

Dog_vs_Cat

Bowen Xiao

May 27, 2018

Dataset introduction

The city of Seattle makes available its database of pet licenses issued from 2005 to the beginning of 2017 as part of the city's ongoing Open Data Initiative. The data is also obtainable from the Socrata Open Data Access (SODA) portal in either CSV or JSON formats.

```
library(readr)
licenses <- read_csv("seattle_pet_licenses.csv")
dog<-licenses[licenses$species=='Dog',]
cat<-licenses[licenses$species=='Cat',]
library(knitr)
kable(data.frame(attributes=colnames(licenses)))
```

attributes
animal_s_name
license_issue_date
license_number
primary_breed
secondary_breed
species
zip_code

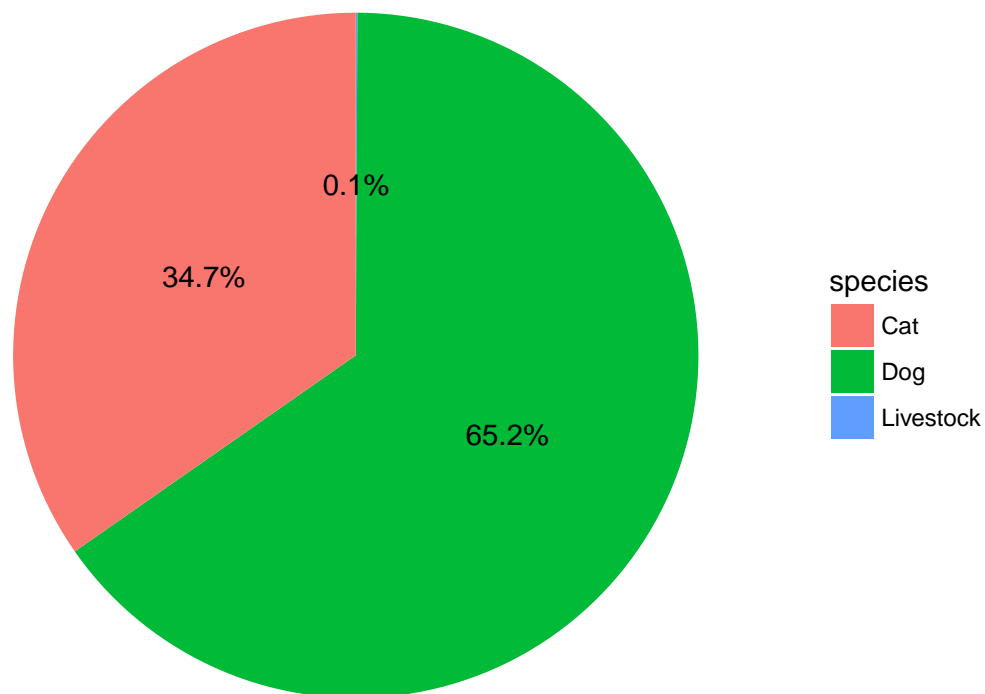
Most common species

Not surprisingly, most registered pets in Seattle are either dog or cat, and there are more dogs than cats. Thus I am going to focus on dogs and cats in the following.

```
library(ggplot2)
library(dplyr)

data <- licenses %>%
  group_by(species) %>%
  count() %>%
  ungroup() %>%
  mutate(per=`n`/sum(`n`)) %>%
  arrange(desc(species))
data$label <- scales::percent(data$per)

ggplot(data=data)+
  geom_bar(aes(x="", y=per, fill=species), stat="identity", width = 1)+
  coord_polar("y", start=0)+
  theme_void()+
  geom_text(aes(x=1, y = cumsum(per) - per/2, label=label))
```



