# DS Project

Name: Rakshit Kumar Singh
Roll Number: 18/94012
Course: B.Sc. (H) Computer Science
Subject: Data Science

***Aim*** *: We have a zoo data set which contain information About certain animals which are to be kept in zoo. The structure of zoo is to be defined and our aim is to give certain requirement about certain animals which needs certain care.*

*To extract Data we will make use of R programming*

*Programming is done on R Studio*

*Version of R used is 4.0.3*

# DATASET INFORMATION

1. Title: Zoo database

2. Source Information
   -- Creator: Richard Forsyth
   -- Donor: Richard S. Forsyth
         8 Grosvenor Avenue
         Mapperley Park
         Nottingham NG3 5DX
         0602-621676
   -- Date: 5/15/1990

3. Past Usage:
   -- None known other than what is shown in Forsyth's PC/BEAGLE User's Guide.

4. Relevant Information:
   -- A simple database containing 17 Boolean-valued attributes. The "type"
      attribute appears to be the class attribute. Here is a breakdown of
      which animals are in which type: (I find it unusual that there are
      2 instances of "frog" and one of "girl"!)
(Entry of girl is removed)

      Class# Set of animals:
==========================================================================
         1 (41) aardvark, antelope, bear, boar, buffalo, calf,
               cavy, cheetah, deer, dolphin, elephant,
               fruitbat, giraffe, girl, goat, gorilla, hamster,
               hare, leopard, lion, lynx, mink, mole, mongoose,
               opossum, oryx, platypus, polecat, pony,
               porpoise, puma, pussycat, raccoon, reindeer,
               seal, sealion, squirrel, vampire, vole, wallaby,wolf
         2 (20) chicken, crow, dove, duck, flamingo, gull, hawk,
               kiwi, lark, ostrich, parakeet, penguin, pheasant,
               rhea, skimmer, skua, sparrow, swan, vulture, wren
         3 (5)  pitviper, seasnake, slowworm, tortoise, tuatara
         4 (13) bass, carp, catfish, chub, dogfish, haddock,
               herring, pike, piranha, seahorse, sole, stingray, tuna
         5 (4)  frog, frog, newt, toad
         6 (8)  flea, gnat, honeybee, housefly, ladybird, moth, termite, wasp
         7 (10) clam, crab, crayfish, lobster, octopus,
               scorpion, seawasp, slug, starfish, worm

5. Number of Instances: 101

6. Number of Attributes: 18 (animal name, 15 Boolean attributes, 2 numerics)

7. Attribute Information: (name of attribute and type of value domain)

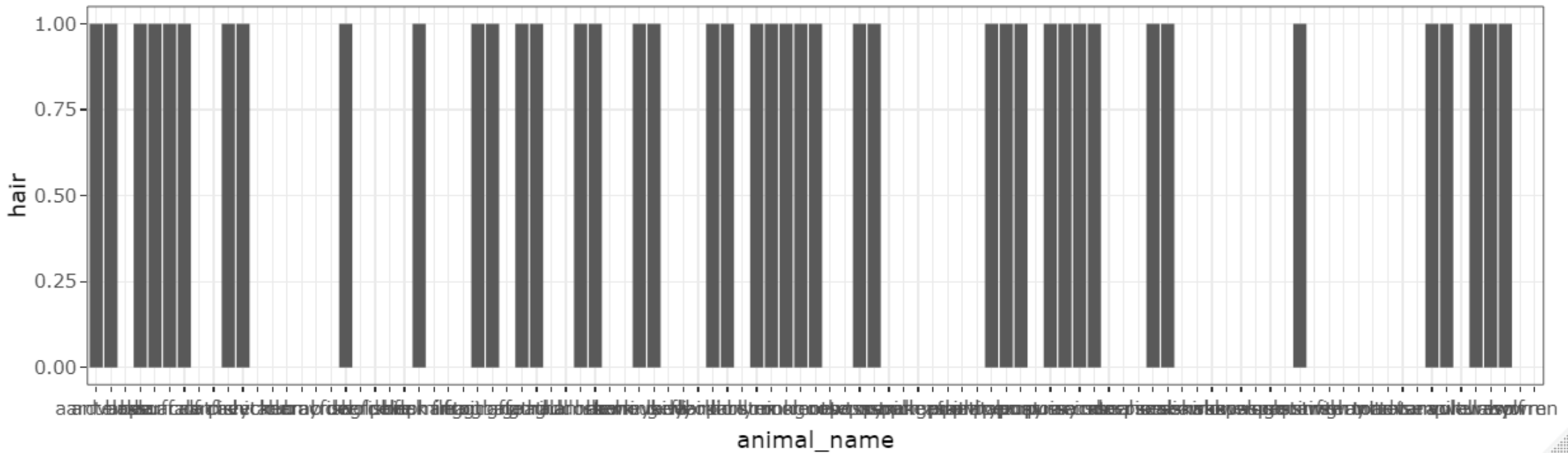
| | | |
|---|---|---|
| 1. animal name: | Unique for each instance | |
| 2. hair | Boolean | |
| 3. feathers | Boolean | |
| 4. eggs | Boolean | |
| 5. milk | Boolean | |
| 6. airborne | Boolean | |
| 7. aquatic | Boolean | |
| 8. predator | Boolean | |
| 9. toothed | Boolean | |
| 10. backbone | Boolean | |
| 11. breathes | Boolean | |
| 12. venomous | Boolean | |
| 13. fins | Boolean | |
| 14. legs | Numeric (set of values: {0,2,4,5,6,8}) | |
| 15. tail | Boolean | |
| 16. domestic | Boolean | |
| 17. catsize | Boolean | (Droped) |
| 18. type | Numeric (integer values in range [1,7]) | (Droped) |

