Mushroom Analysis

Overview

Smell is very important for cooking, we are going to analyse this mushroom dataset with odor. https://archive.ics.uci.edu/ml/machine-learning-databases/mushroom/agaricus-lepiota.data

Load Libararies

```
library(devtools)
library(RCurl)
```

```
## Loading required package: bitops
```

```
library(bitops)
```

Load raw data and add labels to the data frame

```
File_rawMushRoom <- getURL("https://archive.ics.uci.edu/ml/machine-learning-databases/mushroom/agaricus
Dataframe_rawMushRoom<-data.frame(read.csv(text=File_rawMushRoom, header=F))
names(Dataframe_rawMushRoom) = c('is_edible','cap_shape',
                                 'cap_surface',
                                 'cap_color',
                                 'IsBruises',
                                 'odor',
                                 'gill_attachment',
                                 'gill_spacing',
                                 'gill_size',
                                 'gill_color',
                                 'stalk_shape',
                                 'stalk_root',
                                 'stalk_surface_above_ring',
                                 'stalk_surface_below_ring',
                                 'stalk_color_above_ring',
                                 'stalk_color_below_ring',
                                 'veil_type',
                                 'veil_color',
                                 'ring_number',
                                 'ring_type',
                                 'spore_print_color',
                                 'population',
                                 'habitat')
```

Aanlyse data

What is the total count of the mushroom dataset (edible and poisonous)? Given 'e' = edible and 'p' = poisonous.

```
count_mushroom <- length(Dataframe_rawMushRoom$is_edible)
```

How does the edible mushroom smell like? How many are they?

```
edible_mushroom <- subset(Dataframe_rawMushRoom, Dataframe_rawMushRoom$is_edible == 'e')

odor_edible_mushroom <- table(edible_mushroom$odor)

count_edible_mushroom <- length(edible_mushroom$odor)
```

How does the poisonous mushroom smell like? How many are they?

```
poisonous_mushroom <- subset(Dataframe_rawMushRoom, Dataframe_rawMushRoom$is_edible == 'p')

odor_poisonous_mushroom <- table(poisonous_mushroom$odor)

count_poisonous_mushroom <- length(poisonous_mushroom$odor)
```

Columns order are sorted in table, rename columns correspondingly

```
new_odor_labels = c('almond','creosote','foul','anise',
                    'musty','none', 'pungent','fishy','spicy')

names(odor_edible_mushroom ) = new_odor_labels
names(odor_poisonous_mushroom ) = new_odor_labels
```

Result

Couts:

```
paste("Total Mushroom in our dataset:", as.character( count_mushroom))
```

```
## [1] "Total Mushroom in our dataset: 8124"
```

```
paste("Total edible:", as.character( count_edible_mushroom))
```

```
## [1] "Total edible: 4208"
```

```
paste("Total poison:", as.character(count_poisonous_mushroom))
```

