tech_layoffs_2023_without_na

Reported layoffs in Tech Companies in 2023 - Dataset without NAs

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.

Packages:

Libraries:

```
-- Attaching core tidyverse packages ------------------------ tidyverse 2.0.0 --
v dplyr     1.1.4     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 becor
Loading required package: viridisLite
```

Dataset:

Removing rows with missing values from Dataset:

Table 1: Data summary

Name	Layoffs_Tracker_without_n...
Number of rows	1385
Number of columns	17
_____	
Column type frequency:	
character	9
numeric	6
POSIXct	2
_____	
Group variables	None

Variable type: character

skim_variable	n_missing	complete_rate	min	max	empty	n_unique	whitespace
Company	0	1	2	29	0	1119	0
Location_HQ	0	1	4	22	0	128	0
Country	0	1	3	23	0	37	0
Continent	0	1	4	13	0	6	0
Industry	0	1	2	14	0	30	0
Source	0	1	8	34	0	389	0
Stage	0	1	4	16	0	16	0
Money_Raised_in_$_mil	0	1	2	7	0	538	0
day_month	0	1	4	6	0	311	0

Variable type: numeric

skim_variable	n_missing	complete_rate	mean	sd	p0	p25	p50	p75	p100	hist
#	0	1	1810.70	913.41	3	1033.00	1875.00	2582	3267	
Laid_Off	0	1	254.32	813.48	3	40.00	85.00	191	12000	
Percentage	0	1	21.92	20.47	1	10.00	15.00	27	100	
Company_Size_before_layoffs	0	1	2859.06	17335.80	4	211.11	520.00	1375	400000	
Company_Size_after_layoffs	0	1	2604.74	16709.72	0	150.00	420.33	1150	392000	
Year	0	1	2021.85	1.13	2020	2022.00	2022.00	2023	2023	

Variable type: POSIXct

skim_variable	n_missing	complete_rate	min	max	median	n_unique
Date_layoffs	0	1	2020-03-12	2023-12-20	2022-09-15	500
Date_Added	0	1	2020-03-28	2023-12-23	2022-09-22	512

```
[1] 2859.058
```

```
[1] 520
```

```
[1] 2604.742
```

```
[1] 420.3333
```

Styles:

Overview:

```
# A tibble: 37 x 2
   Country            n
   <chr>          <int>
 1 USA              881
 2 India             97
 3 Canada            78
 4 Israel            53
 5 Brazil            48
 6 Germany           48
 7 United Kingdom    47
 8 Australia         26
 9 Singapore         19
10 Sweden            14
# i 27 more rows
```

```
# A tibble: 10 x 2
   Country            n
   <chr>          <int>
 1 USA              881
 2 India             97
 3 Canada            78
 4 Israel            53
 5 Brazil            48
 6 Germany           48
```

```
 7 United Kingdom    47
 8 Australia         26
 9 Singapore         19
10 Sweden            14
```

```
[1] "There are 37 unique countries in the dataset"
```

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

```
 [1] "Argentina"               "Australia"
 [3] "Austria"                 "Brazil"
 [5] "Canada"                  "Chile"
 [7] "China"                   "Denmark"
 [9] "Estonia"                 "Finland"
[11] "France"                  "Germany"
[13] "Hong Kong"               "India"
[15] "Indonesia"               "Ireland"
[17] "Israel"                  "Japan"
[19] "Kenya"                   "Malaysia"
[21] "Mexico"                  "Netherlands"
[23] "New Zealand"             "Nigeria"
[25] "Norway"                  "Portugal"
[27] "Russia"                  "Senegal"
[29] "Singapore"               "South Korea"
[31] "Spain"                   "Sweden"
[33] "Switzerland"             "Thailand"
[35] "United Arabian Emirates" "United Kingdom"
[37] "USA"
```

Entries in Dataset:

```
[1] "The dataset has 1385 entries."
```

Companies in Dataset:

```
[1] "There are 1119 unique companies in the dataset"
```

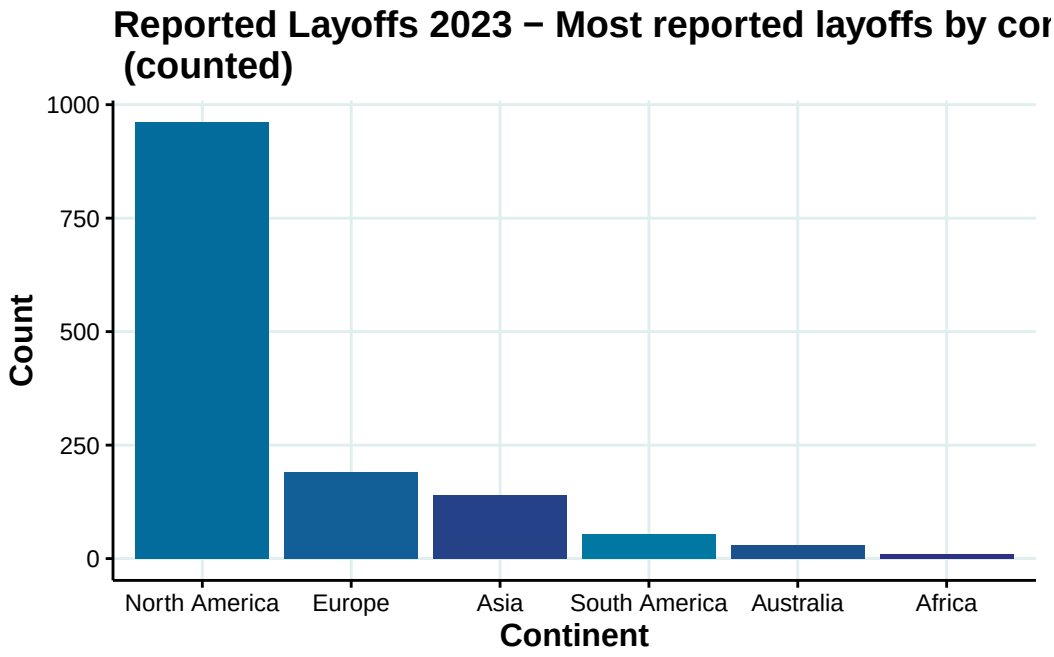
Reported layoffs counted - going by country and continent:

```
# A tibble: 6 x 2
  Continent         n
  <chr>         <int>
1 North America   961
2 Europe          191
3 Asia            140
4 South America    53
5 Australia        29
6 Africa           11
```

