Tech_layoffs_2023

Reported layoffs in Tech Companies in 2023

Data is from https://layoffs.fyi/

Web scraping on Dec. 25th 2023

Printed table to a pdf file than created with Adobe Acrobat Reader a xlsx file.

Data cleaning - removed from location column non-USA.

Added two columns: company size before layoff and company size after layoffs.

Data cleaning layoffs2023_data: modified companies names, add two new columns: country and continent

Observations: There is a lot off missing data for the columns laid off and in Percent.

Libraries:

```
library(readxl)
library(tidyverse)
```

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.2     v readr     2.1.4
v forcats   1.0.0     v stringr   1.5.0
v ggplot2   3.4.4     v tibble    3.2.1
v lubridate 1.9.2     v tidyr     1.3.0
v purrr     1.0.1
-- 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 beco
```

```r
library(dplyr)
library(knitr)
library(ggplot2)
```

Dataset:

```r
Layoffs_Tracker <- read_excel("/Users/ulrike_imac_air/projects/Trial_and_error/data/Layoff
```

First look at the data:

```r
# head(Layoffs_Tracker)
# str(Layoffs_Tracker)
# colnames(Layoffs_Tracker)
# glimpse(Layoffs_Tracker)
```

Styles:

```r
my_colors <- c("darkblue", "darkslategray4", "azure3", "aquamarine2", "cornflowerblue", "c
```

Describing the Data:

```
[1] "There are 64 unique countries in the dataset"
```

List of the countries in the dataset with companies with reported layoffs in 2023

```
 [1] "Argentina"              "Australia"
 [3] "Austria"                "Bahrain"
 [5] "Belgium"                "Brazil"
 [7] "Bulgaria"               "Canada"
 [9] "Cayman Islands"         "Chile"
[11] "China"                  "Colombia"
[13] "Czech Republic"         "Denmark"
[15] "Egypt"                  "Estonia"
[17] "Finland"                "France"
[19] "Germany"                "Ghana"
[21] "Greece"                 "Hong Kong"
[23] "Hungary"                "India"
[25] "Indonesia"              "Ireland"
[27] "Israel"                 "Italy"
[29] "Japan"                  "Kenya"
[31] "Lithuania"              "Luxembourg"
```

```
[33] "Malaysia"                "Mexico"
[35] "Mexiko"                  "Myanmar"
[37] "Netherlands"             "New Zealand"
[39] "Nigeria"                 "Norway"
[41] "Pakistan"                "Peru"
[43] "Philippines"             "Poland"
[45] "Portugal"                "Romania"
[47] "Russia"                  "Saudi Arabia"
[49] "Senegal"                 "Seychelles"
[51] "Singapore"               "South Africa"
[53] "South Korea"             "Spain"
[55] "Sweden"                  "Switzerland"
[57] "Thailand"                "Turkey"
[59] "Ukraine"                 "United Arabian Emirates"
[61] "United Kingdom"          "Uruguay"
[63] "USA"                     "Vietnam"
```

Entries in Dataset:

```
[1] "The dataset has 3268 entries."
```

Companies in Dataset:

```
[1] "There are 2421 unique companies in the dataset"
```

Reported layoffs counted - going by country and continent:

```
# A tibble: 6 x 2
  Continent         n
  <chr>         <int>
1 North America  2207
2 Europe          444
3 Asia            383
4 South America   104
5 Australia        84
6 Africa           46
```

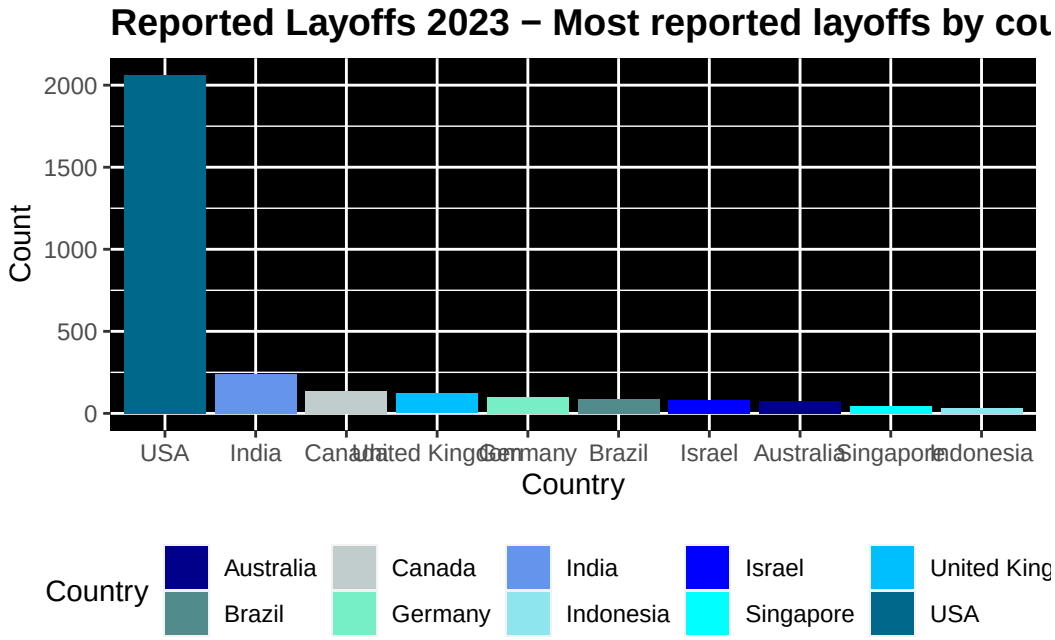
```
# A tibble: 64 x 2
   Country            n
   <chr>          <int>
```

```
 1 USA             2061
 2 India            240
 3 Canada           137
 4 United Kingdom   121
 5 Germany          100
 6 Brazil            86
 7 Israel            81
 8 Australia         74
 9 Singapore         45
10 Indonesia         35
# i 54 more rows
```

```
# A tibble: 10 x 2
   Country            n
   <chr>          <int>
 1 USA             2061
 2 India            240
 3 Canada           137
 4 United Kingdom   121
 5 Germany          100
 6 Brazil            86
 7 Israel            81
 8 Australia         74
 9 Singapore         45
10 Indonesia         35
```

Pie Chart:

Barplot:



Reported layoffs counted - going by location Headquarters, continent and country:

North America:

```
[1] "There are 97 unique HQ locations for North America in the dataset"
```

```
 [1] "Alamosa"          "Albany"           "Ann Arbor"
 [4] "Atlanta"          "Austin"           "Baltimore"
 [7] "Baton Rouge"      "Bend"             "Birmingham"
[10] "Bismarck"         "Boise"            "Boston"
[13] "Boulder"          "Burlington"       "Calgary"
[16] "Cayman Islands"   "Charleston"       "Charlotte"
[19] "Charlottesville"  "Chicago"          "Cincinnati"
[22] "Cleveland"        "Columbus"         "Dallas"
[25] "Davenport"        "Denver"           "Detroit"
[28] "Dover"            "Durham"           "Evansville"
[31] "Fayetteville"     "Ferdericton"      "Grand Rapids"
[34] "Guadalajara"      "Houston"          "Huntsville"
[37] "Indianapolis"     "Jacksonville"     "Jersey City"
[40] "Kansas City"      "Kitchener"        "Las Vegas"
[43] "Lehi"             "Lexington"        "Little Rock"
[46] "Logan"            "Los Angeles"      "Louisville"
```

```
[49] "Madison"                "Mexico City"           "Miami"
[52] "Milwaukee"              "Minneapolis"           "Missoula"
[55] "Monterrey"              "Montreal"              "Nashua"
[58] "Nashville"              "Nebraska City"         "New Haven"
[61] "New Hope"               "New Orleans"           "New York City"
[64] "Norfolk"                "Norwalk"               "Omaha"
[67] "Orlando"                "Ottawa"                "Philadelphia"
[70] "Phoenix"                "Pittsburgh"            "Portland"
[73] "Providence"             "Quebec"                "Raleigh"
[76] "Reno"                   "Richmond"              "Sacramento"
[79] "Salt Lake City"         "San Antonio"           "San Diego"
[82] "San Francisco Bay Area" "San Luise Obispo"      "Santa Barbara"
[85] "Santa Fe"               "Saskatoon"             "Seattle"
[88] "Spokane"                "St. Louis"             "Stamford"
[91] "Tampa Bay"              "Toronto"               "Vancouver"
[94] "Washington DC"          "Waterloo"              "Wilmington"
[97] "Winnipeg"
```

