

```

In [1]: library(tidyverse)
library(readr)
library(skimr)
library(plyr)
library(lubridate)
library(devtools)

-- Attaching packages ----- tidyverse 1.2.1
--
√ ggplot2 3.2.0      √ purrr  0.3.2
√ tibble  2.1.3      √ dplyr  0.8.3
√ tidyr   0.8.3      √ stringr 1.4.0
√ readr   1.3.1      √ forcats 0.4.0
-- Conflicts ----- tidyverse_conflicts()
--
x dplyr::filter() masks stats::filter()
x dplyr::lag()    masks stats::lag()

Attaching package: 'skimr'

The following object is masked from 'package:stats':

    filter

-----
You have loaded plyr after dplyr - this is likely to cause problems.
If you need functions from both plyr and dplyr, please load plyr first, then d
plyr:
library(plyr); library(dplyr)
-----

Attaching package: 'plyr'

The following objects are masked from 'package:dplyr':

    arrange, count, desc, failwith, id, mutate, rename, summarise,
    summarize

The following object is masked from 'package:purrr':

    compact

Attaching package: 'lubridate'

The following object is masked from 'package:plyr':

    here

The following object is masked from 'package:base':

    date

Loading required package: usethis

```

```
In [2]: animal_df <- 'a-z-animal_name.csv' %>% read_csv()  
        animal_df %>% glimpse()
```

```
Parsed with column specification:
cols(
  .default = col_character(),
  Index = col_double(),
  `Number Of Species` = col_double(),
  `Average Spawn Size` = col_double(),
  `Litter Size` = col_double()
)
See spec(...) for full column specifications.
```