8. Missing Attribute Values: None

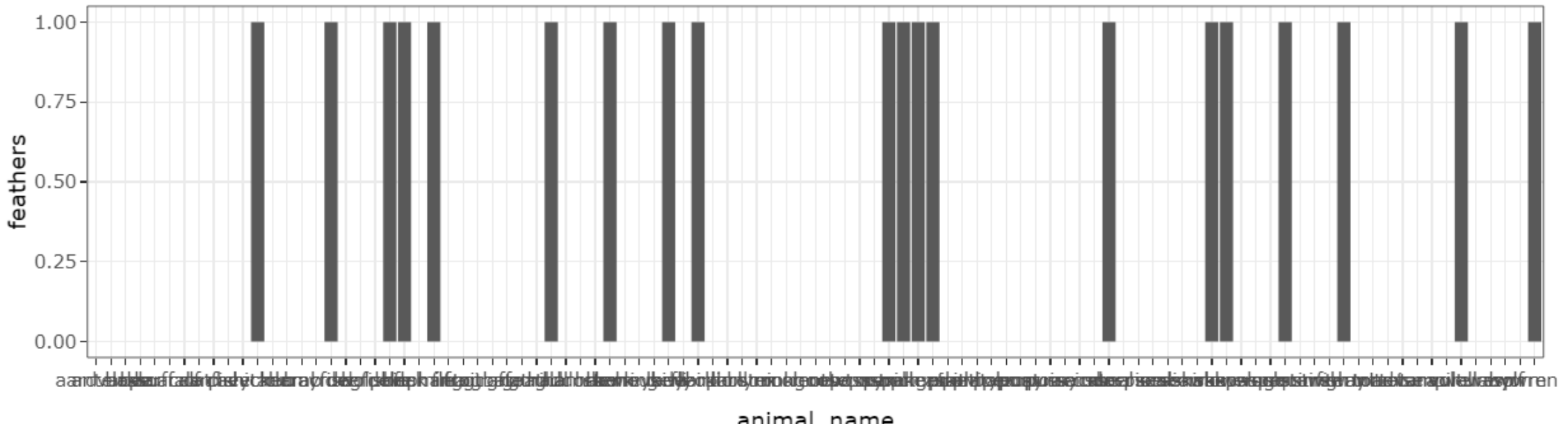
9. Class Distribution: Given above


ZOO

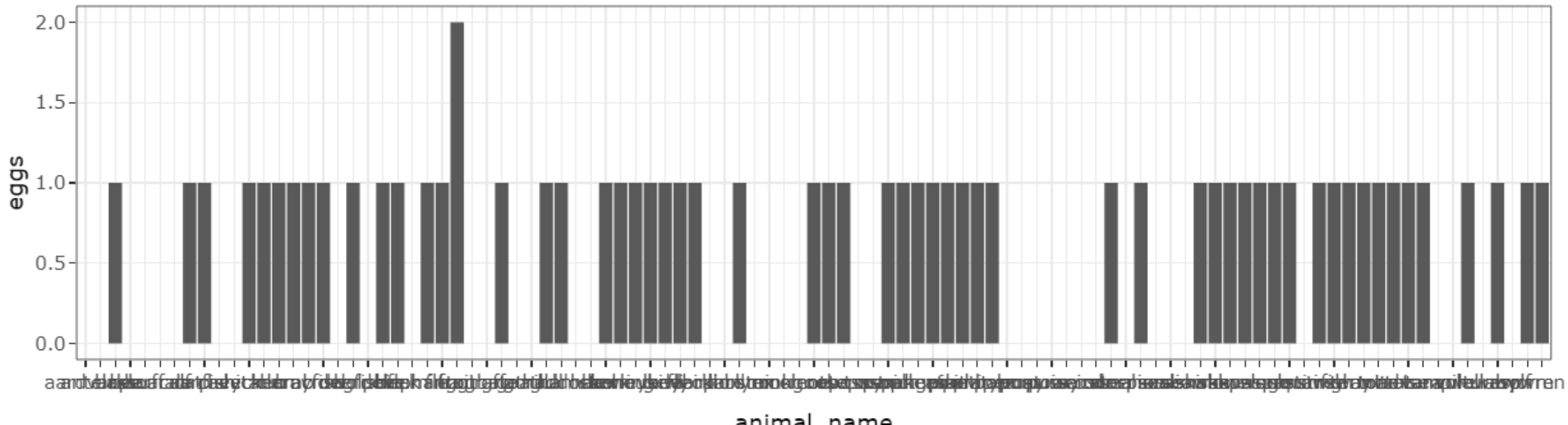
Graph 1.1



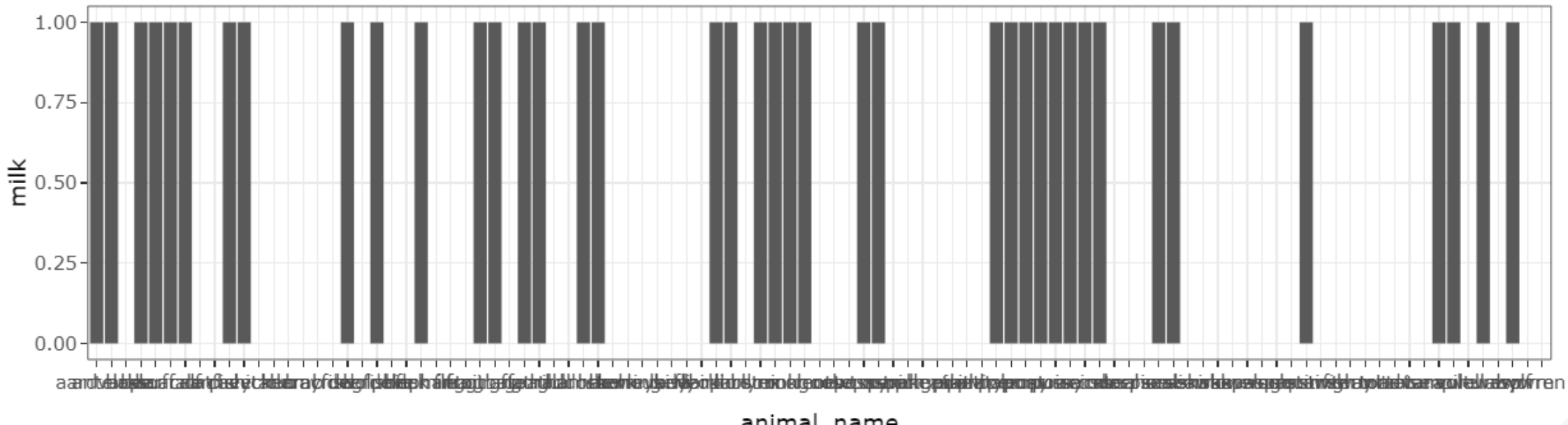
Graph 1.2



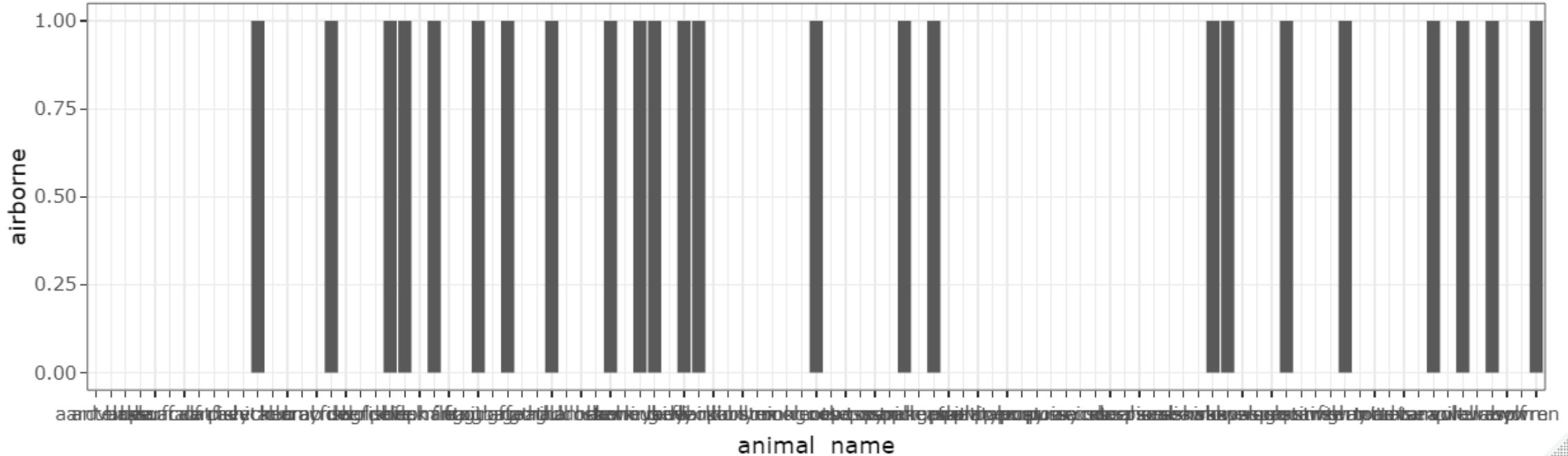
Graph 1.3



Graph 1.4



Graph 1.5



```
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
```

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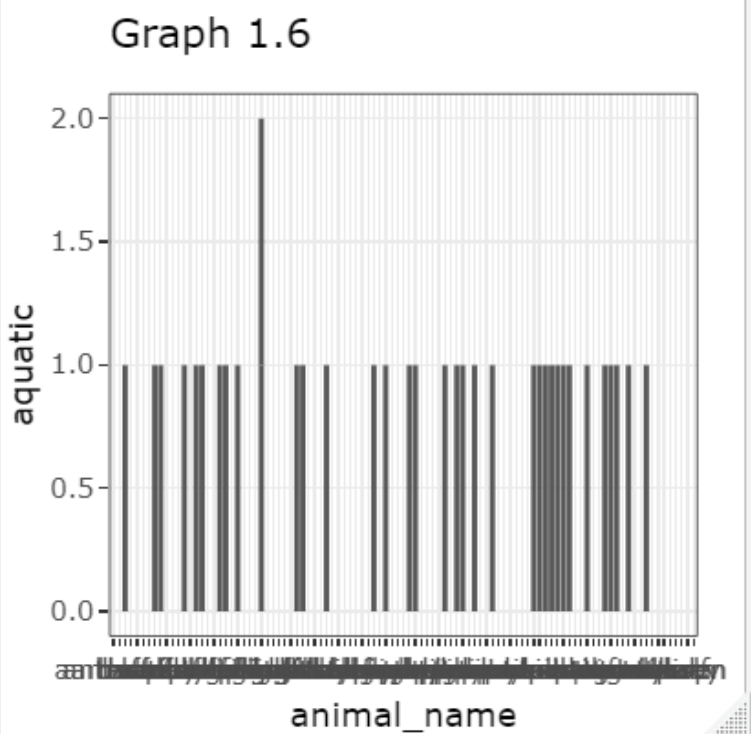
```
ggplot(zoo,aes(animal_name,a
 1.5")
plotly(p)
```




100 obs. of 16 variab.

