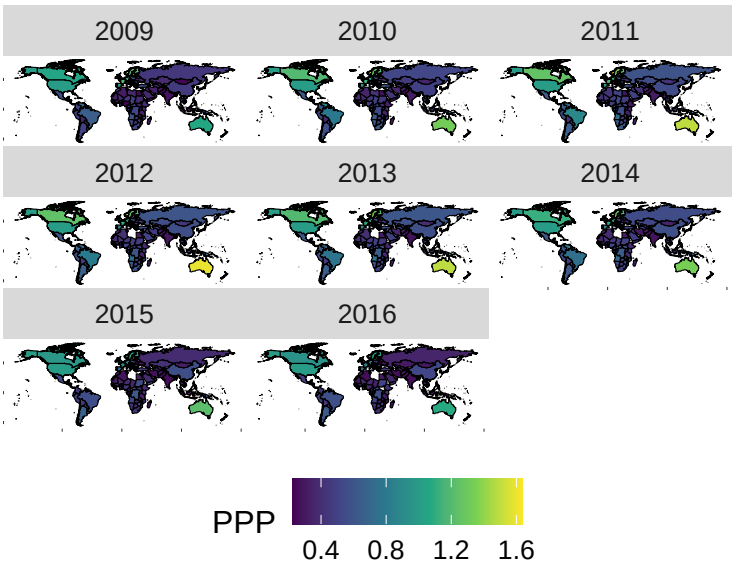
```
head(NewWorld)
```

```
##        long      lat group order region subregion ...1 Country.Name
## 1 -69.89912 12.45200     1     1  Aruba      <NA>  178        Aruba
## 2 -69.89571 12.42300     1     2  Aruba      <NA>  178        Aruba
## 3 -69.94219 12.43853     1     3  Aruba      <NA>  178        Aruba
## 4 -70.00415 12.50049     1     4  Aruba      <NA>  178        Aruba
## 5 -70.06612 12.54697     1     5  Aruba      <NA>  178        Aruba
## 6 -70.05088 12.59707     1     6  Aruba      <NA>  178        Aruba
##   Country.Code Year       PPP
## 1          ABW 2011 0.7039772
## 2          ABW 2011 0.7039772
## 3          ABW 2011 0.7039772
## 4          ABW 2011 0.7039772
## 5          ABW 2011 0.7039772
## 6          ABW 2011 0.7039772
```

```
gf_polygon(lat~long,data=subset(NewWorld,Year==2009),group=~group,fill=~PPP,
           color="black",size=0.2) %>%
  gf_refine(coord_equal(),scale_fill_viridis_c(na.value="gray50")) %>%
  gf_theme(legend.position="bottom") %>%
gf_labs(title="  Scandinavian Countries Have the Highest Purchasing Power Parity.")
```




```
# Faceted
gf_polygon(lat~long,data=subset(NewWorld,Year>=2009),group=~group,fill=~PPP,
           color="black",size=0.2) %>%
  gf_refine(coord_equal(),scale_fill_viridis_c(na.value="gray50")) %>%
  gf_theme(legend.position="bottom") %>%
  gf_facet_wrap(~Year,nrow=3)
```


2009
2010
2011
2012
2013
2014
2015
2016
PPP
0.4
0.8
1.2
1.6