Observations: 593

Variables: 62

\$ Index	<dbl> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, ...
\$ Name	<chr> "Aardvark", "Abyssinian", "Adelie Pengu...
\$ Kingdom	<chr> "Animalia", NA, "Animalia", NA, NA, "An...
\$ Phylum	<chr> "Chordata", NA, "Chordata", NA, NA, "Ch...
\$ Class	<chr> "Mammalia", NA, "Aves", NA, NA, "Mammal...
\$ Order	<chr> "Tubulidentata", NA, "Sphenisciformes",...
\$ Family	<chr> "Orycteropodidae", NA, "Spheniscidae", ...
\$ Genus	<chr> "Orycteropus", NA, "Pygoscelis", NA, NA...
\$ `Scientific Name`	<chr> "Orycteropus afer", NA, "Pygoscelis ade...
\$ `Common Name`	<chr> "Aardvark", "Abyssinian", "Adelie Pengu...
\$ `Other Name(s)`	<chr> "Antbear, Earth Pig", NA, NA, NA, NA, "...
\$ Group	<chr> "Mammal", "Cat", "Bird", "Dog", "Dog", ...
\$ `Number Of Species`	<dbl> 18, NA, 1, NA, NA, 1, 1, 1, 1, 1, NA...
\$ Location	<chr> "Sub-Saharan Africa", NA, "Coastal Anta...
\$ Habitat	<chr> "Sandy and clay soil", NA, "Antarctic l...
\$ Colour	<chr> "Brown, grey, yellow", "Fawn, Red, Blue...
\$ `Skin Type`	<chr> "Hair", NA, "Feathers", NA, NA, "Leathe...
\$ `Size (L)`	<chr> "1.05m - 2.20m (3.4ft - 7.3ft)", NA, NA...
\$ Weight	<chr> "60kg - 80kg (130lbs - 180lbs)", NA, "3...
\$ `Top Speed`	<chr> "40kph (25mph)", NA, "72kph (45mph)", N...
\$ Diet	<chr> "Omnivore", NA, "Carnivore", NA, NA, "H...
\$ Prey	<chr> "Termites, Ants", NA, "Krill, Fish, Squ...
\$ Predators	<chr> "Lions, Leopards, Hyenas", NA, "Leopard...
\$ Lifestyle	<chr> "Nocturnal", NA, "Diurnal", NA, NA, "Di...
\$ `Group Behaviour`	<chr> "Solitary", NA, "Colony", NA, NA, "Herd...
\$ Lifespan	<chr> "23 years", NA, "10 - 20 years", NA, NA...
\$ `Age Of Sexual Maturity`	<chr> "2 years", NA, "2 - 3 years", NA, NA, "...
\$ `Gestation Period`	<chr> "7 months", NA, NA, NA, NA, "20 - 24 mo...
\$ `Average Litter Size`	<chr> "1", "6", NA, "3", "7", "1", "3", NA, "...
\$ `Name Of Young`	<chr> "Cub", NA, "Chicks", NA, NA, "Calf", "P...
\$ `Age Of Weaning`	<chr> "3 months", NA, NA, NA, NA, "6 - 18 mon...
\$ `Conservation Status`	<chr> "Least Concern", NA, "Least Concern", N...
\$ `Estimated Population Size`	<chr> "Unknown", NA, "5 million", NA, NA, "30...
\$ `Biggest Threat`	<chr> "Habitat loss", NA, "Rapid ice melt", N...
\$ `Most Distinctive Feature`	<chr> "Long, sticky tongue and rabbit-like ea...
\$ `Fun Fact`	<chr> "Can move up to 2ft of soil in just 15 ...
\$ Origin	<chr> NA, "Egypt", NA, "Germany", "Afghanista...
\$ `Average Size (L)`	<chr> NA, "60cm (2ft)", NA, NA, NA, NA, N...
\$ `Average Weight`	<chr> NA, "4.5kg (10lbs)", NA, "3.6kg (8lbs)"...
\$ `Average Lifespan`	<chr> NA, "15 years", NA, "12 years", "14 yea...
\$ Type	<chr> NA, "Shorthair", NA, "Terrier", "Hound"...
\$ Temperament	<chr> NA, "Intelligent and curious", NA, "Ale...
\$ Training	<chr> NA, "Easy", NA, "Medium", "Moderately E...
\$ `Distinctive Features`	<chr> NA, "Silky fur and almond shaped eyes",...
\$ `Size (H)`	<chr> NA, NA, "40cm - 75cm (16in - 30in)", NA...
\$ Wingspan	<chr> NA, NA, "35cm - 70cm (14in - 27.5in)", ...
\$ `Incubation Period`	<chr> NA, NA, "2 months", NA, NA, NA, NA, "4 ...
\$ `Average Clutch Size`	<chr> NA, NA, "2", NA, NA, NA, NA, NA, NA...
\$ `Age Of Fledgling`	<chr> NA, NA, "90 days", NA, NA, NA, NA, NA, ...
\$ `Average Size (H)`	<chr> NA, NA, NA, "25cm (10in)", "68cm (27in)...
\$ `Water Type`	<chr> NA, NA, NA, NA, NA, NA, NA, "Fresh", NA...
\$ `Average Spawn Size`	<dbl> NA, NA, NA, NA, NA, NA, NA, 2000, NA, N...
\$ `Age Of Independence`	<chr> NA, NA, NA, NA, NA, NA, NA, "5 days", N...
\$ `Main Prey`	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ `Average Size`	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ `Optimum pH Level`	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ `Favourite Food`	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ `Special Features`	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ Size	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ Extinct	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ `Litter Size`	<dbl> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...
\$ Subfamily	<chr> NA, NA, NA, NA, NA, NA, NA, NA, NA, ...

```
In [3]: animal_df
```

A spec\_tbl\_df: 593 × 62

Index	Name	Kingdom	Phylum	Class	Order	Family	Genus
<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>
1	Aardvark	Animalia	Chordata	Mammalia	Tubulidentata	Orycteropodidae	Orycteropus
2	Abyssinian	NA	NA	NA	NA	NA	NA
3	Adelie Penguin	Animalia	Chordata	Aves	Sphenisciformes	Spheniscidae	Pygoscelis
4	Affenpinscher	NA	NA	NA	NA	NA	NA
5	Afghan Hound	NA	NA	NA	NA	NA	NA
6	African Bush Elephant	Animalia	Chordata	Mammalia	Proboscidea	Elephantidae	Loxodonta
7	African Civet	Animalia	Chordata	Mammalia	Carnivora	Viverridae	Civettictis
8	African Clawed Frog	Animalia	Chordata	Amphibia	Anura	Pipidae	Xenopus
9	African Forest Elephant	Animalia	Chordata	Mammalia	Proboscidea	Elephantidae	Loxodonta
10	African Palm Civet	Animalia	Chordata	Mammalia	Carnivora	Nandiniidae	Nandinia
11	African Penguin	Animalia	Chordata	Aves	Sphenisciformes	Spheniscidae	Spheniscus
12	African Tree Toad	Animalia	Chordata	Amphibia	Anura	Bufonidae	Nectophryne
13	African Wild Dog	Animalia	Chordata	Mammalia	Carnivora	Canidae	Lycaon
14	Ainu Dog	NA	NA	NA	NA	NA	NA
15	Airedale Terrier	NA	NA	NA	NA	NA	NA
16	Akbash	NA	NA	NA	NA	NA	NA
17	Akita	NA	NA	NA	NA	NA	NA
18	Alaskan Malamute	NA	NA	NA	NA	NA	NA
19	Albatross	Animalia	Chordata	Aves	Procellariiformes	Diomedidae	NA
20	Aldabra Giant Tortoise	Animalia	Chordata	Reptilia	Testudines	Testudinidae	Geochelone
21	Alligator	Animalia	Chordata	Reptilia	Crocodylia	Alligatoridae	Alligator
22	Alpine Dachsbracke	NA	NA	NA	NA	NA	NA
23	American Bulldog	NA	NA	NA	NA	NA	NA
24	American Cocker Spaniel	NA	NA	NA	NA	NA	NA
25	American Coonhound	NA	NA	NA	NA	NA	NA
26	American Eskimo Dog	NA	NA	NA	NA	NA	NA
27	American Foxhound	NA	NA	NA	NA	NA	NA

```
In [4]: animal_1 <- animal_df %>%  
  select(Index, Name, Group, Location, Habitat, `Conservation Status`, `Estimated Population Size`, `Biggest Threat`)  
animal_1
```