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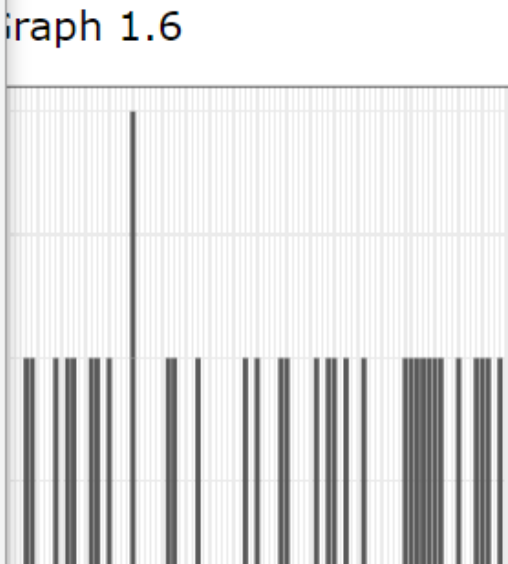
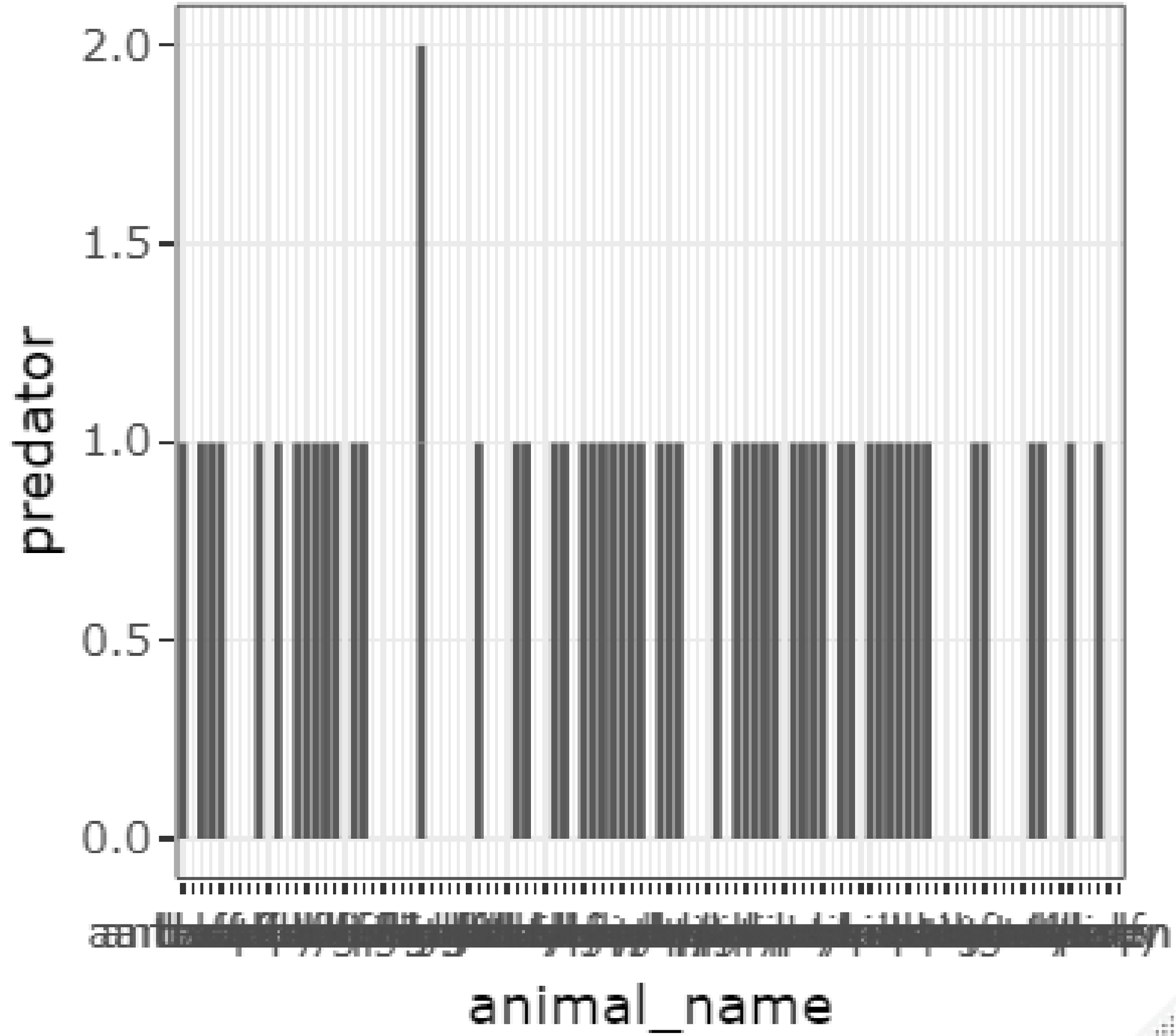


Graph 1.7



```
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
```

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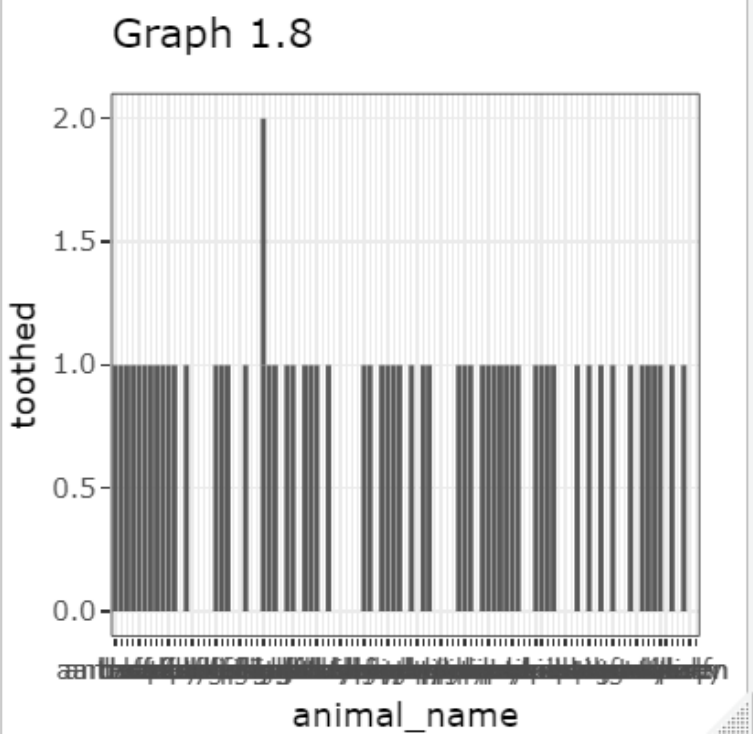
```
ggplot(zoo,aes(animal_name,pr
 1.7")
plotly(p)
```

