Explorative DataViz Short Paper

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Assignment Requirement

This assignment builds off the last assignment, resulting in a single document either in PDF or HTML form exported from an R markdown document. You must use the data exclusively from your portfolio proposal! Further, this document should have:

- Five data visualizations of most distinct graph types, made with ggplot2; This can include the three visualizations from last week, though you can replace them if you want. Note that graph requirements always include:
  - Correct usage of all visual encodings;
  - Appropriate data sourcing;
  - Proper labeling of ALL visual encodings, as well as an appropriate title and subtitle;
  - The code you used to generate each graphic, right above the graph (R Markdown should make this easy).
- A written narrative for each graph, from three to five sentences, describing the context of the graph and how it informs about your policy topic. You can write this as a narrative.

Note that, over time, you are expected to tackle progressively more varied and ambitious graph types. At this stage in the course, the standard is still not very high. That said, you should be able to clearly articulate the value of the graphs you created so far - meaning they need to make sense and have some value-add.

Please submit the URL of the file on a Git repository (it can be one git repo you keep adding to, or a stand alone repository).

Chart one

```
line <- ggplot(data=coinbase_lim) +
  geom_line(size=.25,
            aes(unix_timestamp, price),
            color="#325a8c") +
  geom_vline(xintercept = as.POSIXct("2017-03-25"),
             colour="#ff7575",
             size=.75,
             alpha=.75) +
  geom_smooth(aes(unix_timestamp,price),
              span=2,
              linetype="longdash",
              color="#4c88d3",
              alpha=.5) +
  scale_x_datetime(name = "",
                   date_breaks = "3 month") +
  scale_y_continuous(name ="Bitcoin Hourly Exchange Rate in USD",
                     breaks = c(0, 500, 1000, 1500, 2000, 2500, 3000)) +
  ggtitle("Bitcoin Daily Price",
          subtitle = "experienced the greatest surge in history this year") +
```

```
  labs(caption = "Data source: Coinbase API") +
  annotate(geom="text",
           x=as.POSIXct("2017-05-30"),
           y=675,
           label="2017-03-25 Surge starts",
           colour="#ff7575",
           fontface="bold",
           alpha=.85) +
  theme(panel.grid.major.y = element_line( size=.1, color="#666666"),
        panel.grid.major.x = element_blank(),
        panel.background = element_blank(),
        plot.title = element_text(size=18,
                                  family = "Helvetica",
                                  colour = "#3a3a3a",
                                  face = "bold"),
        plot.subtitle = element_text(size=12, family = "mono", colour = "#666666"),
        axis.title.y.right = element_text(color="#85bb65"),
        axis.text.y.right = element_text(color="#85bb65"),
        axis.text.y = element_text(color="#325a8c"),
        axis.title.y = element_text(color="#325a8c"),
        axis.ticks.y = element_line( size=.25, color="#666666"),
        axis.text.x = element_text(color="#7f7f7f"),
        legend.position = "none",
        plot.caption = element_text(size=11, family = "mono", colour = "#666666"),
        plot.margin = unit(c(2,2,2,2), "cm"))

line
```

```
## `geom_smooth()` using method = 'gam'
```