```
[1] "The dataset North America has 2207 entries."
```

```
[1] "There are 1609 unique companies for North America in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`              n
  <chr>                  <int>
1 San Francisco Bay Area   817
2 New York City            328
3 Boston                   147
4 Los Angeles              123
5 Seattle                  118
```

```
# A tibble: 5 x 2
  Country            n
  <chr>          <int>
1 USA             2061
2 Canada           137
3 Mexico             7
4 Cayman Islands     1
5 Mexiko             1
```

Reported layoffs counted - going by location Headquarters, continent and country:

South America:

```
# A tibble: 13 x 2
   `Location HQ`      n
   <chr>          <int>
 1 Sao Paulo         67
 2 Buenos Aires       6
 3 Curitiba           6
 4 Belo Horizente     5
 5 Bogota             5
 6 Santiago           5
 7 Blumenau           3
 8 Joinville          2
 9 Brasilia           1
10 Florianopolis      1
11 Lima               1
12 Montevideo         1
13 Porto Alegro       1
```

```
[1] "There are 13 unique HQ locations for South America in the dataset"
```

```
 [1] "Belo Horizente" "Blumenau"       "Bogota"         "Brasilia"
 [5] "Buenos Aires"   "Curitiba"       "Florianopolis"  "Joinville"
 [9] "Lima"           "Montevideo"     "Porto Alegro"   "Santiago"
[13] "Sao Paulo"
```

```
[1] "The dataset South America has 104 entries."
```

```
[1] "There are 82 unique companies for South America in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`      n
  <chr>          <int>
1 Sao Paulo         67
2 Buenos Aires       6
3 Curitiba           6
4 Belo Horizente     5
5 Bogota             5
```

```
# A tibble: 6 x 2
  Country       n
  <chr>     <int>
1 Brazil       86
2 Argentina     6
3 Chile         5
4 Colombia      5
5 Peru          1
6 Uruguay       1
```

Reported layoffs counted - going by location Headquarters, continent and country:

Europe (with Israel and Turkey):

```
# A tibble: 68 x 2
   `Location HQ`     n
   <chr>         <int>
 1 London          110
 2 Berlin           80
 3 Tel Aviv         74
 4 Stockholm        26
 5 Amsterdam        17
 6 Paris            13
 7 Tallinn           9
 8 Dublin            8
 9 Munich            7
10 Helsinki          6
# i 58 more rows
```

```
[1] "There are 68 unique HQ locations for Europe in the dataset"
```

```
 [1] "Amsterdam"             "Athens"                "Barcelona"
 [4] "Berlin"                "Bristol"               "Brno"
 [7] "Brussels"              "Bucharest"             "Budapest"
[10] "Chemnitz"              "Chester"               "Cluj-Napoca"
[13] "Coimbra"               "Copenhagen"            "Cork"
[16] "Dublin"                "Dusseldorf"            "Düsseldorf"
[19] "Edinburgh"             "Eindhoven"             "Førde"
[22] "Frankfurt"             "Geneva"                "Gothenburg"
[25] "Gydnia"                "Haifa"                 "Hamburg"
[28] "Helsinki"              "Istanbul"              "Jerusalem"
```

```
[31] "Karlsruhe"              "Kfar Saba"              "Kiel"
[34] "Krakow"                 "Kyiv"                   "Leeds"
[37] "Linz"                   "Lisbon"                 "Lodz"
[40] "London"                 "Luxembourg"             "Madrid"
[43] "Malmö"                  "Manchester"             "Milan"
[46] "Moscow"                 "Munich"                 "Oslo"
[49] "Oxford"                 "Paris"                  "Prague"
[52] "Ra'anana"               "San Francisco Bay Area" "Sandnes"
[55] "Sofia"                  "Stockholm"              "Tallinn"
[58] "Tel Aviv"               "The Hague"              "Toulouse"
[61] "Trondheim"              "Vienna"                 "Vilnius"
[64] "Walldorf"               "Warsaw"                 "Wrocław"
[67] "Zug"                    "Zurich"
```

