

# Creating Line Graphs: Takeaways

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## Syntax

- Loading ggplot2:

```
library(ggplot2)
```

- Creating a plot using a data frame:

```
ggplot(data = data_frame
```

- Defining the variables you want to map to your graph:

```
ggplot(data = data_frame,  
  aes(x = variable_1, y = variable_2))
```

- Adding a line to your graph:

```
ggplot(data = data_frame,  
  aes(x = variable_1, y = variable_2)) +  
  geom_line()
```

- Adding graph titles and axis labels:

```
ggplot(data = data_frame,  
  aes(x = variable_1, y = variable_2)) +  
  geom_line() +  
  labs(title = "Title of Graph", x = "new x label", y = "new y label")
```

- Changing the background of a graph:

```
ggplot(data = data_frame,  
  aes(x = variable_1, y = variable_2)) +  
  geom_line() +  
  labs(title = "Title of Graph", x = "new x label", y = "new y label") +  
  theme(panel.background = element_rect(fill = "background_color"))
```

## Concepts

- The `ggplot2` package is a systematic, consistent, and time efficient tool you can use to create high-quality visualizations.
- Plots are visual representations that use graphics like dots, lines, and bars to help you look for patterns in data.
- A line chart is a type of plot that is especially useful for visualizing changes over time. A line chart displays information as a series of data points connected by a line. Line charts are useful for depicting data this is continuous.
- The `gg` in `ggplot2` stands for Grammar of Graphics, which refers to a system for data visualization first described by Leland Wilkinson.
- The variable that changes depending on another variable is called the dependent variable.
- The variable that changes independent of another variable is called the independent variable.
- We can add layers to the graph using the `+` character followed by another layer.

## Resources

- [Grammar of Graphics](#)
- [ggplot2 Documentation](#)



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