# First Year Exam

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Load dataset and assign to object:

```r
data <- read.csv("covid19_variants.csv")
```

Load necessary packages:

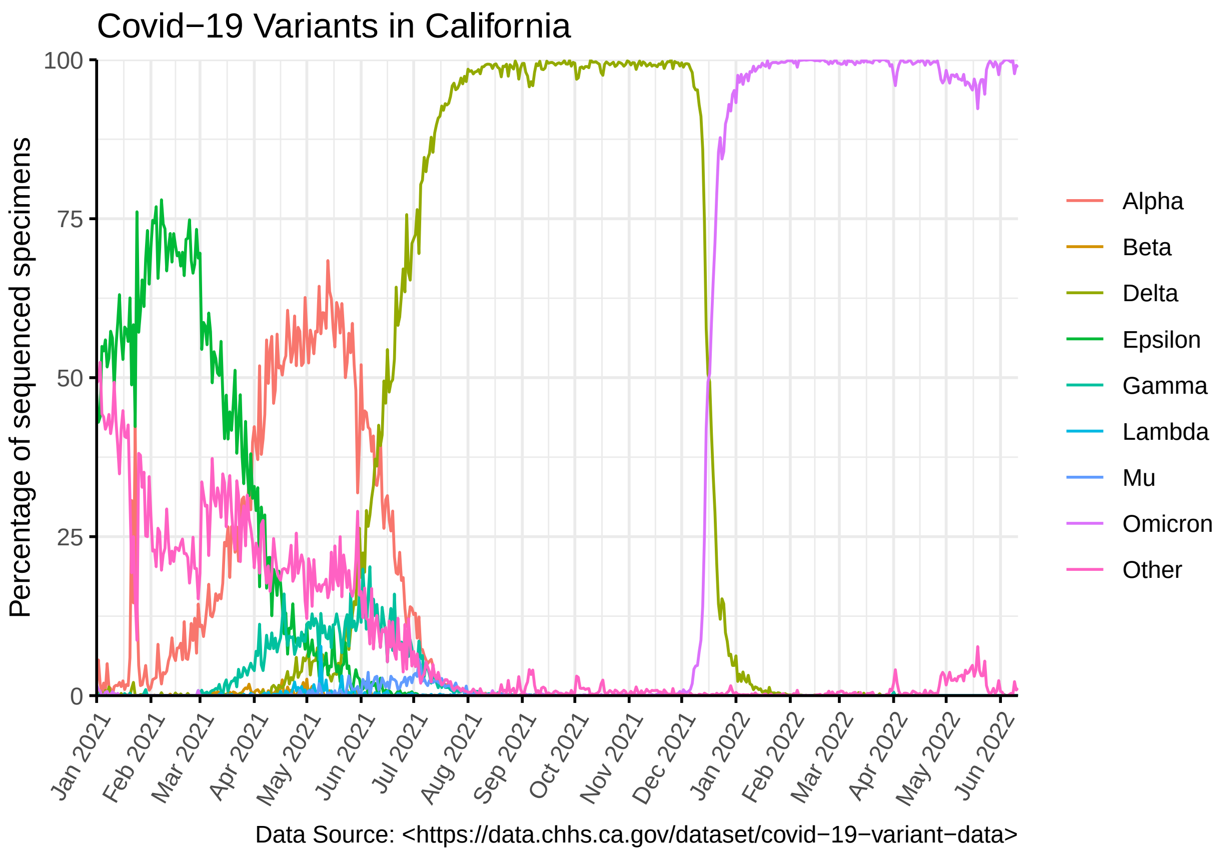
```r
library(lubridate)
library(dplyr)
library(ggplot2)
```

Convert dates to proper format using lubridate and append to dataset as new column:

```r
data$lubridate <- ymd(data$date)
```

Generate plot:

```r
# Filter data to exclude rows containing "Total" in variant_name column using dplyr
data %>%
  filter(variant_name != "Total") %>%

  # Generate ggplot for data
      # Set x to formatted dates and y to percentage of total sequenced specimens
  ggplot(aes(lubridate,percentage)) +

  # Add geom_line and group by variant
  geom_line(aes(color = variant_name)) +

  # Set theme to minimal
  theme_minimal() +

  # Format x axis using Month Year labels and 1 month intervals
      # Set x axis to start at minimum date value
  scale_x_date(date_labels = "%b %Y",
               date_breaks = "1 month",
               expand = c(0,0)) +

  # Format y axis to begin at 0 and end at 100
  scale_y_continuous(limits = c(0,100),
                     expand = c(0,0)) +
# Add y axis title
ylab("Percentage of sequenced specimens") +

# Edit theme and add axis lines
theme(axis.line = element_line(),

      # Remove x axis title
      axis.title.x = element_blank(),

      # Rotate and position x axis labels
      axis.text.x = element_text(angle = 60,
                                 hjust = 1),

      # Add axis ticks
      axis.ticks = element_line(),

      # Remove legend title
      legend.title = element_blank()) +

# Add plot title
ggtitle("Covid-19 Variants in California") +

# Add caption with data source
labs(caption = "Data Source: <https://data.chhs.ca.gov/dataset/covid-19-variant-data>")
```


Covid−19 Variants in California
Percentage of sequenced specimens
Jan 2021
Feb 2021
Mar 2021
Apr 2021
May 2021
Jun 2021
Jul 2021
Aug 2021
Sep 2021
Oct 2021
Nov 2021
Dec 2021
Jan 2022
Feb 2022
Mar 2022
Apr 2022
May 2022
Jun 2022
Alpha
Beta
Delta
Epsilon
Gamma
Lambda
Mu
Omicron
Other
Data Source: <https://data.chhs.ca.gov/dataset/covid−19−variant−data>