Viz 3 Advanced Plots

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R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see http://rmarkdown.rstudio.com.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
#Step 1 - Load libraries into coding environment
options(repos = c(CRAN = "https://cloud.r-project.org/"))
#install.packages("gridExtra")
library("dplyr")
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library("reshape2")
library("lubridate")
```

```
##
## Attaching package: 'lubridate'
```

```
## The following objects are masked from 'package:base':
##
##     date, intersect, setdiff, union
```

```
library("ggplot2")
library("gridExtra")
```

```
##
## Attaching package: 'gridExtra'
```

```
## The following object is masked from 'package:dplyr':
##
##     combine
```

```
#Step 2 - Load cleaned UFO data into coding environment
# isolate the year in datetime column and make a new column called year

UFO <- read.csv("UFO Clean1.csv")
```

```r
UFO$year <- format(as.Date(UFO$datetime, format = "%m/%d/%Y"), "%Y")
```

```r
#Step 3 - Group states into regions

regions <- list(
  Northeast = c('me', 'nh', 'vt', 'ma', 'ri', 'ct', 'ny', 'pa', 'nj', 'dc'),
  Midwest = c('nd', 'sd', 'ne', 'ks', 'mo', 'ia', 'mn', 'wi', 'il', 'in', 'oh', 'mi'),
  South = c('tx', 'ok', 'ar', 'la', 'ky', 'tn', 'ms', 'al', 'wv', 'md', 'de', 'va', 'nc', 'sc', 'ga', '
  West = c('id', 'mt', 'wy', 'nv', 'ut', 'co', 'az', 'nm', 'ak', 'wa', 'or', 'ca', 'hi')
)

#Step 4 - Assign states to a region

UFO <- UFO %>%
      mutate(
        region = case_when(
          state %in% regions$Northeast ~ "Northeast",
          state %in% regions$Midwest ~ "Midwest",
          state %in% regions$South ~ "South",
          state %in% regions$West ~ "West",
          TRUE ~ NA_character_
        )
      )

#Step 5 - Group data by year and region

UFO$year <- as.numeric(as.character(UFO$year))



