r4ds Ex 10

MW

2019/06/17

10.5

1

How can you tell if an object is a tibble? (Hint: try printing mtcars, which is a regular data frame).

```
mtcars
```

```
##                     mpg cyl  disp  hp drat    wt  qsec vs am gear carb
## Mazda RX4          21.0   6 160.0 110 3.90 2.620 16.46  0  1    4    4
## Mazda RX4 Wag      21.0   6 160.0 110 3.90 2.875 17.02  0  1    4    4
## Datsun 710         22.8   4 108.0  93 3.85 2.320 18.61  1  1    4    1
## Hornet 4 Drive     21.4   6 258.0 110 3.08 3.215 19.44  1  0    3    1
## Hornet Sportabout  18.7   8 360.0 175 3.15 3.440 17.02  0  0    3    2
## Valiant            18.1   6 225.0 105 2.76 3.460 20.22  1  0    3    1
## Duster 360         14.3   8 360.0 245 3.21 3.570 15.84  0  0    3    4
## Merc 240D          24.4   4 146.7  62 3.69 3.190 20.00  1  0    4    2
## Merc 230           22.8   4 140.8  95 3.92 3.150 22.90  1  0    4    2
## Merc 280           19.2   6 167.6 123 3.92 3.440 18.30  1  0    4    4
## Merc 280C          17.8   6 167.6 123 3.92 3.440 18.90  1  0    4    4
## Merc 450SE         16.4   8 275.8 180 3.07 4.070 17.40  0  0    3    3
## Merc 450SL         17.3   8 275.8 180 3.07 3.730 17.60  0  0    3    3
## Merc 450SLC        15.2   8 275.8 180 3.07 3.780 18.00  0  0    3    3
## Cadillac Fleetwood 10.4   8 472.0 205 2.93 5.250 17.98  0  0    3    4
## Lincoln Continental 10.4  8 460.0 215 3.00 5.424 17.82  0  0    3    4
## Chrysler Imperial  14.7   8 440.0 230 3.23 5.345 17.42  0  0    3    4
## Fiat 128           32.4   4  78.7  66 4.08 2.200 19.47  1  1    4    1
## Honda Civic        30.4   4  75.7  52 4.93 1.615 18.52  1  1    4    2
## Toyota Corolla     33.9   4  71.1  65 4.22 1.835 19.90  1  1    4    1
## Toyota Corona      21.5   4 120.1  97 3.70 2.465 20.01  1  0    3    1
## Dodge Challenger   15.5   8 318.0 150 2.76 3.520 16.87  0  0    3    2
## AMC Javelin        15.2   8 304.0 150 3.15 3.435 17.30  0  0    3    2
## Camaro Z28         13.3   8 350.0 245 3.73 3.840 15.41  0  0    3    4
## Pontiac Firebird   19.2   8 400.0 175 3.08 3.845 17.05  0  0    3    2
## Fiat X1-9          27.3   4  79.0  66 4.08 1.935 18.90  1  1    4    1
## Porsche 914-2      26.0   4 120.3  91 4.43 2.140 16.70  0  1    5    2
## Lotus Europa       30.4   4  95.1 113 3.77 1.513 16.90  1  1    5    2
## Ford Pantera L     15.8   8 351.0 264 4.22 3.170 14.50  0  1    5    4
## Ferrari Dino       19.7   6 145.0 175 3.62 2.770 15.50  0  1    5    6
## Maserati Bora      15.0   8 301.0 335 3.54 3.570 14.60  0  1    5    8
## Volvo 142E         21.4   4 121.0 109 4.11 2.780 18.60  1  1    4    2
```

If data is NOT tibble, basically all the values are returned.

```
mtcars %>% as_tibble()
```

```
## # A tibble: 32 x 11
##      mpg   cyl  disp    hp  drat    wt  qsec    vs    am  gear  carb
```

```
##    <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl> <dbl>
##  1  21       6  160    110  3.9   2.62  16.5     0     1     4     4
##  2  21       6  160    110  3.9   2.88  17.0     0     1     4     4
##  3  22.8     4  108     93  3.85  2.32  18.6     1     1     4     1
##  4  21.4     6  258    110  3.08  3.22  19.4     1     0     3     1
##  5  18.7     8  360    175  3.15  3.44  17.0     0     0     3     2
##  6  18.1     6  225    105  2.76  3.46  20.2     1     0     3     1
##  7  14.3     8  360    245  3.21  3.57  15.8     0     0     3     4
##  8  24.4     4  147.    62  3.69  3.19  20       1     0     4     2
##  9  22.8     4  141.    95  3.92  3.15  22.9     1     0     4     2
## 10  19.2     6  168.   123  3.92  3.44  18.3     1     0     4     4
## # ... with 22 more rows
```

On the other hands, data type in columns is unique, and top 10 rows of data are returned by default.

2

> Compare and contrast the following operations on a data.frame and equivalent tibble. What is different? Why might the default data frame behaviours cause you frustration?

```
df <- data.frame(abc = 1, xyz = "a")
df$x
```

```
## [1] a
## Levels: a
```

```
df[, "xyz"]
```

```
## [1] a
## Levels: a
```

```
df[, c("abc", "xyz")]
```

```
##   abc xyz
## 1   1   a
```

```
df <- tibble(abc = 1, xyz = "a")
df$x
```

```
## Warning: Unknown or uninitialised column: 'x'.
```

```
## NULL
```

```
df[, "xyz"]
```

```
## # A tibble: 1 x 1
##   xyz
##   <chr>
## 1 a
```

```
df[, c("abc", "xyz")]
```

```
## # A tibble: 1 x 2
##     abc xyz
##   <dbl> <chr>
## 1     1 a
```

3

If you have the name of a variable stored in an object, e.g. var <- "mpg", how can you extract the reference variable from a tibble?