Most popular month for registration

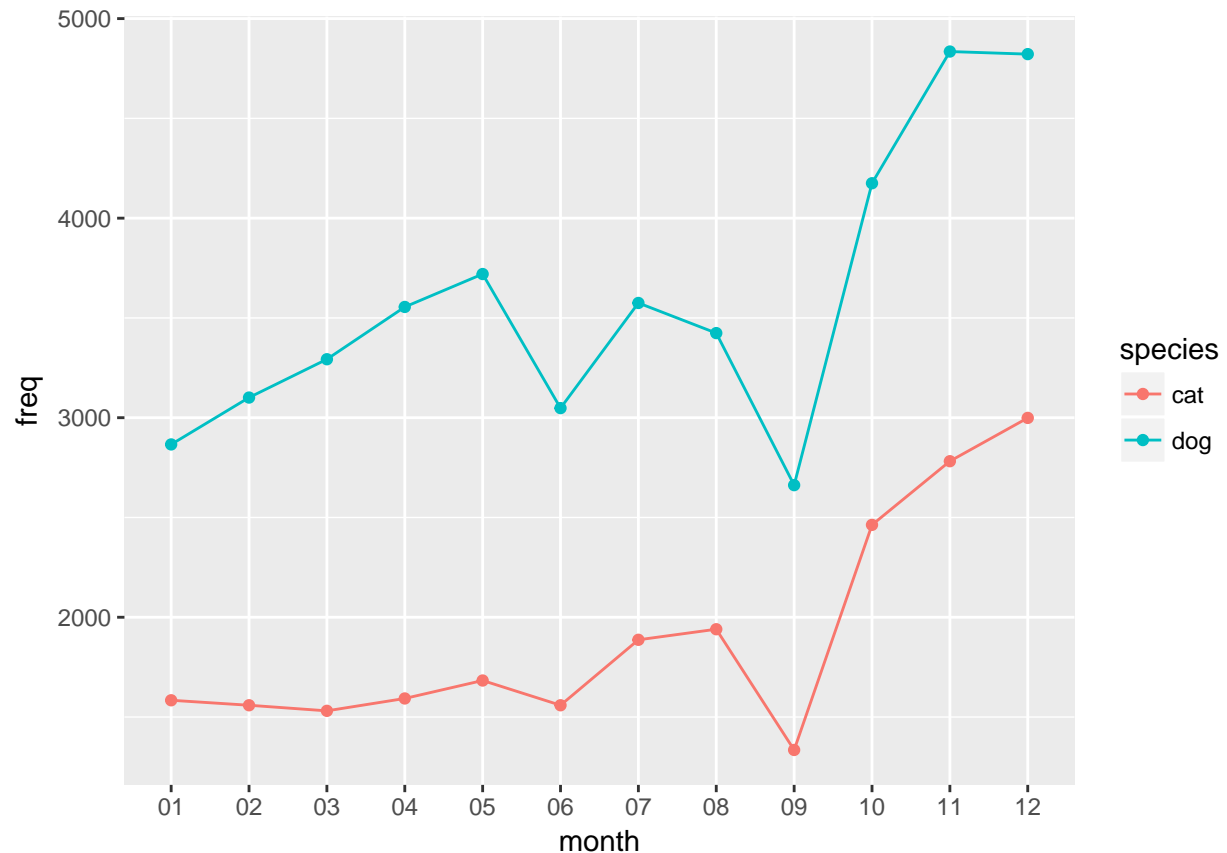
Most people chose to register their pets in end of a year. And there is no obvious difference between dog and cat.

```
dog.date<-data.frame(date=(format(as.Date(dog$license_issue_date),"%m")))
dog.date<-dog.date[complete.cases(dog.date),]
dog.date<-as.factor(dog.date)
dog.date<-as.data.frame(table(dog.date))
colnames(dog.date)=c('month','freq')
dog.date$species<-rep('dog',nrow(dog.date))

cat.date<-data.frame(date=(format(as.Date(cat$license_issue_date),"%m")))
cat.date<-cat.date[complete.cases(cat.date),]
cat.date<-as.factor(cat.date)
cat.date<-as.data.frame(table(cat.date))
colnames(cat.date)=c('month','freq')
cat.date$species<-rep('cat',nrow(cat.date))

date<-rbind(dog.date,cat.date)
date<-date[order(date$month),]

(p1 <- ggplot(data = date, aes(x = month, y = freq, colour = species)) +
  geom_line(aes(group = species)) +
  geom_point())
```



Addresses of pets

Both dogs and cats are everywhere, and it is true that dogs are always outnumber cats in Seattle. The rate varies among districts. And It seems that people in the south have a stronger preference for dog.

```
library(zipcode)
library(ggmap)

data(zipcode)
seattle<-zipcode[zipcode$city=='Seattle',]

p <- ggmap(get_googlemap(center = c(lon = -122.335167, lat = 47.608013),
                             zoom = 11, scale = 2,
                             maptype = 'terrain',
                             color = 'color'))

dog.zip<-dog$zip_code
dog.zip<-dog.zip[complete.cases(dog.zip)]
dog.zip<-as.factor(dog.zip)
dog.zip<-as.data.frame(table(dog.zip))
colnames(dog.zip)=c('zip','freq')
dog.zip<-merge(x = seattle, y = dog.zip, by = "zip", all.x = TRUE)
dog.zip$species<-rep('dog',nrow(dog.zip))

cat.zip<-cat$zip_code
```

