lab-07-simpsons.Rmd

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Packages

```
library(tidyverse)
library(mosaicData)
```

Exercises

1.

```
?Whickham
```

Your answer: The data is observational as the description states that is based on age, smoking, and mortality, which are all observable events and not produced via experiments.

2.

```
nrow(Whickham)
```

```
## [1] 1314
```

Your answer; There are,1,314 observation . as we Know every row is an observation

3.

```
names(Whickham)
```

```
## [1] "outcome" "smoker"  "age"
```

Your answer: There are 3 variable ,“out come” ,“smoker”,and “age”

```
unique(Whickham$outcome)
```

```
## [1] Alive Dead
## Levels: Alive Dead
```

```
unique(Whickham$smoker)
```

```
## [1] Yes No
## Levels: No Yes
```

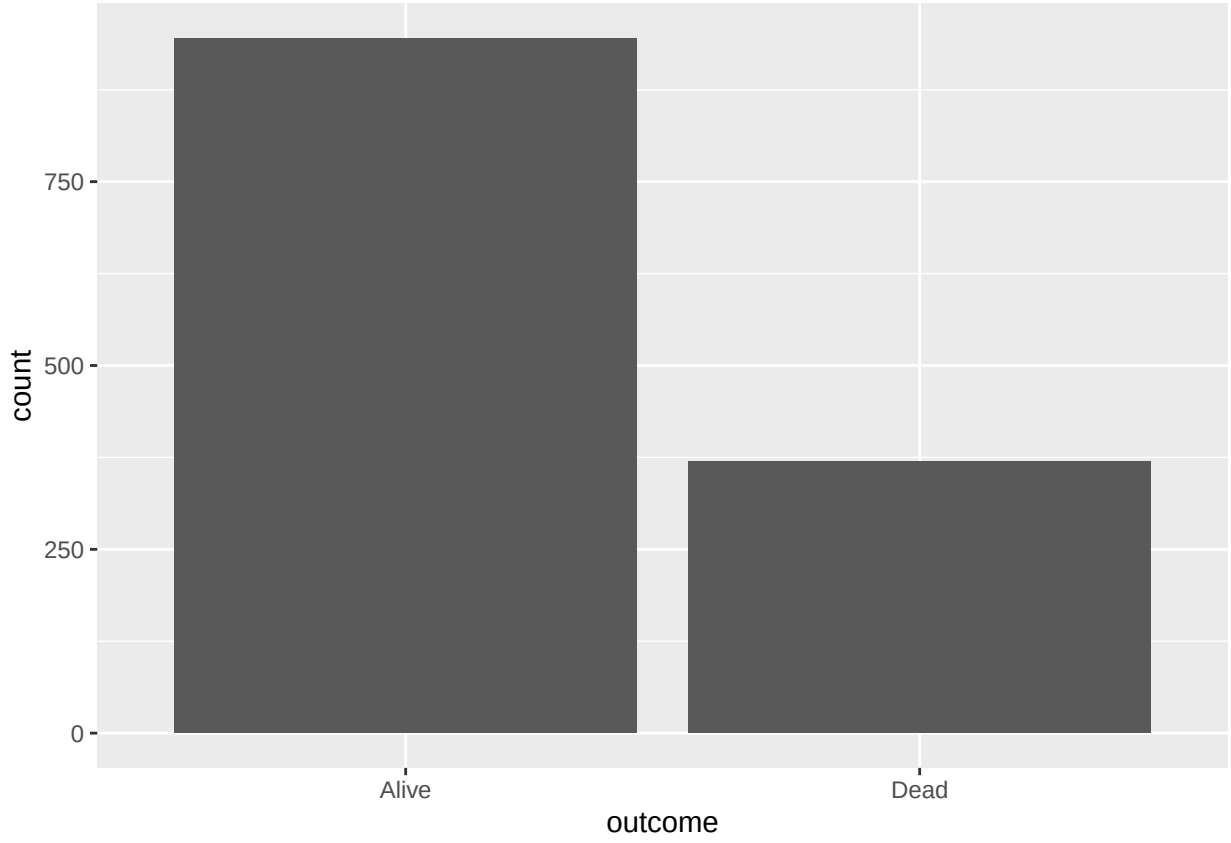
```
unique(Whickham$age)
```

```
##  [1] 23 18 71 67 64 38 45 76 28 27 34 20 72 48 66 30 33 68 61 43 47 22 39 80 59
## [26] 56 62 51 32 60 37 36 50 55 73 52 25 53 31 54 69 79 75 21 29 24 26 49 84 40
## [51] 44 74 46 35 77 57 42 81 19 63 78 83 82 70 58 41 65
```