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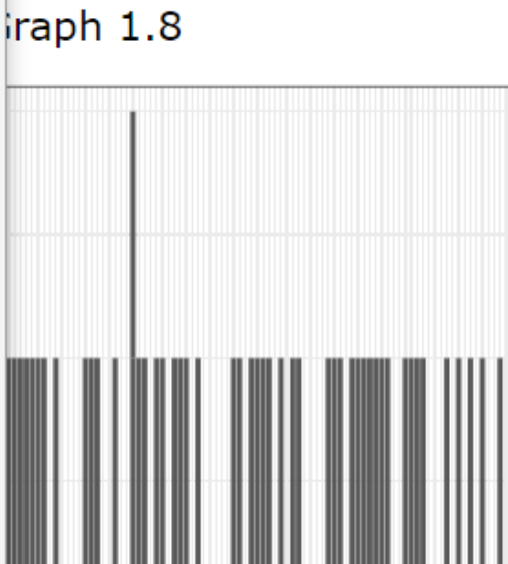

```
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
p=ggplot(zoo,aes(animal_nar
ggplotly(p)
```

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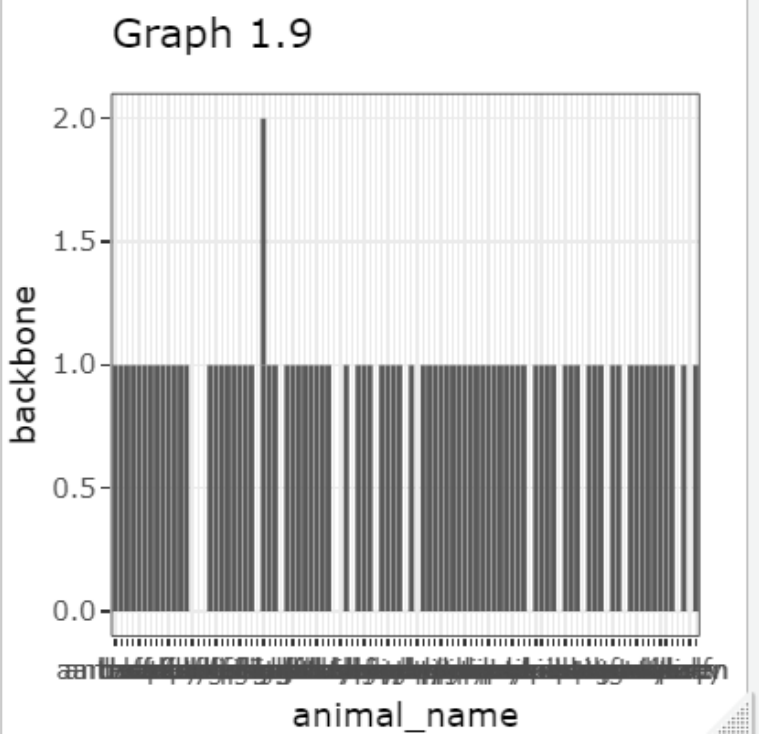
```
ggplot(zoo,aes(animal_name,t
1.8")
plotly(p)
```

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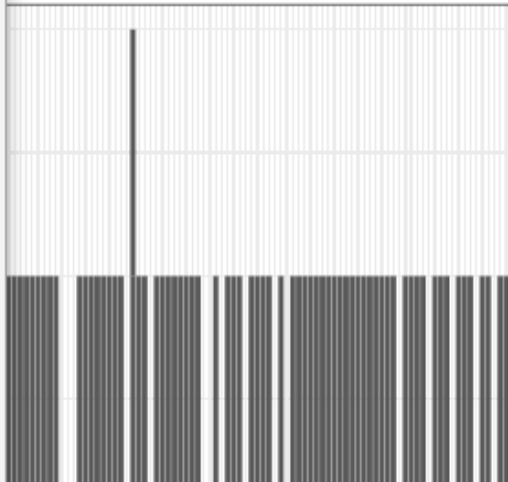
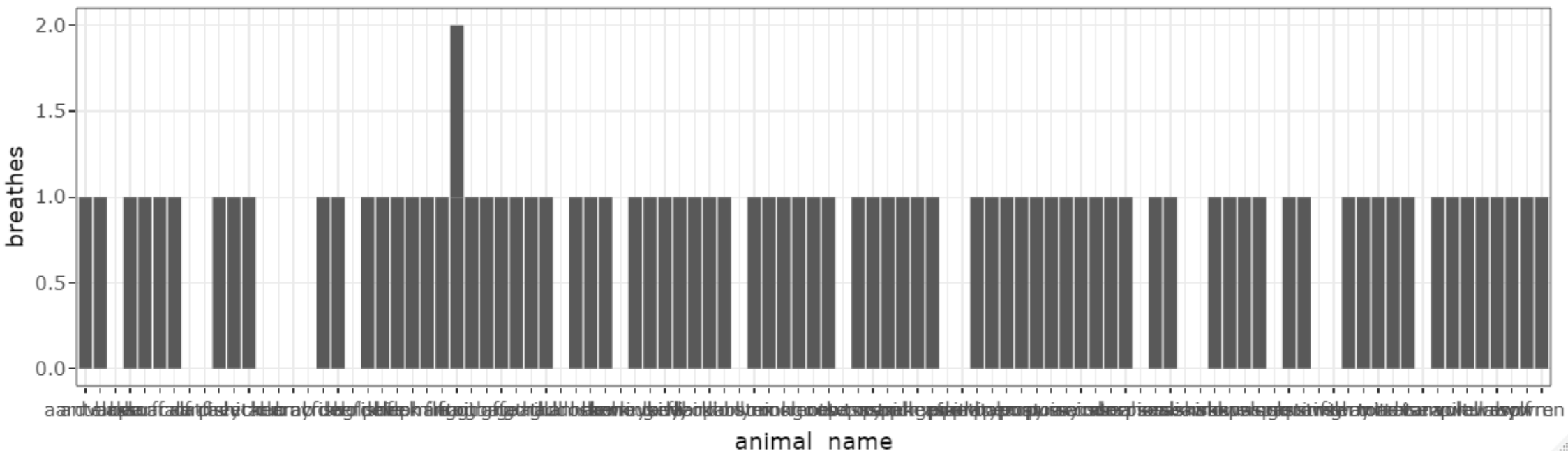
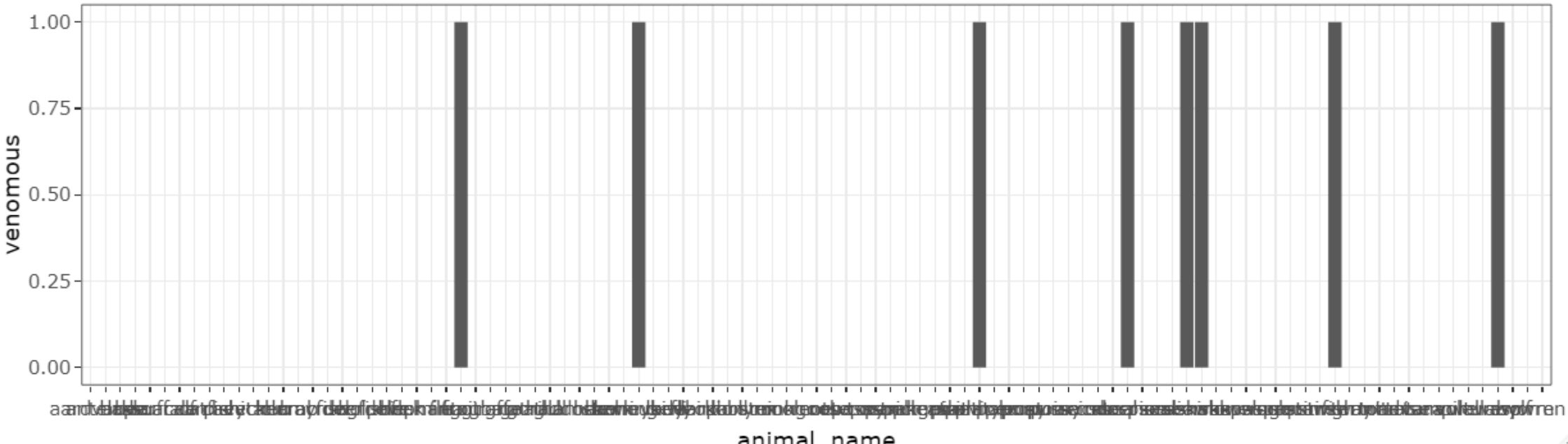
Graph 1.9