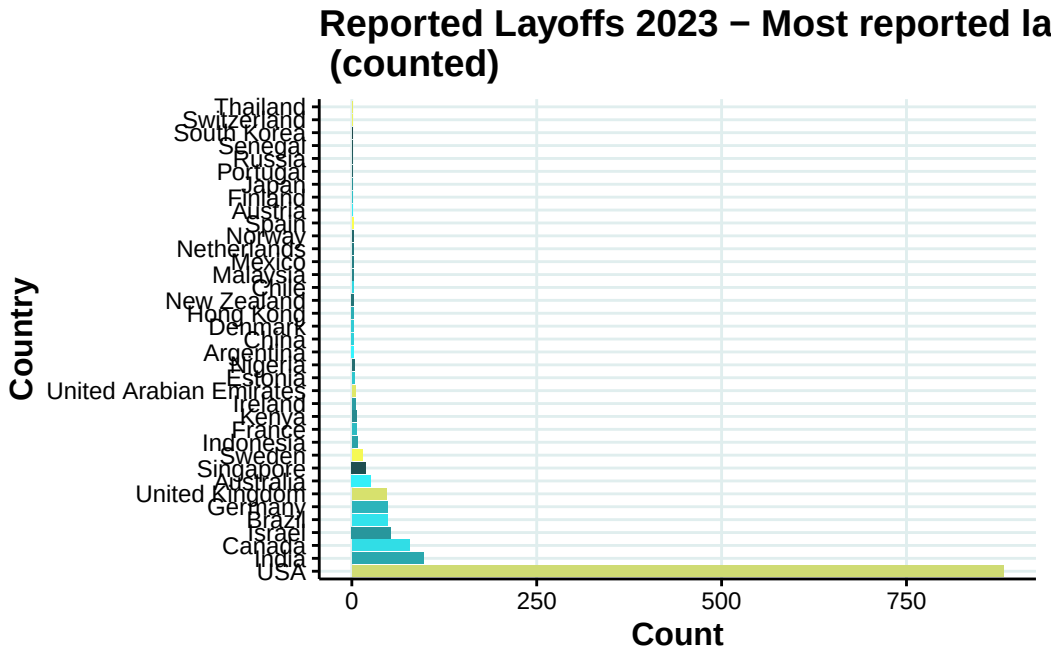
```
# A tibble: 37 x 2
   Country            n
   <chr>          <int>
 1 USA              881
 2 India             97
 3 Canada            78
 4 Israel            53
 5 Brazil            48
 6 Germany           48
 7 United Kingdom    47
 8 Australia         26
 9 Singapore         19
10 Sweden            14
# i 27 more rows
```

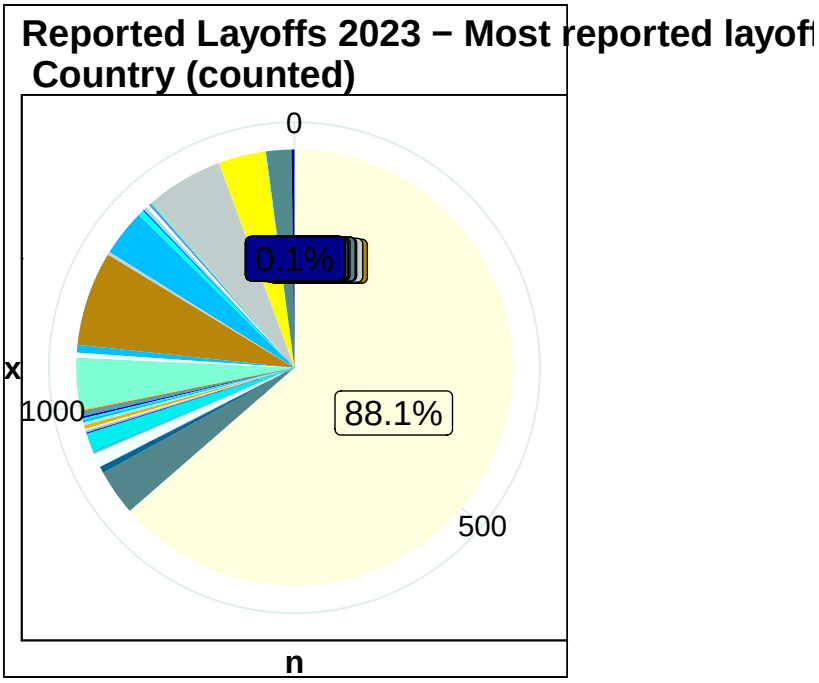
```
# A tibble: 10 x 2
   Country            n
   <chr>          <int>
 1 USA              881
 2 India             97
 3 Canada            78
 4 Israel            53
 5 Brazil            48
 6 Germany           48
 7 United Kingdom    47
 8 Australia         26
 9 Singapore         19
10 Sweden            14
```

