Introduction to ggplot2: Three Charts

Ji, Ye

Assignment Requirement

Explore your data with ggplot2, making and exporting to pdf three graphs of meaningfully distinct types. Submit those graphs to Canvas.

Use at least:

- five different aesthetics;
- five different non-aesthetic options;
- four different geoms;
- two different scales (meaning change scale option for at least two of the scales).

Include an narrative graph title, an explanatory subtitle, and explicit data sourcing. Make sure to include labels and scales for all visual encodings.

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'
```

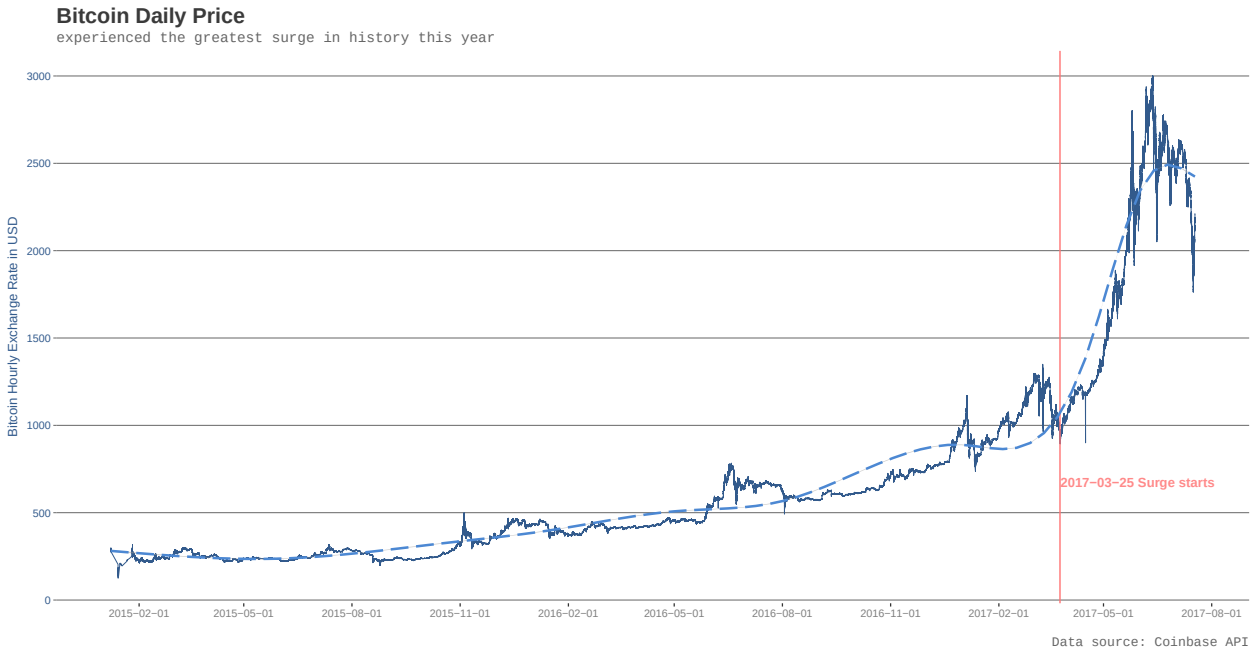


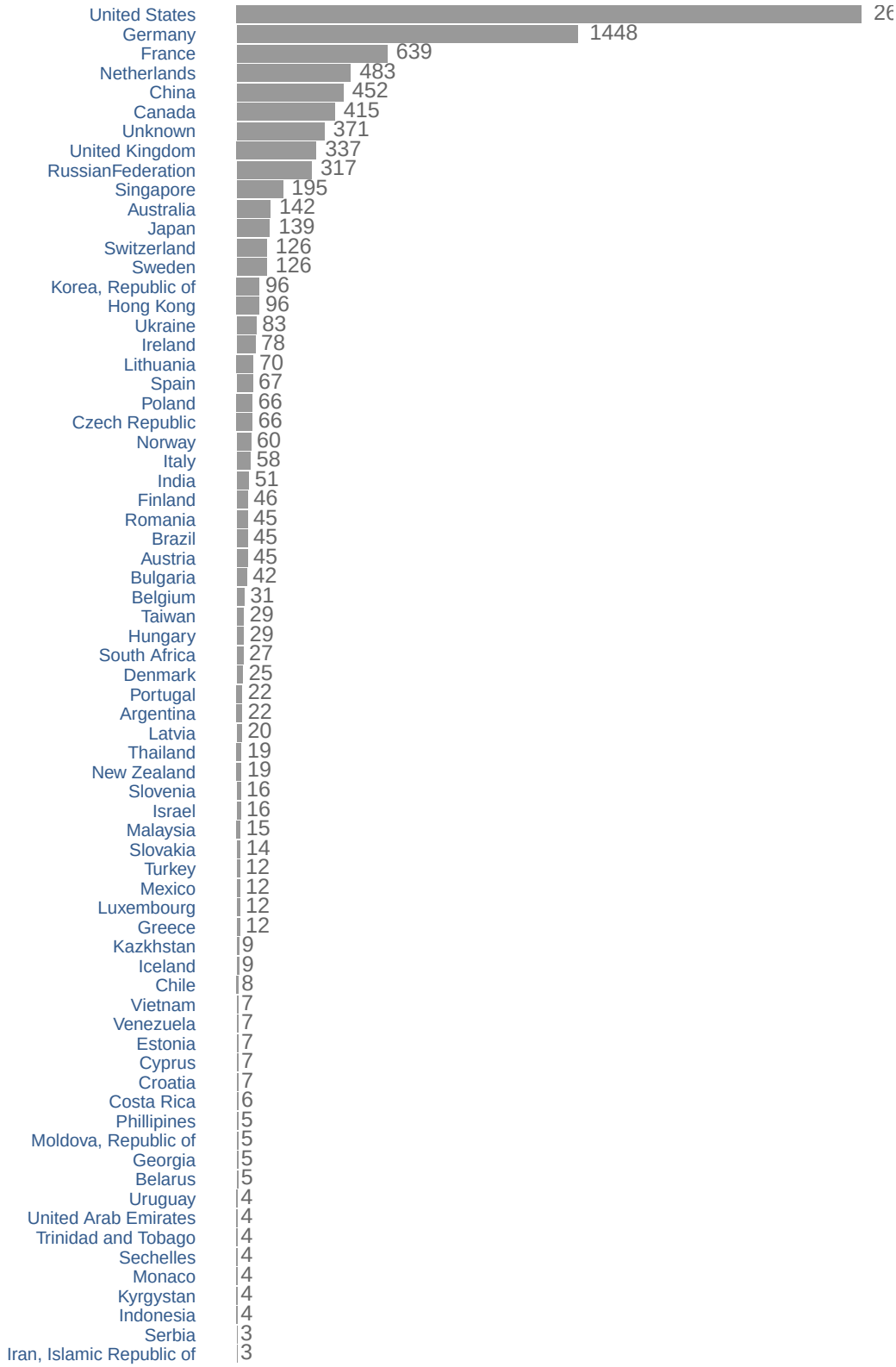
Chart two

