DSC 640: Week 1-2

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Bar Charts

Python

```
In [8]:  plt.rcdefaults()
         fig, ax = plt.subplots(figsize=(10, 6))

         # Change color if new record
         colors = ["red" if record == 1 else "blue" for record in hotdog_df['New record']]

         # plot bar chart
         ax.bar(hotdog_df['Year'], hotdog_df['Dogs eaten'], color = colors)

         # set labels
         ax.set_ylabel('Number of Hotdogs Eaten', fontsize = 14)
         ax.tick_params(axis='y', which='major', pad = 10)
         ax.legend([Line2D([0], [0], color = '#74cdf9', lw = 4)], ['New Record'])
         ax.set_title('Bar Chart - Python \n Hotdog Eating Contest - Winning Number of Hotdogs Eaten')
         ax.yaxis.labelpad = 20.0

         plt.show()
```


Bar Chart - Python
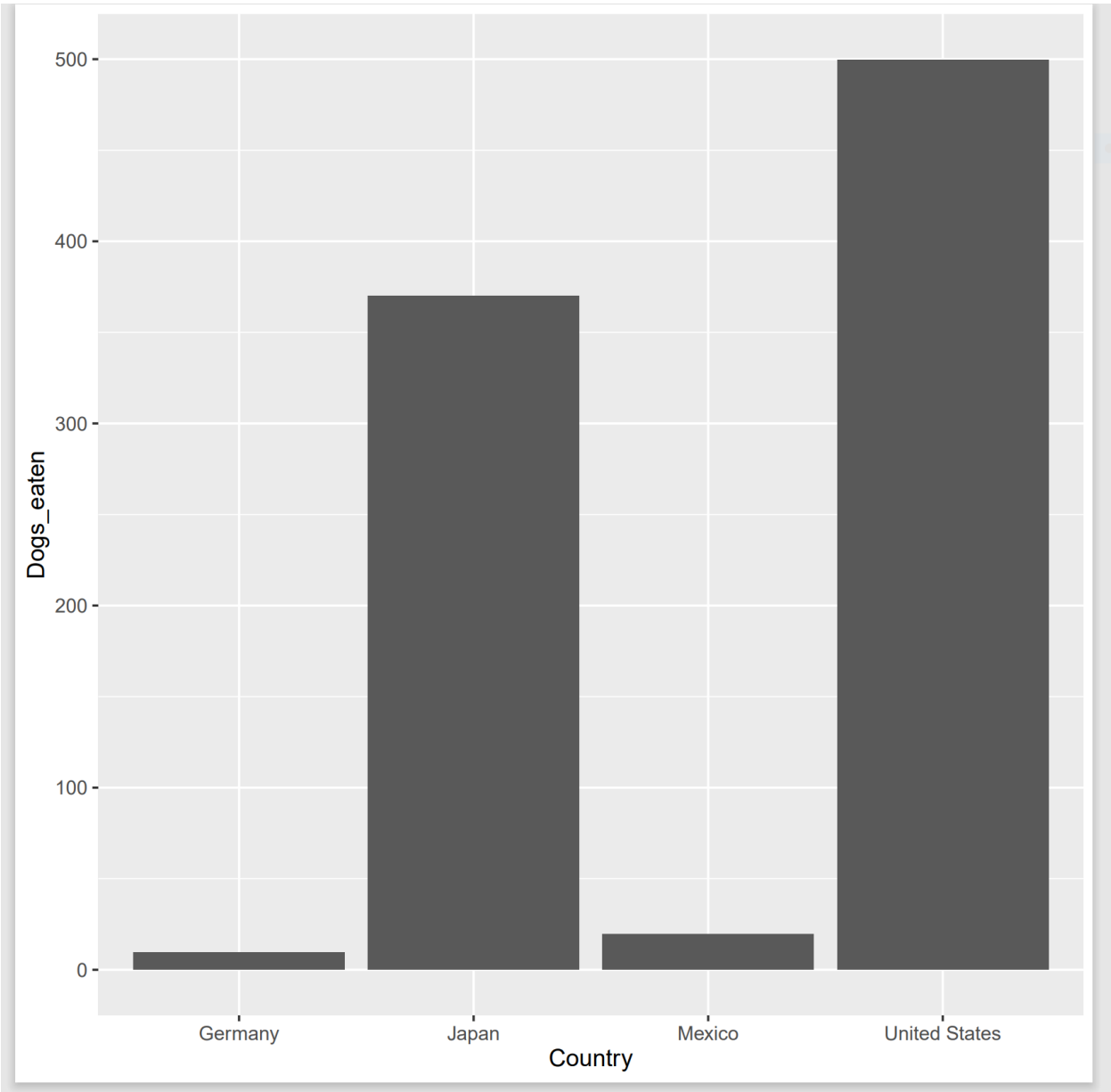Hotdog Eating Contest - Winning Number of Hotdogs Eaten