Barplot: Continent count

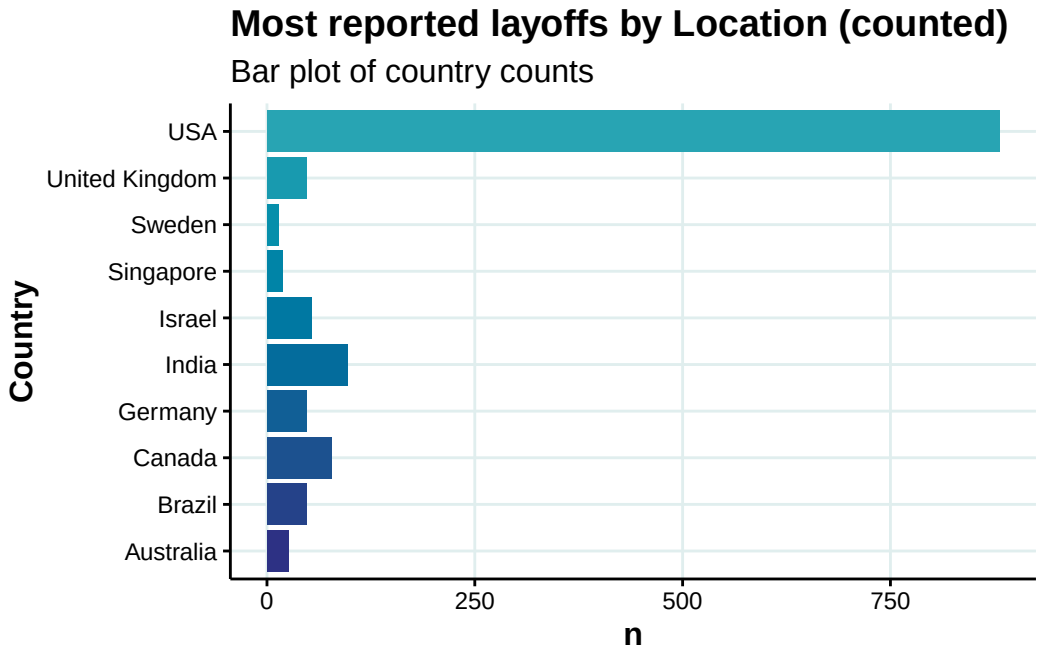


Barplot: Countries





Barplot: TOP 10 Countries



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

North America:

```
[1] "There are 61 unique HQ locations for North America in the dataset"
```

```
 [1] "Ann Arbor"              "Atlanta"               "Austin"
 [4] "Baltimore"              "Bend"                  "Boise"
 [7] "Boston"                 "Boulder"               "Burlington"
[10] "Calgary"                "Chicago"               "Cincinnati"
[13] "Columbus"               "Dallas"                "Denver"
[16] "Detroit"                "Dover"                 "Ferdericton"
[19] "Guadalajara"            "Indianapolis"          "Kansas City"
[22] "Kitchener"              "Las Vegas"             "Lehi"
[25] "Logan"                  "Los Angeles"           "Madison"
[28] "Mexico City"            "Miami"                 "Milwaukee"
[31] "Minneapolis"            "Missoula"              "Montreal"
[34] "Nashua"                 "Nashville"             "Nebraska City"
[37] "New York City"          "Ottawa"                "Philadelphia"
[40] "Phoenix"                "Pittsburgh"            "Portland"
[43] "Raleigh"                "Reno"                  "Sacramento"
[46] "Salt Lake City"         "San Diego"             "San Francisco Bay Area"
[49] "San Luise Obispo"       "Santa Barbara"         "Santa Fe"
[52] "Saskatoon"              "Seattle"               "Spokane"
[55] "Stamford"               "Tampa Bay"             "Toronto"
[58] "Vancouver"              "Washington DC"         "Waterloo"
[61] "Wilmington"
```

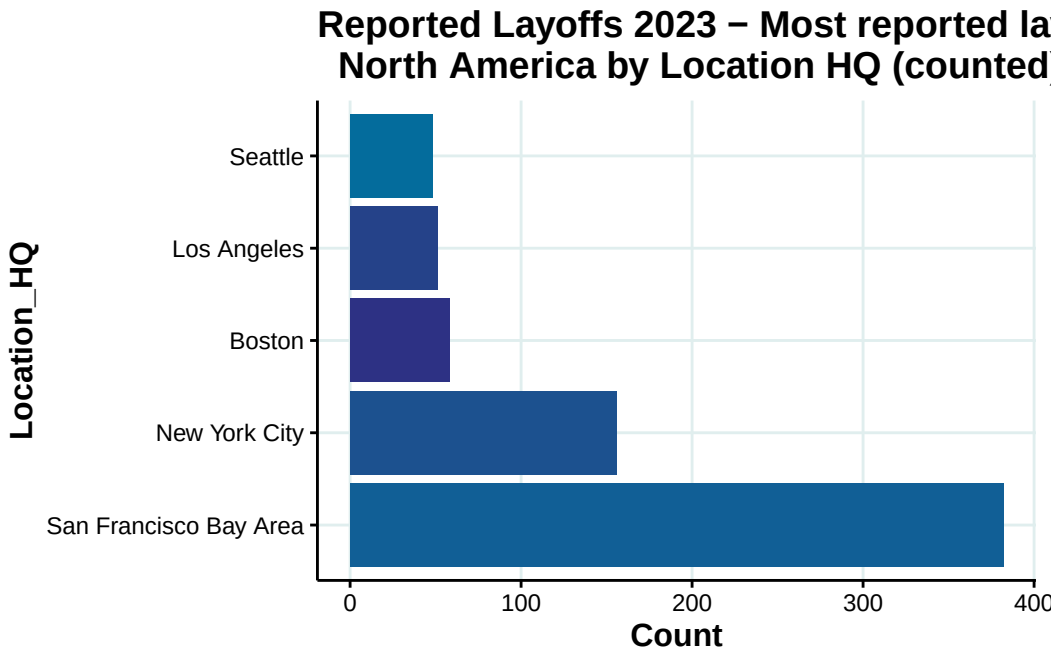
```
[1] "The dataset North America has 961 entries."
```

```
[1] "There are 766 unique companies for North America in the dataset"
```

```
# A tibble: 5 x 2
  Location_HQ               n
  <chr>                 <int>
1 San Francisco Bay Area   382
2 New York City            156
3 Boston                    58
4 Los Angeles               51
5 Seattle                   48
```

```
# A tibble: 3 x 2
  Country     n
  <chr>   <int>
1 USA       881
2 Canada     78
3 Mexico      2
```

