lab-07-simpsons.Rmd

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Packages

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

Exercises

1.

```
view(Whickham)
```

Your answer: The date 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 observations. As we know every row is an observation.

3.

```
 names(Whickham)
```

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

Your answer:
There are 3 variables, “outcome” , “smoker” , and “age”

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

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

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

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

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

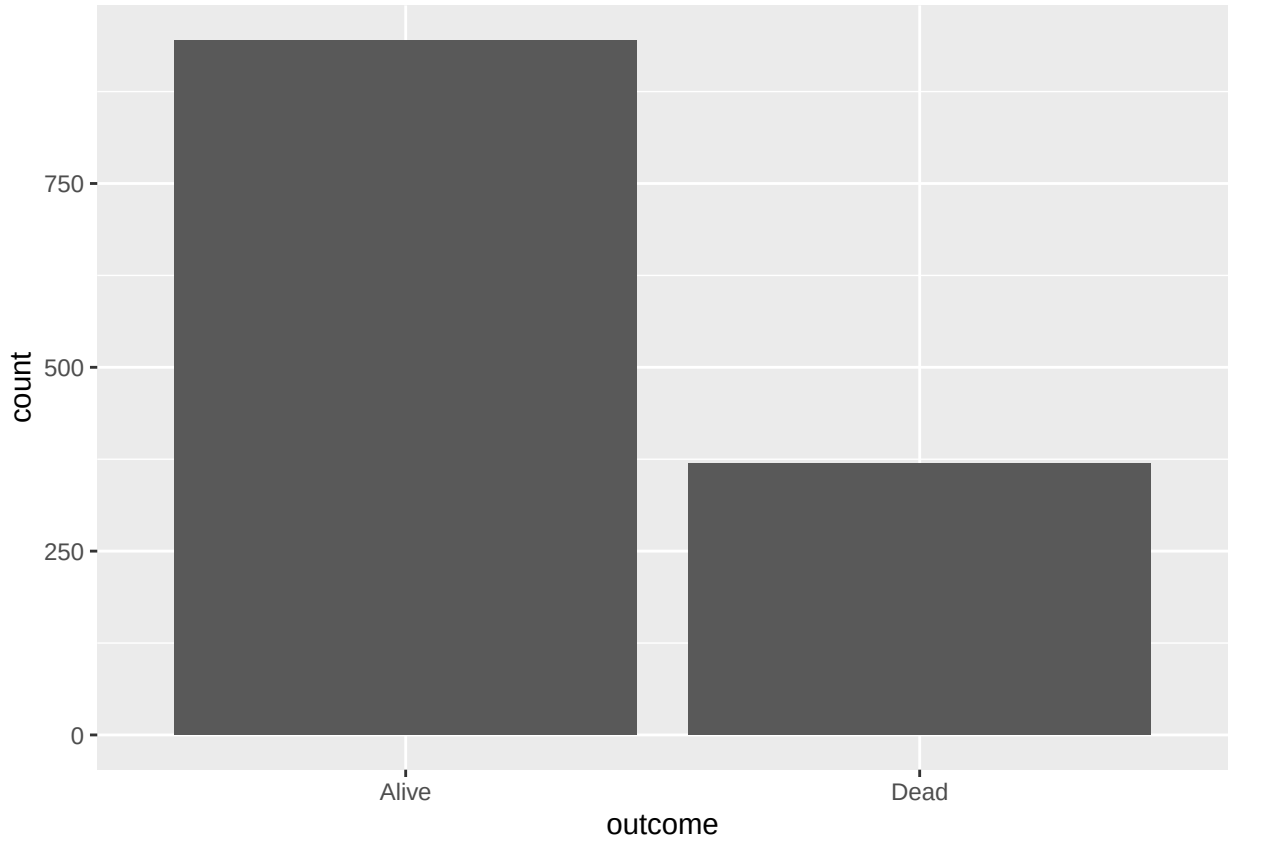
```
##  [1] 23 18 71 67 64 38 45 76 28 27 34 20 72 48 66 30 33 68 61 43 47 22 39 80 59
## [26] 56 62 51 32 60 37 36 50 55 73 52 25 53 31 54 69 79 75 21 29 24 26 49 84 40
## [51] 44 74 46 35 77 57 42 81 19 63 78 83 82 70 58 41 65
```

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

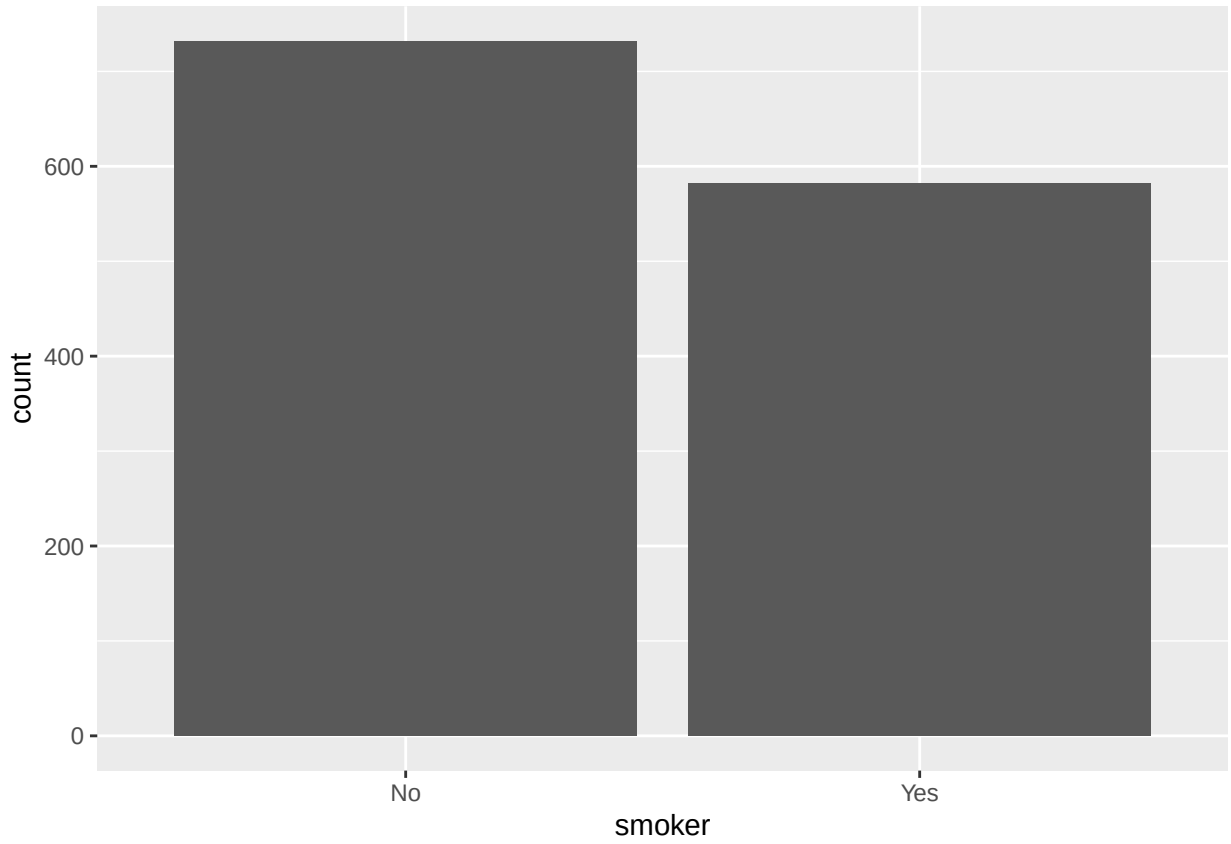
categorical non-ordinal. Age numberical continous date.

One of the best ways to visualise categorical date is through the use of bar charts.

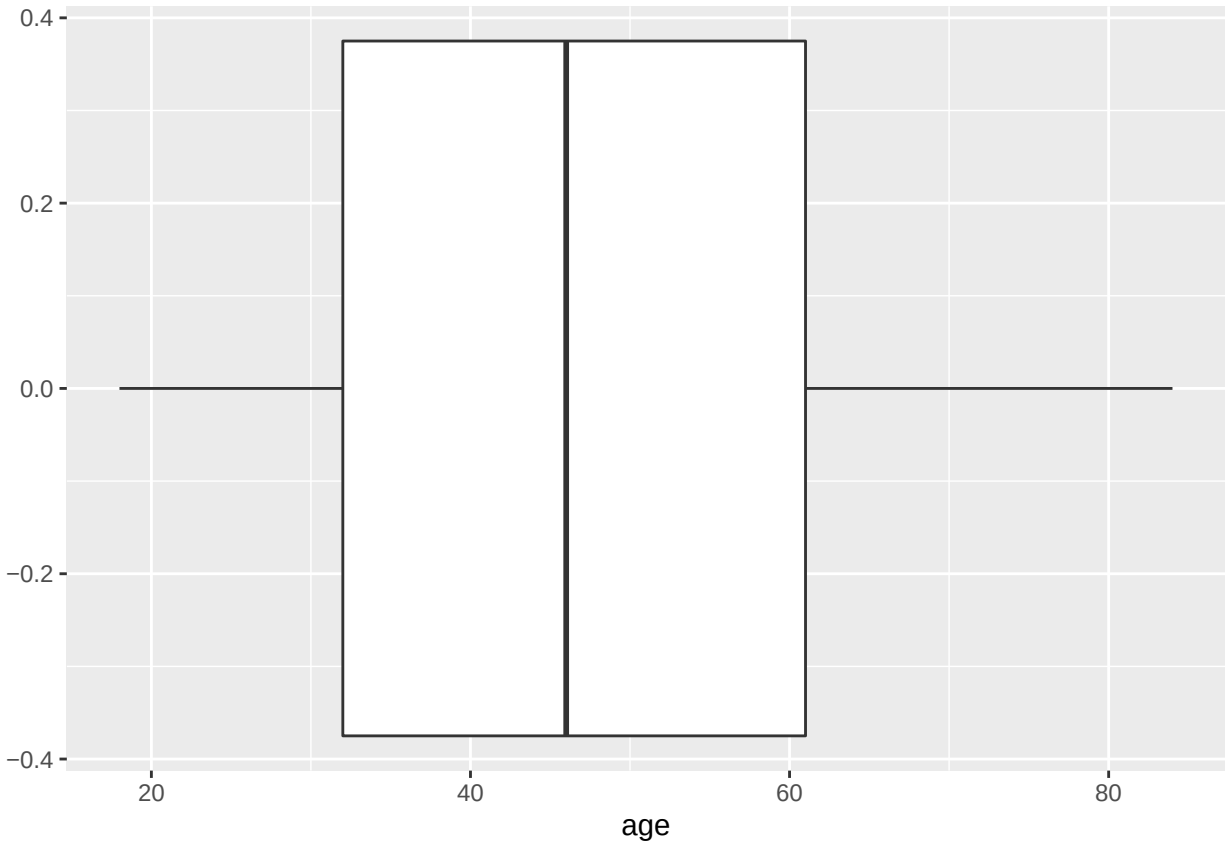
```
ggplot(Whickham, aes(x = outcome)) +
  geom_bar()
```




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

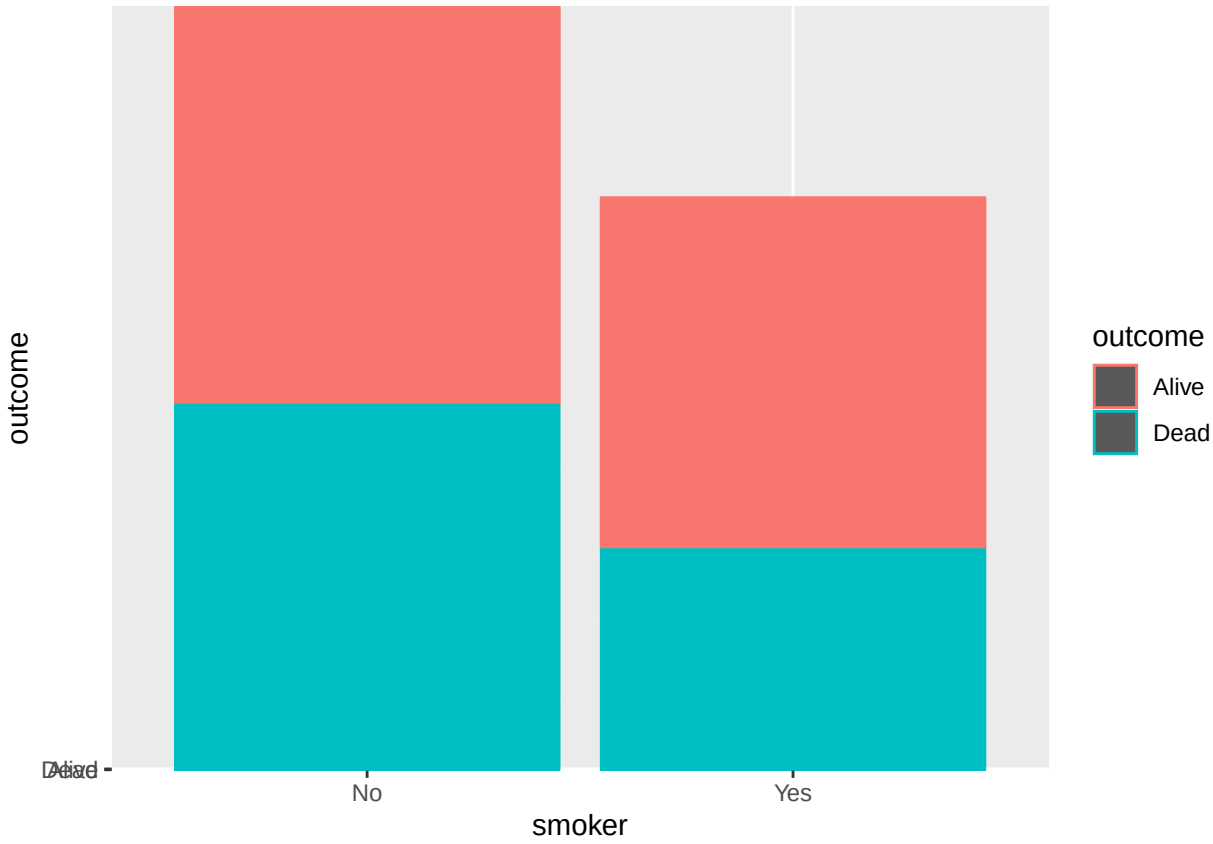



```
ggplot(Whickham, aes(x = age)) +
  geom_boxplot()
```



4. I expect the health will be worser and may the person will be died after while , if he keeping smoke

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



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
```

```
502+230
```

```
## [1] 732
```

```
230/732
```

```
## [1] 0.3142077
```

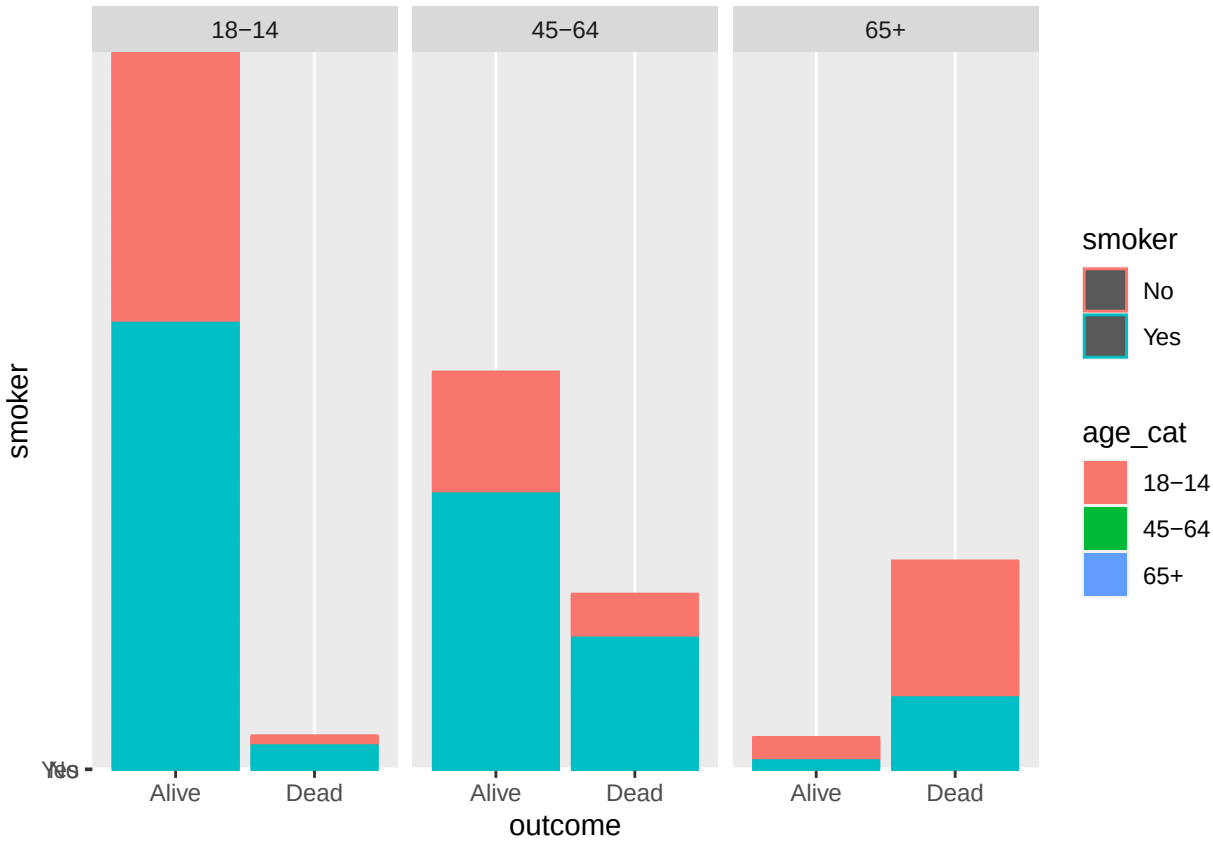
smoker NO —- 31,4 (Dead) »(69.6) Alive smoker Yes—- 23.8 (Dead) »(76.2) Alive

i does not expected this result because now the most died people not smoker 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"
```



what changes > the category of age it's appear to us and we see that most of dead people not smoker in age (65+).. but in age (45-64) and (18-44) the most dead people are smoker that is relationship between the smoking and helath not clearly but can say that your helath will be change to worst if you be smoker.

Knit, commit, and push to github.