R
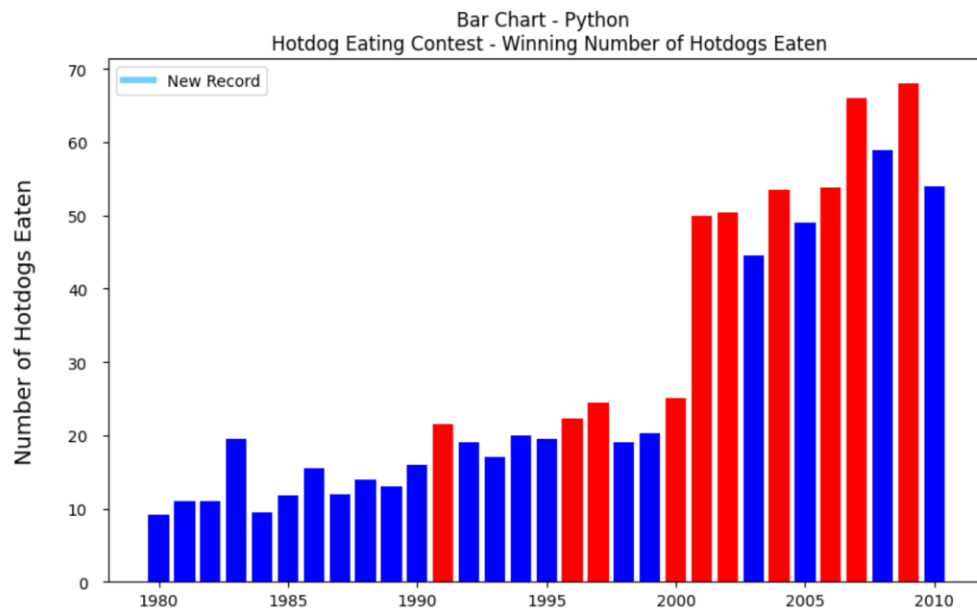
```r
library(readxl)
library(ggplot2)
library(reshape2)
library(dplyr)
library(plotly)
theme_set(theme_classic())
knitr::opts_chunk$set(warning = FALSE, message = FALSE)


## Datasets

### Hotdog Contest Winners

#| label: loadhotdog
#| echo: false
hotdog_winners_df <- read_excel("hotdog-contest-winners.xlsm")
hotdog_winners_df <- hotdog_winners_df %>%
  rename_with(~ gsub(" ","_", .x), contains(" "))
head(hotdog_winners_df)



## Charts
### 1. Bar Chart
ggplot(hotdog_winners_df,aes(y=Dogs_eaten, x=Country))+
  geom_bar(stat="identity")
```
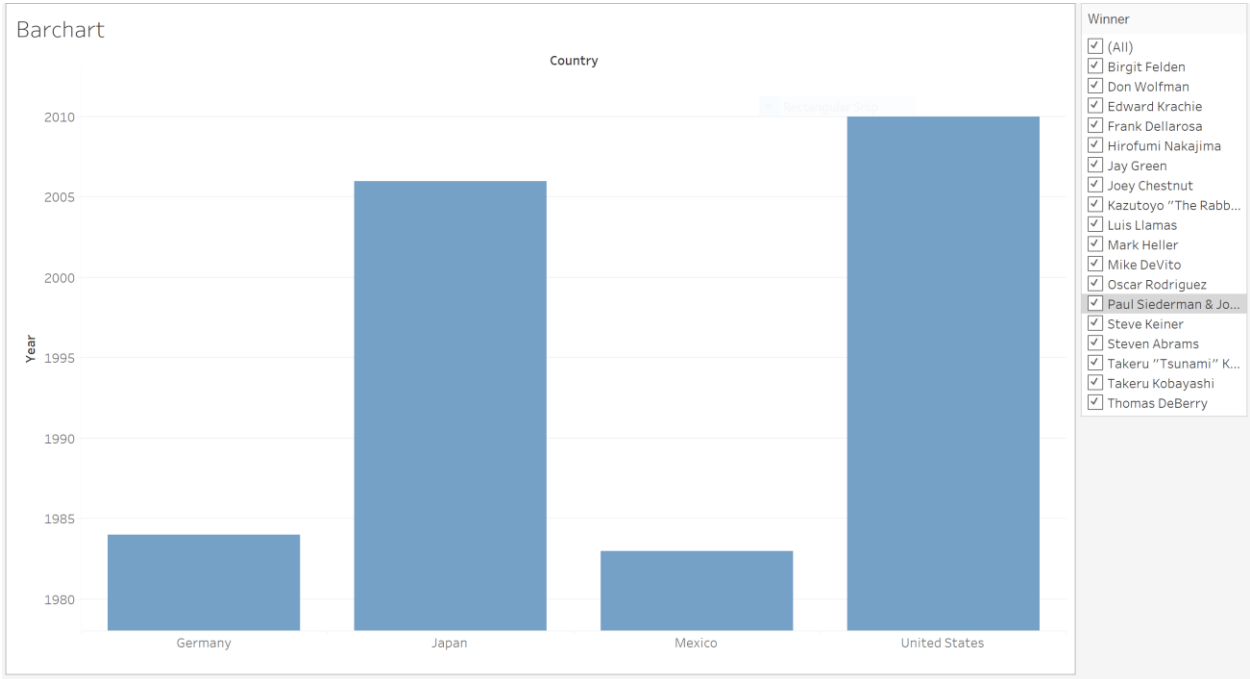
TABLEAU