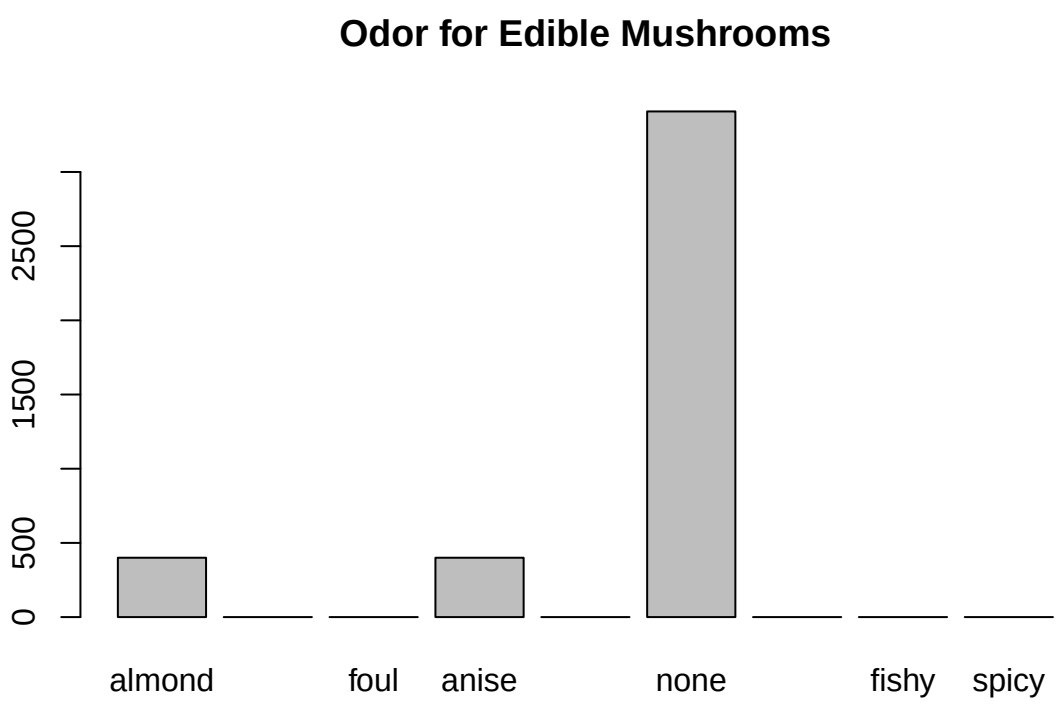
```
## [1] "Total poison: 3916"
```

Odor for edible mushrooms

```
print(odor_edible_mushroom)
```

```
##   almond creosote     foul    anise    musty     none  pungent    fishy
##      400        0        0      400        0     3408        0        0
##    spicy
##        0
```

```
barplot(odor_edible_mushroom, main="Odor for Edible Mushrooms")
```

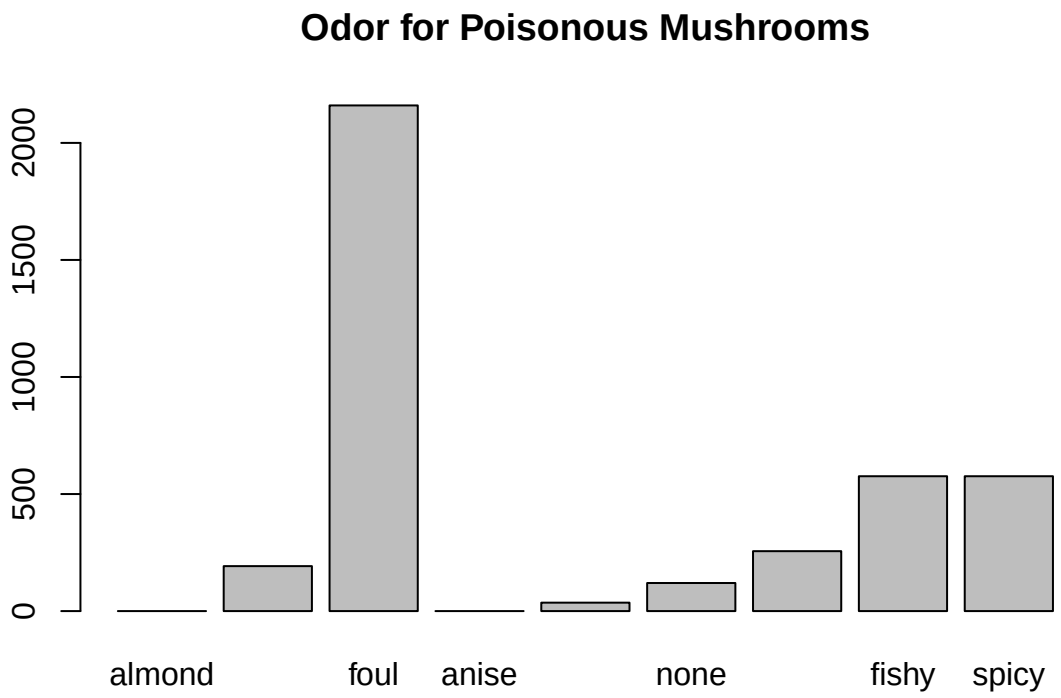


And odor for poison mushrooms

```
print(odor_poisonous_mushroom)
```

```
##   almond creosote     foul    anise    musty     none  pungent    fishy
##        0      192     2160        0       36      120      256      576
##    spicy
##      576
```

```
barplot(odor_poisonous_mushroom, main="Odor for Poisonous Mushrooms")
```



Observation:

1) the mushroom with almond or anise are edible
2) the mushroom with creosote, foul, musty, pungent, spicy and fishy are poison
3) the mushroom without odor mostly edible (3408)/(3408+120) = 96.6%
4) it seems that mushroom with 'bad' smell mostly are poison. Edbile mushroom is not only source of food and it could enhance the smell of the dish.