A spec\_tbl\_df: 593 × 8

Index	Name	Group	Location	Habitat	Conservation Status	Estimated Population Size	Biggest Threat
<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>
1	Aardvark	Mammal	Sub-Saharan Africa	Sandy and clay soil	Least Concern	Unknown	Habitat loss
2	Abyssinian	Cat	NA	NA	NA	NA	NA
3	Adelie Penguin	Bird	Coastal Antarctica	Antarctic land and ocean	Least Concern	5 million	Rapid ice melt
4	Affenpinscher	Dog	NA	NA	NA	NA	NA
5	Afghan Hound	Dog	NA	NA	NA	NA	NA
6	African Bush Elephant	Mammal	central and southern Africa	Forest, savannah and flood plains	Threatened	300,000	Poaching and habitat loss
7	African Civet	Mammal	across sub-Saharan Africa	Tropical rainforest	Least Concern	Abundant	Habitat loss
8	African Clawed Frog	Amphibian	eastern and southern Africa	Warm stagnant water with grassland	Least Concern	Abundant	Water pollution
9	African Forest Elephant	Mammal	central and southern Africa	Forest, savannah and flood plains	Endangered	200,000	Poaching and habitat loss
10	African Palm Civet	Mammal	eastern Africa	Tropical rainforest	Least Concern	Locally abundant	Habitat loss
11	African Penguin	Bird	south-west African coast	Rocky Ocean Islands	Endangered	140,000	Habitat disruption
12	African Tree Toad	NA	Central Africa	Tropical lowland forest	Least Concern	NA	NA
13	African Wild Dog	Mammal	sub-Saharan Africa	Open plains and savanna	Endangered	Less than 5,000	Habitat loss
14	Ainu Dog	Dog	NA	NA	NA	NA	NA
15	Airedale Terrier	Dog	NA	NA	NA	NA	NA
16	Akbash	Dog	NA	NA	NA	NA	NA
17	Akita	Dog	NA	NA	NA	NA	NA
18	Alaskan Malamute	Dog	NA	NA	NA	NA	NA
19	Albatross	Bird	across the southern seas	southern waters and islands	Endangered	Low	Lone-line fishing
20	Aldabra Giant Tortoise	Reptile	Aldabra atoll in the Indian Ocean	Grasslands and swamps	Vulnerable	200,000	Habitat loss
21	Alligator	Reptile	southern USA and China	Marsh and swampland	Least Concern	1 million/less than 100	Water pollution
22	Alpine Dachsbracke	Dog	NA	NA	NA	NA	NA
23	American Bulldog	Dog	NA	NA	NA	NA	NA
24	American Cocker Spaniel	Dog	NA	NA	NA	NA	NA
25	American Coonhound	Dog	NA	NA	NA	NA	NA
26	American Eskimo Dog	Dog	NA	NA	NA	NA	NA
27	American Foxhound	Dog	NA	NA	NA	NA	NA



```
In [5]: animal_2 <- arrange(animal_1, `Conservation Status`)  
        animal_2
```