Barchart

Country

Winner

- ☑ (All)
- ☑ Birgit Felden
- ☑ Don Wolfman
- ☑ Edward Krachie
- ☑ Frank Dellarosa
- ☑ Hirofumi Nakajima
- ☑ Jay Green
- ☑ Joey Chestnut
- ☑ Kazutoyo "The Rabb...
- ☑ Luis Llamas
- ☑ Mark Heller
- ☑ Mike DeVito
- ☑ Oscar Rodriguez
- ☑ Paul Siederman & Jo...
- ☑ Steve Keiner
- ☑ Steven Abrams
- ☑ Takeru "Tsunami" K...
- ☑ Takeru Kobayashi
- ☑ Thomas DeBerry

Stacked Bar Chart:

Paython

```python
plt.rcdefaults()

fig, ax = plt.subplots()

# plot
barHeight = 0.85
names = obama_df['Issue']

# Create Approve
ax.barh(names, approve, color='red', edgecolor='white', height=barHeight, label = 'Approve')

# Create Disapprove
ax.barh(names, disapprove, left=approve, color='blue', edgecolor='white', height=barHeight, label = 'Disapprove')

# Create None
ax.barh(names, none, left=[i+j for i,j in zip(approve, disapprove)], color='#bcbcbc', edgecolor='white',
        height=barHeight, label = 'None')

# Set Labels
plt.ylabel("Issue", fontsize = 14)
plt.legend(loc='upper left', bbox_to_anchor=(1,1), ncol=1)
plt.title('Stacked Bar Chart - Python \nObama Approval Percentages per Issue')
ax.yaxis.labelpad = 20.0

plt.show()
```
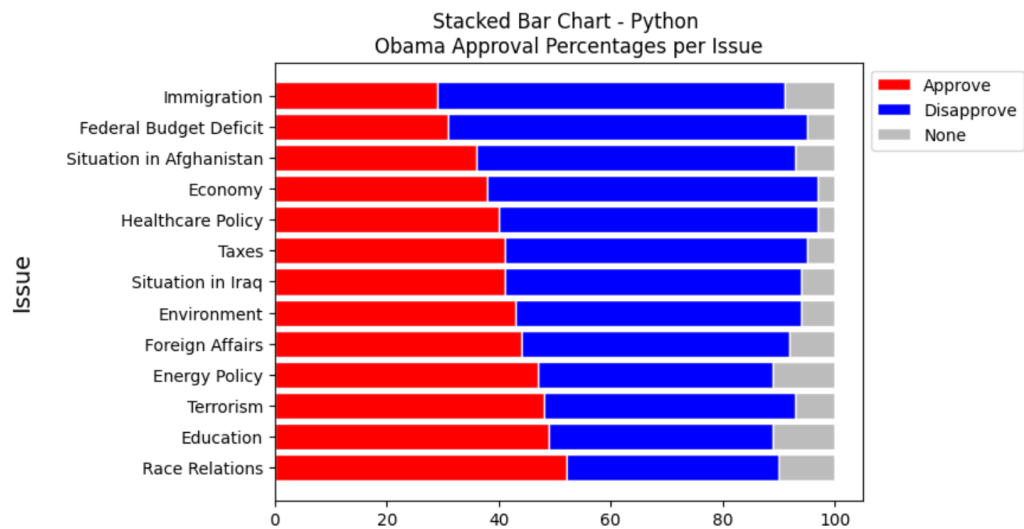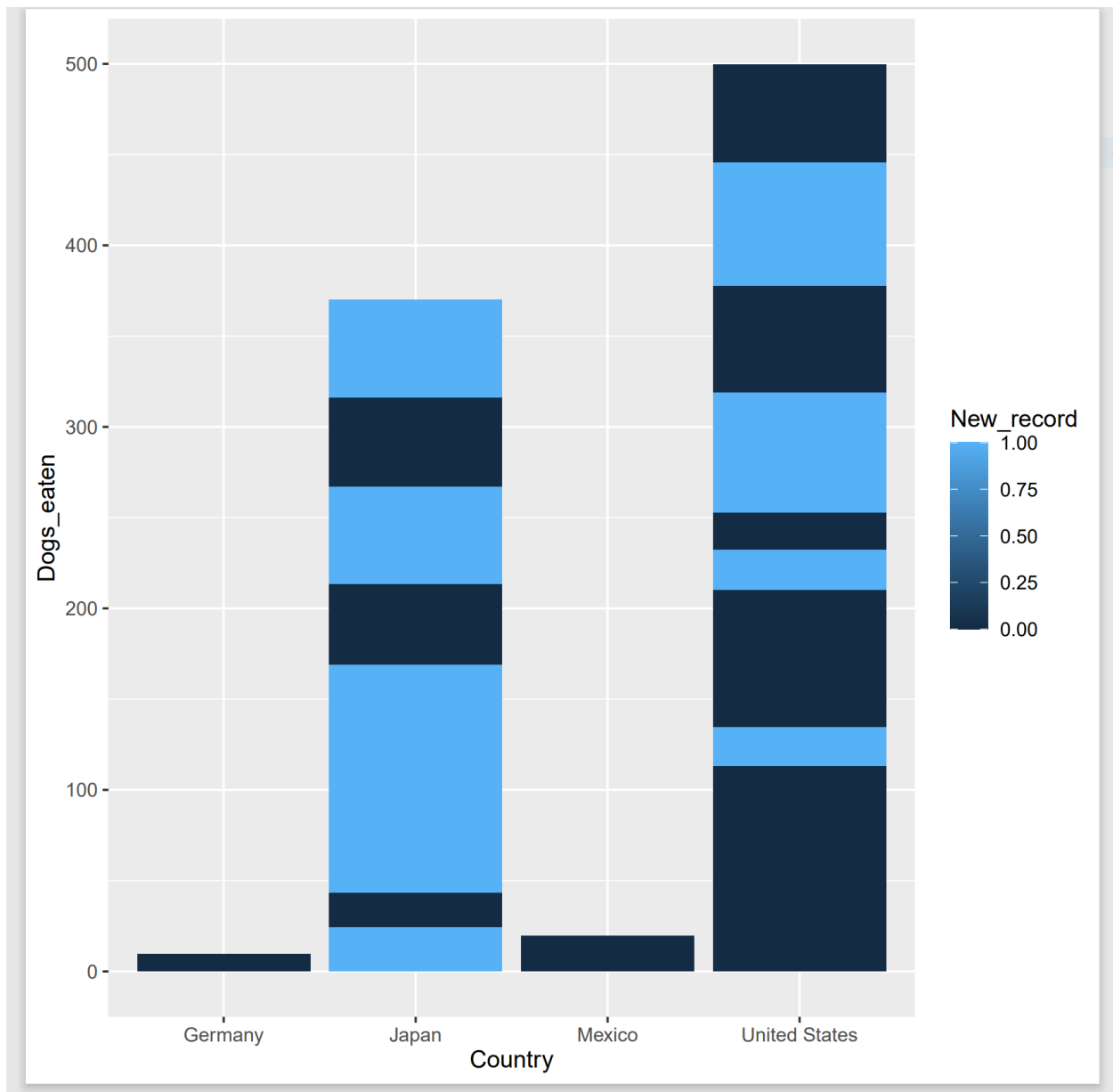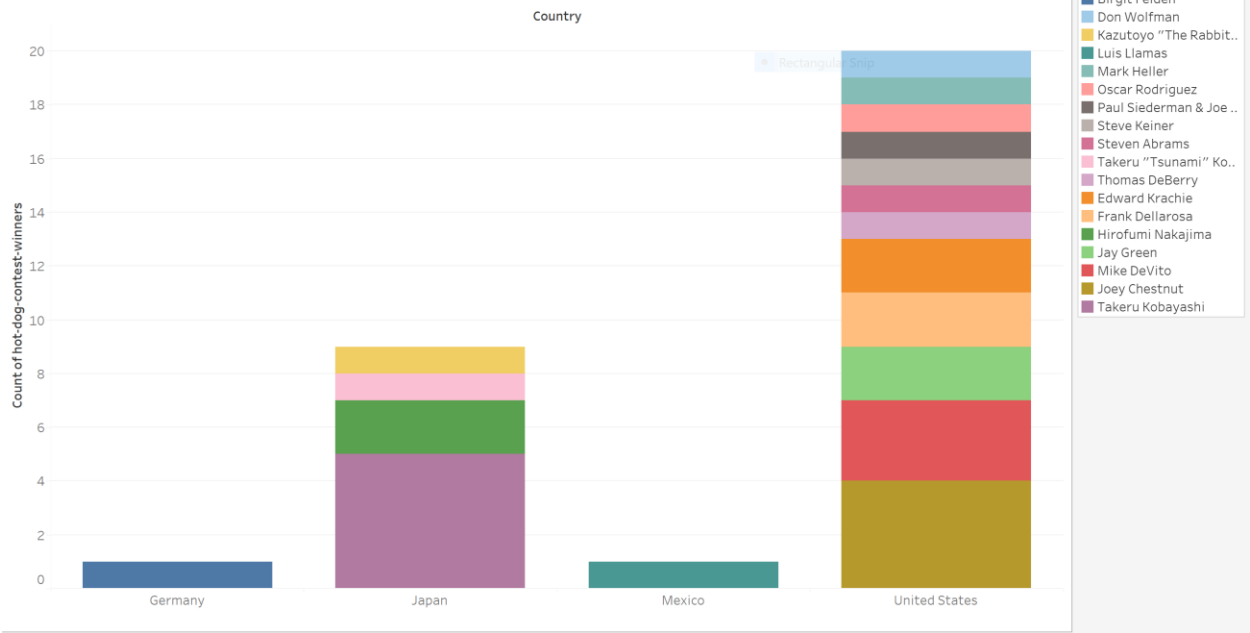
R

```
### 2. Stacked Bar Chart
# display the new record in counrty
ggplot(hotdog_winners_df,aes(y=Dogs_eaten, x=Country, fill=New_record))+
  geom_bar(stat = "identity")

# display the percentage of new record in Country
ggplot(hotdog_winners_df,aes(y=Dogs_eaten, x=Country, fill=New_record))+
  geom_bar(stat = "identity", position = "fill")
```