UFO_summary <- UFO %>%
  filter(!is.na(region)) %>%
  group_by(year, region) %>%
  summarise(count = n())
```

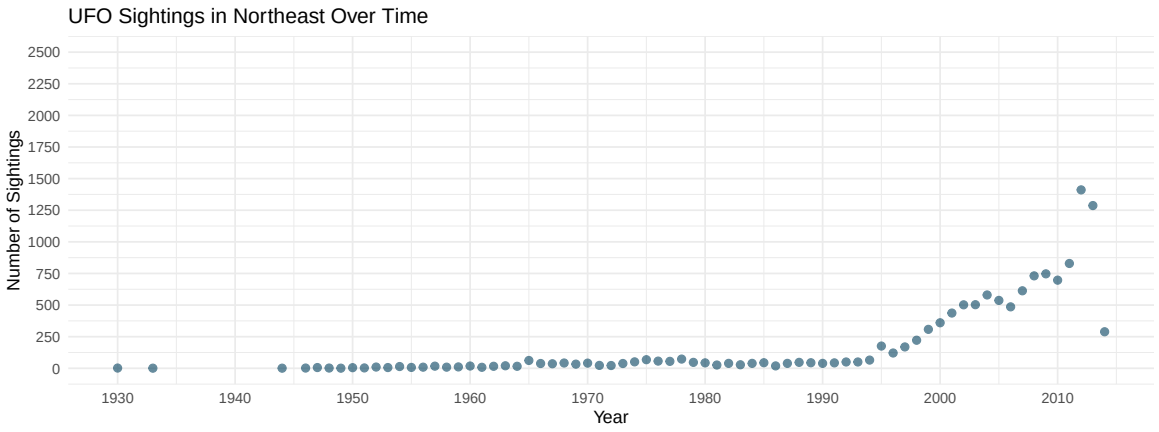
```
## `summarise()` has grouped output by 'year'. You can override using the
## `.groups` argument.
```

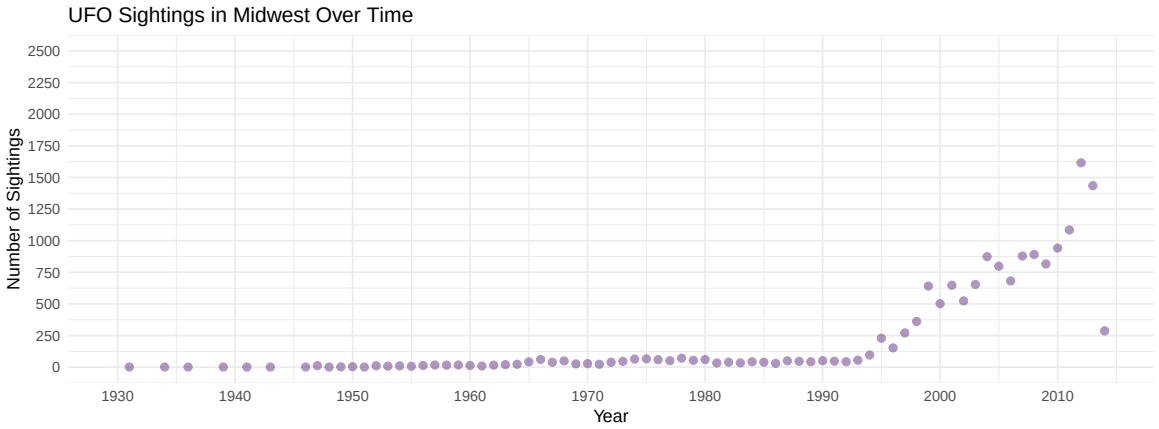
```r
#Step 5 - Make a scatter plot that depicts UFO sighting over time for each region

plot_Northeast <- UFO_summary %>%
  filter(region == "Northeast") %>%
  ggplot(aes(x = year, y = count)) +
  geom_point(color = "#003f5c", size = 2, alpha = 0.6) +
  labs(title = "UFO Sightings in Northeast Over Time",
       x = "Year",
       y = "Number of Sightings") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  theme_minimal()

plot_Midwest <- UFO_summary %>%
  filter(region == "Midwest") %>%
  ggplot(aes(x = year, y = count)) +
```

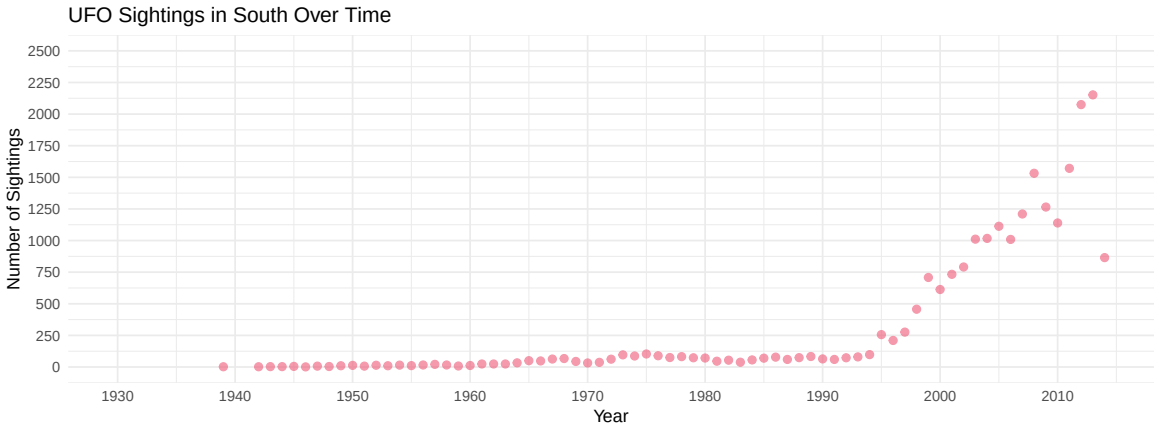
```
  geom_point(color = "#7a5195", size = 2, alpha = 0.6) +
  labs(title = "UFO Sightings in Midwest Over Time",
       x = "Year",
       y = "Number of Sightings") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  theme_minimal()