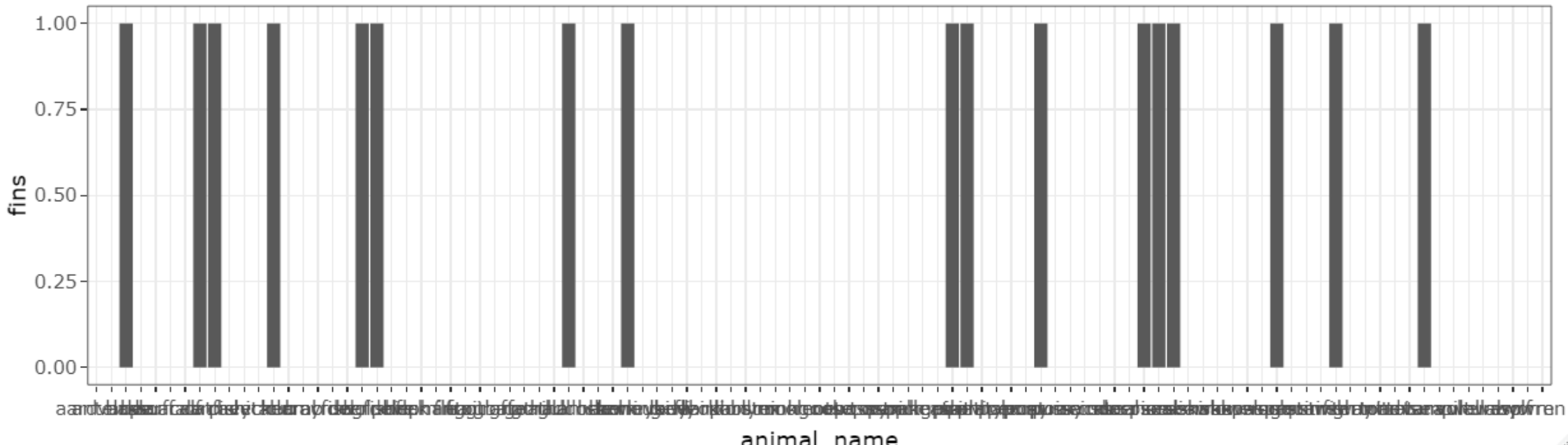
Graph 1.10



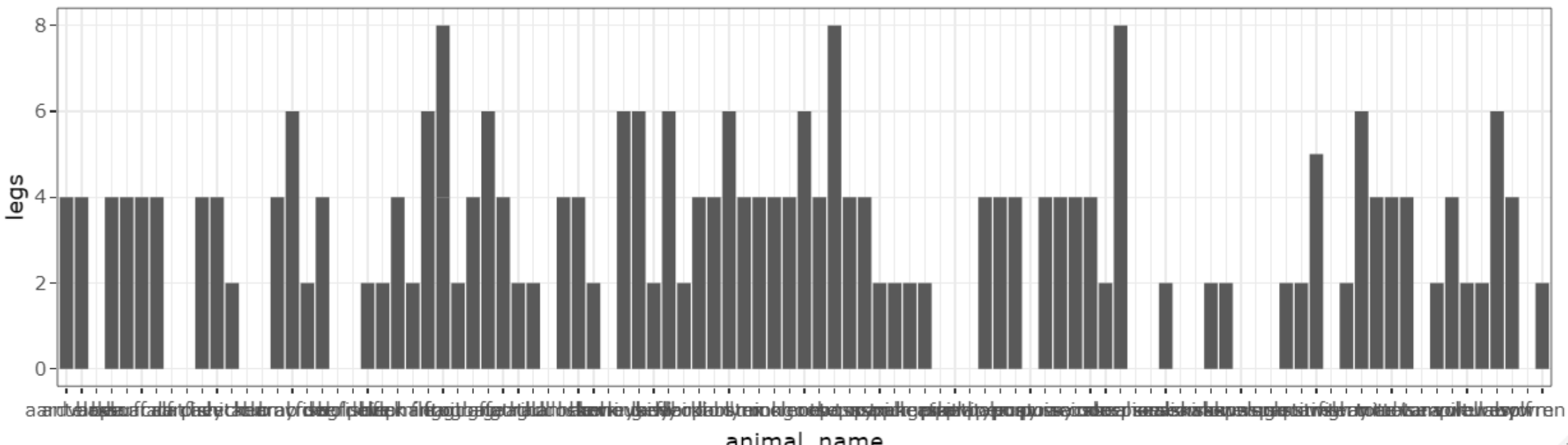
Graph 1.11



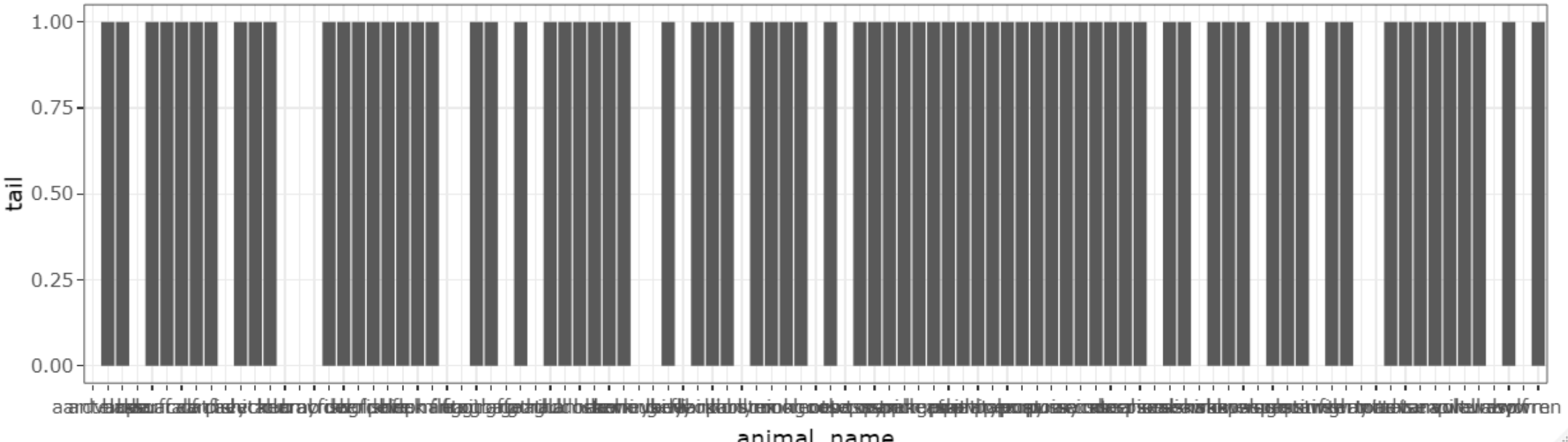
Graph 1.12



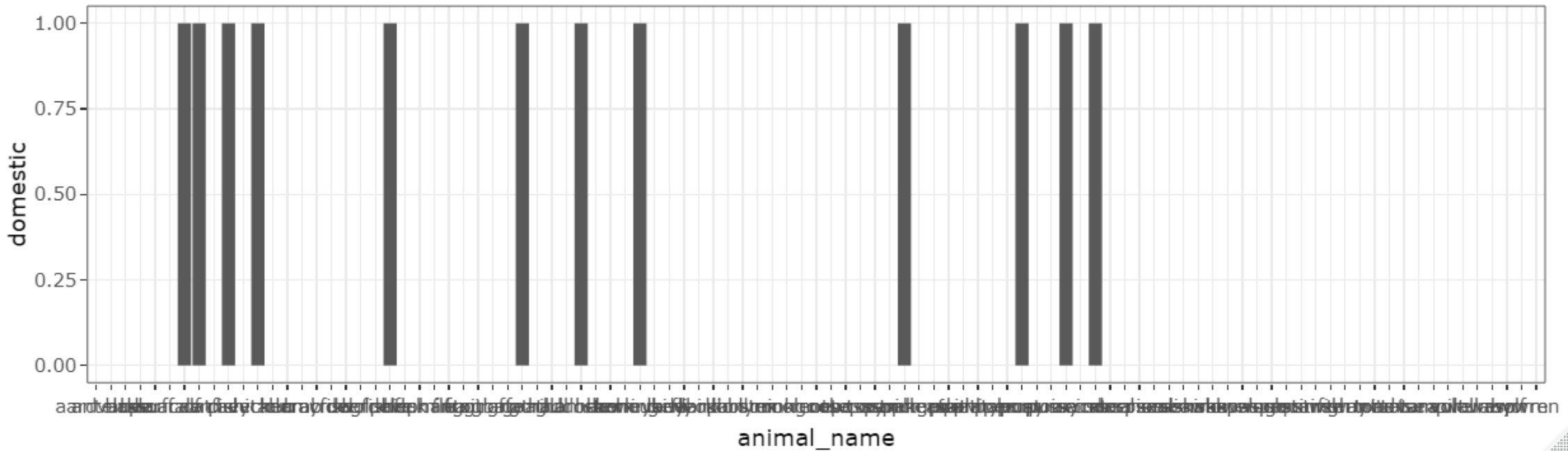
Graph 1.13



Graph 1.14



Graph 1.15



**Link for above graphs as interactive graphs are provided bellow:-**

| GRAPH | Link |
|---|---|
| 1.1 | https://github.com/agentdave007/Graphs/blob/main/1.1.html |
| 1.2 | https://github.com/agentdave007/Graphs/blob/main/1.2.html |
| 1.3 | https://github.com/agentdave007/Graphs/blob/main/1.3.html |
| 1.4 | https://github.com/agentdave007/Graphs/blob/main/1.4.html |
| 1.5 | https://github.com/agentdave007/Graphs/blob/main/1.5.html |
| 1.6 | https://github.com/agentdave007/Graphs/blob/main/1.6.html |
| 1.7 | https://github.com/agentdave007/Graphs/blob/main/1.7.html |
| 1.8 | https://github.com/agentdave007/Graphs/blob/main/1.8.html |
| 1.9 | https://github.com/agentdave007/Graphs/blob/main/1.9.html |
| 1.10 | https://github.com/agentdave007/Graphs/blob/main/1.10.html |
| 1.11 | https://github.com/agentdave007/Graphs/blob/main/1.11.html |
| 1.12 | https://github.com/agentdave007/Graphs/blob/main/1.12.html |
| 1.13 | https://github.com/agentdave007/Graphs/blob/main/1.13.html |
| 1.14 | https://github.com/agentdave007/Graphs/blob/main/1.14.html |
| 1.15 | https://github.com/agentdave007/Graphs/blob/main/1.15.html |

**Note:-** For some instances graph is plotted one over other due to same name(but different breeds)

The graphs are for vizualization purpose of data

| animal_name | hair | feathers | eggs | milk | airborne | aquatic | predator | toothed | backbone | breathes | venomous | fins | legs | tail | domestic | catsize | type |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| aardvark | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 1 |
| antelope | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| bass | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| bear | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 1 | 1 |
| boar | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| buffalo | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| calf | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 1 |
| carp | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 4 |
| catfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| cavy | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 1 | 0 | 1 |
| cheetah | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| chicken | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 2 |
| chub | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| clam | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| crab | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 |
| crayfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 7 |
| crow | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| deer | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| dogfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 4 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| dolphin | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| dove | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 2 |
| duck | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| elephant | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| flamingo | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| flea | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| frog | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 5 |
| frog | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 4 | 0 | 0 | 0 | 5 |
| fruitbat | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 |
| giraffe | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| girl | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 1 | 1 | 1 |
| gnat | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| goat | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 1 |
| gorilla | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 0 | 0 | 1 | 1 |
| gull | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| haddock | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| hamster | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 0 | 1 |
| hare | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 1 |
| hawk | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| herring | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| honeybee | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6 | 0 | 1 | 0 | 6 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| housefly | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| kiwi | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| ladybird | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| lark | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| leopard | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| lion | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| lobster | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 7 |
| lynx | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| mink | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| mole | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 1 |
| mongoose | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| moth | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| newt | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 5 |
| octopus | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 1 | 7 |
| opossum | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 1 |
| oryx | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| ostrich | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| parakeet | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 2 |
| penguin | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| pheasant | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| pike | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 4 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| piranha | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| pitviper | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 3 |
| platypus | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| polecat | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| pony | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 1 |
| porpoise | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 |
| puma | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| pussycat | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 1 |
| raccoon | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| reindeer | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 1 | 1 | 1 |
| rhea | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| scorpion | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 8 | 1 | 0 | 0 | 7 |