```
[1] "The dataset Europe has 444 entries."
```

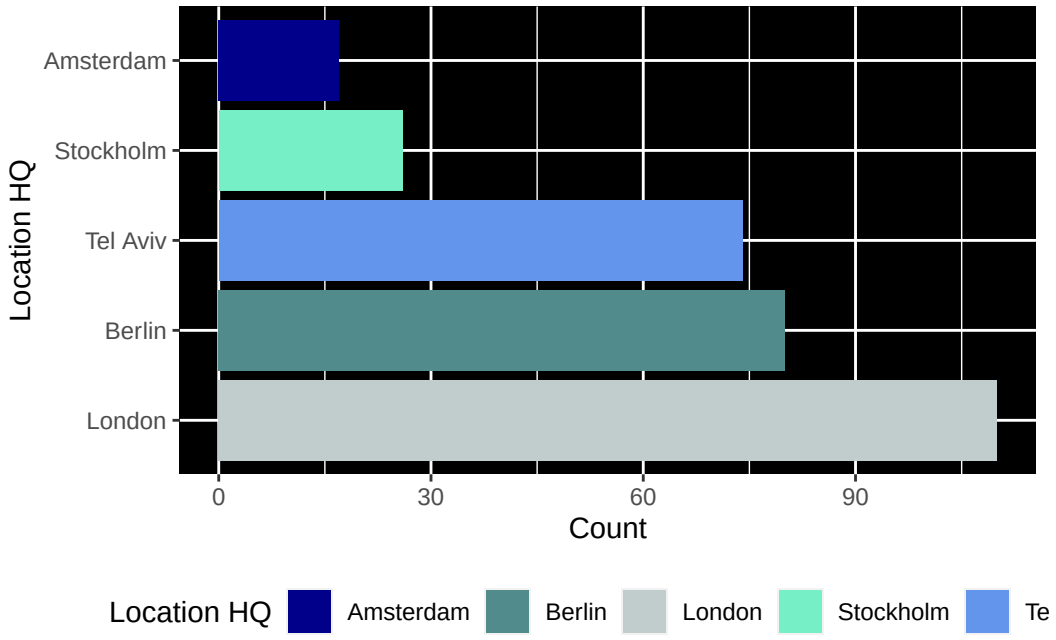
```
[1] "There are 363 unique companies for Europe in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 London          110
2 Berlin           80
3 Tel Aviv         74
4 Stockholm        26
5 Amsterdam        17
```

```
# A tibble: 28 x 2
   Country            n
   <chr>          <int>
 1 United Kingdom   121
 2 Germany          100
 3 Israel            81
 4 Sweden            30
 5 Netherlands       19
 6 France            14
 7 Estonia            9
 8 Ireland            9
 9 Finland            6
10 Norway             6
# i 18 more rows
```

```
# A tibble: 5 x 2
  Country            n
  <chr>          <int>
1 United Kingdom   121
2 Germany          100
3 Israel            81
4 Sweden            30
5 Netherlands       19
```

Barplot:



Reported layoffs counted - going by location Headquarters, continent and country:

Asia:

```
# A tibble: 34 x 2
   `Location HQ`     n
   <chr>         <int>
 1 Bengaluru       138
 2 Singapore        45
 3 Jakarta          36
 4 Mumbai           35
 5 Gurugram         31
```

```
 6 New Delhi        19
 7 Bejing           11
 8 Shanghai          8
 9 Shenzen           8
10 Dubai             7
# i 24 more rows
```

```
[1] "There are 34 unique HQ locations for Asia in the dataset"
```

```
 [1] "Ahmedabad"        "Bangkok"          "Bejing"           "Bengaluru"
 [5] "Chennai"          "Dubai"            "Gurugram"         "Hangzhou"
 [9] "Hanoi"            "Ho Chi Minh City" "Hong Kong"        "Hyderabad"
[13] "Indore"           "IndorePatna"      "Jakarta"          "Karachi"
[17] "Kolkata"          "Kuala Lumpur"     "Lahore"           "Manama"
[21] "Manila"           "Mumbai"           "New Delhi"        "Noida"
[25] "Pune"             "Riyadh"           "Selangor"         "Seoul"
[29] "Shanghai"         "Shenzen"          "Singapore"        "Tokyo"
[33] "Yangon"
```