```
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

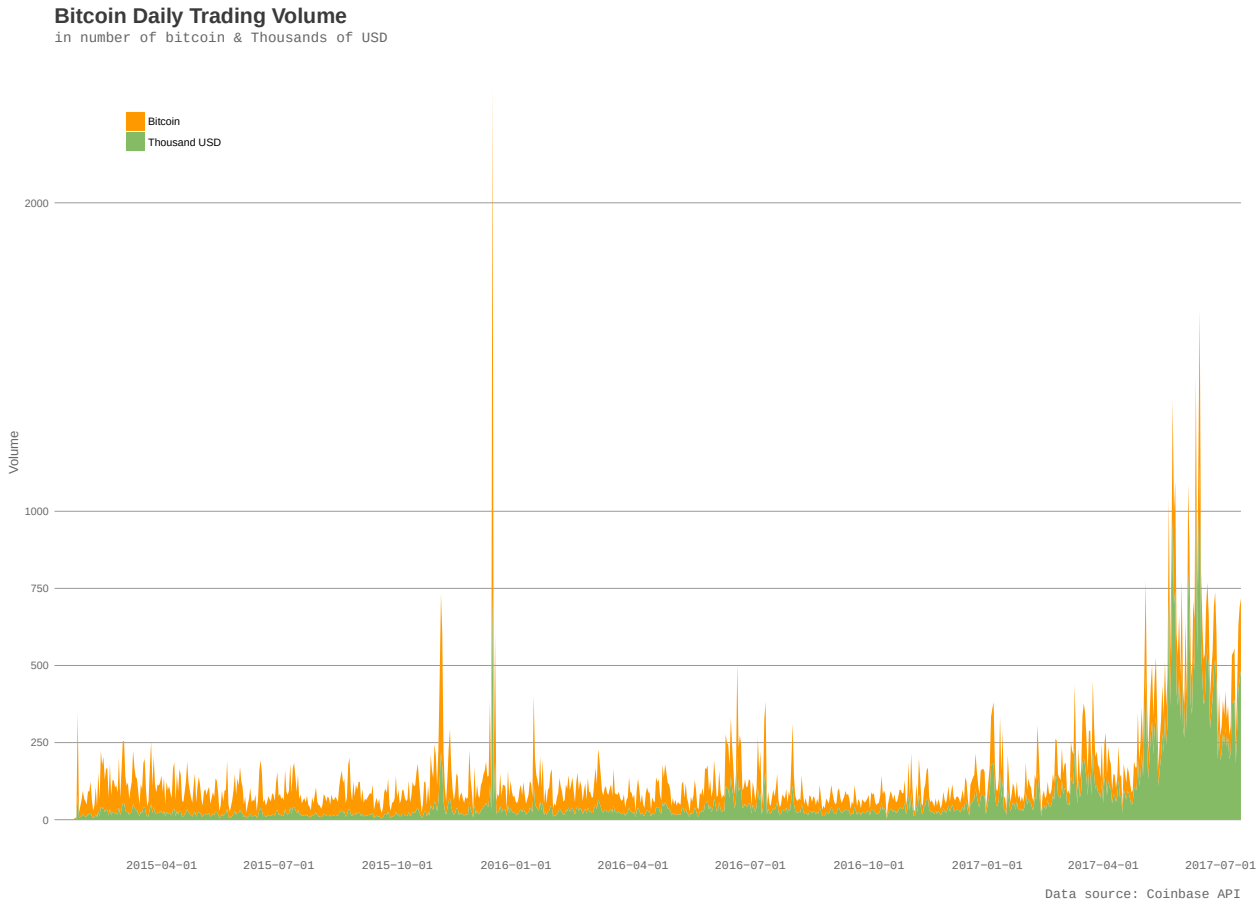


Data source: BitNodes.21.co

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
Bitcoin
Thousand USD
2000
1000
750
500
250
0
Volume
2015-04-01
2015-07-01
2015-10-01
2016-01-01
2016-04-01
2016-07-01
2016-10-01
2017-01-01
2017-04-01
2017-07-01
Data source: Coinbase API