Job Market Navigation

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Loading Required Libraries

```
library(tidyverse)
```

```
## -- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.1     v tibble    3.2.1
## v lubridate 1.9.3     v tidyr     1.3.1
## v purrr     1.0.2
## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors
```

```
library(dplyr)
library(readxl)
library(reshape2)
```

```
##
## Attaching package: 'reshape2'
##
## The following object is masked from 'package:tidyr':
##
##     smiths
```

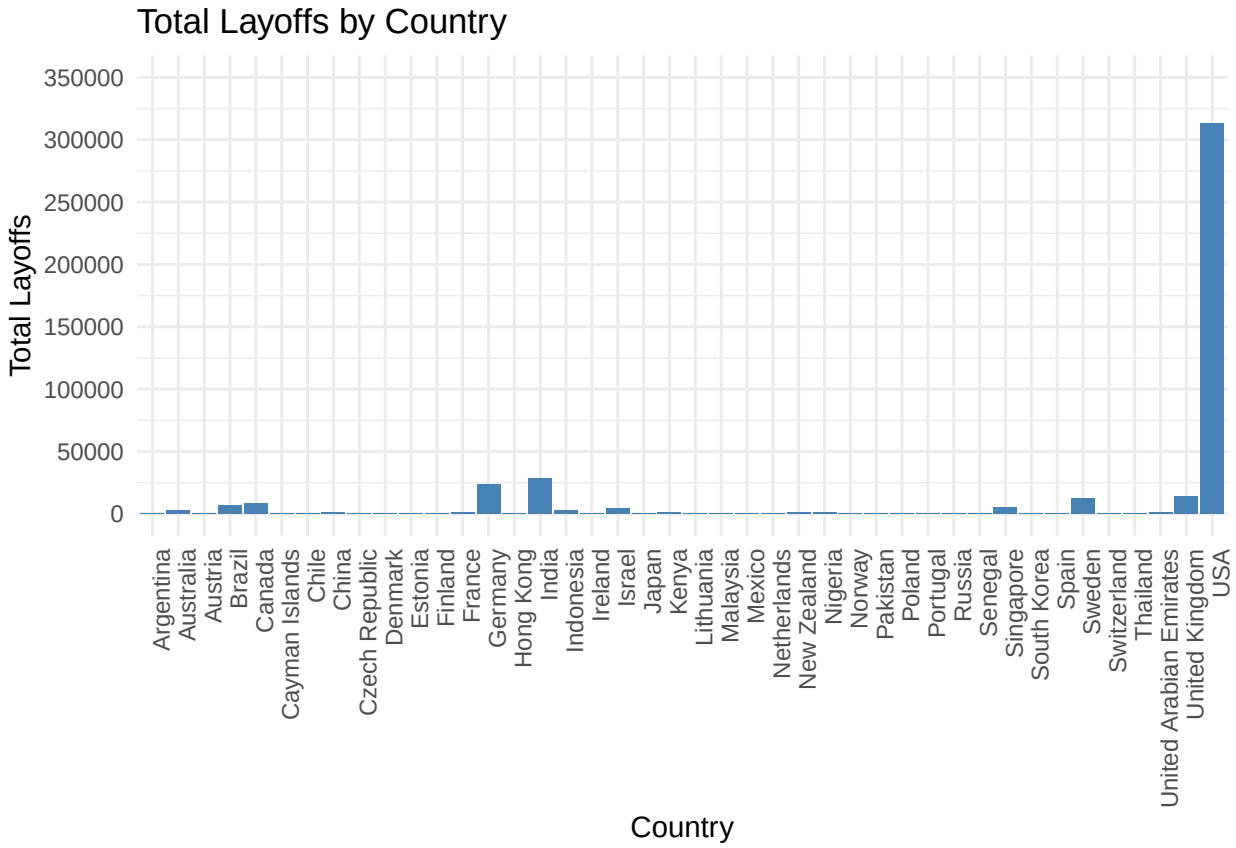
Loading the Data

```
data <- read_excel("tech_layoffs.xlsx")
```

Summary of Layoffs by Country

```
# Summarize total layoffs by country and arrange in descending order
country_layoffs <- data %>%
  group_by(Country) %>%
  summarise(Total_Layoffs = sum(Laid_Off, na.rm = TRUE)) %>%
  arrange(desc(Total_Layoffs))

# Plot total layoffs by country
ggplot(country_layoffs, aes(x = Country, y = Total_Layoffs)) +
  geom_bar(stat = "identity", fill = "steelblue") +
  labs(title = "Total Layoffs by Country", x = "Country", y = "Total Layoffs") +
```

```
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  scale_y_continuous(limits = c(0, 350000), breaks = seq(0, 350000, 50000))
```