TABLEAU

Stack BarChart

Pie Chart:

Python:

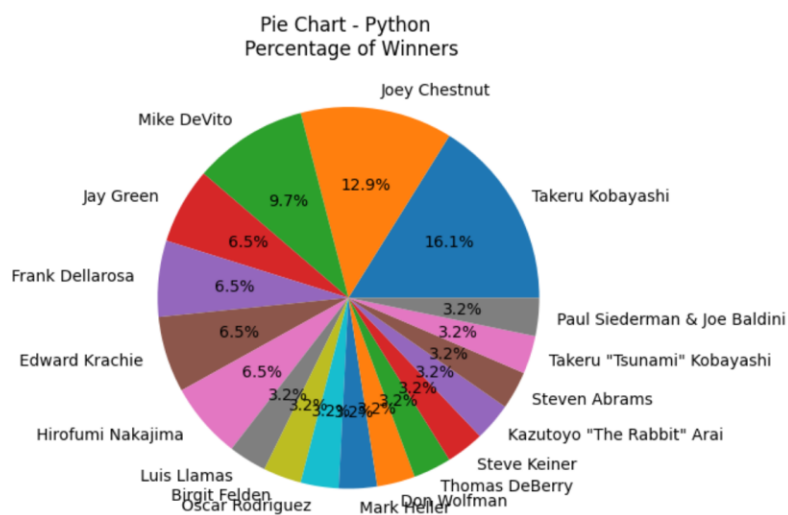In [11]: ▶| Winners = hotdog_df['Winner'].value_counts()

```python
plt.rcdefaults()

fig, ax = plt.subplots()

ax.pie(Winners.values, labels = Winners.index, autopct='%1.1f%%',)
ax.axis('equal')  # Equal aspect ratio ensures that pie is drawn as a circle.

# Title
plt.title('Pie Chart - Python \n Percentage of Winners', pad = 20)

plt.show()
```