Your answer: Using the `unique()` function on the 3 variables we could see that “outcome” only takes Alive or Dead value, which makes it categorical non-ordinal. “smoker” only takes Yes or No, which also makes it categorical non-ordinal. Age is numerical continous data

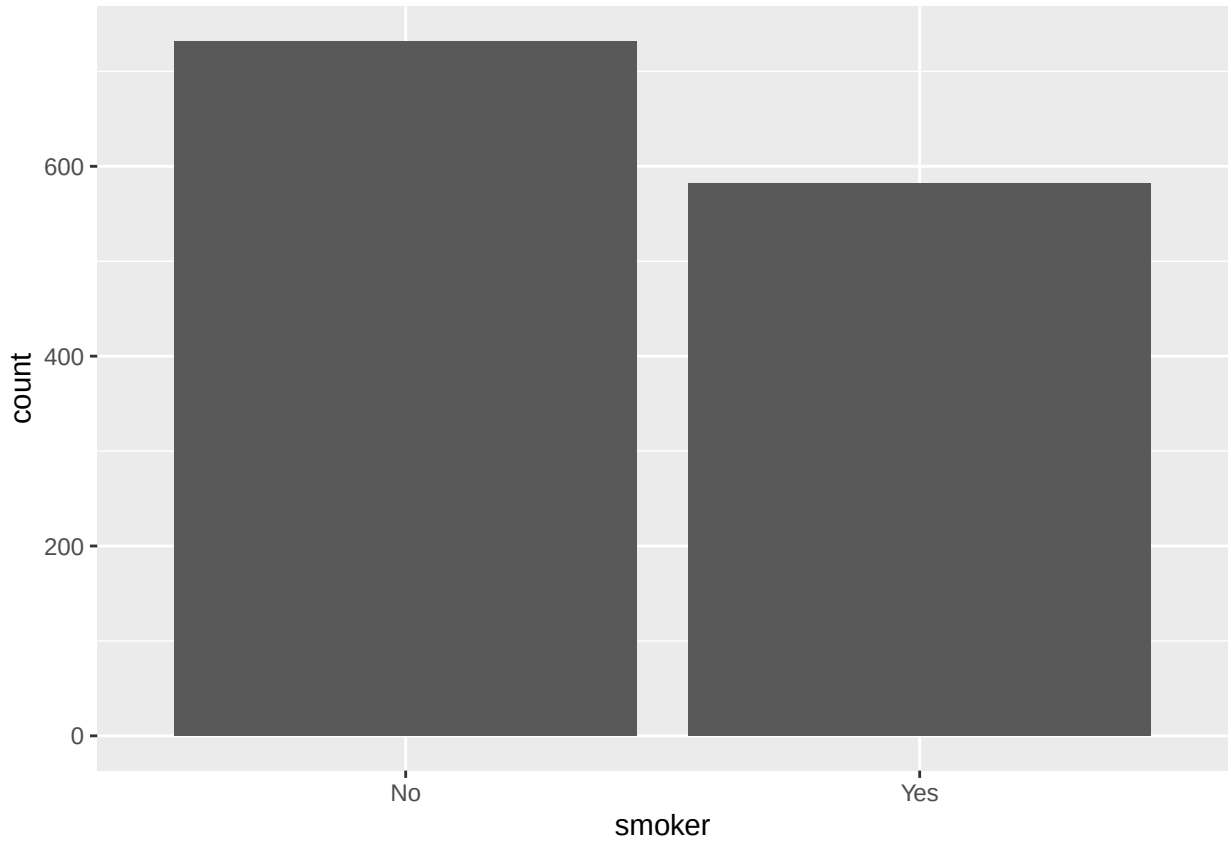
```
ggplot(Whickham, aes(x = outcome)) +

 geom_bar()
```



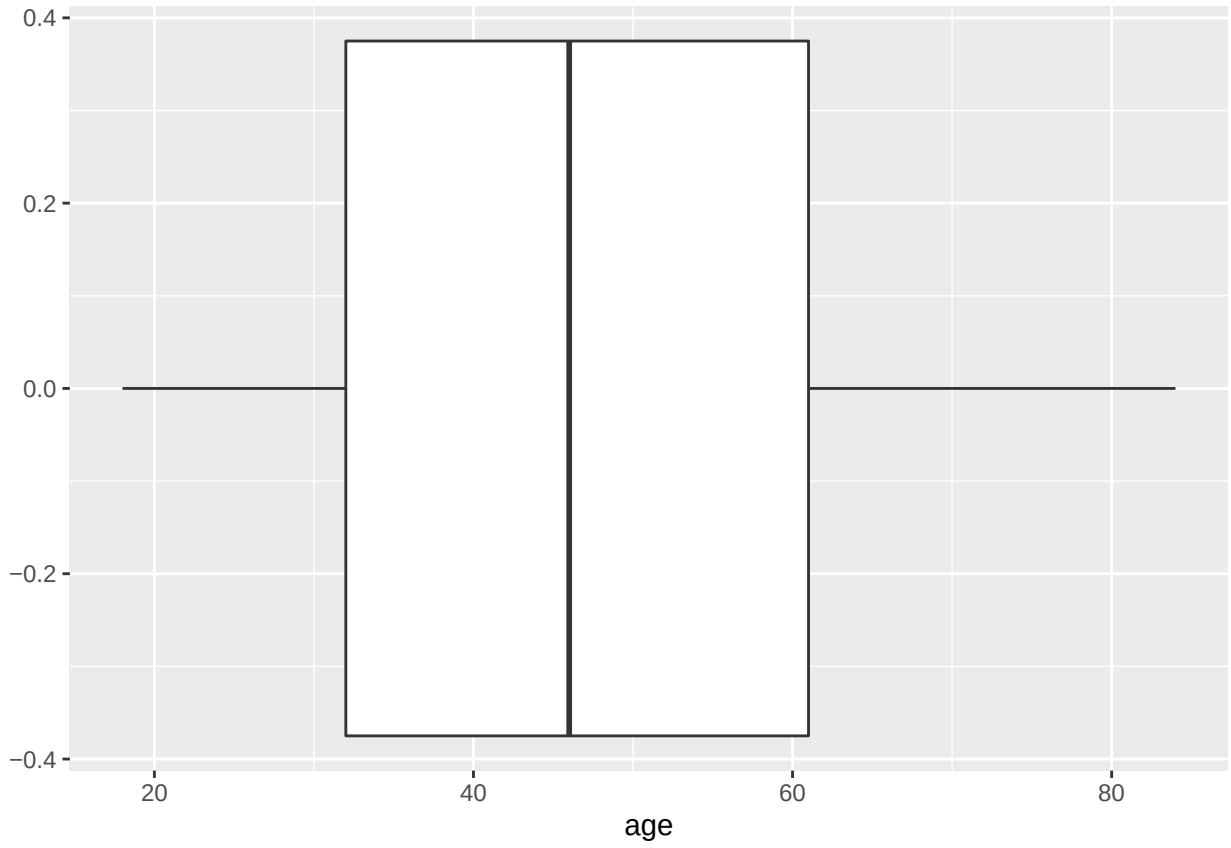

```
ggplot(Whickham, aes(x = smoker)) +

 geom_bar()
```



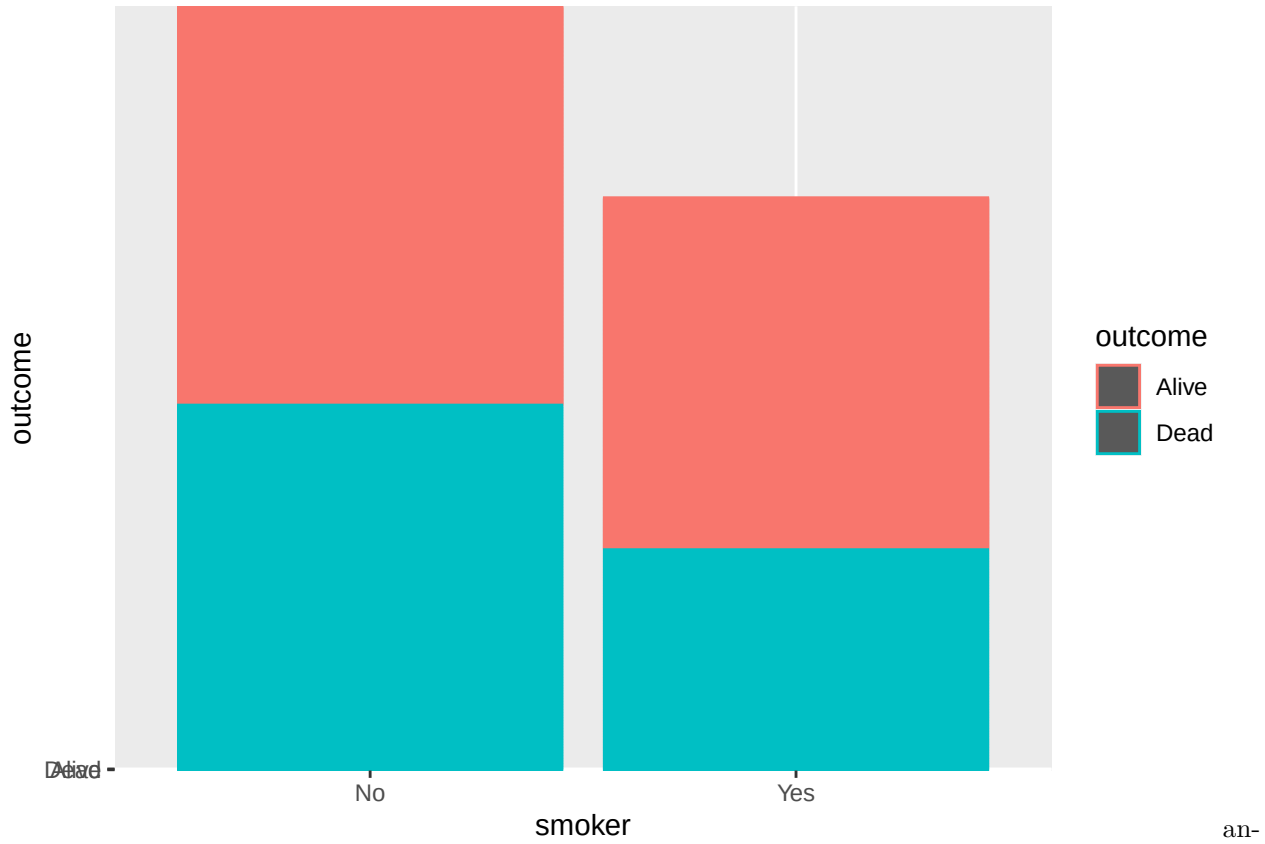

```
ggplot(Whickham, aes(x = age)) +

 geom_boxplot()
```



4.

```
ggplot(data=Whickham, aes(x=smoker,y=outcome , color=outcome)) + geom_bar(stat = "identity")
```



answer: I expect the health condition will be worse and the person may die after a while, if he continues to smoke Knit, commit, and push to github.

5.

```
Whickham %>%
  count(smoker, outcome)
```

```
##   smoker outcome   n
## 1     No   Alive 502
## 2     No    Dead 230
## 3    Yes   Alive 443
## 4    Yes    Dead 139
```

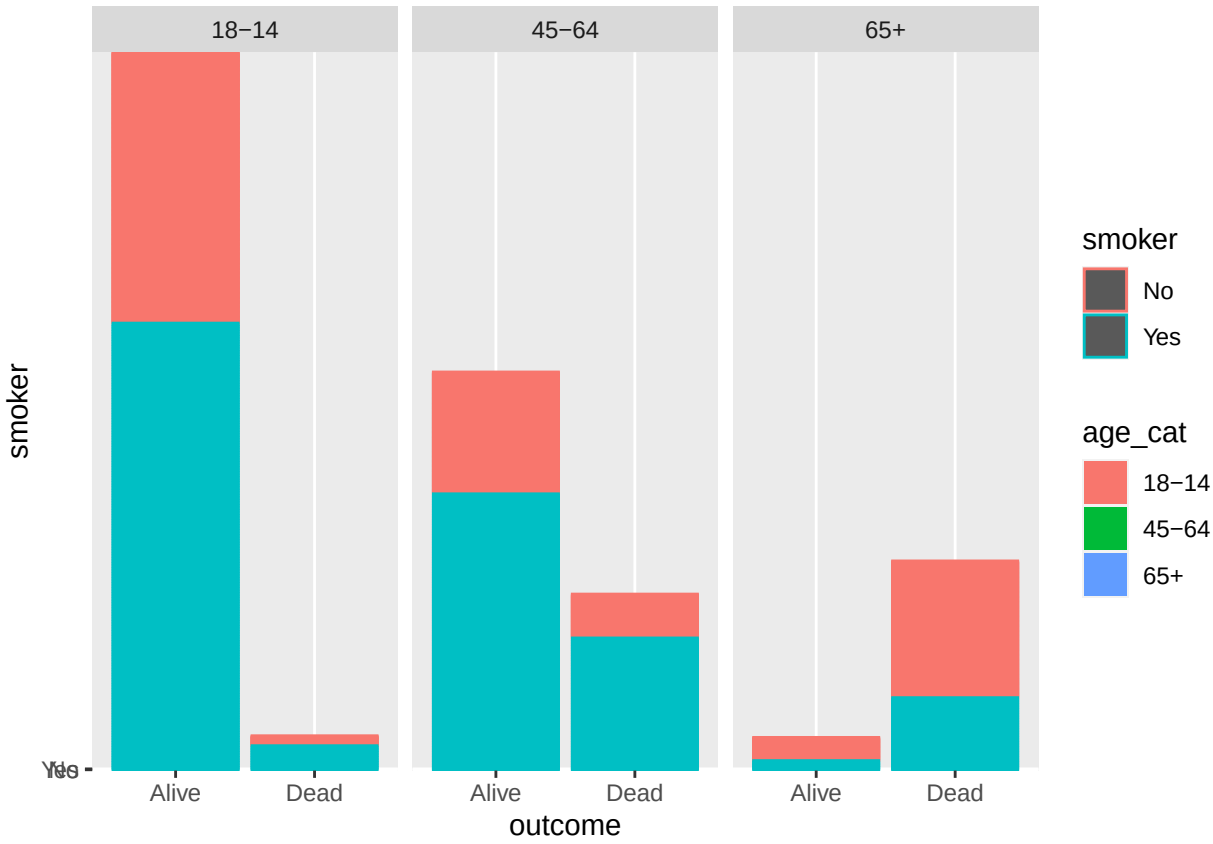
answer: smoker (732) No ==== 31,4 (Dead) » (68.6) Alive smoker (582) Yes ==== 23.8 (Dead) » (76,2) Alive This result is not expected since most of the people who have now died were not smokers

6.

```
Whickham <- Whickham %>% mutate(age_cat = case_when(age <= 44 ~ "18-14" , age > 44 & age <= 64 ~ "45-64
```

7.

```
ggplot(data =Whickham, aes(x=outcome, y= smoker,color=smoker, fill=age_cat)) + geom_bar(stat="identity"
```



answer: what changes > the cateogory of the age it's appear to us and we see the most of dead people not smoker in age (65+).. but in age (45-46) and (18-44)the most dead people are smoker that is relationship between the smoking and helath not clearly but can say that your will be change to worst if you be smoker,Also, people who are still alive may not enjoy good health because it is possible that they suffer from some diseases.

Knit, commit, and push to github.