Charts North America:



South America:

```
# A tibble: 8 x 2
  Location_HQ        n
  <chr>          <int>
1 Sao Paulo         39
2 Buenos Aires       3
3 Curitiba           3
4 Belo Horizente     2
5 Joinville          2
6 Santiago           2
7 Blumenau           1
8 Florianopolis      1
```

```
[1] "There are 8 unique HQ locations for South America in the dataset"
```

```
[1] "Belo Horizente" "Blumenau"       "Buenos Aires"   "Curitiba"
[5] "Florianopolis"  "Joinville"      "Santiago"       "Sao Paulo"
```

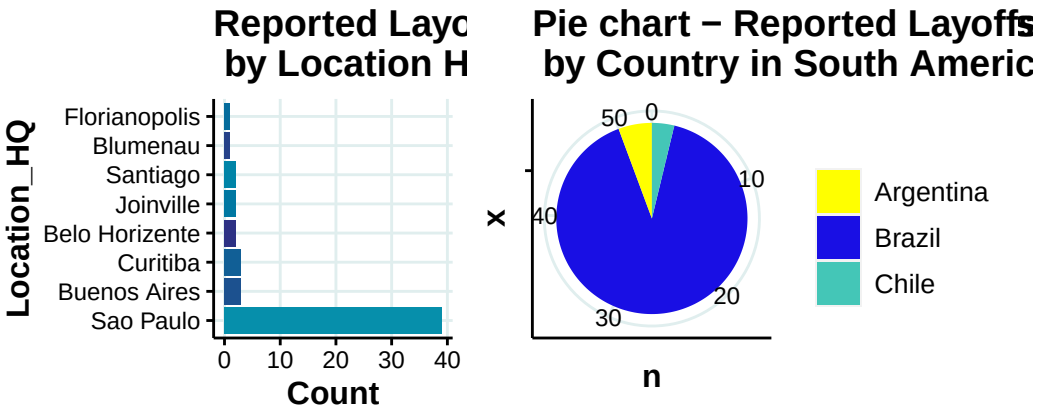
```
[1] "The dataset South America has 53 entries."
```

```
[1] "There are 43 unique companies for South America in the dataset"
```

```
# A tibble: 8 x 2
  Location_HQ        n
  <chr>          <int>
1 Sao Paulo         39
2 Buenos Aires       3
3 Curitiba           3
4 Belo Horizente     2
5 Joinville          2
6 Santiago           2
7 Blumenau           1
8 Florianopolis      1
```

```
# A tibble: 3 x 2
  Country       n
  <chr>     <int>
1 Brazil       48
2 Argentina     3
3 Chile         2
```

Charts South America:



Europe (with Israel and Turkey):

```
# A tibble: 34 x 2
   Location_HQ     n
   <chr>       <int>
 1 Tel Aviv       47
 2 London         43
 3 Berlin         39
 4 Stockholm      11
 5 Paris           6
 6 Dublin          5
 7 Tallinn         4
 8 Copenhagen      3
 9 Hamburg         3
10 Oslo            3
# i 24 more rows
```

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

```
 [1] "Amsterdam"              "Barcelona"              "Berlin"
 [4] "Bristol"                "Chester"                "Copenhagen"
 [7] "Dublin"                 "Edinburgh"              "Frankfurt"
```

```
[10] "Gothenburg"             "Haifa"                  "Hamburg"
[13] "Helsinki"               "Jerusalem"              "Karlsruhe"
[16] "Kfar Saba"              "Kiel"                   "Lisbon"
[19] "London"                 "Madrid"                 "Malmö"
[22] "Moscow"                 "Munich"                 "Oslo"
[25] "Oxford"                 "Paris"                  "Ra'anana"
[28] "San Francisco Bay Area" "Stockholm"              "Tallinn"
[31] "Tel Aviv"               "Vienna"                 "Walldorf"
[34] "Zurich"
```

```
[1] "The dataset Europe has 191 entries."
```

```
[1] "There are 165 unique companies for Europe in the dataset"
```

```
# A tibble: 5 x 2
  Location_HQ     n
  <chr>       <int>
1 Tel Aviv       47
2 London         43
3 Berlin         39
4 Stockholm      11
5 Paris           6
```

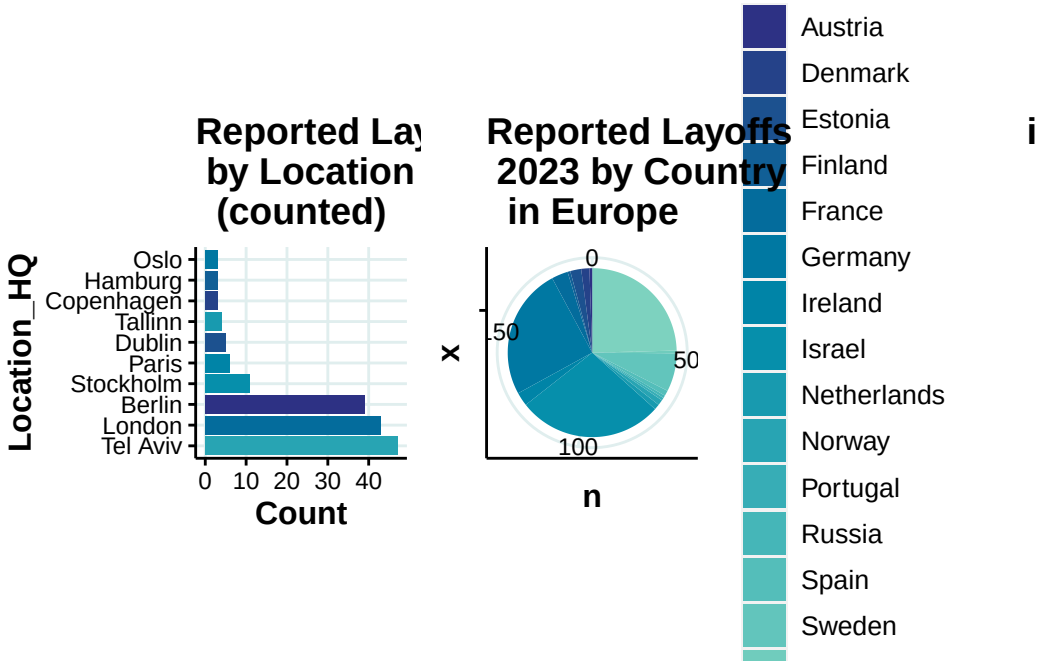
```
# A tibble: 10 x 2
   Location_HQ     n
   <chr>       <int>
 1 Tel Aviv       47
 2 London         43
 3 Berlin         39
 4 Stockholm      11
 5 Paris           6
 6 Dublin          5
 7 Tallinn         4
 8 Copenhagen      3
 9 Hamburg         3
10 Oslo            3
```

```
# A tibble: 16 x 2
   Country            n
   <chr>          <int>
 1 Israel            53
```

```
 2 Germany           48
 3 United Kingdom    47
 4 Sweden            14
 5 France             6
 6 Ireland            5
 7 Estonia            4
 8 Denmark            3
 9 Netherlands        2
10 Norway             2
11 Spain              2
12 Austria            1
13 Finland            1
14 Portugal           1
15 Russia             1
16 Switzerland        1
```

```
# A tibble: 5 x 2
  Country            n
  <chr>          <int>
1 Israel            53
2 Germany           48
3 United Kingdom    47
4 Sweden            14
5 France             6
```