plot_South <- UFO_summary %>%
  filter(region == "South") %>%
  ggplot(aes(x = year, y = count)) +
  geom_point(color = "#ef5675", size = 2, alpha = 0.6) +
  labs(title = "UFO Sightings in South Over Time",
       x = "Year",
       y = "Number of Sightings") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  theme_minimal()

plot_West <- UFO_summary %>%
  filter(region == "West") %>%
  ggplot(aes(x = year, y = count)) +
  geom_point(color = "#ffa600", size = 2, alpha = 0.6) +
  labs(title = "UFO Sightings in West Over Time",
       x = "Year",
       y = "Number of Sightings") +
  scale_x_continuous(limits = c(1930, 2014), breaks = seq(1930, 2014, by = 10)) +
  scale_y_continuous(limits = c(0, 2500), breaks = seq(0, 2500, by = 250)) +
  theme_minimal()
```

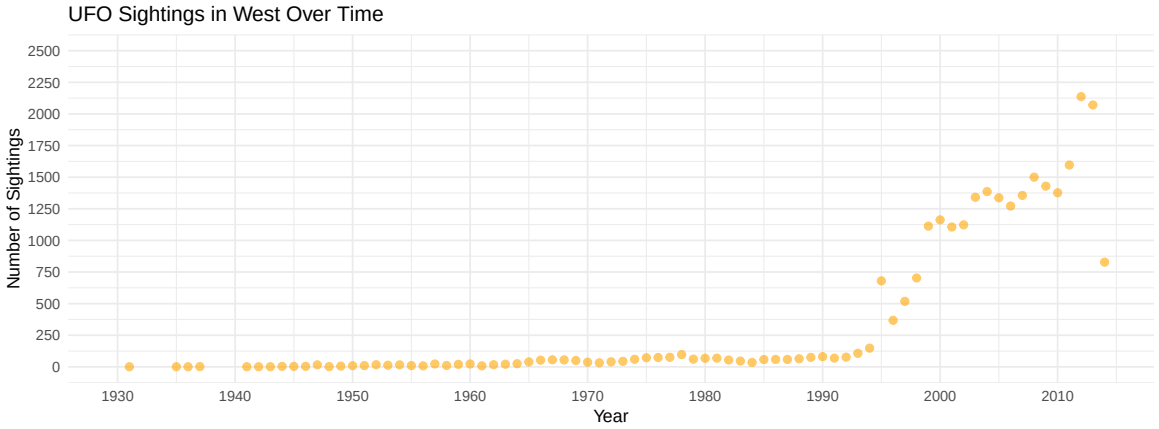
```
#Step 6 - Combine plots of each region using gridExtra

grid.arrange(plot_Northeast, plot_Midwest, plot_South, plot_West, ncol = 1)
```

```
## Warning: Removed 2 rows containing missing values (`geom_point()`).

## Warning: Removed 1 rows containing missing values (`geom_point()`).

## Warning: Removed 2 rows containing missing values (`geom_point()`).
```


UFO Sightings in Northeast Over Time
Number of Sightings
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
1930
1940
1950
1960
1970
1980
1990
2000
2010
Year


UFO Sightings in Midwest Over Time
Number of Sightings
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
1930
1940
1950
1960
1970
1980
1990
2000
2010
Year


UFO Sightings in South Over Time
Number of Sightings
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
1930
1940
1950
1960
1970
1980
1990
2000
2010
Year


UFO Sightings in West Over Time
Number of Sightings
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
1930
1940
1950
1960
1970
1980
1990
2000
2010
Year

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.