4

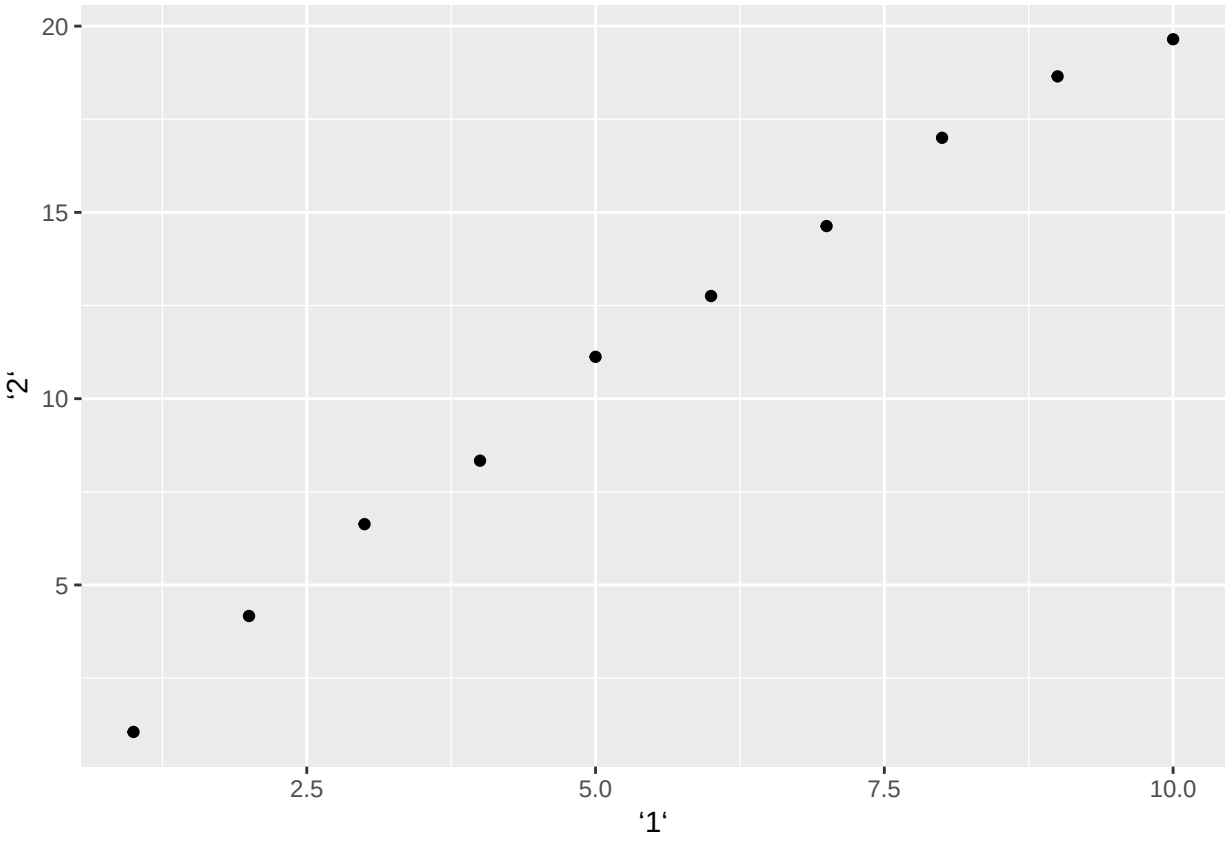
Practice referring to non-syntactic names in the following data frame by: > 1. Extracting the variable called 1.
> 2. Plotting a scatterplot of 1 vs 2. > 3. Creating a new column called 3 which is 2 divided by 1. > 4. Renaming the columns to one, two and three.

```
annoying <- tibble(
  `1` = 1:10,
  `2` = `1` * 2 + rnorm(length(`1`))
)
```

```
annoying[[1]]
```

```
##  [1]  1  2  3  4  5  6  7  8  9 10
```

```
annoying %>% ggplot(aes(x=`1`, y=`2`)) +
    geom_point()
```




```
annoying <- annoying %>% mutate(`3` = `2` / `1`)
annoying
```

```
## # A tibble: 10 x 3
##      `1`   `2`   `3`
##    <int> <dbl> <dbl>
```

```
##  1     1  1.06  1.06
##  2     2  4.17  2.08
##  3     3  6.63  2.21
##  4     4  8.34  2.08
##  5     5 11.1   2.22
##  6     6 12.8   2.13
##  7     7 14.6   2.09
##  8     8 17.0   2.13
##  9     9 18.7   2.07
## 10    10 19.6   1.96
```

```
annoying %>% rename(one = `1`, two = `2`, three = `3`)
```

```
## # A tibble: 10 x 3
##      one   two three
##    <int> <dbl> <dbl>
##  1     1  1.06  1.06
##  2     2  4.17  2.08
##  3     3  6.63  2.21
##  4     4  8.34  2.08
##  5     5 11.1   2.22
##  6     6 12.8   2.13
##  7     7 14.6   2.09
##  8     8 17.0   2.13
##  9     9 18.7   2.07
## 10    10 19.6   1.96
```

5

What does tibble::enframe() do? When might you use it?

```
enframe(c(a=1, b=2, c=3))
```

```
## # A tibble: 3 x 2
##   name  value
##   <chr> <dbl>
## 1 a         1
## 2 b         2
## 3 c         3
```

6

What option controls how many additional column names are printed at the footer of a tibble?

```
?print.tbl
```

```
n_extra: Number of extra columns to print abbreviated information for,
          if the width is too small for the entire tibble. If 'NULL',
          the default, will print information about at most
          'tibble.max_extra_cols' extra columns.
```