Pie Chart - Python
Percentage of Winners

R:

```
### 3. Pie Chart
# Create Pie chart for the "hotdog_winners_df".
# data to be used for the chart

ggplot(data= hotdog_winners_df, aes(x='',y = Dogs_eaten, fill = Country))+
  geom_bar(width = 1, stat = "identity")+
  geom_text(aes(label = paste0(round(Dogs_eaten/sum(Dogs_eaten)*100), "%")), position = position_stack(vjust = 0.5))+
  theme_classic()+
  theme(legend.position = "top")+
  coord_polar("y", start=0)+
  scale_fill_manual(values = palette())+
  theme(axis.line = element_blank())+
  theme(axis.text = element_blank())+
  theme(axis.ticks = element_blank())+
  labs(x = NULL, y = NULL, fill = NULL)
```
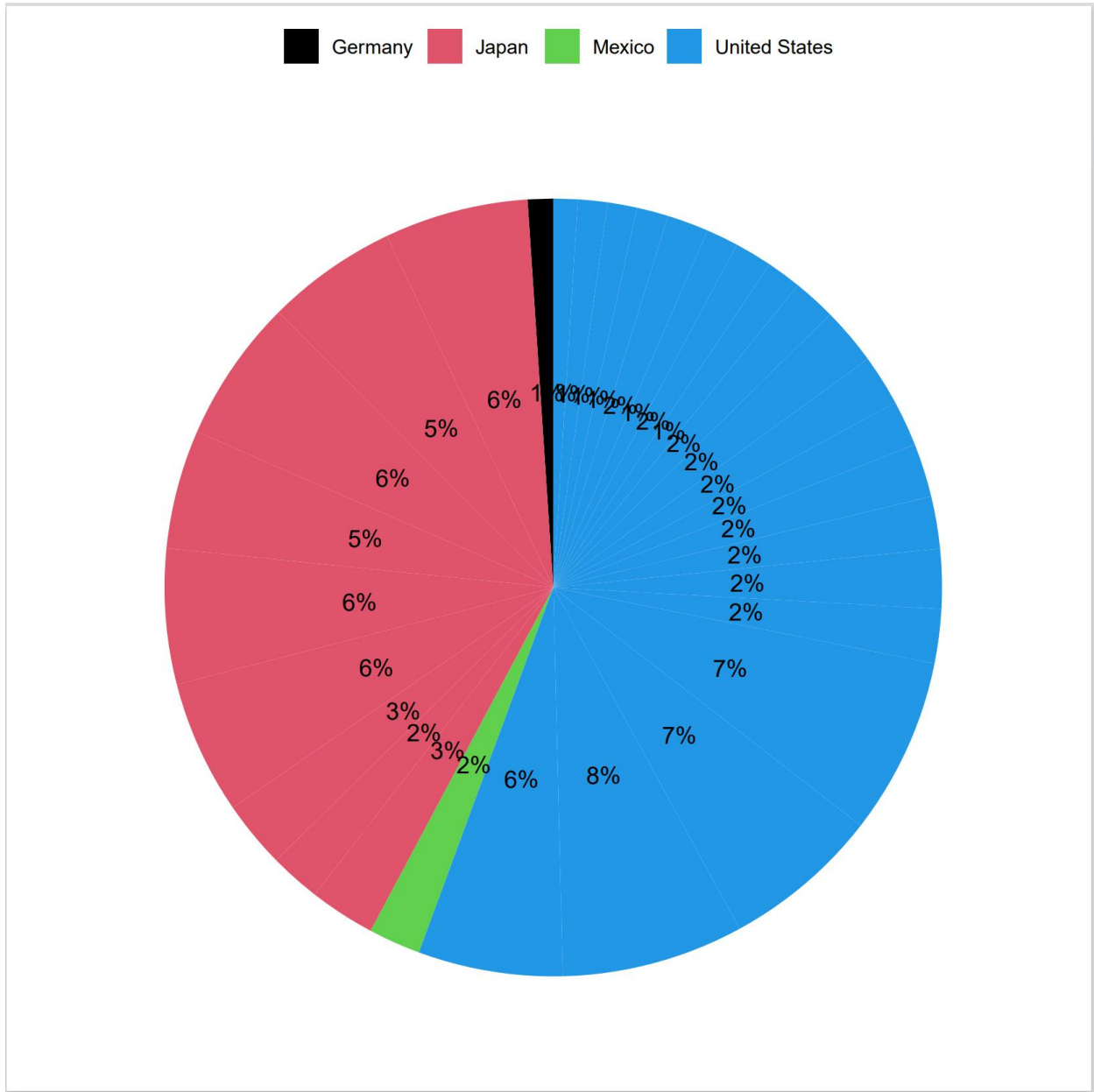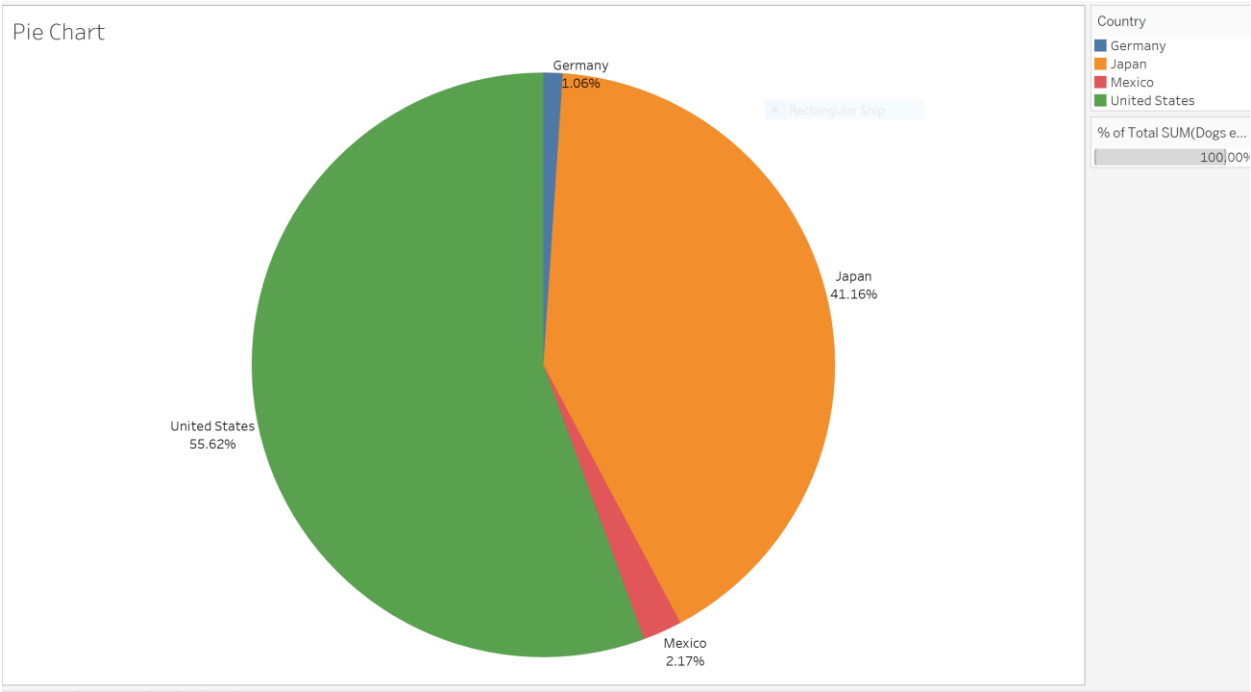
Tableau:

Pie Chart

Country
- Germany
- Japan
- Mexico
- United States

% of Total SUM(Dogs e...

100.00%

Germany
1.06%

Japan
41.16%

United States
55.62%

Mexico
2.17%

Rectangular Snip

Donut Chart:

Python:

```python
plt.rcdefaults()

fig, ax = plt.subplots()

# Create a pie chart
ax.pie(Winners.values, labels = Winners.index, autopct='%1.1f%%', pctdistance = .85)
ax.axis('equal')  # Equal aspect ratio ensures that pie is drawn as a circle.

# draw circle
centre_circle = plt.Circle((0, 0), 0.70, fc='white')
fig = plt.gcf()

# Adding Circle in Pie chart
fig.gca().add_artist(centre_circle)

# Title
plt.title('Pie Chart - Python \n Percentage of Winners', pad = 20)

plt.show()
```
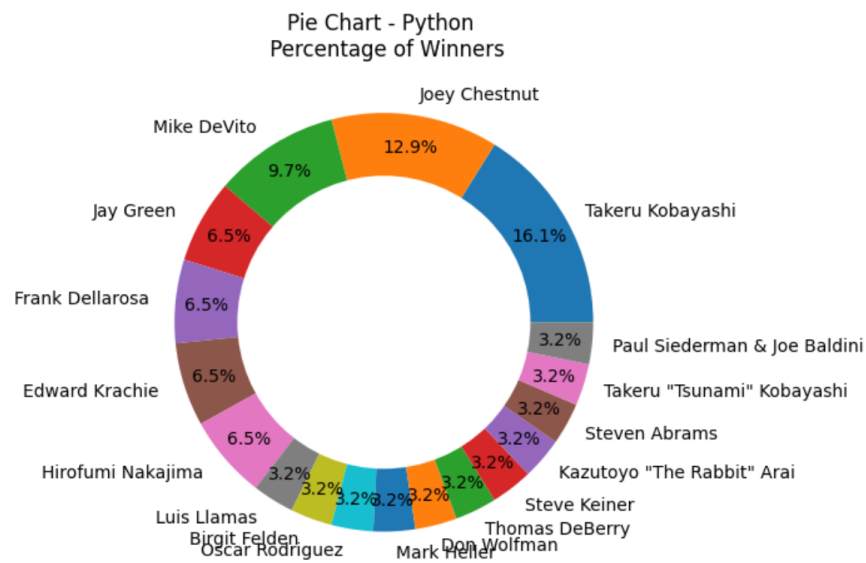