Charts Europe:

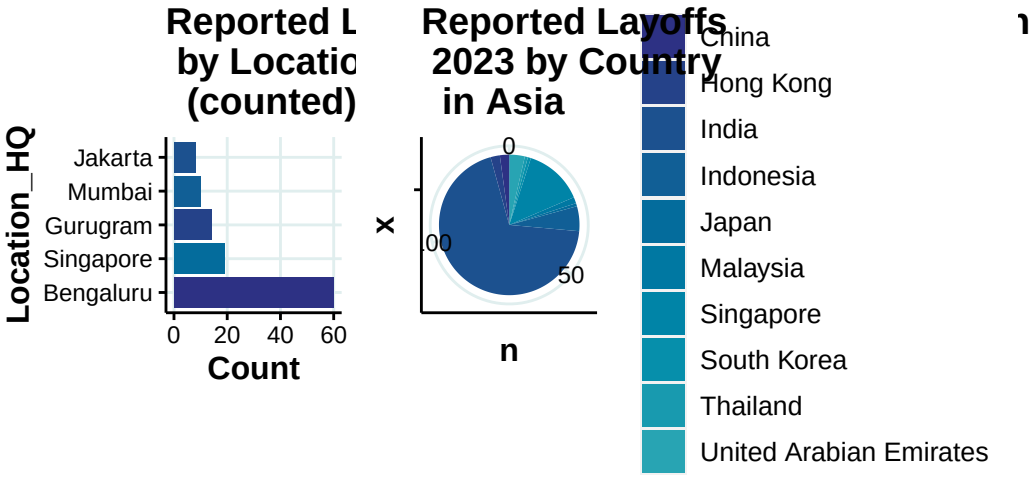


Asia:

```
# A tibble: 18 x 2
   Location_HQ      n
   <chr>        <int>
 1 Bengaluru       60
 2 Singapore       19
 3 Gurugram        14
 4 Mumbai          10
 5 Jakarta          8
 6 New Delhi        7
 7 Dubai            5
 8 Chennai          3
 9 Hong Kong        3
10 Bejing           2
11 Kuala Lumpur     2
12 Ahmedabad        1
13 Bangkok          1
14 Noida            1
15 Pune             1
16 Seoul            1
17 Shanghai         1
18 Tokyo            1
```

```
[1] "There are 18 unique HQ locations for Asia in the dataset"

 [1] "Ahmedabad"    "Bangkok"      "Bejing"       "Bengaluru"    "Chennai"
 [6] "Dubai"        "Gurugram"     "Hong Kong"    "Jakarta"      "Kuala Lumpur"
[11] "Mumbai"       "New Delhi"    "Noida"        "Pune"         "Seoul"
[16] "Shanghai"     "Singapore"    "Tokyo"

[1] "The dataset Asia has 140 entries."

[1] "There are 116 unique companies for Asia in the dataset"

# A tibble: 5 x 2
  Location_HQ     n
  <chr>       <int>
1 Bengaluru      60
2 Singapore      19
3 Gurugram       14
4 Mumbai         10
5 Jakarta         8

# A tibble: 10 x 2
   Country                    n
   <chr>                  <int>
 1 India                     97
 2 Singapore                 19
 3 Indonesia                  8
 4 United Arabian Emirates    5
 5 China                      3
 6 Hong Kong                  3
 7 Malaysia                   2
 8 Japan                      1
 9 South Korea                1
10 Thailand                   1

# A tibble: 5 x 2
  Country                   n
  <chr>                 <int>
1 India                    97
2 Singapore                19
3 Indonesia                 8
4 United Arabian Emirates   5
5 China                     3
```

Asia Charts:



Africa:

```
# A tibble: 3 x 2
  Location_HQ     n
  <chr>       <int>
1 Nairobi         6
2 Lagos           4
3 Dakar           1
```

```
[1] "There are 3 unique HQ locations for Africa in the dataset"
```

```
[1] "Dakar"   "Lagos"   "Nairobi"
```

```
[1] "The dataset Africa has 11 entries."
```