| seahorse | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| seal | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| sealion | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 2 | 1 | 0 | 1 | 1 |
| seasnake | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 3 |
| seawasp | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 7 |
| skimmer | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| skua | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| slowworm | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 3 |
| slug | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| sole | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 4 |
| sparrow | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |
| squirrel | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 |
| starfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 7 |
| stingray | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 4 |
| swan | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| termite | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 6 |
| toad | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 5 |
| tortoise | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 3 |
| tuatara | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 3 |
| tuna | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 4 |
| vampire | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 1 |
| vole | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 0 | 1 |
| vulture | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 2 |
| wallaby | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 1 | 1 |
| wasp | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6 | 0 | 0 | 0 | 6 |
| wolf | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 | 1 | 0 | 1 | 1 |
| worm | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| wren | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 2 |

```
library(ggplot2)
library(plotly)
setwd("C:/Users/a2fsh/Desktop/My DS programms")
zoo <- read.csv("zoo.csv",stringsAsFactors = FALSE)
attach(zoo)
zoo=zoo[1:(ncol(zoo)-2)]
zoo=zoo[which(animal_name!='girl'),]
#View(zoo)
print(zoo)

p=ggplot(zoo,aes(animal_name,hair))+geom_bar(stat='identity')+theme
_bw()+ggtitle("Graph 1.1")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,feathers))+geom_bar(stat='identity')+th
eme_bw()+ggtitle("Graph 1.2")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,eggs))+geom_bar(stat='identity')+theme
_bw()+ggtitle("Graph 1.3")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,milk))+geom_bar(stat='identity')+theme
_bw()+ggtitle("Graph 1.4")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,airborne))+geom_bar(stat='identity')+th
eme_bw()+ggtitle("Graph 1.5")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,aquatic))+geom_bar(stat='identity')+the
me_bw()+ggtitle("Graph 1.6")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,predator))+geom_bar(stat='identity')+th
eme_bw()+ggtitle("Graph 1.7")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,toothed))+geom_bar(stat='identity')+the
me_bw()+ggtitle("Graph 1.8")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,backbone))+geom_bar(stat='identity')+t
heme_bw()+ggtitle("Graph 1.9")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,breathes))+geom_bar(stat='identity')+th
eme_bw()+ggtitle("Graph 1.10")
ggplotly(p)
```

```
p=ggplot(zoo,aes(animal_name,venomous))+geom_bar(stat='identity')+t
heme_bw()+ggtitle("Graph 1.11")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,fins))+geom_bar(stat='identity')+theme_
bw()+ggtitle("Graph 1.12")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,legs))+geom_bar(stat='identity')+theme
_bw()+ggtitle("Graph 1.13")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,tail))+geom_bar(stat='identity')+theme_
bw()+ggtitle("Graph 1.14")
ggplotly(p)
p=ggplot(zoo,aes(animal_name,domestic))+geom_bar(stat='identity')+th
eme_bw()+ggtitle("Graph 1.15")
ggplotly(p)

print("Total number of missing values (NA) in the zoo.")
print(sum(is.na(zoo)))

print("Total number of animals which both milks and lay eggs.")
print(sum(milk==eggs))
print("Name of animals which both milks and lay eggs.")
print(zoo[which(milk==eggs),"animal_name"])

print("Total number of animals which are predators.")
print(sum(predator))
print("Name of animals which are predators(need to be supervised and
visitors should not come near).")
print(zoo[which(predator==TRUE),"animal_name"])

print("Total number of aquatic animals which are predators(need to be
supervised and warnings must be issued to visitors).")
print(sum(predator & !aquatic))
print("Aquatic animals which are predators(need to be supervised and
warnings must be issued to visitors).")
print(zoo[which(predator & !aquatic),"animal_name"])

print("Total number of animals which are airborne(need to have cages
according to their size.")
print(sum(airborne))
```

```
print("Name of animals which are airborne(need to have cages
according to their size.")
print(zoo[which(airborne==TRUE),"animal_name"])

print("Total number of animals which are predators(need to have both
aquatic aerial equiped cages).")
print(sum(airborne & aquatic))
print("Animals which are predators(need to have both aquatic aerial
equiped cages).")
print(zoo[which(airborne & aquatic),"animal_name"])

print("Total number of animals which require an Aquarium.")
print(sum(aquatic & fins & !breathes))
print("Name of animals which require an Aquarium.")
print(zoo[which(aquatic & fins & !breathes),"animal_name"])

print("Total number of animals which require an aquatic habitat but
require an open roof as they have to come to surface to breath.")
print(sum(aquatic & fins & breathes))
print("Name of animals which require an aquatic habitat but require an
open roof as they have to come to surface to breath.")
print(zoo[which(aquatic & fins & breathes),"animal_name"])

print("Total number of animals which are poisnous(need to be
supervised and warnings must be issued to visitors).")
print(sum(venomous & !aquatic))
print("Animals which are poisnous(need to be supervised and warnings
must be issued to visitors).")
print(zoo[which(venomous & !aquatic),"animal_name"])

print("Total number of animals which are poisnous(need to be
supervised(experts required) and warnings must be issued to visitors).")
print(sum(venomous & aquatic))
print("Animals which are poisnous(need to be supervised(experts
required) and warnings must be issued to visitors).")
print(zoo[which(venomous & aquatic),"animal_name"])

print("Total number of animals which are domestic(need to be kept
away from wild animals)")
print(sum(domestic))
```

```
print("Animals which are domestic(need to be kept away from wild animals)")
print(zoo[which(domestic==TRUE),"animal_name"])
```