A tibble: 593 × 8

Index	Name	Group	Location	Habitat	Conservation Status	Estimated Population Size	Biggest Threat
<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>
122	Camel	Mammal	Throughout the Middle East	Arid desert and scrubland	Common	20 million	Drought
84	Black Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
99	Bornean Orang-utan	Mammal	Borneo	Lowland forest and peat-swamps	Critically Endangered	13,500	Habitat loss
100	Borneo Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
160	Cottontop Tamarin	NA	NA	Lowland tropical forest	Critically Endangered	NA	NA
169	Cross River Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
199	Eastern Gorilla	NA	NA	Tropical forest and jungles in mountainous regions	Critically Endangered	NA	NA
249	Gharial	Reptile	Northern India and Nepal	Wide and calm slow-moving rivers	Critically Endangered	182	Habitat loss and hunting
322	Javan Rhinoceros	NA	NA	Tropical bushland, grassland and rainforest	Critically Endangered	NA	NA
381	Monte Iberia Eleuth	NA	NA	Water around Mount Iberia	Critically Endangered	NA	NA
405	Orang-utan	Mammal	Borneo and Sumatra	Lowland tropical forest	Critically Endangered	20,000	Hunting and Habitat Loss
451	Radiated Tortoise	Reptile	southern Madagascar	Dry tropical forest	Critically Endangered	Declining	Habitat loss
457	Red Wolf	NA	NA	Coastal prairie and marshland	Critically Endangered	NA	NA
474	Saola	Mammal	Mountains of Vietnam-Laos border	Moist and dense evergreen forest	Critically Endangered	less than 250	Habitat loss and hunting
525	Sumatran Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
526	Sumatran Orang-utan	Mammal	Northern Sumatra	Dense, tropical forest	Critically Endangered	4,000	Hunting and habitat loss
527	Sumatran Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
532	Tapanuli Orang-utan	Mammal	northwestern Sumatra	Tropical and subtropical broadleaf forests	Critically Endangered	800	Habitat loss and hunting
568	Western Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
569	Western Lowland Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
				Cooler waters			

```
In [7]: group_animal_2 <- animal_2 %>%  
  group_by(`Conservation Status`) %>%  
  tally()  
group_animal_2
```

A tibble: 12 × 2

Conservation Status	n
<chr>	<int>
Common	1
Critically Endangered	19
Data Deficient	2
Endangered	73
Extinct	5
Least Concern	199
Least Concern, Vulnerable, Critically Endangered	1
Near Threatened	7
Not Listed	4
Threatened	116
Vulnerable	25
NA	141

```
In [6]: animal_3 <- animal_2 %>%  
  filter(`Conservation Status` != 'NA') %>%  
  filter(`Conservation Status` != 'Common') %>%  
  filter(`Conservation Status` != 'Data Deficient') %>%  
  filter(`Conservation Status` != 'Not Listed') %>%  
  filter(`Conservation Status` != 'Least Concern, Vulnerable, Critically Endange  
red')  
animal_3
```

A tibble: 444 × 8

Index	Name	Group	Location	Habitat	Conservation Status	Estimated Population Size	Biggest Threat
<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>
84	Black Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
99	Bornean Orang-utan	Mammal	Borneo	Lowland forest and peat-swamps	Critically Endangered	13,500	Habitat loss
100	Borneo Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
160	Cottontop Tamarin	NA	NA	Lowland tropical forest	Critically Endangered	NA	NA
169	Cross River Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
199	Eastern Gorilla	NA	NA	Tropical forest and jungles in mountainous regions	Critically Endangered	NA	NA
249	Gharial	Reptile	Northern India and Nepal	Wide and calm slow-moving rivers	Critically Endangered	182	Habitat loss and hunting
322	Javan Rhinoceros	NA	NA	Tropical bushland, grassland and rainforest	Critically Endangered	NA	NA
381	Monte Iberia Eleuth	NA	NA	Water around Mount Iberia	Critically Endangered	NA	NA
405	Orang-utan	Mammal	Borneo and Sumatra	Lowland tropical forest	Critically Endangered	20,000	Hunting and Habitat Loss
451	Radiated Tortoise	Reptile	southern Madagascar	Dry tropical forest	Critically Endangered	Declining	Habitat loss
457	Red Wolf	NA	NA	Coastal prairie and marshland	Critically Endangered	NA	NA
474	Saola	Mammal	Mountains of Vietnam-Laos border	Moist and dense evergreen forest	Critically Endangered	less than 250	Habitat loss and hunting
525	Sumatran Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
526	Sumatran Orang-utan	Mammal	Northern Sumatra	Dense, tropical forest	Critically Endangered	4,000	Hunting and habitat loss
527	Sumatran Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
532	Tapanuli Orang-utan	Mammal	northwestern Sumatra	Tropical and subtropical broadleaf forests	Critically Endangered	800	Habitat loss and hunting
568	Western Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
569	Western Lowland Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
9	African Forest Elephant	Mammal	central and southern Africa	Forest, savannah and flood plains	Endangered	200,000	Poaching and habitat loss
	African		south west	Becky Ocean			Habitat

```
In [9]: group_animal_3 <- animal_3 %>%  
  group_by(`Conservation Status`) %>%  
  tally()  
group_animal_3
```