```
[1] "The dataset Asia has 383 entries."
```

```
[1] "There are 296 unique companies for Asia in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Bengaluru       138
2 Singapore        45
3 Jakarta          36
4 Mumbai           35
5 Gurugram         31
```

```
# A tibble: 16 x 2
   Country                    n
   <chr>                  <int>
 1 India                    240
 2 Singapore                 45
 3 Indonesia                 35
 4 China                     29
 5 United Arabian Emirates    7
 6 Hong Kong                  6
```

```
 7 Malaysia                    4
 8 Japan                       3
 9 Pakistan                    3
10 South Korea                 3
11 Vietnam                     3
12 Bahrain                     1
13 Myanmar                     1
14 Philippines                 1
15 Saudi Arabia                1
16 Thailand                    1
```

```
# A tibble: 5 x 2
  Country                     n
  <chr>                   <int>
1 India                     240
2 Singapore                  45
3 Indonesia                  35
4 China                      29
5 United Arabian Emirates     7
```

Reported layoffs counted - going by location Headquarters, continent and country:

Africa:

```
# A tibble: 11 x 2
   `Location HQ`     n
   <chr>         <int>
 1 Lagos            20
 2 Nairobi          12
 3 Ibadan            3
 4 Accra             2
 5 Cairo             2
 6 <NA>              2
 7 Abuja             1
 8 Beau Vallon       1
 9 Cape Town         1
10 Dakar             1
11 Victoria          1
```

```
[1] "There are 11 unique HQ locations for Africa in the dataset"
```

```
 [1] "Abuja"       "Accra"       "Beau Vallon" "Cairo"       "Cape Town"
 [6] "Dakar"       "Ibadan"      "Lagos"       "Nairobi"     "Victoria"
```

```
[1] "The dataset Africa has 46 entries."
```

```
[1] "There are 37 unique companies for Africa in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Lagos            20
2 Nairobi          12
3 Ibadan            3
4 Accra             2
5 Cairo             2
```

```
# A tibble: 7 x 2
  Country          n
  <chr>        <int>
1 Nigeria         24
2 Kenya           12
3 Seychelles       4
4 Egypt            2
5 Ghana            2
6 Senegal          1
7 South Africa     1
```

Reported layoffs counted - going by location Headquarters, continent and country:

Australia:

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Sydney           45
2 Melbourne        20
3 Brisbane          9
4 Auckland          8
5 Wellington        2
```

```
[1] "There are 5 unique HQ locations for Australia in the dataset"
```

```
[1] "Auckland"   "Brisbane"   "Melbourne"  "Sydney"     "Wellington"
```

```
[1] "The dataset Australia has 84 entries."
```

```
[1] "There are 69 unique companies for Australia in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Sydney           45
2 Melbourne        20
3 Brisbane          9
4 Auckland          8
5 Wellington        2
```

```
# A tibble: 2 x 2
  Country         n
  <chr>       <int>
1 Australia      74
2 New Zealand    10
```

Reported layoffs counted - going by location Headquarters

USA:

```
[1] "There are 82 unique HQ locations for the USA in the dataset"
```

```
 [1] "Alamosa"               "Albany"                "Ann Arbor"
 [4] "Atlanta"               "Austin"                "Baltimore"
 [7] "Baton Rouge"           "Bend"                  "Birmingham"
[10] "Bismarck"              "Boise"                 "Boston"
[13] "Boulder"               "Burlington"            "Charleston"
[16] "Charlotte"             "Charlottesville"       "Chicago"
[19] "Cincinnati"            "Cleveland"             "Columbus"
[22] "Dallas"                "Davenport"             "Denver"
[25] "Detroit"               "Dover"                 "Durham"
[28] "Evansville"            "Fayetteville"          "Grand Rapids"
[31] "Houston"               "Huntsville"            "Indianapolis"
[34] "Jacksonville"          "Jersey City"           "Kansas City"
```