| | animal_name | hair | feathers | eggs | milk | airborne | aquatic | predator | toothed | backbone |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | aardvark | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 2 | antelope | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 3 | bass | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 4 | bear | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 5 | boar | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 6 | buffalo | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 7 | calf | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 8 | carp | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 |
| 9 | catfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 10 | cavy | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 11 | cheetah | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 12 | chicken | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 13 | chub | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 14 | clam | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 15 | crab | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 16 | crayfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 |
| 17 | crow | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 |
| 18 | deer | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 19 | dogfish | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |
| 20 | dolphin | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| 21 | dove | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 22 | duck | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 |
| 23 | elephant | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 24 | flamingo | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |
| 25 | flea | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | frog | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 | 1 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 27 | frog | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 28 | fruitbat | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 29 | giraffe | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 31 | gnat | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | | | | | | | | | |
| 32 | goat | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 33 | gorilla | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 34 | gull | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| 1 | | | | | | | | | |
| 35 | haddock | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 |
| 1 | | | | | | | | | |
| 36 | hamster | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 37 | hare | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 38 | hawk | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 |
| 1 | | | | | | | | | |
| 39 | herring | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 40 | honeybee | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | | | | | | | | | |
| 41 | housefly | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | | | | | | | | | |
| 42 | kiwi | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 |
| 1 | | | | | | | | | |
| 43 | ladybird | 0 | 0 | 1 | 0 | 1 | 0 | 1 | 0 |
| 0 | | | | | | | | | |
| 44 | lark | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1 | | | | | | | | | |
| 45 | leopard | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 46 | lion | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 47 | lobster | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0 | | | | | | | | | |
| 48 | lynx | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 49 | mink | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 50 | mole | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 51 | mongoose | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 52 | moth | 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 0 | | | | | | | | | |
| 53 | newt | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 54 | octopus | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |
| 0 | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 55 | opossum | 1 | 0 | 0 | 1 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |
| 56 | oryx | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 1 | | | | | | | | | |
| 57 | ostrich | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1 | | | | | | | | | |
| 58 | parakeet | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1 | | | | | | | | | |
| 59 | penguin | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 0 |
| 1 | | | | | | | | | |
| 60 | pheasant | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 |
| 1 | | | | | | | | | |
| 61 | pike | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 62 | piranha | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1 | | | | | | | | | |
| 63 | pitviper | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 1 | | | | | | | | | |

| | breathes | venomous | fins | legs | tail | domestic |
|---|---|---|---|---|---|---|
| 1 | 1 | 0 | 0 | 4 | 0 | 0 |
| 2 | 1 | 0 | 0 | 4 | 1 | 0 |
| 3 | 0 | 0 | 1 | 0 | 1 | 0 |
| 4 | 1 | 0 | 0 | 4 | 0 | 0 |
| 5 | 1 | 0 | 0 | 4 | 1 | 0 |
| 6 | 1 | 0 | 0 | 4 | 1 | 0 |
| 7 | 1 | 0 | 0 | 4 | 1 | 1 |
| 8 | 0 | 0 | 1 | 0 | 1 | 1 |
| 9 | 0 | 0 | 1 | 0 | 1 | 0 |
| 10 | 1 | 0 | 0 | 4 | 0 | 1 |
| 11 | 1 | 0 | 0 | 4 | 1 | 0 |
| 12 | 1 | 0 | 0 | 2 | 1 | 1 |
| 13 | 0 | 0 | 1 | 0 | 1 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 4 | 0 | 0 |
| 16 | 0 | 0 | 0 | 6 | 0 | 0 |
| 17 | 1 | 0 | 0 | 2 | 1 | 0 |
| 18 | 1 | 0 | 0 | 4 | 1 | 0 |
| 19 | 0 | 0 | 1 | 0 | 1 | 0 |
| 20 | 1 | 0 | 1 | 0 | 1 | 0 |
| 21 | 1 | 0 | 0 | 2 | 1 | 1 |
| 22 | 1 | 0 | 0 | 2 | 1 | 0 |
| 23 | 1 | 0 | 0 | 4 | 1 | 0 |
| 24 | 1 | 0 | 0 | 2 | 1 | 0 |
| 25 | 1 | 0 | 0 | 6 | 0 | 0 |
| 26 | 1 | 0 | 0 | 4 | 0 | 0 |
| 27 | 1 | 1 | 0 | 4 | 0 | 0 |
| 28 | 1 | 0 | 0 | 2 | 1 | 0 |
| 29 | 1 | 0 | 0 | 4 | 1 | 0 |
| 31 | 1 | 0 | 0 | 6 | 0 | 0 |
| 32 | 1 | 0 | 0 | 4 | 1 | 1 |
| 33 | 1 | 0 | 0 | 2 | 0 | 0 |
| 34 | 1 | 0 | 0 | 2 | 1 | 0 |
| 35 | 0 | 0 | 1 | 0 | 1 | 0 |
| 36 | 1 | 0 | 0 | 4 | 1 | 1 |

```
37        1        0    0    4    1        0
38        1        0    0    2    1        0
39        0        0    1    0    1        0
40        1        1    0    6    0        1
41        1        0    0    6    0        0
42        1        0    0    2    1        0
43        1        0    0    6    0        0
44        1        0    0    2    1        0
45        1        0    0    4    1        0
46        1        0    0    4    1        0
47        0        0    0    6    0        0
48        1        0    0    4    1        0
49        1        0    0    4    1        0
50        1        0    0    4    1        0
51        1        0    0    4    1        0
52        1        0    0    6    0        0
53        1        0    0    4    1        0
54        0        0    0    8    0        0
55        1        0    0    4    1        0
56        1        0    0    4    1        0
57        1        0    0    2    1        0
58        1        0    0    2    1        1
59        1        0    0    2    1        0
60        1        0    0    2    1        0
61        0        0    1    0    1        0
62        0        0    1    0    1        0
63        1        1    0    0    1        0
 [ reached 'max' / getOption("max.print") -- omitted 38 rows ]
[1] "Total number of missing values (NA) in the zoo."
[1] 0
[1] "Total number of animals which both milks and lay eggs."
[1] 3
[1] "Name of animals which both milks and lay eggs."
[1] "polecat"  "seahorse" "seawasp"
[1] "Total number of animals which are predators."
[1] 56
[1] "Name of animals which are predators(need to be supervised and
visitors should not come near)."
 [1] "aardvark" "bass"     "bear"     "boar"     "catfish"  "cheetah"
"chub"
 [8] "clam"     "crab"     "crayfish" "crow"     "dogfish"  "dolphin"
"frog"
[15] "frog"     "gnat"     "haddock"  "herring"  "honeybee" "ladybird"
"lark"
[22] "lion"     "lobster"  "lynx"     "mink"     "mole"     "mongoose"
"moth"
[29] "octopus"  "opossum"  "oryx"     "pheasant" "piranha"  "pitviper"
"platypus"
[36] "polecat"  "pony"     "puma"     "pussycat" "raccoon"  "reindeer"
"scorpion"
[43] "seahorse" "sealion"  "seasnake" "seawasp"  "skimmer"  "skua"
"slowworm"
[50] "slug"     "stingray" "swan"     "tuna"     "vampire"  "wallaby"
"worm"
```

```
[1] "Total number of aquatic animals which are predators(need to be
supervised and warnings must be issued to visitors)."
[1] 27
[1] "Aquatic animals which are predators(need to be supervised and
warnings must be issued to visitors)."
 [1] "aardvark" "bear"     "boar"     "cheetah"  "clam"     "crow"
"gnat"
 [8] "herring"  "ladybird" "lark"     "lion"     "lobster"  "mink"
"mongoose"
[15] "moth"     "oryx"     "platypus" "pony"     "pussycat" "raccoon"
"reindeer"
[22] "scorpion" "seahorse" "slug"     "tuna"     "wallaby"  "worm"
[1] "Total number of animals which are airborne(need to have cages
according to their size."
[1] 24
[1] "Name of animals which are airborne(need to have cages according to
their size."
 [1] "chicken"  "crow"     "dove"     "duck"     "flamingo" "fruitbat"
"goat"
 [8] "haddock"  "herring"  "housefly" "kiwi"     "lark"     "leopard"
"newt"
[15] "penguin"  "pike"     "skua"     "slowworm" "squirrel" "termite"
"vole"
[22] "wallaby"  "wolf"     NA
[1] "Total number of animals which are predators(need to have both
aquatic aerial equiped cages)."
[1] 5
[1] "Animals which are predators(need to have both aquatic aerial equiped
cages)."
[1] "duck"     "haddock"  "skua"     "slowworm" "termite"
[1] "Total number of animals which require an Aquarium."
[1] 13
[1] "Name of animals which require an Aquarium."
 [1] "bass"     "carp"     "catfish"  "chub"     "dogfish"  "hamster"
"honeybee"
 [8] "piranha"  "pitviper" "seal"     "sparrow"  "swan"     "vampire"
[1] "Total number of animals which require an aquatic habitat but require
an open roof as they have to come to surface to breath."
[1] 4
[1] "Name of animals which require an aquatic habitat but require an open
roof as they have to come to surface to breath."
[1] "dolphin"  "puma"     "sealion"  "seasnake"
[1] "Total number of animals which are poisnous(need to be supervised and
warnings must be issued to visitors)."
[1] 4
[1] "Animals which are poisnous(need to be supervised and warnings must
be issued to visitors)."
[1] "housefly" "platypus" "seahorse" "wolf"
[1] "Total number of animals which are poisnous(need to be
supervised(experts required) and warnings must be issued to visitors)."
[1] 4
[1] "Animals which are poisnous(need to be supervised(experts required)
and warnings must be issued to visitors)."
[1] "frog"    "seawasp" "skimmer" "swan"
```

```
[1] "Total number of animals which are domestic(need to be kept away from
wild animals)"
[1] 13
[1] "Animals which are domestic(need to be kept away from wild animals)"
 [1] "calf"     "carp"     "cavy"     "chicken"  "dove"     "gnat"
"gorilla"
 [8] "hare"     "housefly" "penguin"  "porpoise" "raccoon"  "rhea"
```

# ***Conclusion***

As Conclusion, we have derived a basic necessity which includes some animals specially needed to take care of in designing the structure of a zoo. They are as follows:

- 3 animals which both milks and lay eggs.
  - -> polecat
  - -> seahorse
  - -> seawasp
- 56 number of animals which are predators.
  - -> aardvark
  - -> Bass
  - -> bear
  - -> boar
  - -> catfish
  - -> cheetah
  - -> chub
  - -> clam
  - -> crab
  - -> crayfish
  - -> crow
  - -> dogfish
  - -> dolphin
  - -> frog
  - -> frog
  - -> gnat
  - -> haddock
  - -> herring
  - -> honeybee
  - -> ladybird
  - -> lark
  - -> lion
  - -> lobster
  - -> lynx
  - ->mink
  - -> mole
  - -> mongoose
  - -> moth
  - -> octopus
  - -> opossum
  - ->oryx
  - -> pheasant
  - -> piranha
  - -> pitviper

-> platypus
-> polecat
-> pony
-> puma
-> pussycat
-> raccoon
-> reindeer
-> scorpion
-> seahorse
-> sealion
-> seasnake
-> seawasp
-> skimmer
-> skua
-> slowworm
-> slug
-> stingray
-> swan
-> tuna
-> vampire
-> wallaby
-> worm

- 27 aquatic animals which are predators
  -> aardvark
  -> bear
  -> boar
  -> cheetah
  -> clam
  -> crow
  -> gnat
  -> herring
  -> ladybird
  -> lark
  -> lion
  -> lobster
  -> mink
  -> mongoose
  -> moth
  -> oryx
  -> platypus
  -> pony
  ->pussycat
  -> raccoon

-> reindeer
-> scorpion
-> seahorse
-> slug
-> tuna
-> wallaby
-> worm

- 24 number of animals which are airborne(need to have cages according to their size.
  -> chicken
  -> crow
  -> dove
  -> duck
  -> flamingo
  -> fruitbat
  -> goat
  -> haddock
  -> herring
  -> housefly
  -> kiwi
  -> lark
  -> leopard
  -> newt
  -> penguin
  -> pike
  -> skua
  -> slowworm
  -> squirrel
  -> termite
  -> vole
  -> wallaby
  -> wolf
- 5 animals which are predators(need to have both aquatic aerial equiped cages).
  -> duck
  -> haddock
  -> skua
  -> slowworm
  -> termite
- 13 number of animals which require an Aquarium.
  -> bass
  -> carp
  -> catfish

-> chub
-> dogfish
-> hamster
-> honeybee
-> piranha
-> pitviper
-> seal
-> sparrow
-> swan
-> vampire

- 4 animals which require an aquatic habitat but require an open roof as they have to come to surface to breath.
  -> dolphin
  -> puma
  -> sealion
  -> seasnake
- 4 animals which are poisnous(need to be supervised and warnings must be issued to visitors).
  -> housefly
  -> platypus
  -> seahorse
  -> wolf
- 4 animals which are poisnous(need to be supervised(experts required) and warnings must be issued to visitors).
  -> frog
  -> seawasp
  -> skimmer
  -> swan
- 13 animals which are domestic(need to be kept away from wild animals)
  -> calf
  -> carp
  -> cavy
  -> chicken
  -> dove
  -> gnat
  -> gorilla
  -> hare
  -> housefly
  -> penguin
  -> porpoise
  -> raccoon
  -> rhea