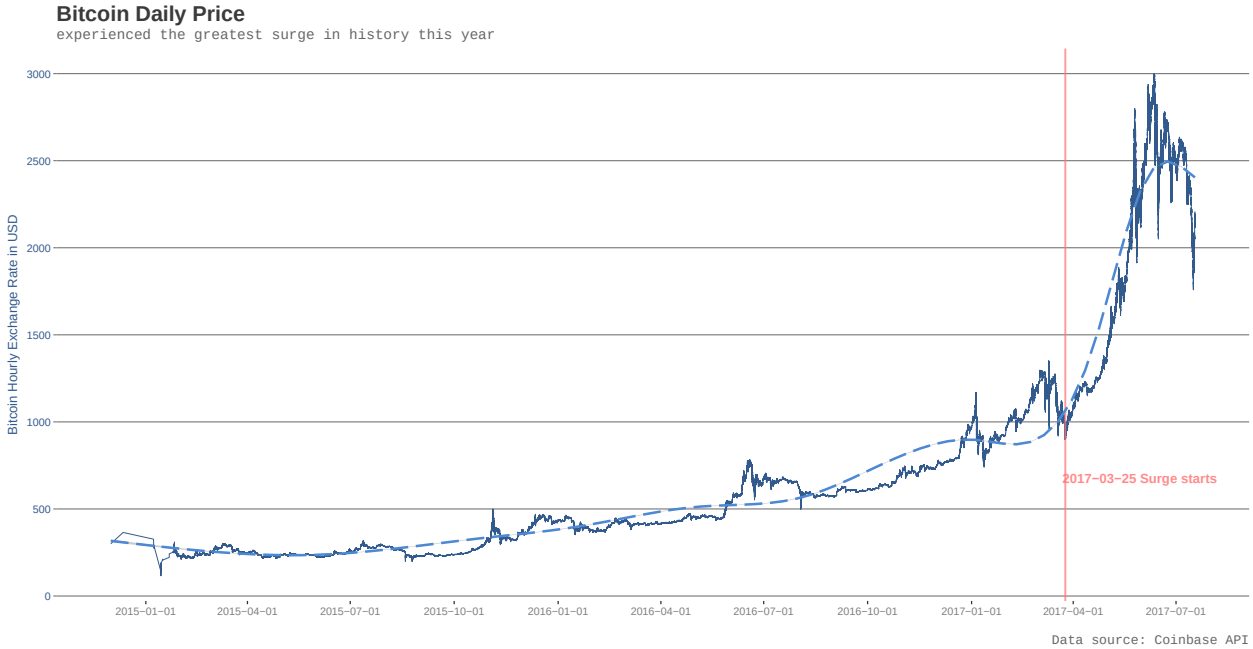


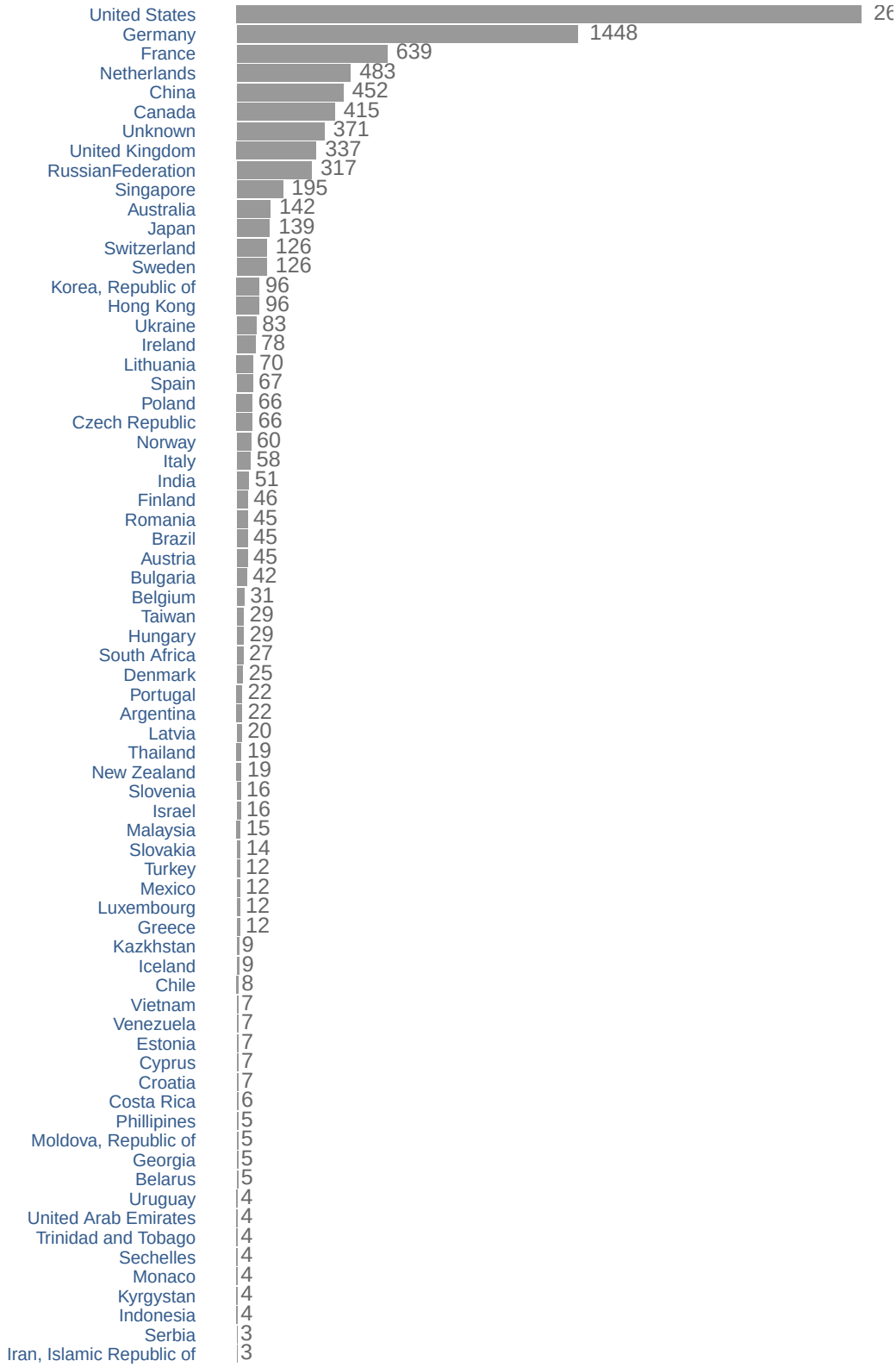
Chart two

```
hist <- ggplot(data=nodes, aes(reorder(factor(country), node), node)) +
  geom_col(width=0.9, position=position_dodge(width=5), fill = "#999999") +
  geom_text(aes(label=node), color="#666666", position=position_dodge(width=0.9), vjust=0.35, hjust=-.25
  ggtitle("Bitcoin Nodes Distribution by Countries",
          subtitle = "Reachable nodes as of Oct 15, 2017") +
  ylab("") +
  xlab("") +
  labs(caption = "Data source: BitNodes.21.co") +
  theme(panel.grid.major.y = element_blank(),
        panel.grid.major.x = element_blank(),
        panel.background = element_blank(),
        plot.title = element_text(size=18,
                                  family = "Helvetica",
                                  colour = "#3a3a3a",
                                  face = "bold"),
        plot.subtitle = element_text(size=12, family = "mono", colour = "#666666"),
        axis.text.y = element_text(color="#325a8c"),
        axis.title.y = element_text(color="#325a8c"),
        axis.ticks.y = element_blank(),
        axis.ticks.x = element_blank(),
        axis.text.x = element_blank(),
        legend.position = "none",
        plot.caption = element_text(size=11, family = "mono", colour = "#666666"),
        plot.margin = unit(c(2,2,2,2), "cm")) +
  scale_x_discrete(expand=c(0,0)) +
  coord_flip()

hist
```