Pie Chart - Python
Percentage of Winners

R:

```
###4. Donut Chart with ggplot2

library(tidybayes)
library(IRdisplay)


ggplot(data= hotdog_winners_df, aes(x = 2, y = Dogs_eaten, fill = Country))+
  geom_col(color = "black")+
  coord_polar("y", start = 1)+
  geom_text(aes(label = paste0(round(Dogs_eaten/sum(Dogs_eaten)*100), "%")),
            position = position_stack(vjust = 0.5))+
  theme(panel.background = element_blank(),
        axis.line = element_blank(),
        axis.text = element_blank(),
        axis.ticks = element_blank(),
        axis.title = element_blank(),
        plot.title = element_text(hjust = 0.5, size = 18))+
  ggtitle("Donat Chart of hotdog_winners (ggplot2)")+
  scale_fill_manual(values = colors)+
  xlim(0.5, 2.5)
```
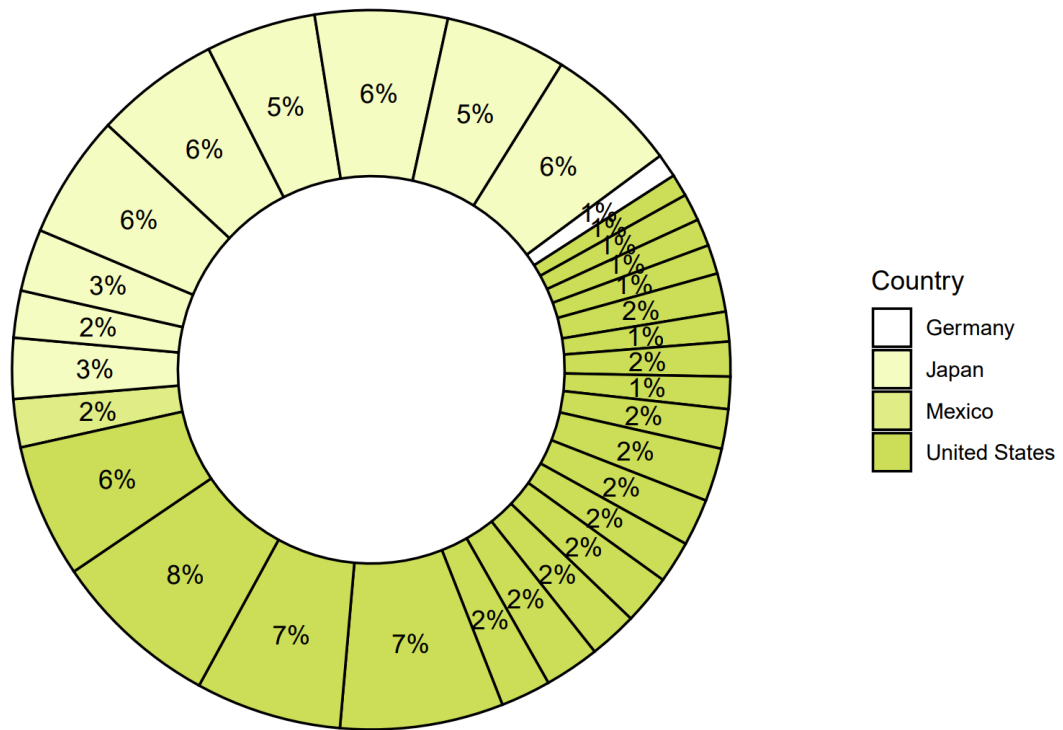
Donat Chart of hotdog_winners (ggplot2)

Legend:

Country
- Germany
- Japan
- Mexico
- United States

Tableau:

Dount Chart

Rectangular Snip

Germany
1.06%

Japan
41.16%

United States
55.62%

Mexico
2.17%

Country
■ Germany
■ Japan
■ Mexico
■ United States

% of Total SUM(Dogs e...
100.00%