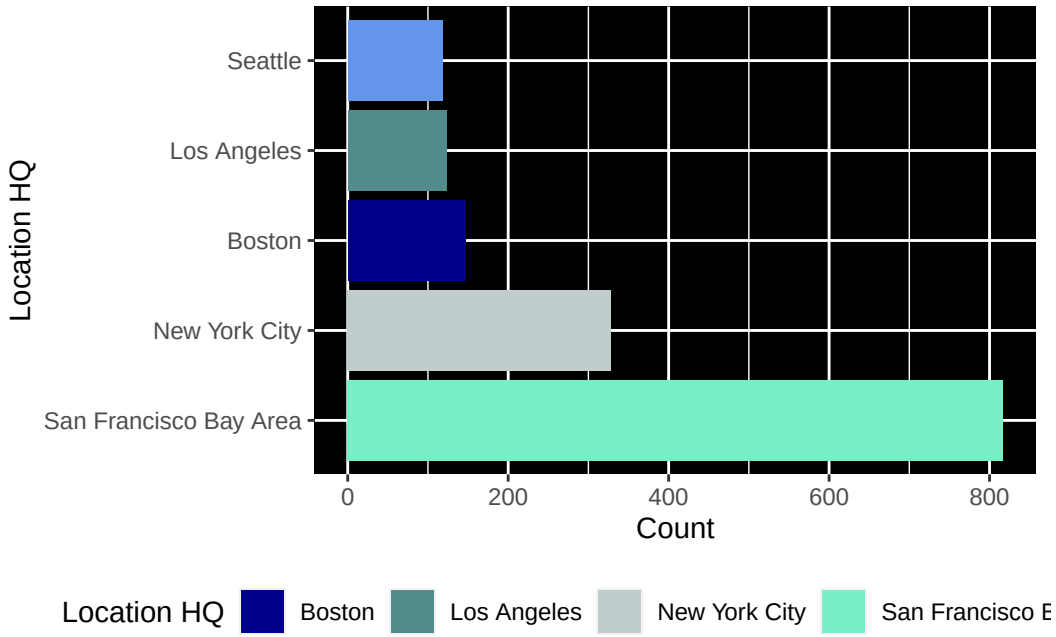
```
[37] "Las Vegas"              "Lehi"                   "Lexington"
[40] "Little Rock"            "Logan"                  "Los Angeles"
[43] "Louisville"             "Madison"                "Miami"
[46] "Milwaukee"              "Minneapolis"            "Missoula"
[49] "Nashua"                 "Nashville"              "Nebraska City"
[52] "New Haven"              "New Hope"               "New Orleans"
[55] "New York City"          "Norfolk"                "Norwalk"
[58] "Omaha"                  "Orlando"                "Philadelphia"
[61] "Phoenix"                "Pittsburgh"             "Portland"
[64] "Providence"             "Raleigh"                "Reno"
[67] "Richmond"               "Sacramento"             "Salt Lake City"
[70] "San Antonio"            "San Diego"              "San Francisco Bay Area"
[73] "San Luise Obispo"       "Santa Barbara"          "Santa Fe"
[76] "Seattle"                "Spokane"                "St. Louis"
[79] "Stamford"               "Tampa Bay"              "Washington DC"
[82] "Wilmington"
```

```
[1] "The dataset USA has 2061 entries."
```