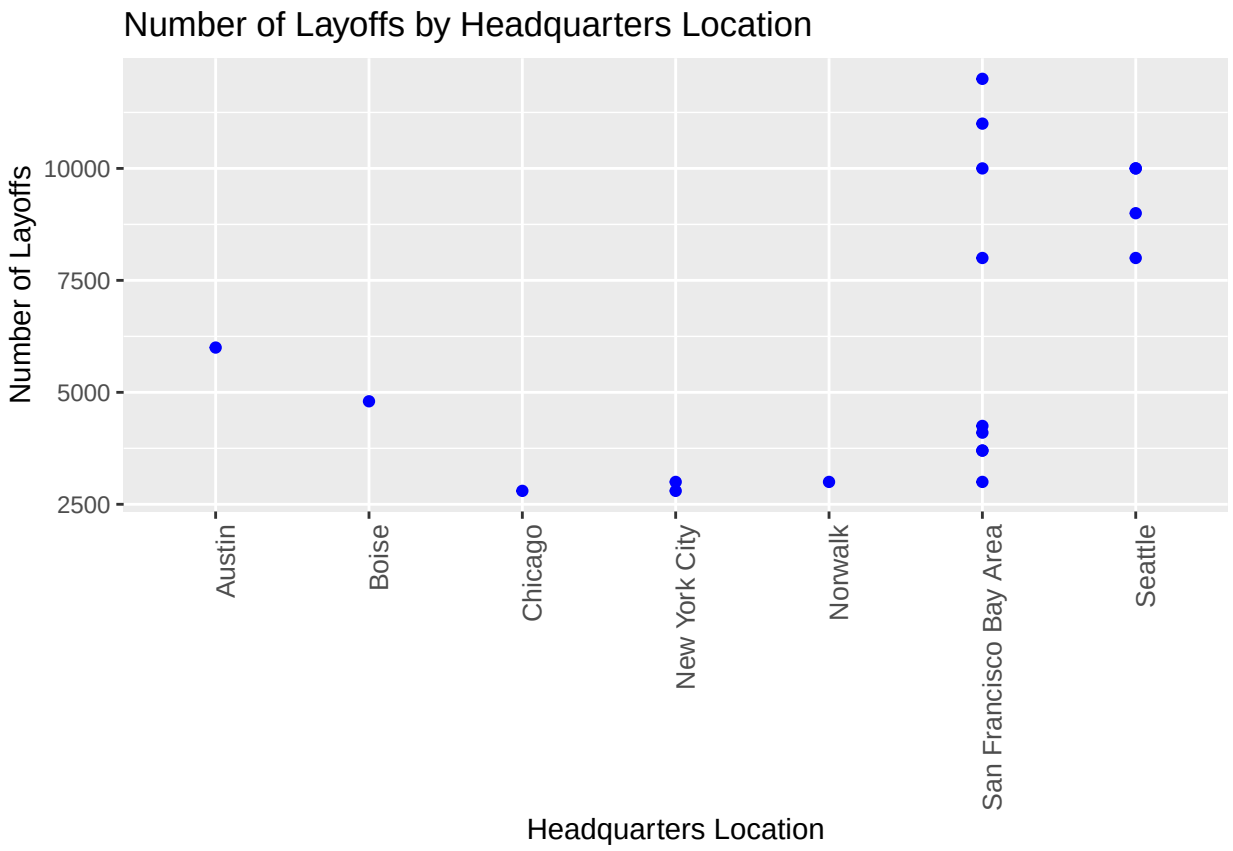
Summary Statistics for Layoffs in the USA

```
# Filter data for USA only
usa_data <- data %>%
  filter(Country == "USA")

# Calculate summary statistics for layoffs in the USA
summary_stats <- usa_data %>%
  summarise(
    Mean_Layoffs = mean(Laid_Off, na.rm = TRUE),
    Median_Layoffs = median(Laid_Off, na.rm = TRUE),
    SD_Layoffs = sd(Laid_Off, na.rm = TRUE),
    Total_Layoffs = sum(Laid_Off, na.rm = TRUE)
  )
summary_stats
```

```
## # A tibble: 1 x 4
##   Mean_Layoffs Median_Layoffs SD_Layoffs Total_Layoffs
##          <dbl>          <dbl>      <dbl>         <dbl>
## 1         311.             90       988.        313170
```

