Q4–1-.R

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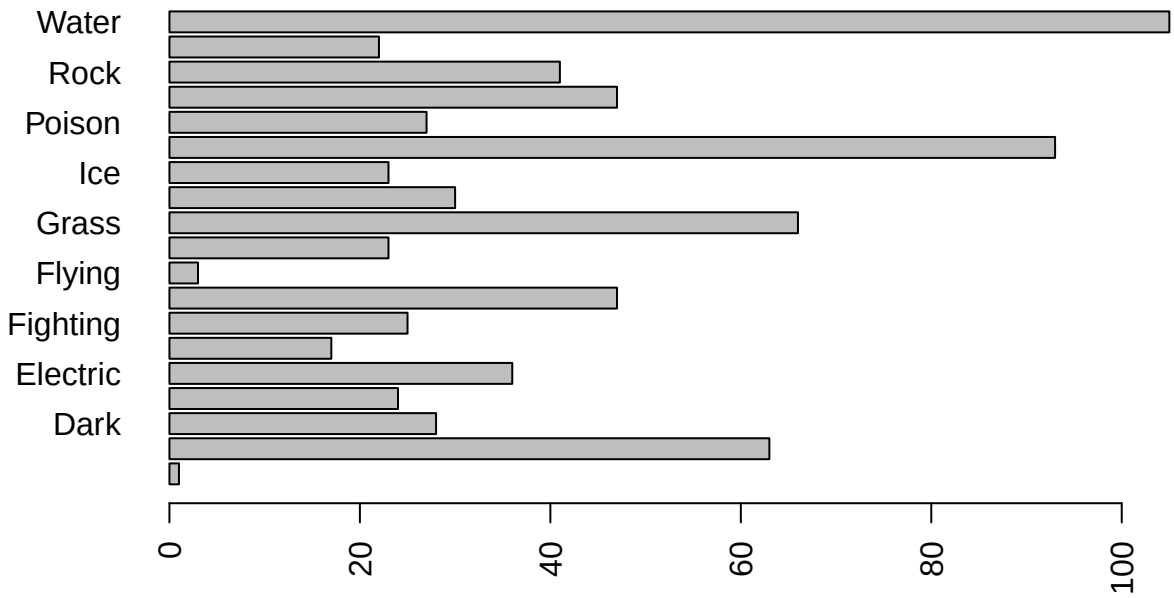
```
library(tidyverse)
```

```
## -- Attaching packages --------------------------------------- tidyverse 1.3.1 --

## v ggplot2 3.3.5     v purrr   0.3.4
## v tibble  3.1.4     v dplyr   1.0.7
## v tidyr   1.1.3     v stringr 1.4.0
## v readr   2.0.1     v forcats 0.5.1

## -- Conflicts ------------------------------------------ tidyverse_conflicts() --
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
```

```
poke = read.csv(file = "pokemon_2019.csv")
head(poke)
```

```
##   Number       Name Type_1 Type_2 Total HP Attack Defense Sp_Atk Sp_Def Speed
## 1      1  Bulbasaur  Grass Poison   318 45     49      49     65     65    45
## 2      2    Ivysaur  Grass Poison   405 60     62      63     80     80    60
## 3      3   Venusaur  Grass Poison   525 80     82      83    100    100    80
## 4      4 Charmander   Fire          309 39     52      43     60     50    65
## 5      5 Charmeleon   Fire          405 58     64      58     80     65    80
## 6      6  Charizard   Fire Flying   534 78     84      78    109     85   100
##   Generation isLegendary Color hasGender Pr_Male Egg_Group_1 Egg_Group_2
## 1          1       False Green      True   0.875     Monster       Grass
## 2          1       False Green      True   0.875     Monster       Grass
## 3          1       False Green      True   0.875     Monster       Grass
## 4          1       False   Red      True   0.875     Monster      Dragon
## 5          1       False   Red      True   0.875     Monster      Dragon
## 6          1       False   Red      True   0.875     Monster      Dragon
##   hasMegaEvolution Height_m Weight_kg Catch_Rate     Body_Style
## 1            False     0.71       6.9         45      quadruped
## 2            False     0.99      13.0         45      quadruped
## 3             True     2.01     100.0         45      quadruped
## 4            False     0.61       8.5         45 bipedal_tailed
## 5            False     1.09      19.0         45 bipedal_tailed
## 6             True     1.70      90.5         45 bipedal_tailed
```

```
poke$Type_1=as.factor(poke$Type_1)
plot(poke[3],horiz=TRUE,las=2)
```




```
################################
# Q4a


poke %>%
  select(Name,Height_m,isLegendary) %>%
  filter((Height_m > 2)&(isLegendary == "True"))
```

```
##          Name Height_m isLegendary
## 1    Moltres     2.01        True
## 2     Mewtwo     2.01        True
## 3      Entei     2.11        True
## 4    Suicune     2.01        True
## 5      Lugia     5.21        True
## 6      Ho-Oh     3.81        True
## 7     Latios     2.01        True
## 8     Kyogre     4.50        True
## 9    Groudon     3.51        True
## 10  Rayquaza     7.01        True
## 11    Dialga     5.41        True
## 12    Palkia     4.19        True
## 13 Regigigas     3.71        True
```

```
## 14  Giratina     6.91        True
## 15    Arceus     3.20        True
## 16  Cobalion     2.11        True
## 17  Virizion     2.01        True
## 18  Reshiram     3.20        True
## 19    Zekrom     2.90        True
## 20    Kyurem     3.00        True
## 21   Xerneas     3.00        True
## 22   Yveltal     5.79        True
## 23   Zygarde     5.00        True
```

```r
##############################
# Q4b

poke_1 <- poke %>%
  filter((Body_Style == "head_arms")|(Body_Style == "serpentine_body"))

plot(poke_1$Attack,poke_1$Defense,
     main = "Attack vs Defense of Head_arms and Serpentine_body Pokemon",
     xlab = "Attack",
     ylab = "Defense",
     cex = 0.5)
```