A tibble: 7 × 2

Conservation Status	n
<chr>	<int>
Critically Endangered	19
Endangered	73
Extinct	5
Least Concern	199
Near Threatened	7
Threatened	116
Vulnerable	25

```
In [22]: animal_4 <- animal_3 %>%  
  filter(`Conservation Status` != 'Least Concern') %>%  
  filter(`Conservation Status` != 'Near Threatened') %>%  
  filter(`Conservation Status` != 'Threatened')  
animal_4
```

A tibble: 122 × 8

Index	Name	Group	Location	Habitat	Conservation Status	Estimated Population Size	Biggest Threat
<dbl>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>	<chr>
84	Black Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
99	Bornean Orang-utan	Mammal	Borneo	Lowland forest and peat-swamps	Critically Endangered	13,500	Habitat loss
100	Borneo Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
160	Cottontop Tamarin	NA	NA	Lowland tropical forest	Critically Endangered	NA	NA
169	Cross River Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
199	Eastern Gorilla	NA	NA	Tropical forest and jungles in mountainous regions	Critically Endangered	NA	NA
249	Gharial	Reptile	Northern India and Nepal	Wide and calm slow-moving rivers	Critically Endangered	182	Habitat loss and hunting
322	Javan Rhinoceros	NA	NA	Tropical bushland, grassland and rainforest	Critically Endangered	NA	NA
381	Monte Iberia Eleuth	NA	NA	Water around Mount Iberia	Critically Endangered	NA	NA
405	Orang-utan	Mammal	Borneo and Sumatra	Lowland tropical forest	Critically Endangered	20,000	Hunting and Habitat Loss
451	Radiated Tortoise	Reptile	southern Madagascar	Dry tropical forest	Critically Endangered	Declining	Habitat loss
457	Red Wolf	NA	NA	Coastal prairie and marshland	Critically Endangered	NA	NA
474	Saola	Mammal	Mountains of Vietnam-Laos border	Moist and dense evergreen forest	Critically Endangered	less than 250	Habitat loss and hunting
525	Sumatran Elephant	NA	NA	Rainforest and tropical woodland	Critically Endangered	NA	NA
526	Sumatran Orang-utan	Mammal	Northern Sumatra	Dense, tropical forest	Critically Endangered	4,000	Hunting and habitat loss
527	Sumatran Rhinoceros	NA	NA	Tropical bushland, grassland and savannas	Critically Endangered	NA	NA
532	Tapanuli Orang-utan	Mammal	northwestern Sumatra	Tropical and subtropical broadleaf forests	Critically Endangered	800	Habitat loss and hunting
568	Western Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
569	Western Lowland Gorilla	NA	NA	Rainforest and dense jungle	Critically Endangered	NA	NA
9	African Forest Elephant	Mammal	central and southern Africa	Forest, savannah and flood plains	Endangered	200,000	Poaching and habitat loss
	African		south west	Becky Ocean			Habitat



```
In [23]: group_animal_4 <- animal_4 %>%  
  group_by(`Conservation Status`) %>%  
  tally()  
group_animal_4  
summary(animal_4)
```

A tibble: 4 × 2

Conservation Status	n
<chr> <int>	
Critically Endangered	19
Endangered	73
Extinct	5
Vulnerable	25

Index	Name	Group	Location
Min. : 9.0	Length:122	Length:122	Length:122
1st Qu.:167.5	Class :character	Class :character	Class :character
Median :340.5	Mode :character	Mode :character	Mode :character
Mean :323.2			
3rd Qu.:483.5			
Max. :589.0			

Habitat	Conservation Status	Estimated Population Size
Length:122	Length:122	Length:122
Class :character	Class :character	Class :character
Mode :character	Mode :character	Mode :character

Biggest Threat  
Length:122  
Class :character  
Mode :character