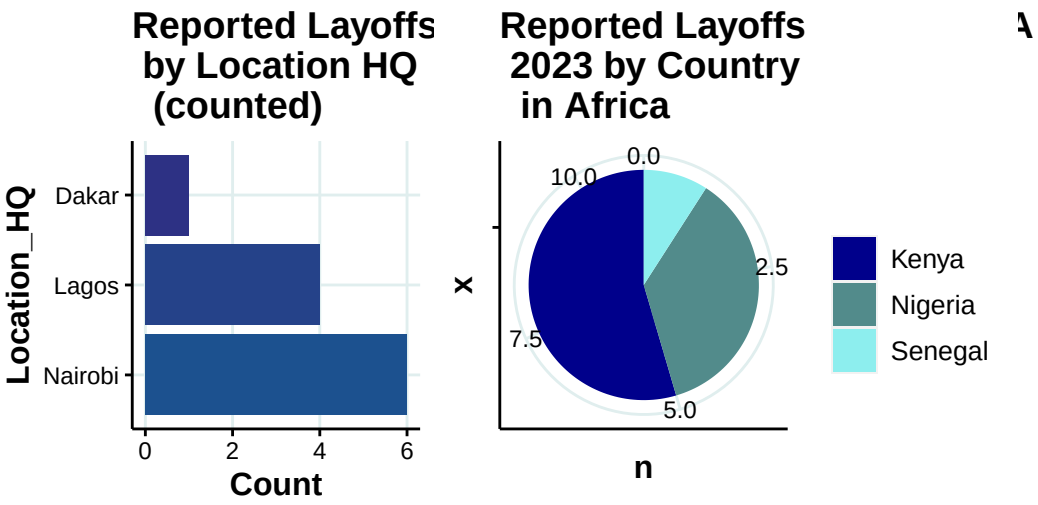
```
[1] "There are 9 unique companies for Africa in the dataset"
```

```
# A tibble: 3 x 2
  Location_HQ     n
  <chr>       <int>
```

```
1 Nairobi          6
2 Lagos            4
3 Dakar            1
```

```
# A tibble: 3 x 2
  Country     n
  <chr>   <int>
1 Kenya       6
2 Nigeria     4
3 Senegal     1
```

Africa Chart:

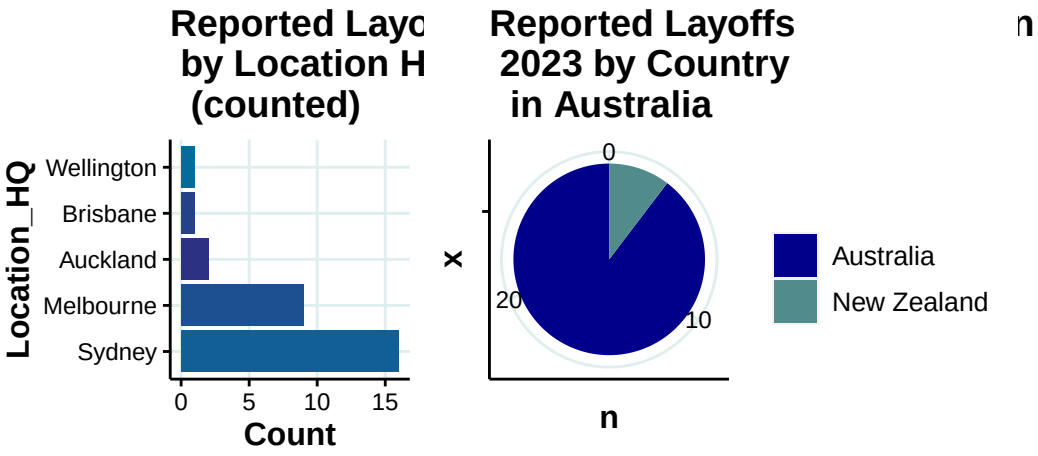


Australia:

```
# A tibble: 5 x 2
  Location_HQ     n
  <chr>       <int>
1 Sydney         16
2 Melbourne       9
3 Auckland        2
4 Brisbane        1
5 Wellington      1
```

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

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

[1] "The dataset Australia has 29 entries."

[1] "There are 26 unique companies for Australia in the dataset"

# A tibble: 5 x 2
  Location_HQ     n
  <chr>       <int>
1 Sydney         16
2 Melbourne       9
3 Auckland        2
4 Brisbane        1
5 Wellington      1

# A tibble: 2 x 2
  Country         n
  <chr>       <int>
1 Australia      26
2 New Zealand     3
```

Australia Charts:



Countries in Focus

USA

```
[1] "There are 50 unique HQ locations for the USA in the dataset"
```

```
 [1] "Ann Arbor"              "Atlanta"                "Austin"
 [4] "Baltimore"              "Bend"                   "Boise"
 [7] "Boston"                 "Boulder"                "Burlington"
[10] "Chicago"                "Cincinnati"             "Columbus"
[13] "Dallas"                 "Denver"                 "Detroit"
[16] "Dover"                  "Indianapolis"           "Kansas City"
[19] "Las Vegas"              "Lehi"                   "Logan"
[22] "Los Angeles"            "Madison"                "Miami"
[25] "Milwaukee"              "Minneapolis"            "Missoula"
[28] "Nashua"                 "Nashville"              "Nebraska City"
[31] "New York City"          "Philadelphia"           "Phoenix"
[34] "Pittsburgh"             "Portland"               "Raleigh"
[37] "Reno"                   "Sacramento"             "Salt Lake City"
[40] "San Diego"              "San Francisco Bay Area" "San Luise Obispo"
[43] "Santa Barbara"          "Santa Fe"               "Seattle"
[46] "Spokane"                "Stamford"               "Tampa Bay"
[49] "Washington DC"          "Wilmington"
```