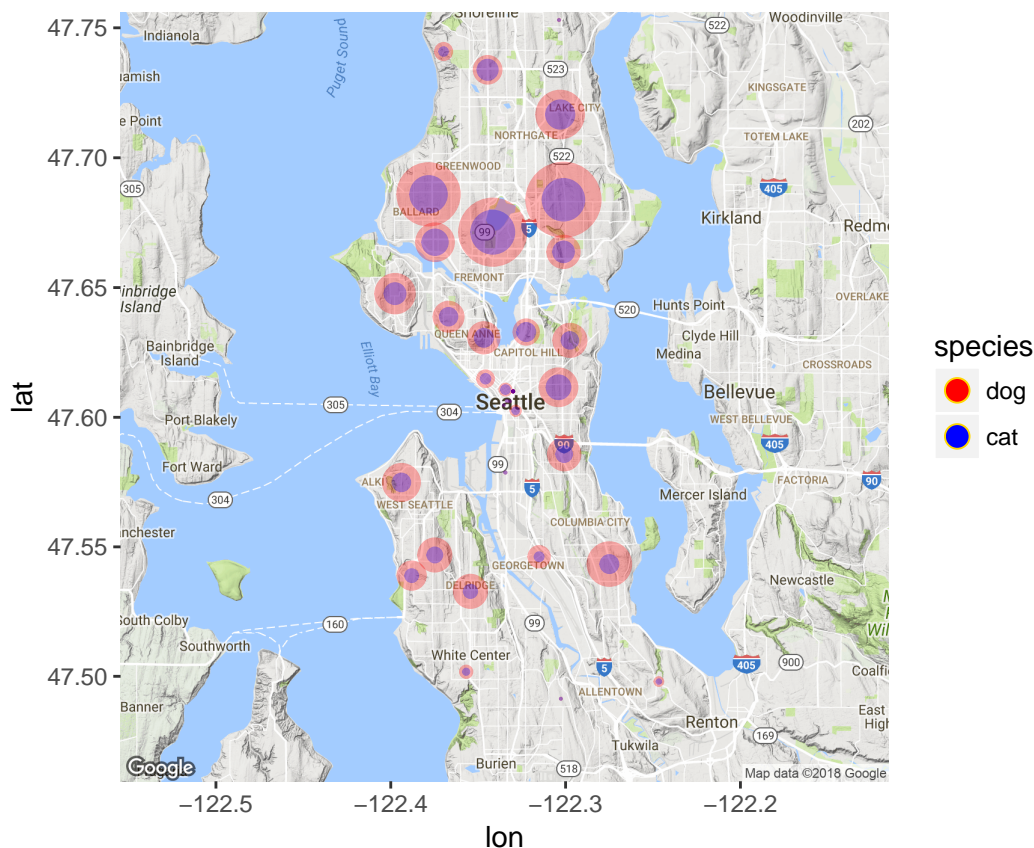
```

cat.zip<-cat.zip[complete.cases(cat.zip)]
cat.zip<-as.factor(cat.zip)
cat.zip<-as.data.frame(table(cat.zip))
colnames(cat.zip)=c('zip','freq')
cat.zip<-merge(x = seattle, y = cat.zip, by = "zip", all.x = TRUE)
cat.zip$species<-rep('cat',nrow(cat.zip))

zip<-rbind(dog.zip,cat.zip)
zip[is.na(zip$freq),]$freq<-0
zip<-zip[order(zip$zip),]
library(plyr)
zip$species<-revalue(zip$species, c("dog"="red", "cat"="blue"))
tiny<-zip[1:2,]

p + geom_point(aes(x = longitude, y = latitude, fill=species), data=tiny, color="gold",
               size = 4, alpha = 1,pch=21)+
  scale_fill_manual(values=tiny$species,labels=c("dog", "cat")) +
  geom_point(aes(x = longitude, y = latitude), data=zip, color=zip$species,
             size = zip$freq/300, alpha = 0.3)

```



Most popular names for pets

‘Lucy’, ‘Charlie’, ‘Bella’, ‘Luna’, ‘Oliver’ and ‘Max’ seem to be shared names for dogs and cats. However, ‘Buddy’ and ‘Sadie’ seem to only work for dogs.

```
library(wordcloud)

dog.names<-dog$animal_s_name
dog.names<-dog.names[complete.cases(dog.names)]
dog.names<-as.data.frame(table(dog.names))
wordcloud(words = dog.names$dog.names, freq = dog.names$Freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```



```
cat.names<-cat$animal_s_name
cat.names<-cat.names[complete.cases(cat.names)]
cat.names<-as.data.frame(table(cat.names))
wordcloud(words = cat.names$cat.names, freq = cat.names$Freq, min.freq = 1,
          max.words=200, random.order=FALSE, rot.per=0.35,
          colors=brewer.pal(8, "Dark2"))
```

A word cloud of names, likely pet names, arranged in a circular pattern. The names are of various sizes and colors, including shades of blue, green, yellow, orange, and pink. The names are: Ginger, Theo, Momo, Ruby, Grace, Oscar, George, Lily, Jack, Tiger, Leo, Kitty, Jasper, Bella, Max, Lucy, Luna, Charlie, Oliver, Shadow, Lulu, Toby, Daisy, Sadie, Cookie, Pepper, Olive, Cleo, Izzy, Bob, Sophie, Boo, Katie, Lilly, Iris, Pixie, Simba, Millie, Kiki, Molly, Chloe, and Bobby.