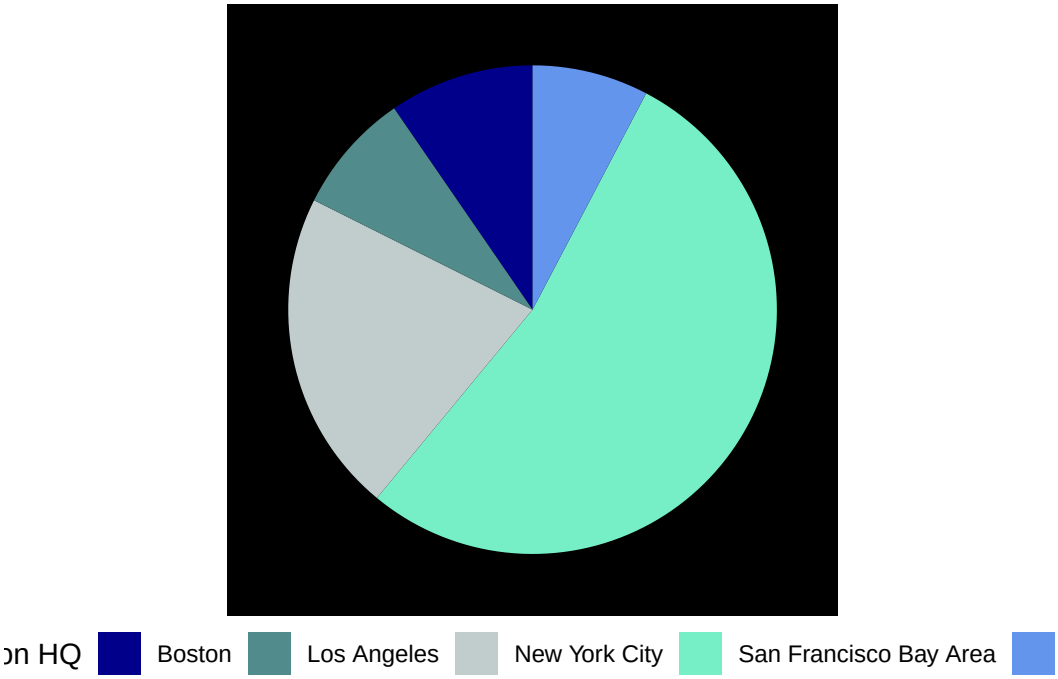
```
[1] "There are 1496 unique companies in the USA in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`              n
  <chr>                  <int>
1 San Francisco Bay Area   817
2 New York City            328
3 Boston                   147
4 Los Angeles              123
5 Seattle                  118
```

Barplot:



Piechart:



India:

```
[1] "There are 13 unique HQ locations in India in the dataset"
```

```
 [1] "Ahmedabad"   "Bengaluru"   "Chennai"     "Gurugram"    "Hyderabad"
 [6] "Indore"      "IndorePatna" "Jakarta"     "Kolkata"     "Mumbai"
[11] "New Delhi"   "Noida"       "Pune"
```

```
[1] "The dataset India has 240 entries."
```

```
[1] "There are 182 unique companies in India in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Bengaluru       138
2 Mumbai           35
3 Gurugram         31
4 New Delhi        19
5 Chennai           6
```

Canada:

```
[1] "There are 11 unique HQ locations in Canada in the dataset"
```

```
 [1] "Calgary"     "Ferdericton" "Kitchener"   "Montreal"    "Ottawa"
 [6] "Quebec"      "Saskatoon"   "Toronto"     "Vancouver"   "Waterloo"
[11] "Winnipeg"
```

```
[1] "The dataset Canada has 137 entries."
```

```
[1] "There are 107 unique companies in Canada in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Toronto          69
2 Vancouver        22
3 Montreal         20
4 Calgary           7
5 Ottawa            6
```

The United Kingdom:

```
[1] "There are 7 unique HQ locations for the United Kingdom in the dataset"
```

```
[1] "Bristol"    "Chester"    "Edinburgh"  "Leeds"      "London"
[6] "Manchester" "Oxford"
```

```
[1] "The dataset United Kingdom has 121 entries."
```

```
[1] "There are 101 unique companies in the United Kingdom in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 London          110
2 Edinburgh         3
3 Manchester        3
4 Bristol           2
5 Chester           1
```

Germany:

```
[1] "There are 10 unique HQ locations in Germany in the dataset"
```

```
 [1] "Berlin"     "Chemnitz"   "Dusseldorf" "Düsseldorf" "Frankfurt"
 [6] "Hamburg"    "Karlsruhe"  "Kiel"       "Munich"     "Walldorf"
```

```
[1] "The dataset Germany has 100 entries."
```

```
[1] "There are 76 unique companies in Germany in the dataset"
```

```
# A tibble: 5 x 2
  `Location HQ`     n
  <chr>         <int>
1 Berlin           80
2 Munich            7
3 Hamburg           5
4 Karlsruhe         2
5 Chemnitz          1
```