Bitcoin Nodes Distribution by Countries

Reachable nodes as of Oct 15, 2017



Data source: BitNodes.21.co

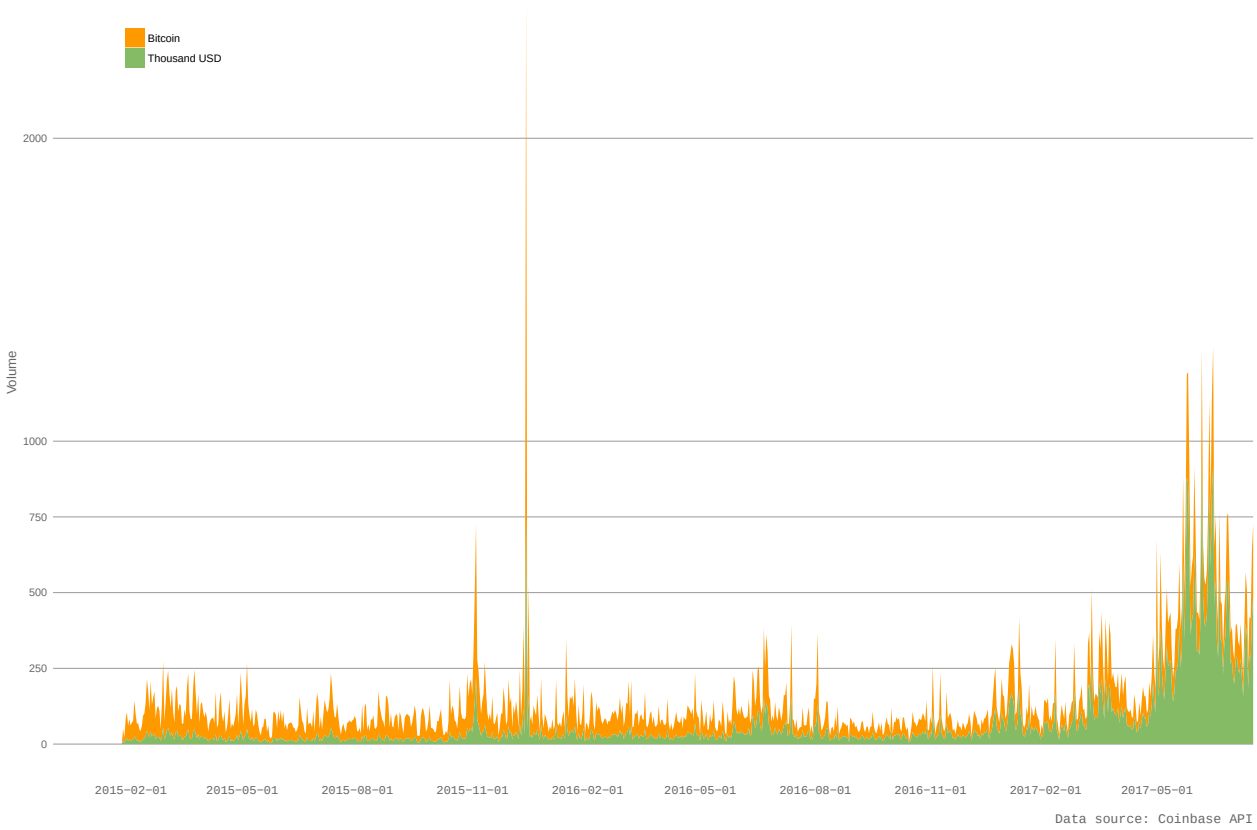
Chart Three

```
# note: color #85bb65 is nicknamed as "dollar bill green".
#       color #FF9900 is the orange from bitcoin logo.
area <- ggplot(data=agg, aes(x = as.POSIXct(date), y = volume, fill = as.factor(unit))) +
  geom_area(position = "stack") +
  scale_x_datetime(date_breaks = "3 months", expand=c(0,0)) +
  scale_y_continuous(breaks = c(0, 250, 500, 750, 1000, 2000, 3000)) +
  scale_fill_manual(values = alpha(c("#FF9900", "#85bb65")), 0.2) +
  ggtitle("Bitcoin Daily Trading Volume",
          subtitle = "in number of bitcoin & Thousands of USD") +
  labs(caption = "Data source: Coinbase API",
       x = "",
       y = "Volume") +
  theme(panel.grid.major.y =element_line( size=.1, color="#999999"),
        panel.grid.major.x = element_blank(),
        panel.background = element_blank(),
        plot.title = element_text(size=18,
                                  family = "Helvetica",
                                  colour = "#3a3a3a",
                                  face = "bold"),
        plot.subtitle = element_text(size=12, family = "mono", colour = "#666666"),
        axis.text.y = element_text(color="#666666"),
        axis.title.y = element_text(color="#666666"),
        axis.ticks.y = element_blank(),
        axis.ticks.x = element_blank(),
        axis.text.x = element_text(size=10, family = "mono", colour = "#666666"),
        legend.title = element_blank(),
        legend.position = c(0.1, 0.9),
        plot.caption = element_text(size=11, family = "mono", colour = "#666666"),
        plot.margin = unit(c(2,2,2,2), "cm"))

area
```

Bitcoin Daily Trading Volume

in number of bitcoin & Thousands of USD



Data source: Coinbase API