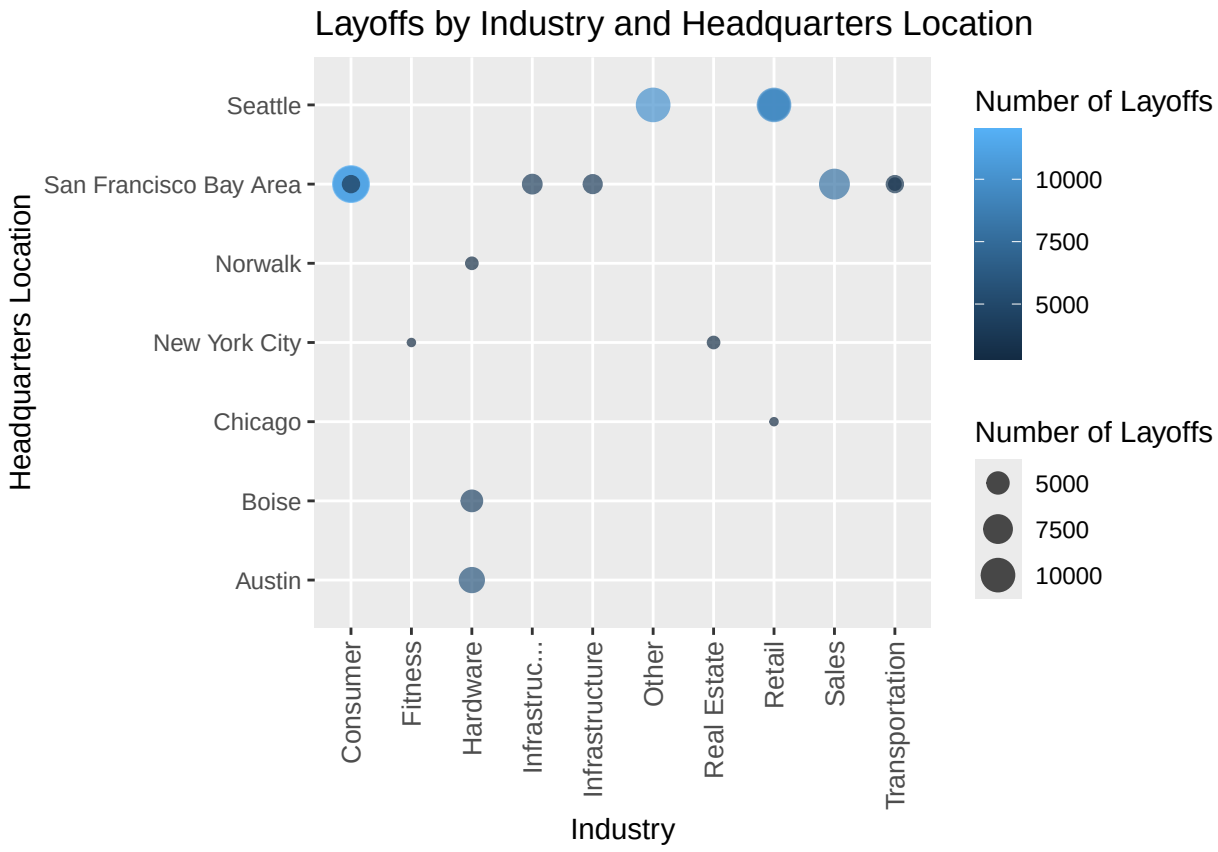
Layoffs by Headquarters Location in the USA (Layoffs > 2500)

```
# Plot number of layoffs by headquarters location in the USA (for layoffs > 2500)
ggplot(usa_data %>% filter(Laid_Off > 2500), aes(x = Location_HQ, y = Laid_Off)) +
  geom_point(color = "blue") +
  labs(title = "Number of Layoffs by Headquarters Location",
       x = "Headquarters Location",
       y = "Number of Layoffs") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1, vjust = 1, size = 10))
```



Layoffs by Industry and Headquarters Location (Layoffs > 2500)

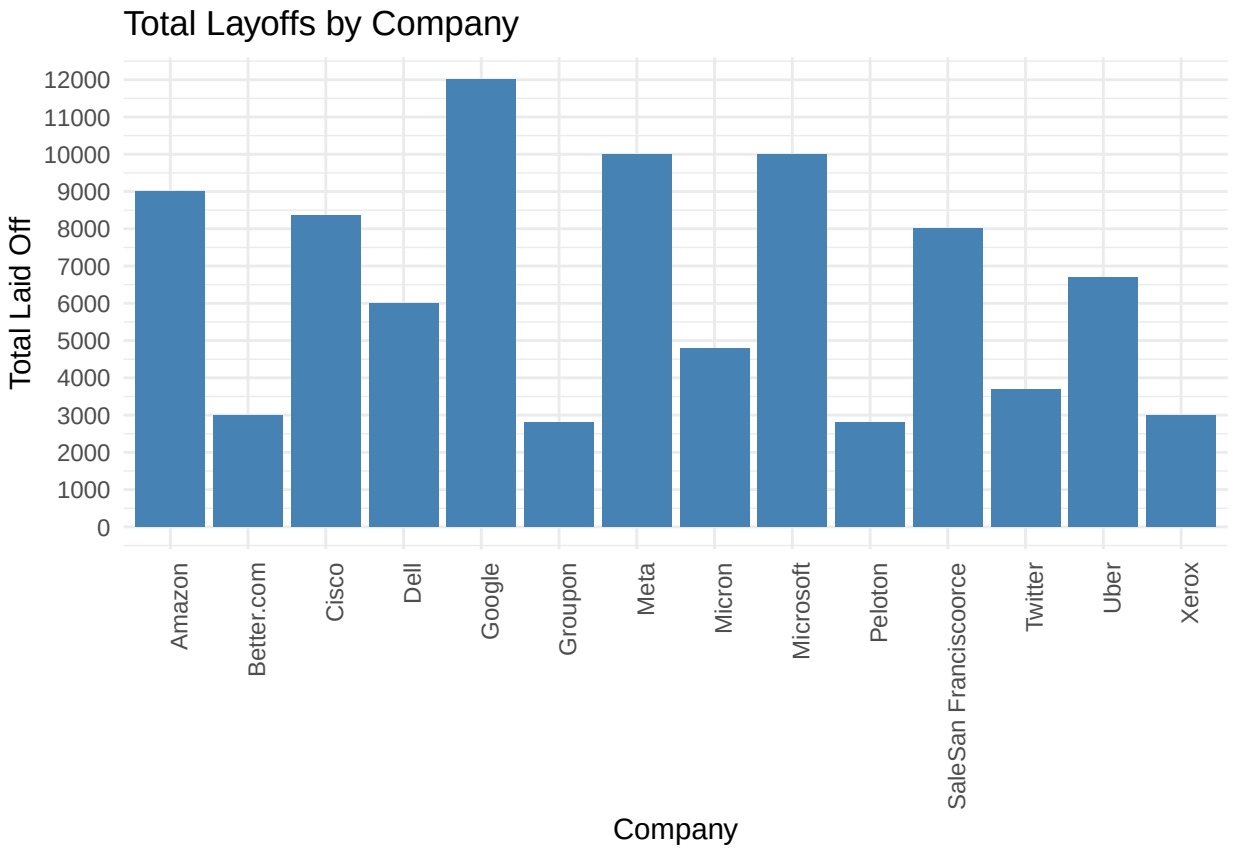
```
# Filter USA data for layoffs greater than 2500
filtered_data <- usa_data %>% filter(Laid_Off > 2500)

# Plot layoffs by industry and headquarters location
ggplot(filtered_data, aes(x = Industry, y = Location_HQ, size = Laid_Off, color = Laid_Off)) +
  geom_point(alpha = 0.7) +
  labs(title = "Layoffs by Industry and Headquarters Location",
       x = "Industry",
       y = "Headquarters Location",
       size = "Number of Layoffs",
       color = "Number of Layoffs") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5, size = 10))
```



Total Layoffs by Company (Layoffs > 2500)

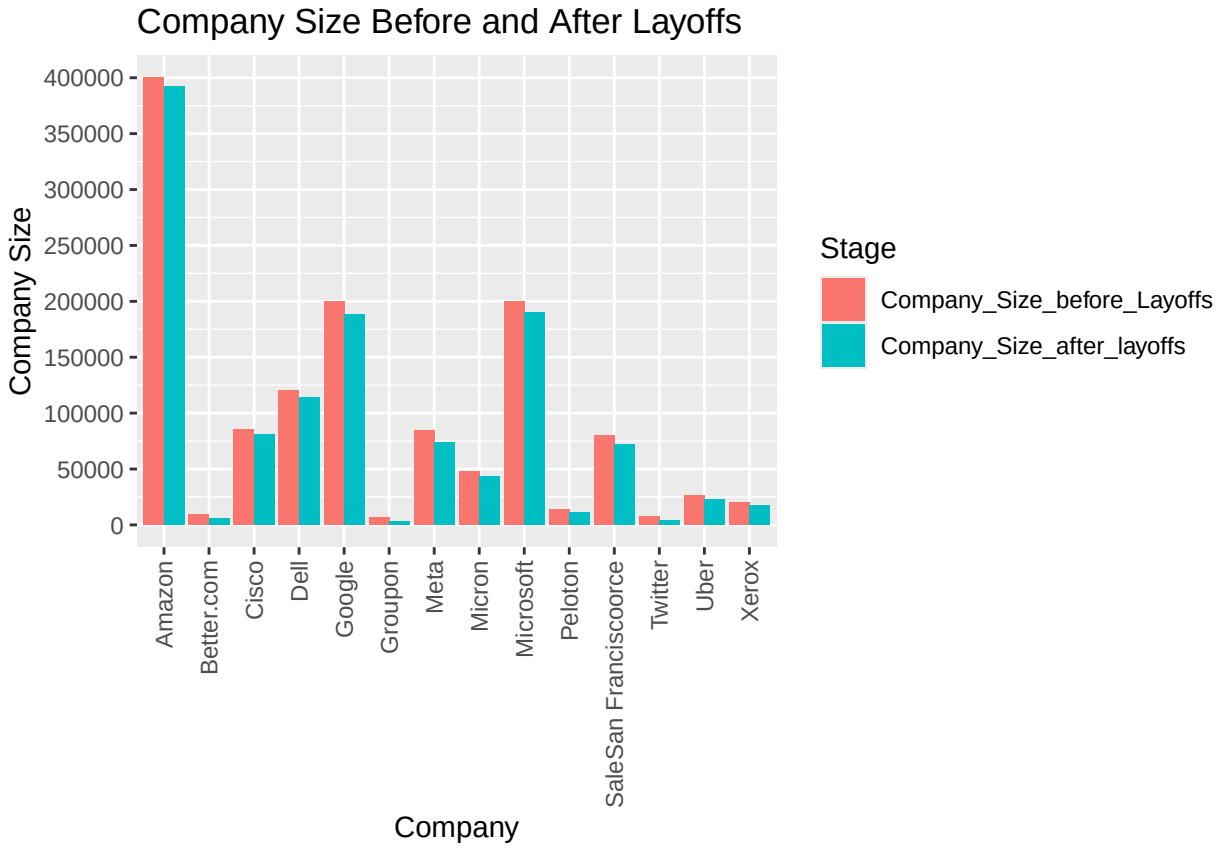
```
# Plot total layoffs by company for layoffs > 2500
ggplot(filtered_data, aes(x = Company, y = Laid_Off)) +
  geom_bar(stat = "identity", fill = "steelblue") +
  labs(title = "Total Layoffs by Company", x = "Company", y = "Total Laid Off") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  scale_y_continuous(limits = c(0, max(filtered_data$Laid_Off)), breaks = seq(0, max(filtered_data$Laid
```

```
## Warning: Removed 3 rows containing missing values or values outside the scale range
## (`geom_bar()`).
```



Company Size Before and After Layoffs

```r
# Convert filtered data from wide to long format for plotting company size before and after layoffs
filtered_long <- melt(filtered_data, id.vars = c("Company"),
                measure.vars = c("Company_Size_before_Layoffs", "Company_Size_after_layoffs"),
                variable.name = "Stage", value.name = "Company_Size")

# Plot company size before and after layoffs
ggplot(filtered_long, aes(x = Company, y = Company_Size, fill = Stage)) +
  geom_bar(stat = "identity", position = "dodge") +
  scale_y_continuous(breaks = seq(0, 400000, by = 50000)) +
  labs(title = "Company Size Before and After Layoffs",
       x = "Company",
       y = "Company Size") +
  theme(axis.text.x = element_text(angle = 90, vjust = 0.5, hjust=1))
```



Insights

Strategic Workforce Adjustments by Major Companies:

Companies such as Meta, Amazon, and Google have carried out considerable layoffs as part of broader strategic adjustments. These actions may be driven by financial constraints or a need to refocus on core business priorities.

Regional Exposure in Tech Hubs:

Tech hubs like the San Francisco Bay Area and Seattle have experienced significant layoffs, suggesting that these regions are particularly vulnerable to downturns in specific industries and shifting market conditions.

Variability in Workforce Stability:

Larger corporations have largely preserved substantial portions of their workforce even after layoffs, indicating a strategic approach to resizing. In contrast, smaller companies have experienced more severe workforce reductions, reflecting their struggle to adapt to rapid market changes.

Significant Layoff Concentration in the USA:

The United States has witnessed the highest number of layoffs, a trend likely driven by economic pressures, sector-specific challenges, and changes in global demand, making it more prone to widespread job cuts.

Challenges in Innovation Hubs:

Cities like San Francisco and Seattle, known for their strong innovation ecosystems, are facing serious challenges due to their heavy dependence on the tech industry, which is currently undergoing significant restructuring.

NOTE:

The following insights are derived purely from the analysis of statistical data