```
[1] "The dataset USA has 881 entries."
```

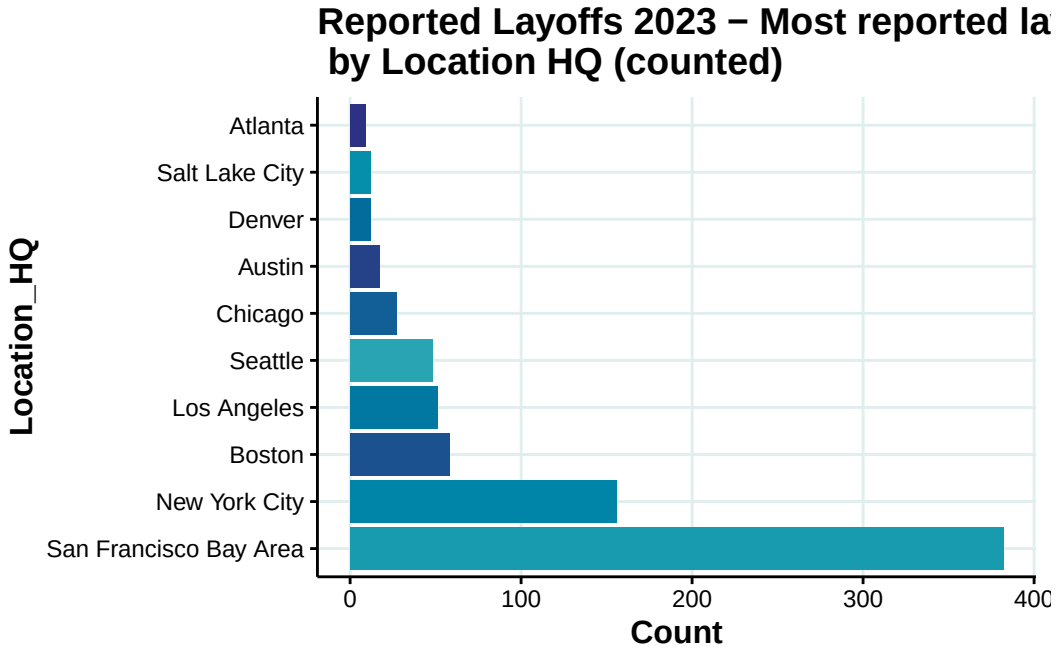
```
[1] "There are 698 unique companies in the USA in the dataset"
```

```
# A tibble: 5 x 2
  Location_HQ               n
  <chr>                 <int>
1 San Francisco Bay Area   382
2 New York City            156
3 Boston                    58
4 Los Angeles               51
5 Seattle                   48
```

```
# A tibble: 10 x 2
   Location_HQ               n
   <chr>                 <int>
 1 San Francisco Bay Area   382
```

```
 2 New York City            156
 3 Boston                    58
 4 Los Angeles               51
 5 Seattle                   48
 6 Chicago                   27
 7 Austin                    17
 8 Denver                    12
 9 Salt Lake City            12
10 Atlanta                    9
```

USA Chart



India

```
[1] "There are 8 unique HQ locations in India in the dataset"
```

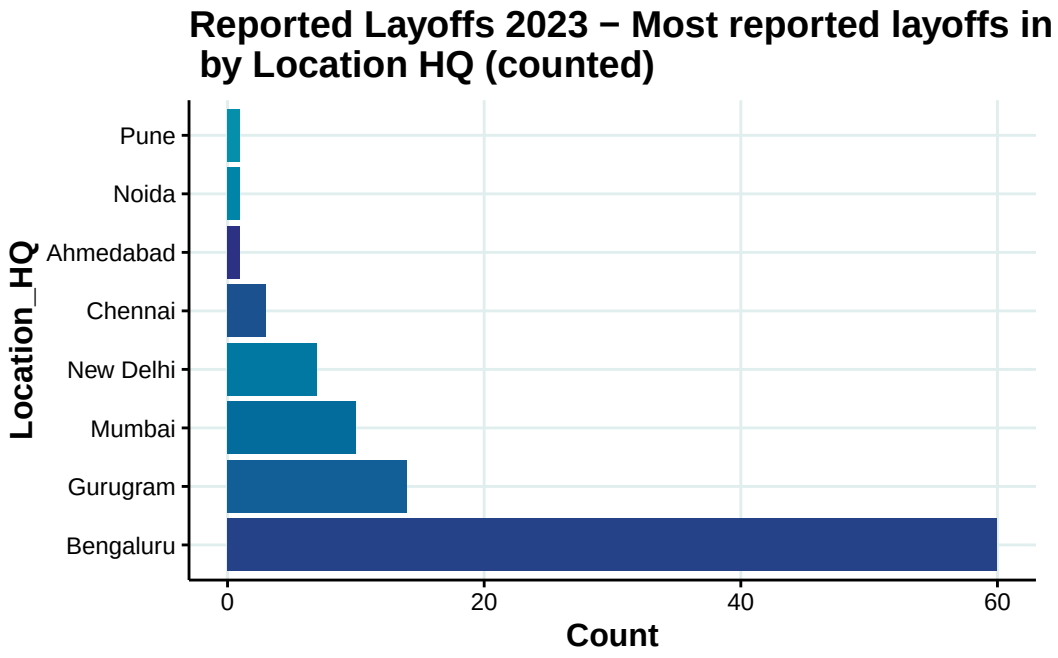
```
[1] "Ahmedabad" "Bengaluru" "Chennai"   "Gurugram"  "Mumbai"    "New Delhi"
[7] "Noida"     "Pune"
```

```
[1] "The dataset India has 97 entries."
```

```
[1] "There are 78 unique companies in India in the dataset"
```

```
# A tibble: 8 x 2
  Location_HQ     n
  <chr>       <int>
1 Bengaluru      60
2 Gurugram       14
3 Mumbai         10
4 New Delhi       7
5 Chennai         3
6 Ahmedabad       1
7 Noida           1
8 Pune            1
```

India Chart:



Canada:

```
[1] "There are 9 unique HQ locations in Canada in the dataset"
```

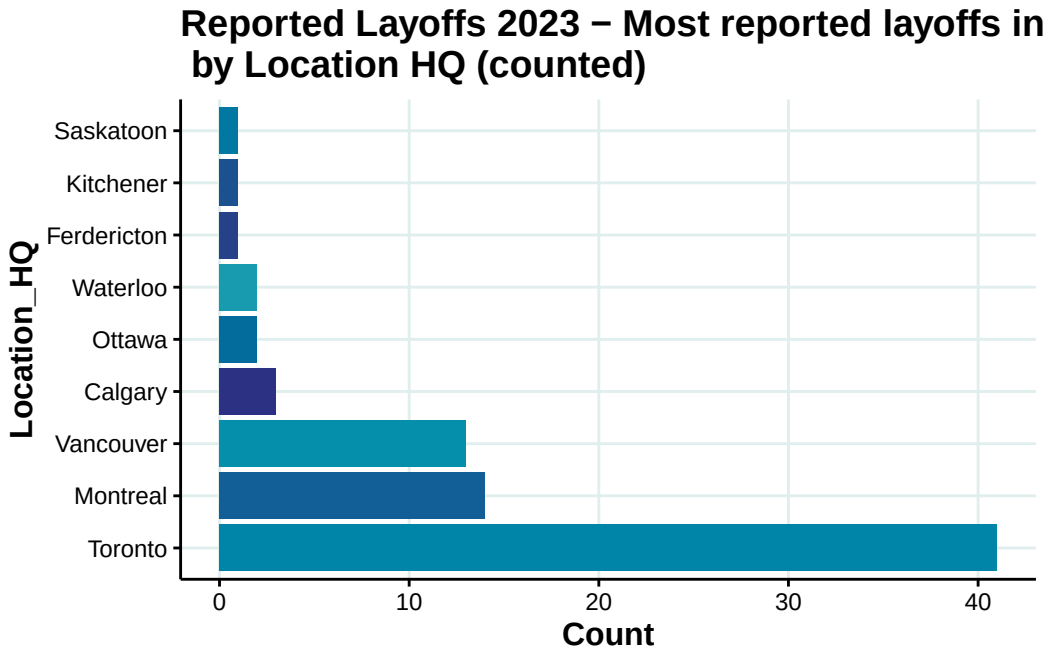
```
[1] "Calgary"     "Ferdericton" "Kitchener"   "Montreal"    "Ottawa"
[6] "Saskatoon"   "Toronto"     "Vancouver"   "Waterloo"
```

```
[1] "The dataset Canada has 78 entries."
```

```
[1] "There are 66 unique companies in Canada in the dataset"
```

```
# A tibble: 9 x 2
  Location_HQ     n
  <chr>       <int>
1 Toronto        41
2 Montreal       14
3 Vancouver      13
4 Calgary         3
5 Ottawa          2
6 Waterloo        2
7 Ferdericton     1
8 Kitchener       1
9 Saskatoon       1
```

Canada Chart:



United Kingdom

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

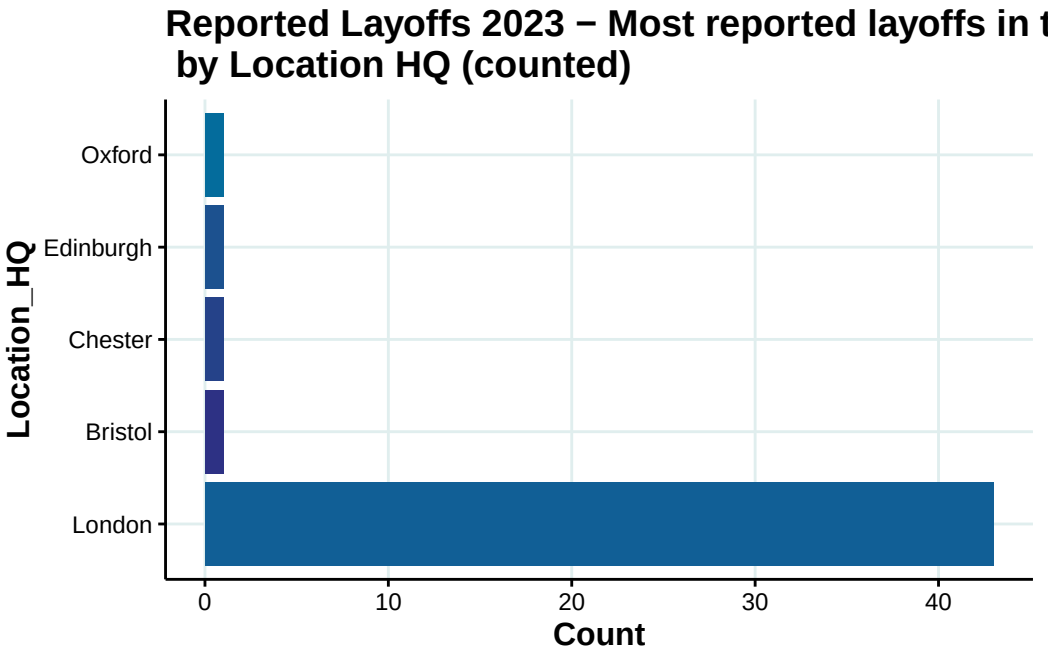
```
[1] "Bristol"   "Chester"   "Edinburgh" "London"    "Oxford"
```

```
[1] "The dataset United Kingdom has 47 entries."
```

```
[1] "There are 40 unique companies in the United Kingdom in the dataset"
```

```
# A tibble: 5 x 2
  Location_HQ     n
  <chr>       <int>
1 London         43
2 Bristol         1
3 Chester         1
4 Edinburgh       1
5 Oxford          1
```

United Kingdom Chart



Germany

```
[1] "There are 7 unique HQ locations in Germany in the dataset"
```

```
[1] "Berlin"    "Frankfurt" "Hamburg"   "Karlsruhe" "Kiel"      "Munich"
[7] "Walldorf"
```

```
[1] "The dataset Germany has 48 entries."
```

```
[1] "There are 42 unique companies in Germany in the dataset"
```

```
# A tibble: 7 x 2
  Location_HQ     n
  <chr>       <int>
1 Berlin         39
2 Hamburg         3
3 Munich          2
4 Frankfurt       1
5 Karlsruhe       1
6 Kiel            1
7 Walldorf        1
```

Germany Chart: