Pokemon

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title: “Pokemon Dataset”

#id

#Part 1

library(readr)  
library(dplyr)

##   
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':  
##   
## filter, lag

## The following objects are masked from 'package:base':  
##   
## intersect, setdiff, setequal, union

library(ggplot2)  
library(e1071)  
library(moments)

##   
## Attaching package: 'moments'

## The following objects are masked from 'package:e1071':  
##   
## kurtosis, moment, skewness

id <- read\_csv("C:\\Users\\Admin\\Downloads\\pokemon.csv")

## Rows: 801 Columns: 41

## ── Column specification ────────────────────────────────────────────────────────  
## Delimiter: ","  
## chr (7): abilities, capture\_rate, classfication, japanese\_name, name, type1...  
## dbl (34): against\_bug, against\_dark, against\_dragon, against\_electric, again...  
##   
## ℹ Use `spec()` to retrieve the full column specification for this data.  
## ℹ Specify the column types or set `show\_col\_types = FALSE` to quiet this message.

View(id)

#part 2

colnames(id)

## [1] "abilities" "against\_bug" "against\_dark"   
## [4] "against\_dragon" "against\_electric" "against\_fairy"   
## [7] "against\_fight" "against\_fire" "against\_flying"   
## [10] "against\_ghost" "against\_grass" "against\_ground"   
## [13] "against\_ice" "against\_normal" "against\_poison"   
## [16] "against\_psychic" "against\_rock" "against\_steel"   
## [19] "against\_water" "attack" "base\_egg\_steps"   
## [22] "base\_happiness" "base\_total" "capture\_rate"   
## [25] "classfication" "defense" "experience\_growth"  
## [28] "height\_m" "hp" "japanese\_name"   
## [31] "name" "percentage\_male" "pokedex\_number"   
## [34] "sp\_attack" "sp\_defense" "speed"   
## [37] "type1" "type2" "weight\_kg"   
## [40] "generation" "is\_legendary"

head(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 2 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 3 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 4 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 5 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 6 ['Blaze', 'Solar Pow… 0.25 1 1 2   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

tail(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Beast Boost'] 1 1 1 0.5  
## 2 ['Beast Boost'] 0.25 1 0.5 2   
## 3 ['Beast Boost'] 1 1 0.5 0.5  
## 4 ['Beast Boost'] 2 0.5 2 0.5  
## 5 ['Prism Armor'] 2 2 1 1   
## 6 ['Soul-Heart'] 0.25 0.5 0 1   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

summary(id)

## abilities against\_bug against\_dark against\_dragon   
## Length:801 Min. :0.2500 Min. :0.250 Min. :0.0000   
## Class :character 1st Qu.:0.5000 1st Qu.:1.000 1st Qu.:1.0000   
## Mode :character Median :1.0000 Median :1.000 Median :1.0000   
## Mean :0.9963 Mean :1.057 Mean :0.9688   
## 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:1.0000   
## Max. :4.0000 Max. :4.000 Max. :2.0000   
##   
## against\_electric against\_fairy against\_fight against\_fire   
## Min. :0.000 Min. :0.250 Min. :0.000 Min. :0.250   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:0.500   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.074 Mean :1.069 Mean :1.066 Mean :1.135   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:2.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_flying against\_ghost against\_grass against\_ground   
## Min. :0.250 Min. :0.000 Min. :0.250 Min. :0.000   
## 1st Qu.:1.000 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.193 Mean :0.985 Mean :1.034 Mean :1.098   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_ice against\_normal against\_poison against\_psychic  
## Min. :0.250 Min. :0.000 Min. :0.0000 Min. :0.000   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.5000 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.0000 Median :1.000   
## Mean :1.208 Mean :0.887 Mean :0.9753 Mean :1.005   
## 3rd Qu.:2.000 3rd Qu.:1.000 3rd Qu.:1.0000 3rd Qu.:1.000   
## Max. :4.000 Max. :1.000 Max. :4.0000 Max. :4.000   
##   
## against\_rock against\_steel against\_water attack   
## Min. :0.25 Min. :0.2500 Min. :0.250 Min. : 5.00   
## 1st Qu.:1.00 1st Qu.:0.5000 1st Qu.:0.500 1st Qu.: 55.00   
## Median :1.00 Median :1.0000 Median :1.000 Median : 75.00   
## Mean :1.25 Mean :0.9835 Mean :1.058 Mean : 77.86   
## 3rd Qu.:2.00 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:100.00   
## Max. :4.00 Max. :4.0000 Max. :4.000 Max. :185.00   
##   
## base\_egg\_steps base\_happiness base\_total capture\_rate   
## Min. : 1280 Min. : 0.00 Min. :180.0 Length:801   
## 1st Qu.: 5120 1st Qu.: 70.00 1st Qu.:320.0 Class :character   
## Median : 5120 Median : 70.00 Median :435.0 Mode :character   
## Mean : 7191 Mean : 65.36 Mean :428.4   
## 3rd Qu.: 6400 3rd Qu.: 70.00 3rd Qu.:505.0   
## Max. :30720 Max. :140.00 Max. :780.0   
##   
## classfication defense experience\_growth height\_m   
## Length:801 Min. : 5.00 Min. : 600000 Min. : 0.100   
## Class :character 1st Qu.: 50.00 1st Qu.:1000000 1st Qu.: 0.600   
## Mode :character Median : 70.00 Median :1000000 Median : 1.000   
## Mean : 73.01 Mean :1054996 Mean : 1.164   
## 3rd Qu.: 90.00 3rd Qu.:1059860 3rd Qu.: 1.500   
## Max. :230.00 Max. :1640000 Max. :14.500   
## NA's :20   
## hp japanese\_name name percentage\_male   
## Min. : 1.00 Length:801 Length:801 Min. : 0.00   
## 1st Qu.: 50.00 Class :character Class :character 1st Qu.: 50.00   
## Median : 65.00 Mode :character Mode :character Median : 50.00   
## Mean : 68.96 Mean : 55.16   
## 3rd Qu.: 80.00 3rd Qu.: 50.00   
## Max. :255.00 Max. :100.00   
## NA's :98   
## pokedex\_number sp\_attack sp\_defense speed   
## Min. : 1 Min. : 10.00 Min. : 20.00 Min. : 5.00   
## 1st Qu.:201 1st Qu.: 45.00 1st Qu.: 50.00 1st Qu.: 45.00   
## Median :401 Median : 65.00 Median : 66.00 Median : 65.00   
## Mean :401 Mean : 71.31 Mean : 70.91 Mean : 66.33   
## 3rd Qu.:601 3rd Qu.: 91.00 3rd Qu.: 90.00 3rd Qu.: 85.00   
## Max. :801 Max. :194.00 Max. :230.00 Max. :180.00   
##   
## type1 type2 weight\_kg generation   
## Length:801 Length:801 Min. : 0.10 Min. :1.00   
## Class :character Class :character 1st Qu.: 9.00 1st Qu.:2.00   
## Mode :character Mode :character Median : 27.30 Median :4.00   
## Mean : 61.38 Mean :3.69   
## 3rd Qu.: 64.80 3rd Qu.:5.00   
## Max. :999.90 Max. :7.00   
## NA's :20   
## is\_legendary   
## Min. :0.00000   
## 1st Qu.:0.00000   
## Median :0.00000   
## Mean :0.08739   
## 3rd Qu.:0.00000   
## Max. :1.00000   
##

sd(id$defense)

## [1] 30.76916

var(id$defense)

## [1] 946.7412

range(id$defense)

## [1] 5 230

quantile(id$defense)

## 0% 25% 50% 75% 100%   
## 5 50 70 90 230

skewness(id$defense)

## [1] 1.118958

kurtosis(id$defense)

## [1] 5.55978

rev(id$defense)

## [1] 115 101 53 131 103 71 37 139 47 89 107 131 31 115 115 75 85 125  
## [19] 90 65 100 85 70 80 63 135 65 60 95 95 130 110 80 140 40 90  
## [37] 80 90 98 48 38 80 50 60 40 80 55 90 35 92 52 100 70 152  
## [55] 62 130 75 40 60 40 70 77 57 90 95 45 60 30 75 50 30 74  
## [73] 69 54 90 50 40 75 75 55 120 60 110 121 95 95 80 35 184 85  
## [91] 122 70 76 48 91 70 53 35 150 57 75 65 72 50 119 77 52 33  
## [109] 88 62 90 60 115 67 88 53 86 66 72 60 50 150 100 76 54 60  
## [127] 78 62 62 48 68 67 39 72 58 50 60 40 71 55 43 77 38 67  
## [145] 52 40 72 58 40 122 95 65 95 90 90 90 90 120 100 70 80 72  
## [163] 90 129 65 55 90 70 50 112 66 105 75 75 50 95 100 70 80 50  
## [181] 90 60 50 84 40 85 50 80 40 90 70 60 90 60 55 75 55 80  
## [199] 70 40 115 95 70 131 91 60 50 80 70 50 70 45 105 45 60 70  
## [217] 50 85 65 50 63 50 75 50 40 95 70 50 60 40 60 40 82 62  
## [235] 65 45 133 103 145 85 80 115 70 125 85 67 105 45 80 45 35 65  
## [253] 75 50 85 60 89 99 59 80 90 70 75 85 75 55 40 95 85 55  
## [271] 126 60 40 55 43 130 105 85 63 32 80 62 50 85 45 63 48 63  
## [289] 48 63 48 50 37 90 65 45 69 39 85 60 45 65 55 45 95 75  
## [307] 55 100 120 75 90 100 80 120 100 110 106 100 120 70 105 130 107 70  
## [325] 135 145 95 70 80 125 110 130 86 95 67 67 125 130 95 115 65 105  
## [343] 50 50 76 56 72 65 40 110 90 118 78 88 40 40 115 65 45 108  
## [361] 45 5 45 95 116 86 67 47 50 64 42 52 60 94 44 44 34 66  
## [379] 68 48 70 45 55 35 70 102 42 50 95 45 168 118 60 40 65 35  
## [397] 79 49 34 51 41 60 40 70 50 30 88 68 53 71 52 44 105 85  
## [415] 64 90 100 100 160 90 100 120 150 100 200 150 100 80 130 100 60 55  
## [433] 130 105 105 85 90 70 50 80 50 48 60 80 83 130 90 75 35 70  
## [451] 70 79 20 100 50 97 77 105 55 85 65 73 43 85 65 60 60 110  
## [469] 60 60 40 80 50 45 60 65 35 140 100 40 45 35 70 20 83 53  
## [487] 45 75 75 50 40 80 40 85 55 230 140 100 125 125 65 45 135 40  
## [505] 60 30 63 43 23 45 45 90 100 80 60 80 60 62 32 65 35 25  
## [523] 100 30 60 30 60 40 50 70 50 30 70 55 50 55 35 61 41 70  
## [541] 35 110 70 50 80 60 40 75 45 35 100 90 130 150 70 50 115 85  
## [559] 75 10 105 37 37 15 95 35 35 62 90 120 60 95 90 30 140 70  
## [577] 45 75 35 95 80 40 120 40 75 50 55 115 230 140 85 75 50 230  
## [595] 105 70 140 90 65 58 48 60 80 42 110 60 85 45 45 55 30 55  
## [613] 70 50 40 75 115 80 50 95 105 55 40 70 45 85 65 15 28 15  
## [631] 58 38 80 70 40 50 30 50 30 64 34 100 80 64 78 58 43 100  
## [649] 80 65 100 70 95 65 45 90 85 100 65 85 105 90 125 100 70 60  
## [667] 60 60 50 48 80 109 55 95 120 57 57 35 80 65 85 55 65 60  
## [685] 95 70 100 115 5 120 95 120 95 75 79 53 110 95 85 80 70 50  
## [703] 115 90 70 45 160 80 45 30 180 100 75 50 80 55 70 45 55 95  
## [721] 70 180 65 70 55 130 115 100 65 35 65 50 35 80 70 50 65 30  
## [739] 15 95 65 40 80 45 60 35 78 48 60 35 60 30 60 50 80 55  
## [757] 85 70 55 70 35 45 20 75 40 73 48 77 57 40 87 67 52 120  
## [775] 90 50 40 69 44 65 30 70 35 80 55 40 40 50 30 50 55 35  
## [793] 120 80 65 78 58 43 123 63 49

cat("\nColumn:",ncol(id$defense))

##   
## Column:

nrow(id)

## [1] 801

ncol(id)

## [1] 41

str(id)

## spc\_tbl\_ [801 × 41] (S3: spec\_tbl\_df/tbl\_df/tbl/data.frame)  
## $ abilities : chr [1:801] "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Blaze', 'Solar Power']" ...  
## $ against\_bug : num [1:801] 1 1 1 0.5 0.5 0.25 1 1 1 1 ...  
## $ against\_dark : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_dragon : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_electric : num [1:801] 0.5 0.5 0.5 1 1 2 2 2 2 1 ...  
## $ against\_fairy : num [1:801] 0.5 0.5 0.5 0.5 0.5 0.5 1 1 1 1 ...  
## $ against\_fight : num [1:801] 0.5 0.5 0.5 1 1 0.5 1 1 1 0.5 ...  
## $ against\_fire : num [1:801] 2 2 2 0.5 0.5 0.5 0.5 0.5 0.5 2 ...  
## $ against\_flying : num [1:801] 2 2 2 1 1 1 1 1 1 2 ...  
## $ against\_ghost : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_grass : num [1:801] 0.25 0.25 0.25 0.5 0.5 0.25 2 2 2 0.5 ...  
## $ against\_ground : num [1:801] 1 1 1 2 2 0 1 1 1 0.5 ...  
## $ against\_ice : num [1:801] 2 2 2 0.5 0.5 1 0.5 0.5 0.5 1 ...  
## $ against\_normal : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_poison : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_psychic : num [1:801] 2 2 2 1 1 1 1 1 1 1 ...  
## $ against\_rock : num [1:801] 1 1 1 2 2 4 1 1 1 2 ...  
## $ against\_steel : num [1:801] 1 1 1 0.5 0.5 0.5 0.5 0.5 0.5 1 ...  
## $ against\_water : num [1:801] 0.5 0.5 0.5 2 2 2 0.5 0.5 0.5 1 ...  
## $ attack : num [1:801] 49 62 100 52 64 104 48 63 103 30 ...  
## $ base\_egg\_steps : num [1:801] 5120 5120 5120 5120 5120 5120 5120 5120 5120 3840 ...  
## $ base\_happiness : num [1:801] 70 70 70 70 70 70 70 70 70 70 ...  
## $ base\_total : num [1:801] 318 405 625 309 405 634 314 405 630 195 ...  
## $ capture\_rate : chr [1:801] "45" "45" "45" "45" ...  
## $ classfication : chr [1:801] "Seed Pokémon" "Seed Pokémon" "Seed Pokémon" "Lizard Pokémon" ...  
## $ defense : num [1:801] 49 63 123 43 58 78 65 80 120 35 ...  
## $ experience\_growth: num [1:801] 1059860 1059860 1059860 1059860 1059860 ...  
## $ height\_m : num [1:801] 0.7 1 2 0.6 1.1 1.7 0.5 1 1.6 0.3 ...  
## $ hp : num [1:801] 45 60 80 39 58 78 44 59 79 45 ...  
## $ japanese\_name : chr [1:801] "Fushigidaneフシギダネ" "Fushigisouフシギソウ" "Fushigibanaフシギバナ" "Hitokageヒトカゲ" ...  
## $ name : chr [1:801] "Bulbasaur" "Ivysaur" "Venusaur" "Charmander" ...  
## $ percentage\_male : num [1:801] 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 50 ...  
## $ pokedex\_number : num [1:801] 1 2 3 4 5 6 7 8 9 10 ...  
## $ sp\_attack : num [1:801] 65 80 122 60 80 159 50 65 135 20 ...  
## $ sp\_defense : num [1:801] 65 80 120 50 65 115 64 80 115 20 ...  
## $ speed : num [1:801] 45 60 80 65 80 100 43 58 78 45 ...  
## $ type1 : chr [1:801] "grass" "grass" "grass" "fire" ...  
## $ type2 : chr [1:801] "poison" "poison" "poison" NA ...  
## $ weight\_kg : num [1:801] 6.9 13 100 8.5 19 90.5 9 22.5 85.5 2.9 ...  
## $ generation : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ is\_legendary : num [1:801] 0 0 0 0 0 0 0 0 0 0 ...  
## - attr(\*, "spec")=  
## .. cols(  
## .. abilities = col\_character(),  
## .. against\_bug = col\_double(),  
## .. against\_dark = col\_double(),  
## .. against\_dragon = col\_double(),  
## .. against\_electric = col\_double(),  
## .. against\_fairy = col\_double(),  
## .. against\_fight = col\_double(),  
## .. against\_fire = col\_double(),  
## .. against\_flying = col\_double(),  
## .. against\_ghost = col\_double(),  
## .. against\_grass = col\_double(),  
## .. against\_ground = col\_double(),  
## .. against\_ice = col\_double(),  
## .. against\_normal = col\_double(),  
## .. against\_poison = col\_double(),  
## .. against\_psychic = col\_double(),  
## .. against\_rock = col\_double(),  
## .. against\_steel = col\_double(),  
## .. against\_water = col\_double(),  
## .. attack = col\_double(),  
## .. base\_egg\_steps = col\_double(),  
## .. base\_happiness = col\_double(),  
## .. base\_total = col\_double(),  
## .. capture\_rate = col\_character(),  
## .. classfication = col\_character(),  
## .. defense = col\_double(),  
## .. experience\_growth = col\_double(),  
## .. height\_m = col\_double(),  
## .. hp = col\_double(),  
## .. japanese\_name = col\_character(),  
## .. name = col\_character(),  
## .. percentage\_male = col\_double(),  
## .. pokedex\_number = col\_double(),  
## .. sp\_attack = col\_double(),  
## .. sp\_defense = col\_double(),  
## .. speed = col\_double(),  
## .. type1 = col\_character(),  
## .. type2 = col\_character(),  
## .. weight\_kg = col\_double(),  
## .. generation = col\_double(),  
## .. is\_legendary = col\_double()  
## .. )  
## - attr(\*, "problems")=<externalptr>

colnames(id)

## [1] "abilities" "against\_bug" "against\_dark"   
## [4] "against\_dragon" "against\_electric" "against\_fairy"   
## [7] "against\_fight" "against\_fire" "against\_flying"   
## [10] "against\_ghost" "against\_grass" "against\_ground"   
## [13] "against\_ice" "against\_normal" "against\_poison"   
## [16] "against\_psychic" "against\_rock" "against\_steel"   
## [19] "against\_water" "attack" "base\_egg\_steps"   
## [22] "base\_happiness" "base\_total" "capture\_rate"   
## [25] "classfication" "defense" "experience\_growth"  
## [28] "height\_m" "hp" "japanese\_name"   
## [31] "name" "percentage\_male" "pokedex\_number"   
## [34] "sp\_attack" "sp\_defense" "speed"   
## [37] "type1" "type2" "weight\_kg"   
## [40] "generation" "is\_legendary"

head(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 2 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 3 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 4 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 5 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 6 ['Blaze', 'Solar Pow… 0.25 1 1 2   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

tail(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Beast Boost'] 1 1 1 0.5  
## 2 ['Beast Boost'] 0.25 1 0.5 2   
## 3 ['Beast Boost'] 1 1 0.5 0.5  
## 4 ['Beast Boost'] 2 0.5 2 0.5  
## 5 ['Prism Armor'] 2 2 1 1   
## 6 ['Soul-Heart'] 0.25 0.5 0 1   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

summary(id)

## abilities against\_bug against\_dark against\_dragon   
## Length:801 Min. :0.2500 Min. :0.250 Min. :0.0000   
## Class :character 1st Qu.:0.5000 1st Qu.:1.000 1st Qu.:1.0000   
## Mode :character Median :1.0000 Median :1.000 Median :1.0000   
## Mean :0.9963 Mean :1.057 Mean :0.9688   
## 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:1.0000   
## Max. :4.0000 Max. :4.000 Max. :2.0000   
##   
## against\_electric against\_fairy against\_fight against\_fire   
## Min. :0.000 Min. :0.250 Min. :0.000 Min. :0.250   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:0.500   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.074 Mean :1.069 Mean :1.066 Mean :1.135   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:2.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_flying against\_ghost against\_grass against\_ground   
## Min. :0.250 Min. :0.000 Min. :0.250 Min. :0.000   
## 1st Qu.:1.000 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.193 Mean :0.985 Mean :1.034 Mean :1.098   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_ice against\_normal against\_poison against\_psychic  
## Min. :0.250 Min. :0.000 Min. :0.0000 Min. :0.000   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.5000 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.0000 Median :1.000   
## Mean :1.208 Mean :0.887 Mean :0.9753 Mean :1.005   
## 3rd Qu.:2.000 3rd Qu.:1.000 3rd Qu.:1.0000 3rd Qu.:1.000   
## Max. :4.000 Max. :1.000 Max. :4.0000 Max. :4.000   
##   
## against\_rock against\_steel against\_water attack   
## Min. :0.25 Min. :0.2500 Min. :0.250 Min. : 5.00   
## 1st Qu.:1.00 1st Qu.:0.5000 1st Qu.:0.500 1st Qu.: 55.00   
## Median :1.00 Median :1.0000 Median :1.000 Median : 75.00   
## Mean :1.25 Mean :0.9835 Mean :1.058 Mean : 77.86   
## 3rd Qu.:2.00 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:100.00   
## Max. :4.00 Max. :4.0000 Max. :4.000 Max. :185.00   
##   
## base\_egg\_steps base\_happiness base\_total capture\_rate   
## Min. : 1280 Min. : 0.00 Min. :180.0 Length:801   
## 1st Qu.: 5120 1st Qu.: 70.00 1st Qu.:320.0 Class :character   
## Median : 5120 Median : 70.00 Median :435.0 Mode :character   
## Mean : 7191 Mean : 65.36 Mean :428.4   
## 3rd Qu.: 6400 3rd Qu.: 70.00 3rd Qu.:505.0   
## Max. :30720 Max. :140.00 Max. :780.0   
##   
## classfication defense experience\_growth height\_m   
## Length:801 Min. : 5.00 Min. : 600000 Min. : 0.100   
## Class :character 1st Qu.: 50.00 1st Qu.:1000000 1st Qu.: 0.600   
## Mode :character Median : 70.00 Median :1000000 Median : 1.000   
## Mean : 73.01 Mean :1054996 Mean : 1.164   
## 3rd Qu.: 90.00 3rd Qu.:1059860 3rd Qu.: 1.500   
## Max. :230.00 Max. :1640000 Max. :14.500   
## NA's :20   
## hp japanese\_name name percentage\_male   
## Min. : 1.00 Length:801 Length:801 Min. : 0.00   
## 1st Qu.: 50.00 Class :character Class :character 1st Qu.: 50.00   
## Median : 65.00 Mode :character Mode :character Median : 50.00   
## Mean : 68.96 Mean : 55.16   
## 3rd Qu.: 80.00 3rd Qu.: 50.00   
## Max. :255.00 Max. :100.00   
## NA's :98   
## pokedex\_number sp\_attack sp\_defense speed   
## Min. : 1 Min. : 10.00 Min. : 20.00 Min. : 5.00   
## 1st Qu.:201 1st Qu.: 45.00 1st Qu.: 50.00 1st Qu.: 45.00   
## Median :401 Median : 65.00 Median : 66.00 Median : 65.00   
## Mean :401 Mean : 71.31 Mean : 70.91 Mean : 66.33   
## 3rd Qu.:601 3rd Qu.: 91.00 3rd Qu.: 90.00 3rd Qu.: 85.00   
## Max. :801 Max. :194.00 Max. :230.00 Max. :180.00   
##   
## type1 type2 weight\_kg generation   
## Length:801 Length:801 Min. : 0.10 Min. :1.00   
## Class :character Class :character 1st Qu.: 9.00 1st Qu.:2.00   
## Mode :character Mode :character Median : 27.30 Median :4.00   
## Mean : 61.38 Mean :3.69   
## 3rd Qu.: 64.80 3rd Qu.:5.00   
## Max. :999.90 Max. :7.00   
## NA's :20   
## is\_legendary   
## Min. :0.00000   
## 1st Qu.:0.00000   
## Median :0.00000   
## Mean :0.08739   
## 3rd Qu.:0.00000   
## Max. :1.00000   
##

sd(id$speed)

## [1] 28.90766

var(id$speed)

## [1] 835.6529

range(id$speed)

## [1] 5 180

quantile(id$speed)

## 0% 25% 50% 75% 100%   
## 5 45 65 85 180

skewness(id$speed)

## [1] 0.4380958

kurtosis(id$speed)

## [1] 2.87459

rev(id$speed)

## [1] 65 79 43 109 61 83 151 79 103 97 97 37 37 85 75 95 130 85  
## [19] 65 45 40 36 92 96 96 36 65 120 95 59 5 35 15 40 80 80  
## [37] 60 100 72 62 32 60 50 117 77 30 15 45 35 42 27 35 45 35  
## [55] 45 30 82 60 124 84 93 43 63 43 36 46 45 45 60 75 65 60  
## [73] 50 40 60 90 70 70 52 42 70 80 110 85 99 99 123 55 28 28  
## [91] 54 41 56 38 75 80 60 40 50 101 118 60 58 46 71 48 109 70  
## [109] 59 44 44 30 68 50 73 45 72 49 29 23 60 35 28 104 68 102  
## [127] 58 43 68 52 75 92 42 106 72 89 29 35 126 84 62 78 57 132  
## [145] 97 71 104 73 60 64 57 38 99 128 108 95 91 90 90 101 121 108  
## [163] 108 108 100 60 98 58 38 109 65 80 60 80 60 55 70 60 55 35  
## [181] 48 105 65 32 145 25 105 50 40 97 67 57 80 55 20 40 30 50  
## [199] 40 60 90 50 30 20 10 108 65 65 60 40 30 15 20 60 103 95  
## [217] 75 79 59 44 98 55 30 30 20 65 55 45 115 75 105 65 75 65  
## [235] 110 70 32 22 30 30 97 58 48 45 55 60 55 50 92 74 65 98  
## [253] 90 30 116 66 112 47 57 92 42 42 85 45 74 69 64 45 40 35  
## [271] 50 88 68 114 72 25 20 15 116 76 93 65 43 29 24 101 64 101  
## [289] 64 101 64 106 66 80 60 55 77 42 70 60 45 65 55 45 113 83  
## [307] 63 100 120 127 125 100 80 85 90 100 77 100 90 115 80 95 86 110  
## [325] 45 40 110 90 80 95 65 95 95 80 83 95 50 40 50 60 125 30  
## [343] 40 50 91 66 46 85 50 95 65 47 32 112 60 5 92 82 42 35  
## [361] 91 30 60 10 33 23 84 74 45 112 85 71 105 135 85 80 70 115  
## [379] 39 34 85 35 115 85 95 40 70 66 36 36 30 30 58 58 90 55  
## [397] 70 60 45 65 25 71 31 100 80 60 60 50 40 108 81 61 56 36  
## [415] 31 180 100 115 90 90 110 110 50 50 50 110 50 30 120 50 50 97  
## [433] 55 52 52 32 65 45 25 100 50 23 115 65 51 25 25 75 45 40  
## [451] 70 81 80 45 75 43 23 75 55 55 35 60 60 70 70 65 90 80  
## [469] 50 55 35 100 70 10 60 80 60 20 20 35 60 60 105 65 55 40  
## [487] 65 85 85 95 95 135 65 100 60 50 40 30 50 20 90 50 30 20  
## [505] 50 25 68 48 28 40 160 40 100 90 30 70 35 80 65 100 50 40  
## [523] 65 85 125 85 80 60 30 70 50 30 65 15 65 15 20 100 60 70  
## [541] 35 70 50 40 100 55 45 145 95 70 100 90 110 71 51 41 85 100  
## [559] 115 55 100 83 95 65 70 35 75 85 60 50 40 85 115 65 70 70  
## [577] 75 45 65 35 50 50 30 20 55 40 115 75 5 75 85 45 30 30  
## [595] 85 45 40 15 85 33 48 85 30 91 65 110 35 15 95 30 30 85  
## [613] 110 80 50 70 30 50 40 50 45 45 35 95 70 40 20 15 15 60  
## [631] 67 67 130 40 30 85 55 70 50 90 20 78 58 43 100 80 65 80  
## [649] 60 45 100 140 80 70 50 90 100 85 30 150 80 55 55 35 40 65  
## [667] 130 65 55 48 60 81 80 110 105 93 105 95 105 90 115 85 68 63  
## [685] 85 60 100 60 50 40 25 60 35 30 76 87 45 35 45 40 150 100  
## [703] 75 50 67 42 70 130 95 80 70 40 50 25 70 45 110 75 60 70  
## [721] 45 30 15 105 90 45 35 20 100 70 70 55 40 55 45 35 150 105  
## [739] 90 70 90 90 95 60 95 70 85 55 115 90 110 90 90 45 30 25  
## [757] 50 40 30 90 55 45 20 109 65 60 35 85 65 50 76 56 41 65  
## [775] 40 110 90 80 55 100 70 77 72 121 71 56 145 35 50 70 30 45  
## [793] 78 58 43 100 80 65 80 60 45

cat("\nColumn:",ncol(id$speed))

##   
## Column:

nrow(id)

## [1] 801

ncol(id)

## [1] 41

str(id)

## spc\_tbl\_ [801 × 41] (S3: spec\_tbl\_df/tbl\_df/tbl/data.frame)  
## $ abilities : chr [1:801] "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Blaze', 'Solar Power']" ...  
## $ against\_bug : num [1:801] 1 1 1 0.5 0.5 0.25 1 1 1 1 ...  
## $ against\_dark : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_dragon : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_electric : num [1:801] 0.5 0.5 0.5 1 1 2 2 2 2 1 ...  
## $ against\_fairy : num [1:801] 0.5 0.5 0.5 0.5 0.5 0.5 1 1 1 1 ...  
## $ against\_fight : num [1:801] 0.5 0.5 0.5 1 1 0.5 1 1 1 0.5 ...  
## $ against\_fire : num [1:801] 2 2 2 0.5 0.5 0.5 0.5 0.5 0.5 2 ...  
## $ against\_flying : num [1:801] 2 2 2 1 1 1 1 1 1 2 ...  
## $ against\_ghost : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_grass : num [1:801] 0.25 0.25 0.25 0.5 0.5 0.25 2 2 2 0.5 ...  
## $ against\_ground : num [1:801] 1 1 1 2 2 0 1 1 1 0.5 ...  
## $ against\_ice : num [1:801] 2 2 2 0.5 0.5 1 0.5 0.5 0.5 1 ...  
## $ against\_normal : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_poison : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_psychic : num [1:801] 2 2 2 1 1 1 1 1 1 1 ...  
## $ against\_rock : num [1:801] 1 1 1 2 2 4 1 1 1 2 ...  
## $ against\_steel : num [1:801] 1 1 1 0.5 0.5 0.5 0.5 0.5 0.5 1 ...  
## $ against\_water : num [1:801] 0.5 0.5 0.5 2 2 2 0.5 0.5 0.5 1 ...  
## $ attack : num [1:801] 49 62 100 52 64 104 48 63 103 30 ...  
## $ base\_egg\_steps : num [1:801] 5120 5120 5120 5120 5120 5120 5120 5120 5120 3840 ...  
## $ base\_happiness : num [1:801] 70 70 70 70 70 70 70 70 70 70 ...  
## $ base\_total : num [1:801] 318 405 625 309 405 634 314 405 630 195 ...  
## $ capture\_rate : chr [1:801] "45" "45" "45" "45" ...  
## $ classfication : chr [1:801] "Seed Pokémon" "Seed Pokémon" "Seed Pokémon" "Lizard Pokémon" ...  
## $ defense : num [1:801] 49 63 123 43 58 78 65 80 120 35 ...  
## $ experience\_growth: num [1:801] 1059860 1059860 1059860 1059860 1059860 ...  
## $ height\_m : num [1:801] 0.7 1 2 0.6 1.1 1.7 0.5 1 1.6 0.3 ...  
## $ hp : num [1:801] 45 60 80 39 58 78 44 59 79 45 ...  
## $ japanese\_name : chr [1:801] "Fushigidaneフシギダネ" "Fushigisouフシギソウ" "Fushigibanaフシギバナ" "Hitokageヒトカゲ" ...  
## $ name : chr [1:801] "Bulbasaur" "Ivysaur" "Venusaur" "Charmander" ...  
## $ percentage\_male : num [1:801] 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 50 ...  
## $ pokedex\_number : num [1:801] 1 2 3 4 5 6 7 8 9 10 ...  
## $ sp\_attack : num [1:801] 65 80 122 60 80 159 50 65 135 20 ...  
## $ sp\_defense : num [1:801] 65 80 120 50 65 115 64 80 115 20 ...  
## $ speed : num [1:801] 45 60 80 65 80 100 43 58 78 45 ...  
## $ type1 : chr [1:801] "grass" "grass" "grass" "fire" ...  
## $ type2 : chr [1:801] "poison" "poison" "poison" NA ...  
## $ weight\_kg : num [1:801] 6.9 13 100 8.5 19 90.5 9 22.5 85.5 2.9 ...  
## $ generation : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ is\_legendary : num [1:801] 0 0 0 0 0 0 0 0 0 0 ...  
## - attr(\*, "spec")=  
## .. cols(  
## .. abilities = col\_character(),  
## .. against\_bug = col\_double(),  
## .. against\_dark = col\_double(),  
## .. against\_dragon = col\_double(),  
## .. against\_electric = col\_double(),  
## .. against\_fairy = col\_double(),  
## .. against\_fight = col\_double(),  
## .. against\_fire = col\_double(),  
## .. against\_flying = col\_double(),  
## .. against\_ghost = col\_double(),  
## .. against\_grass = col\_double(),  
## .. against\_ground = col\_double(),  
## .. against\_ice = col\_double(),  
## .. against\_normal = col\_double(),  
## .. against\_poison = col\_double(),  
## .. against\_psychic = col\_double(),  
## .. against\_rock = col\_double(),  
## .. against\_steel = col\_double(),  
## .. against\_water = col\_double(),  
## .. attack = col\_double(),  
## .. base\_egg\_steps = col\_double(),  
## .. base\_happiness = col\_double(),  
## .. base\_total = col\_double(),  
## .. capture\_rate = col\_character(),  
## .. classfication = col\_character(),  
## .. defense = col\_double(),  
## .. experience\_growth = col\_double(),  
## .. height\_m = col\_double(),  
## .. hp = col\_double(),  
## .. japanese\_name = col\_character(),  
## .. name = col\_character(),  
## .. percentage\_male = col\_double(),  
## .. pokedex\_number = col\_double(),  
## .. sp\_attack = col\_double(),  
## .. sp\_defense = col\_double(),  
## .. speed = col\_double(),  
## .. type1 = col\_character(),  
## .. type2 = col\_character(),  
## .. weight\_kg = col\_double(),  
## .. generation = col\_double(),  
## .. is\_legendary = col\_double()  
## .. )  
## - attr(\*, "problems")=<externalptr>

colnames(id)

## [1] "abilities" "against\_bug" "against\_dark"   
## [4] "against\_dragon" "against\_electric" "against\_fairy"   
## [7] "against\_fight" "against\_fire" "against\_flying"   
## [10] "against\_ghost" "against\_grass" "against\_ground"   
## [13] "against\_ice" "against\_normal" "against\_poison"   
## [16] "against\_psychic" "against\_rock" "against\_steel"   
## [19] "against\_water" "attack" "base\_egg\_steps"   
## [22] "base\_happiness" "base\_total" "capture\_rate"   
## [25] "classfication" "defense" "experience\_growth"  
## [28] "height\_m" "hp" "japanese\_name"   
## [31] "name" "percentage\_male" "pokedex\_number"   
## [34] "sp\_attack" "sp\_defense" "speed"   
## [37] "type1" "type2" "weight\_kg"   
## [40] "generation" "is\_legendary"

head(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 2 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 3 ['Overgrow', 'Chloro… 1 1 1 0.5  
## 4 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 5 ['Blaze', 'Solar Pow… 0.5 1 1 1   
## 6 ['Blaze', 'Solar Pow… 0.25 1 1 2   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

tail(id)

## # A tibble: 6 × 41  
## abilities against\_bug against\_dark against\_dragon against\_electric  
## <chr> <dbl> <dbl> <dbl> <dbl>  
## 1 ['Beast Boost'] 1 1 1 0.5  
## 2 ['Beast Boost'] 0.25 1 0.5 2   
## 3 ['Beast Boost'] 1 1 0.5 0.5  
## 4 ['Beast Boost'] 2 0.5 2 0.5  
## 5 ['Prism Armor'] 2 2 1 1   
## 6 ['Soul-Heart'] 0.25 0.5 0 1   
## # ℹ 36 more variables: against\_fairy <dbl>, against\_fight <dbl>,  
## # against\_fire <dbl>, against\_flying <dbl>, against\_ghost <dbl>,  
## # against\_grass <dbl>, against\_ground <dbl>, against\_ice <dbl>,  
## # against\_normal <dbl>, against\_poison <dbl>, against\_psychic <dbl>,  
## # against\_rock <dbl>, against\_steel <dbl>, against\_water <dbl>, attack <dbl>,  
## # base\_egg\_steps <dbl>, base\_happiness <dbl>, base\_total <dbl>,  
## # capture\_rate <chr>, classfication <chr>, defense <dbl>, …

summary(id)

## abilities against\_bug against\_dark against\_dragon   
## Length:801 Min. :0.2500 Min. :0.250 Min. :0.0000   
## Class :character 1st Qu.:0.5000 1st Qu.:1.000 1st Qu.:1.0000   
## Mode :character Median :1.0000 Median :1.000 Median :1.0000   
## Mean :0.9963 Mean :1.057 Mean :0.9688   
## 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:1.0000   
## Max. :4.0000 Max. :4.000 Max. :2.0000   
##   
## against\_electric against\_fairy against\_fight against\_fire   
## Min. :0.000 Min. :0.250 Min. :0.000 Min. :0.250   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:0.500   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.074 Mean :1.069 Mean :1.066 Mean :1.135   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:2.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_flying against\_ghost against\_grass against\_ground   
## Min. :0.250 Min. :0.000 Min. :0.250 Min. :0.000   
## 1st Qu.:1.000 1st Qu.:1.000 1st Qu.:0.500 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.000 Median :1.000   
## Mean :1.193 Mean :0.985 Mean :1.034 Mean :1.098   
## 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000 3rd Qu.:1.000   
## Max. :4.000 Max. :4.000 Max. :4.000 Max. :4.000   
##   
## against\_ice against\_normal against\_poison against\_psychic  
## Min. :0.250 Min. :0.000 Min. :0.0000 Min. :0.000   
## 1st Qu.:0.500 1st Qu.:1.000 1st Qu.:0.5000 1st Qu.:1.000   
## Median :1.000 Median :1.000 Median :1.0000 Median :1.000   
## Mean :1.208 Mean :0.887 Mean :0.9753 Mean :1.005   
## 3rd Qu.:2.000 3rd Qu.:1.000 3rd Qu.:1.0000 3rd Qu.:1.000   
## Max. :4.000 Max. :1.000 Max. :4.0000 Max. :4.000   
##   
## against\_rock against\_steel against\_water attack   
## Min. :0.25 Min. :0.2500 Min. :0.250 Min. : 5.00   
## 1st Qu.:1.00 1st Qu.:0.5000 1st Qu.:0.500 1st Qu.: 55.00   
## Median :1.00 Median :1.0000 Median :1.000 Median : 75.00   
## Mean :1.25 Mean :0.9835 Mean :1.058 Mean : 77.86   
## 3rd Qu.:2.00 3rd Qu.:1.0000 3rd Qu.:1.000 3rd Qu.:100.00   
## Max. :4.00 Max. :4.0000 Max. :4.000 Max. :185.00   
##   
## base\_egg\_steps base\_happiness base\_total capture\_rate   
## Min. : 1280 Min. : 0.00 Min. :180.0 Length:801   
## 1st Qu.: 5120 1st Qu.: 70.00 1st Qu.:320.0 Class :character   
## Median : 5120 Median : 70.00 Median :435.0 Mode :character   
## Mean : 7191 Mean : 65.36 Mean :428.4   
## 3rd Qu.: 6400 3rd Qu.: 70.00 3rd Qu.:505.0   
## Max. :30720 Max. :140.00 Max. :780.0   
##   
## classfication defense experience\_growth height\_m   
## Length:801 Min. : 5.00 Min. : 600000 Min. : 0.100   
## Class :character 1st Qu.: 50.00 1st Qu.:1000000 1st Qu.: 0.600   
## Mode :character Median : 70.00 Median :1000000 Median : 1.000   
## Mean : 73.01 Mean :1054996 Mean : 1.164   
## 3rd Qu.: 90.00 3rd Qu.:1059860 3rd Qu.: 1.500   
## Max. :230.00 Max. :1640000 Max. :14.500   
## NA's :20   
## hp japanese\_name name percentage\_male   
## Min. : 1.00 Length:801 Length:801 Min. : 0.00   
## 1st Qu.: 50.00 Class :character Class :character 1st Qu.: 50.00   
## Median : 65.00 Mode :character Mode :character Median : 50.00   
## Mean : 68.96 Mean : 55.16   
## 3rd Qu.: 80.00 3rd Qu.: 50.00   
## Max. :255.00 Max. :100.00   
## NA's :98   
## pokedex\_number sp\_attack sp\_defense speed   
## Min. : 1 Min. : 10.00 Min. : 20.00 Min. : 5.00   
## 1st Qu.:201 1st Qu.: 45.00 1st Qu.: 50.00 1st Qu.: 45.00   
## Median :401 Median : 65.00 Median : 66.00 Median : 65.00   
## Mean :401 Mean : 71.31 Mean : 70.91 Mean : 66.33   
## 3rd Qu.:601 3rd Qu.: 91.00 3rd Qu.: 90.00 3rd Qu.: 85.00   
## Max. :801 Max. :194.00 Max. :230.00 Max. :180.00   
##   
## type1 type2 weight\_kg generation   
## Length:801 Length:801 Min. : 0.10 Min. :1.00   
## Class :character Class :character 1st Qu.: 9.00 1st Qu.:2.00   
## Mode :character Mode :character Median : 27.30 Median :4.00   
## Mean : 61.38 Mean :3.69   
## 3rd Qu.: 64.80 3rd Qu.:5.00   
## Max. :999.90 Max. :7.00   
## NA's :20   
## is\_legendary   
## Min. :0.00000   
## 1st Qu.:0.00000   
## Median :0.00000   
## Mean :0.08739   
## 3rd Qu.:0.00000   
## Max. :1.00000   
##

sd(id$sp\_attack)

## [1] 32.35383

var(id$sp\_attack)

## [1] 1046.77

range(id$sp\_attack)

## [1] 10 194

quantile(id$sp\_attack)

## 0% 25% 50% 75% 100%   
## 10 45 65 91 194

skewness(id$sp\_attack)

## [1] 0.7769124

kurtosis(id$sp\_attack)

## [1] 3.402435

rev(id$sp\_attack)

## [1] 130 127 97 59 107 173 137 53 127 137 113 29 29 95 85 130 95 100  
## [19] 65 45 86 135 70 50 40 91 75 100 95 95 30 100 70 60 20 40  
## [37] 90 82 50 40 30 55 45 111 71 90 65 80 50 50 40 55 45 53  
## [55] 43 140 55 30 95 55 98 62 42 145 55 55 55 30 75 40 30 126  
## [73] 91 66 80 80 60 100 70 50 130 170 160 91 131 131 97 45 44 32  
## [91] 58 44 65 50 80 110 83 55 50 81 74 110 99 67 69 45 109 61  
## [109] 120 58 97 60 54 39 68 37 85 59 99 63 150 45 35 83 63 65  
## [127] 69 46 97 62 112 125 61 109 73 90 27 27 74 56 40 50 32 153  
## [145] 83 62 114 90 62 74 56 48 120 77 129 170 105 120 150 145 110 90  
## [163] 72 90 135 50 125 65 45 48 105 55 45 57 37 40 60 40 55 35  
## [181] 60 95 55 81 100 40 95 70 60 60 40 30 145 95 65 125 85 105  
## [199] 75 45 70 70 45 54 24 97 57 40 85 65 85 55 60 40 75 60  
## [217] 40 110 80 65 87 44 125 125 105 95 75 55 65 40 120 80 60 40  
## [235] 112 74 83 53 95 55 103 45 35 65 35 106 140 15 65 45 35 80  
## [253] 110 70 77 37 55 40 30 70 50 40 30 30 85 65 50 55 40 25  
## [271] 80 50 30 77 55 60 50 25 80 50 65 50 36 107 67 98 53 98  
## [289] 53 98 53 88 50 45 35 25 60 35 108 83 63 100 70 45 75 60  
## [307] 45 100 120 120 135 100 80 75 120 80 130 150 150 125 105 75 105 80  
## [325] 65 75 65 135 70 45 130 60 116 120 125 95 110 55 80 130 45 132  
## [343] 62 60 69 49 90 86 61 60 30 68 38 140 35 40 120 50 40 92  
## [361] 92 15 70 10 79 24 71 41 65 64 42 105 105 54 44 90 60 60  
## [379] 92 57 87 62 85 60 45 80 30 94 69 29 47 42 65 30 125 50  
## [397] 95 60 40 55 25 55 35 50 40 30 111 81 61 104 78 58 75 55  
## [415] 45 95 100 180 150 180 160 140 75 100 50 105 55 35 120 60 40 40  
## [433] 45 114 94 74 95 75 55 120 50 23 115 95 72 60 30 93 63 60  
## [451] 70 100 10 70 40 81 61 70 40 90 50 76 46 55 95 100 60 110  
## [469] 40 115 85 80 50 45 60 90 70 85 145 65 90 70 110 65 73 43  
## [487] 100 73 47 75 85 135 65 80 40 60 50 40 55 85 55 35 45 20  
## [505] 40 20 91 71 51 30 50 30 95 55 35 60 40 100 50 165 65 45  
## [523] 95 55 75 30 90 60 30 90 60 40 50 25 100 25 20 50 30 60  
## [541] 30 95 60 50 130 85 70 145 85 65 100 110 90 95 65 45 90 90  
## [559] 115 75 40 70 65 85 35 35 20 85 105 60 40 95 140 80 40 80  
## [577] 65 105 65 65 60 30 90 70 75 50 35 40 10 65 55 60 40 55  
## [595] 35 65 60 35 90 33 72 85 100 85 60 130 65 25 75 105 30 40  
## [613] 55 45 35 90 30 60 20 90 165 80 65 95 70 80 40 40 45 35  
## [631] 76 56 70 60 40 55 40 86 36 45 35 79 59 44 109 80 60 83  
## [649] 63 49 100 194 100 70 50 125 125 95 65 70 65 55 115 90 85 95  
## [667] 110 110 45 48 85 70 15 40 65 100 95 115 55 100 100 70 65 35  
## [685] 95 70 60 100 35 45 30 85 60 60 35 35 50 40 125 60 80 55  
## [703] 50 25 73 43 30 170 115 100 85 45 65 40 70 45 60 35 58 120  
## [721] 95 130 40 80 65 55 45 30 80 50 100 85 70 65 50 35 175 120  
## [739] 105 70 50 40 100 70 60 35 95 65 75 50 50 35 90 40 60 45  
## [757] 110 85 75 65 30 85 45 81 50 95 60 85 55 40 75 55 40 25  
## [775] 10 95 50 65 40 61 31 40 25 135 50 35 15 25 20 90 25 20  
## [793] 135 65 50 159 80 60 122 80 65

cat("\nColumn:",ncol(id$sp\_attack))

##   
## Column:

nrow(id)

## [1] 801

ncol(id)

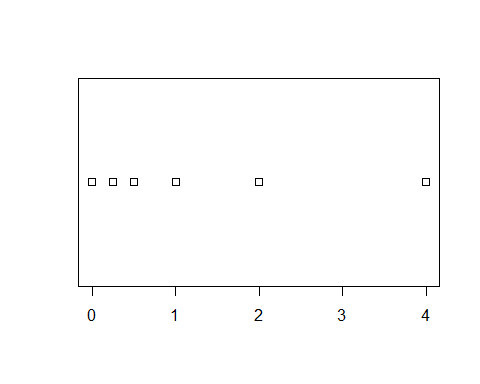
## [1] 41

str(id)

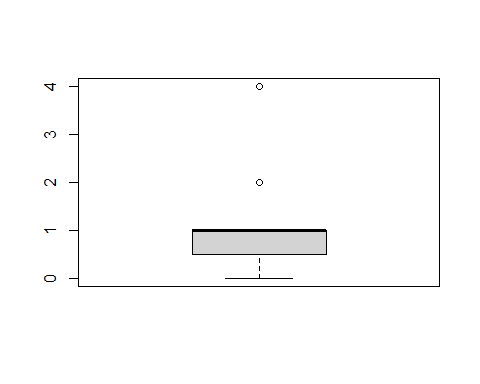
## spc\_tbl\_ [801 × 41] (S3: spec\_tbl\_df/tbl\_df/tbl/data.frame)  
## $ abilities : chr [1:801] "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Blaze', 'Solar Power']" ...  
## $ against\_bug : num [1:801] 1 1 1 0.5 0.5 0.25 1 1 1 1 ...  
## $ against\_dark : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_dragon : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_electric : num [1:801] 0.5 0.5 0.5 1 1 2 2 2 2 1 ...  
## $ against\_fairy : num [1:801] 0.5 0.5 0.5 0.5 0.5 0.5 1 1 1 1 ...  
## $ against\_fight : num [1:801] 0.5 0.5 0.5 1 1 0.5 1 1 1 0.5 ...  
## $ against\_fire : num [1:801] 2 2 2 0.5 0.5 0.5 0.5 0.5 0.5 2 ...  
## $ against\_flying : num [1:801] 2 2 2 1 1 1 1 1 1 2 ...  
## $ against\_ghost : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_grass : num [1:801] 0.25 0.25 0.25 0.5 0.5 0.25 2 2 2 0.5 ...  
## $ against\_ground : num [1:801] 1 1 1 2 2 0 1 1 1 0.5 ...  
## $ against\_ice : num [1:801] 2 2 2 0.5 0.5 1 0.5 0.5 0.5 1 ...  
## $ against\_normal : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_poison : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_psychic : num [1:801] 2 2 2 1 1 1 1 1 1 1 ...  
## $ against\_rock : num [1:801] 1 1 1 2 2 4 1 1 1 2 ...  
## $ against\_steel : num [1:801] 1 1 1 0.5 0.5 0.5 0.5 0.5 0.5 1 ...  
## $ against\_water : num [1:801] 0.5 0.5 0.5 2 2 2 0.5 0.5 0.5 1 ...  
## $ attack : num [1:801] 49 62 100 52 64 104 48 63 103 30 ...  
## $ base\_egg\_steps : num [1:801] 5120 5120 5120 5120 5120 5120 5120 5120 5120 3840 ...  
## $ base\_happiness : num [1:801] 70 70 70 70 70 70 70 70 70 70 ...  
## $ base\_total : num [1:801] 318 405 625 309 405 634 314 405 630 195 ...  
## $ capture\_rate : chr [1:801] "45" "45" "45" "45" ...  
## $ classfication : chr [1:801] "Seed Pokémon" "Seed Pokémon" "Seed Pokémon" "Lizard Pokémon" ...  
## $ defense : num [1:801] 49 63 123 43 58 78 65 80 120 35 ...  
## $ experience\_growth: num [1:801] 1059860 1059860 1059860 1059860 1059860 ...  
## $ height\_m : num [1:801] 0.7 1 2 0.6 1.1 1.7 0.5 1 1.6 0.3 ...  
## $ hp : num [1:801] 45 60 80 39 58 78 44 59 79 45 ...  
## $ japanese\_name : chr [1:801] "Fushigidaneフシギダネ" "Fushigisouフシギソウ" "Fushigibanaフシギバナ" "Hitokageヒトカゲ" ...  
## $ name : chr [1:801] "Bulbasaur" "Ivysaur" "Venusaur" "Charmander" ...  
## $ percentage\_male : num [1:801] 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 50 ...  
## $ pokedex\_number : num [1:801] 1 2 3 4 5 6 7 8 9 10 ...  
## $ sp\_attack : num [1:801] 65 80 122 60 80 159 50 65 135 20 ...  
## $ sp\_defense : num [1:801] 65 80 120 50 65 115 64 80 115 20 ...  
## $ speed : num [1:801] 45 60 80 65 80 100 43 58 78 45 ...  
## $ type1 : chr [1:801] "grass" "grass" "grass" "fire" ...  
## $ type2 : chr [1:801] "poison" "poison" "poison" NA ...  
## $ weight\_kg : num [1:801] 6.9 13 100 8.5 19 90.5 9 22.5 85.5 2.9 ...  
## $ generation : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ is\_legendary : num [1:801] 0 0 0 0 0 0 0 0 0 0 ...  
## - attr(\*, "spec")=  
## .. cols(  
## .. abilities = col\_character(),  
## .. against\_bug = col\_double(),  
## .. against\_dark = col\_double(),  
## .. against\_dragon = col\_double(),  
## .. against\_electric = col\_double(),  
## .. against\_fairy = col\_double(),  
## .. against\_fight = col\_double(),  
## .. against\_fire = col\_double(),  
## .. against\_flying = col\_double(),  
## .. against\_ghost = col\_double(),  
## .. against\_grass = col\_double(),  
## .. against\_ground = col\_double(),  
## .. against\_ice = col\_double(),  
## .. against\_normal = col\_double(),  
## .. against\_poison = col\_double(),  
## .. against\_psychic = col\_double(),  
## .. against\_rock = col\_double(),  
## .. against\_steel = col\_double(),  
## .. against\_water = col\_double(),  
## .. attack = col\_double(),  
## .. base\_egg\_steps = col\_double(),  
## .. base\_happiness = col\_double(),  
## .. base\_total = col\_double(),  
## .. capture\_rate = col\_character(),  
## .. classfication = col\_character(),  
## .. defense = col\_double(),  
## .. experience\_growth = col\_double(),  
## .. height\_m = col\_double(),  
## .. hp = col\_double(),  
## .. japanese\_name = col\_character(),  
## .. name = col\_character(),  
## .. percentage\_male = col\_double(),  
## .. pokedex\_number = col\_double(),  
## .. sp\_attack = col\_double(),  
## .. sp\_defense = col\_double(),  
## .. speed = col\_double(),  
## .. type1 = col\_character(),  
## .. type2 = col\_character(),  
## .. weight\_kg = col\_double(),  
## .. generation = col\_double(),  
## .. is\_legendary = col\_double()  
## .. )  
## - attr(\*, "problems")=<externalptr>

#part3

plot(id[1:800,5])



boxplot(id[1:800,5])



table(id[1:800,5][id[1:800,5]> 0.1])

##   
## 0.25 0.5 1 2 4   
## 1 156 391 181 7

scale(id[1:800,5])

## against\_electric  
## [1,] -0.8759417  
## [2,] -0.8759417  
## [3,] -0.8759417  
## [4,] -0.1130094  
## [5,] -0.1130094  
## [6,] 1.4128553  
## [7,] 1.4128553  
## [8,] 1.4128553  
## [9,] 1.4128553  
## [10,] -0.1130094  
## [11,] -0.1130094  
## [12,] 1.4128553  
## [13,] -0.1130094  
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## [21,] 1.4128553  
## [22,] 1.4128553  
## [23,] -0.1130094  
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## [577] 41600 41650 41725 41775 41838 41888 41953 42038 42088 42158 42218 42263  
## [589] 42368 42413 42483 42533 42603 42683 42733 42793 42884 43015 43085 43180  
## [601] 43295 43335 43405 43485 43540 43615 43670 43730 43820 43880 43950 44040  
## [613] 44080 44160 44210 44295 44335 44419 44469 44529 44619 44669 44749 44819  
## [625] 44919 45014 45064 45139 45214 45319 45385 45497 45547 45617 45707 45762  
## [637] 45827 45956 46046 46118 46198 46268 46368 46488 46578 46668 46758 46848  
## [649] 46943 47008 47103 47225 47265 47323 47395 47435 47487 47554 47592 47669  
## [661] 47712 47767 47838 47878 47938 47988 48046 48118 48157 48224 48292 48340  
## [673] 48402 48464 48542 48602 48656 48732 48832 48982 49032 49092 49164 49230  
## [685] 49316 49369 49457 49524 49639 49699 49789 49851 49939 49972 50024 50101  
## [697] 50220 50270 50342 50407 50482 50539 50689 50724 50777 50847 50938 50986  
## [709] 51062 51132 51254 51339 51523 51558 51638 51733 51828 51949 52059 52119  
## [721] 52239 52294 52369 52444 52484 52534 52624 52678 52747 52821 52851 52901  
## [733] 52976 53006 53066 53111 53206 53296 53353 53430 53500 53540 53600 53640  
## [745] 53715 53845 53907 54059 54129 54229 54281 54373 54408 54498 54553 54633  
## [757] 54673 54733 54783 54863 54901 54949 55047 55137 55217 55307 55347 55487  
## [769] 55567 55677 55807 55902 55997 56057 56122 56257 56320 56400 56470 56555  
## [781] 56655 56720 56810 56935 57020 57095 57210 57325 57356 57487 57594 57683  
## [793] 57730 57869 57906 57977 58080 58211 58264 58365 58480

#part 4

mean(id$defense,na.rm = TRUE)

## [1] 73.00874

rev(id[1:800,3])

## # A tibble: 800 × 1  
## against\_dark  
## <dbl>  
## 1 1  
## 2 1  
## 3 1  
## 4 1  
## 5 1  
## 6 1  
## 7 1  
## 8 1  
## 9 1  
## 10 1  
## # ℹ 790 more rows

cat(id$sepal\_width, sep = ",")

## Warning: Unknown or uninitialised column: `sepal\_width`.

nchar(id)

## abilities against\_bug against\_dark against\_dragon   
## 29195 3030 2670 2492   
## against\_electric against\_fairy against\_fight against\_fire   
## 2724 2708 2927 2915   
## against\_flying against\_ghost against\_grass against\_ground   
## 2659 2492 3177 2619   
## against\_ice against\_normal against\_poison against\_psychic   
## 2854 2607 2772 2640   
## against\_rock against\_steel against\_water attack   
## 2675 2910 2882 3416   
## base\_egg\_steps base\_happiness base\_total capture\_rate   
## 4923 3199 4013 5069   
## classfication defense experience\_growth height\_m   
## 15754 3358 6396 3824   
## hp japanese\_name name percentage\_male   
## 3301 13073 9203 3515   
## pokedex\_number sp\_attack sp\_defense speed   
## 3905 3364 3340 3330   
## type1 type2 weight\_kg generation   
## 7414 5556 4007 2408   
## is\_legendary   
## 2408

table(id[1:850,3])

## against\_dark  
## 0.25 0.5 1 2 4   
## 3 126 565 105 2

id$defense[id$defense == 50]

## [1] 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50  
## [26] 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50  
## [51] 50

sort(id$defense)

## [1] 5 5 10 15 15 15 15 20 20 20 23 25 28 30 30 30 30 30  
## [19] 30 30 30 30 30 30 30 30 30 30 30 31 32 32 33 34 34 34  
## [37] 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35 35  
## [55] 35 35 35 35 35 35 37 37 37 37 38 38 38 39 39 40 40 40  
## [73] 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40  
## [91] 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40 40  
## [109] 41 41 42 42 42 43 43 43 43 43 43 44 44 44 44 45 45 45  
## [127] 45 45 45 45 45 45 45 45 45 45 45 45 45 45 45 45 45 45  
## [145] 45 45 45 45 45 45 45 45 45 45 45 47 47 48 48 48 48 48  
## [163] 48 48 48 48 48 48 48 49 49 50 50 50 50 50 50 50 50 50  
## [181] 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50  
## [199] 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50 50  
## [217] 50 50 50 50 50 50 51 52 52 52 52 52 52 53 53 53 53 53  
## [235] 53 54 54 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55  
## [253] 55 55 55 55 55 55 55 55 55 55 55 55 55 55 55 56 57 57  
## [271] 57 57 57 58 58 58 58 58 58 59 60 60 60 60 60 60 60 60  
## [289] 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60  
## [307] 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60 60  
## [325] 60 60 61 62 62 62 62 62 62 62 62 63 63 63 63 63 63 63  
## [343] 63 64 64 64 64 65 65 65 65 65 65 65 65 65 65 65 65 65  
## [361] 65 65 65 65 65 65 65 65 65 65 65 65 65 65 65 65 65 65  
## [379] 65 65 66 66 66 67 67 67 67 67 67 67 67 68 68 68 69 69  
## [397] 69 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70  
## [415] 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70 70  
## [433] 70 70 70 70 70 70 70 70 70 70 70 70 70 70 71 71 71 72  
## [451] 72 72 72 72 72 73 73 74 75 75 75 75 75 75 75 75 75 75  
## [469] 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 75 76  
## [487] 76 76 77 77 77 77 77 78 78 78 78 78 79 79 79 80 80 80  
## [505] 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80  
## [523] 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80 80  
## [541] 80 80 82 83 83 84 85 85 85 85 85 85 85 85 85 85 85 85  
## [559] 85 85 85 85 85 85 85 85 85 85 85 85 85 85 85 86 86 86  
## [577] 87 88 88 88 88 89 89 90 90 90 90 90 90 90 90 90 90 90  
## [595] 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90 90  
## [613] 90 90 90 90 91 91 92 94 95 95 95 95 95 95 95 95 95 95  
## [631] 95 95 95 95 95 95 95 95 95 95 95 95 95 95 95 95 95 95  
## [649] 95 97 98 99 100 100 100 100 100 100 100 100 100 100 100 100 100 100  
## [667] 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 101 102 103  
## [685] 103 105 105 105 105 105 105 105 105 105 105 105 105 105 105 106 107 107  
## [703] 108 109 110 110 110 110 110 110 110 110 110 112 115 115 115 115 115 115  
## [721] 115 115 115 115 115 115 115 115 116 118 118 119 120 120 120 120 120 120  
## [739] 120 120 120 120 120 120 120 121 122 122 123 125 125 125 125 125 125 125  
## [757] 126 129 130 130 130 130 130 130 130 130 130 130 130 131 131 131 133 135  
## [775] 135 135 139 140 140 140 140 140 140 145 145 150 150 150 150 150 152 160  
## [793] 160 168 180 180 184 200 230 230 230

order(id$defense)

## [1] 113 440 242 63 172 174 238 39 318 349 293 280 173 13 21 50 64 92  
## [19] 163 165 191 228 270 276 278 296 396 731 734 789 283 522 694 161 403 425  
## [37] 10 19 41 52 56 69 72 124 223 235 236 252 261 265 281 320 325 353  
## [55] 406 418 551 704 714 753 239 240 509 795 170 659 761 504 669 15 16 25  
## [73] 32 37 60 167 179 187 218 220 255 274 298 309 311 322 331 399 408 446  
## [91] 447 453 529 535 570 572 577 602 613 617 653 656 664 725 742 744 757 767  
## [109] 263 401 198 415 431 4 155 294 339 527 661 23 390 426 427 40 58 84  
## [127] 93 96 147 177 193 194 225 253 291 292 300 315 321 328 412 420 439 441  
## [145] 443 498 501 506 517 552 554 566 588 590 736 434 793 35 54 132 201 360  
## [163] 422 511 513 515 672 708 762 1 404 12 14 26 48 66 70 88 100 133  
## [181] 164 166 183 188 209 216 246 258 267 271 273 312 329 347 361 363 397 414  
## [199] 433 458 459 510 519 548 574 578 580 582 585 592 595 615 619 622 627 633  
## [217] 666 681 698 726 732 759 402 29 391 430 657 695 751 106 316 393 686 705  
## [235] 799 677 728 11 17 43 46 77 83 86 120 129 180 190 192 215 266 268  
## [253] 307 343 370 419 495 499 528 532 536 605 607 636 662 722 755 456 33 125  
## [271] 126 702 739 5 156 171 202 654 667 543 49 51 53 57 118 134 135 136  
## [289] 196 200 231 256 275 277 285 287 297 327 332 333 335 336 359 371 400 409  
## [307] 429 502 530 546 571 573 587 596 608 610 620 665 676 682 690 720 735 743  
## [325] 758 774 264 234 284 520 568 673 674 692 747 2 295 512 514 516 523 581  
## [343] 777 158 162 387 432 7 22 61 65 71 73 79 119 122 143 148 152 175  
## [361] 203 282 301 326 337 341 407 444 454 461 500 507 550 567 583 637 650 700  
## [379] 775 782 424 631 684 30 435 466 467 556 658 670 688 394 423 671 24 505  
## [397] 729 20 42 44 67 78 81 85 97 101 116 137 150 168 178 189 206 226  
## [415] 247 259 262 269 272 319 351 352 364 398 417 421 474 478 482 540 559 575  
## [433] 586 591 593 599 603 611 624 634 642 706 710 741 749 779 392 663 796 455  
## [451] 640 655 668 683 699 36 340 730 38 89 108 186 210 217 224 243 254 313  
## [469] 314 354 492 496 537 539 549 579 606 628 629 701 723 724 733 745 786 457  
## [487] 678 709 34 345 660 696 740 6 55 157 449 675 107 350 405 8 18 47  
## [505] 59 68 87 94 102 123 131 153 159 169 184 199 221 257 286 288 310 330  
## [523] 358 362 374 473 489 521 542 553 561 594 604 614 623 641 715 756 760 765  
## [541] 769 778 569 317 357 618 45 103 121 142 145 176 195 211 244 308 338 342  
## [559] 366 388 503 518 524 533 538 547 557 562 584 616 712 780 785 436 469 685  
## [577] 31 395 448 687 693 545 792 27 98 140 146 204 229 233 250 290 355 365  
## [595] 382 386 451 491 508 541 609 612 621 635 639 645 646 647 648 691 727 738  
## [613] 754 764 766 783 597 707 752 428 62 82 104 109 111 117 128 149 182 222  
## [631] 230 237 413 438 463 468 475 497 534 576 600 626 649 651 716 717 737 772  
## [649] 773 346 763 544 74 90 115 138 144 151 154 160 251 279 289 304 323 348  
## [667] 372 375 378 381 384 385 484 487 490 494 625 643 679 750 781 800 416 564  
## [685] 797 141 181 207 241 344 367 368 389 460 481 525 555 589 630 485 479 791  
## [703] 442 130 105 197 260 334 452 471 486 719 770 632 75 99 114 185 214 245  
## [721] 445 462 560 601 689 787 788 801 437 410 450 697 9 28 110 112 127 219  
## [739] 232 380 483 488 493 644 721 718 652 711 3 139 302 303 465 472 558 784  
## [757] 531 638 76 249 356 369 373 464 470 480 526 746 771 598 790 798 565 299  
## [775] 477 776 794 205 212 227 305 324 768 476 563 248 376 379 680 703 748 95  
## [793] 383 411 80 91 713 377 208 213 306

rank(id$defense)

## [1] 170.5 339.5 749.0 116.5 276.5 496.0 364.0 522.0 739.0 48.5 252.5 197.0  
## [13] 21.5 197.0 89.0 89.0 252.5 522.0 48.5 422.0 21.5 364.0 121.5 396.0  
## [25] 89.0 197.0 600.0 739.0 226.5 387.5 577.0 89.0 271.0 491.0 163.5 456.5  
## [37] 89.0 472.0 9.0 139.5 48.5 422.0 252.5 422.0 560.0 252.5 522.0 197.0  
## [49] 303.5 21.5 303.5 48.5 303.5 163.5 496.0 48.5 303.5 139.5 522.0 89.0  
## [61] 364.0 635.0 5.5 21.5 364.0 197.0 422.0 522.0 48.5 197.0 364.0 48.5  
## [73] 364.0 667.0 721.5 764.0 252.5 422.0 364.0 795.5 422.0 635.0 252.5 139.5  
## [85] 422.0 252.5 522.0 197.0 472.0 667.0 795.5 21.5 139.5 522.0 792.5 139.5  
## [97] 422.0 600.0 721.5 197.0 422.0 522.0 560.0 635.0 709.0 232.5 500.0 472.0  
## [109] 635.0 739.0 635.0 739.0 1.5 721.5 667.0 422.0 635.0 303.5 364.0 252.5  
## [121] 560.0 364.0 522.0 48.5 271.0 271.0 739.0 635.0 252.5 704.0 522.0 163.5  
## [133] 197.0 303.5 303.5 303.5 422.0 667.0 753.0 600.0 692.5 560.0 364.0 667.0  
## [145] 560.0 600.0 139.5 364.0 635.0 422.0 667.0 364.0 522.0 667.0 116.5 276.5  
## [157] 496.0 345.5 522.0 667.0 35.0 345.5 21.5 197.0 21.5 197.0 89.0 422.0  
## [169] 522.0 66.0 276.5 5.5 13.0 5.5 364.0 560.0 139.5 422.0 89.0 252.5  
## [181] 692.5 635.0 197.0 522.0 721.5 472.0 89.0 197.0 422.0 252.5 21.5 252.5  
## [193] 139.5 139.5 560.0 303.5 709.0 112.0 522.0 303.5 163.5 276.5 364.0 600.0  
## [205] 780.5 422.0 692.5 800.0 197.0 472.0 560.0 780.5 800.0 721.5 252.5 197.0  
## [217] 472.0 89.0 739.0 89.0 522.0 635.0 48.5 472.0 139.5 422.0 780.5 21.5  
## [229] 600.0 635.0 303.5 739.0 600.0 331.5 48.5 48.5 635.0 5.5 62.5 62.5  
## [241] 692.5 3.0 472.0 560.0 721.5 197.0 422.0 788.0 764.0 600.0 667.0 48.5  
## [253] 139.5 472.0 89.0 303.5 522.0 197.0 422.0 709.0 48.5 422.0 109.5 327.0  
## [265] 48.5 252.5 197.0 252.5 422.0 21.5 197.0 422.0 197.0 89.0 303.5 21.5  
## [277] 303.5 21.5 667.0 12.0 48.5 364.0 31.5 331.5 303.5 522.0 303.5 522.0  
## [289] 667.0 600.0 139.5 139.5 11.0 116.5 339.5 21.5 303.5 89.0 775.0 139.5  
## [301] 364.0 753.0 753.0 667.0 780.5 800.0 252.5 560.0 89.0 522.0 89.0 197.0  
## [313] 472.0 472.0 139.5 232.5 544.5 9.0 422.0 48.5 139.5 89.0 667.0 780.5  
## [325] 48.5 364.0 303.5 139.5 197.0 522.0 89.0 303.5 303.5 709.0 303.5 303.5  
## [337] 364.0 560.0 116.5 456.5 364.0 560.0 252.5 692.5 491.0 650.0 197.0 667.0  
## [349] 9.0 500.0 422.0 422.0 48.5 472.0 600.0 764.0 544.5 522.0 303.5 163.5  
## [361] 197.0 522.0 197.0 422.0 600.0 560.0 692.5 692.5 764.0 252.5 303.5 667.0  
## [373] 764.0 522.0 667.0 788.0 798.0 667.0 788.0 739.0 667.0 600.0 792.5 667.0  
## [385] 667.0 600.0 345.5 560.0 692.5 121.5 226.5 448.0 232.5 393.0 579.5 21.5  
## [397] 197.0 422.0 89.0 303.5 109.5 223.0 35.0 170.5 500.0 48.5 364.0 89.0  
## [409] 303.5 730.5 794.0 139.5 635.0 197.0 112.0 683.0 422.0 48.5 252.5 139.5  
## [421] 422.0 163.5 393.0 382.0 35.0 121.5 121.5 620.0 303.5 226.5 112.0 345.5  
## [433] 197.0 156.5 387.5 575.0 729.0 635.0 139.5 1.5 139.5 703.0 139.5 364.0  
## [445] 721.5 89.0 89.0 579.5 496.0 730.5 600.0 709.0 89.0 364.0 452.5 268.0  
## [457] 487.0 197.0 197.0 692.5 364.0 721.5 635.0 764.0 753.0 387.5 387.5 635.0  
## [469] 575.0 764.0 709.0 753.0 522.0 422.0 635.0 784.5 775.0 422.0 701.5 764.0  
## [481] 692.5 422.0 739.0 667.0 700.0 709.0 667.0 739.0 522.0 667.0 600.0 472.0  
## [493] 739.0 667.0 252.5 472.0 635.0 139.5 252.5 364.0 139.5 303.5 560.0 68.5  
## [505] 396.0 139.5 364.0 600.0 62.5 197.0 163.5 339.5 163.5 339.5 163.5 339.5  
## [517] 139.5 560.0 197.0 331.5 522.0 31.5 339.5 560.0 692.5 764.0 116.5 252.5  
## [529] 89.0 303.5 757.0 252.5 560.0 635.0 89.0 252.5 472.0 560.0 472.0 422.0  
## [541] 600.0 522.0 280.0 652.0 582.5 303.5 560.0 197.0 472.0 364.0 48.5 139.5  
## [553] 522.0 139.5 692.5 387.5 560.0 753.0 422.0 721.5 522.0 560.0 784.5 684.5  
## [565] 773.0 139.5 364.0 331.5 543.0 89.0 303.5 89.0 303.5 197.0 422.0 635.0  
## [577] 89.0 197.0 472.0 197.0 339.5 197.0 364.0 560.0 197.0 422.0 303.5 139.5  
## [589] 692.5 139.5 422.0 197.0 422.0 522.0 197.0 303.5 617.5 771.0 422.0 635.0  
## [601] 721.5 89.0 422.0 522.0 252.5 472.0 252.5 303.5 600.0 303.5 422.0 600.0  
## [613] 89.0 522.0 197.0 560.0 89.0 546.0 197.0 303.5 600.0 197.0 522.0 422.0  
## [625] 667.0 635.0 197.0 472.0 472.0 692.5 382.0 714.0 197.0 422.0 600.0 252.5  
## [637] 364.0 758.0 600.0 452.5 522.0 422.0 667.0 739.0 600.0 600.0 600.0 600.0  
## [649] 635.0 364.0 635.0 747.5 89.0 276.5 452.5 89.0 226.5 387.5 66.0 491.0  
## [661] 116.5 252.5 448.0 89.0 303.5 197.0 276.5 452.5 68.5 387.5 393.0 163.5  
## [673] 331.5 331.5 496.0 303.5 236.5 487.0 667.0 788.0 197.0 303.5 452.5 382.0  
## [685] 575.0 232.5 579.5 387.5 721.5 303.5 600.0 331.5 579.5 33.0 226.5 491.0  
## [697] 732.0 197.0 452.5 364.0 472.0 271.0 788.0 48.5 232.5 422.0 617.5 163.5  
## [709] 487.0 422.0 747.5 560.0 797.0 48.5 522.0 635.0 635.0 746.0 709.0 303.5  
## [721] 739.0 252.5 472.0 472.0 89.0 197.0 600.0 236.5 396.0 458.0 21.5 197.0  
## [733] 472.0 21.5 303.5 139.5 635.0 600.0 271.0 491.0 422.0 89.0 303.5 89.0  
## [745] 472.0 764.0 331.5 791.0 422.0 667.0 226.5 619.0 48.5 600.0 252.5 522.0  
## [757] 89.0 303.5 197.0 522.0 66.0 163.5 651.0 600.0 522.0 600.0 89.0 780.5  
## [769] 522.0 709.0 764.0 635.0 635.0 303.5 364.0 775.0 339.5 522.0 422.0 560.0  
## [781] 667.0 364.0 600.0 753.0 560.0 472.0 721.5 721.5 30.0 771.0 701.5 582.5  
## [793] 156.5 777.0 62.5 448.0 684.5 771.0 232.5 682.0 721.5

#part 5

nrow(id)

## [1] 801

ncol(id)

## [1] 41

str(id)

## spc\_tbl\_ [801 × 41] (S3: spec\_tbl\_df/tbl\_df/tbl/data.frame)  
## $ abilities : chr [1:801] "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Overgrow', 'Chlorophyll']" "['Blaze', 'Solar Power']" ...  
## $ against\_bug : num [1:801] 1 1 1 0.5 0.5 0.25 1 1 1 1 ...  
## $ against\_dark : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_dragon : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_electric : num [1:801] 0.5 0.5 0.5 1 1 2 2 2 2 1 ...  
## $ against\_fairy : num [1:801] 0.5 0.5 0.5 0.5 0.5 0.5 1 1 1 1 ...  
## $ against\_fight : num [1:801] 0.5 0.5 0.5 1 1 0.5 1 1 1 0.5 ...  
## $ against\_fire : num [1:801] 2 2 2 0.5 0.5 0.5 0.5 0.5 0.5 2 ...  
## $ against\_flying : num [1:801] 2 2 2 1 1 1 1 1 1 2 ...  
## $ against\_ghost : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_grass : num [1:801] 0.25 0.25 0.25 0.5 0.5 0.25 2 2 2 0.5 ...  
## $ against\_ground : num [1:801] 1 1 1 2 2 0 1 1 1 0.5 ...  
## $ against\_ice : num [1:801] 2 2 2 0.5 0.5 1 0.5 0.5 0.5 1 ...  
## $ against\_normal : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_poison : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ against\_psychic : num [1:801] 2 2 2 1 1 1 1 1 1 1 ...  
## $ against\_rock : num [1:801] 1 1 1 2 2 4 1 1 1 2 ...  
## $ against\_steel : num [1:801] 1 1 1 0.5 0.5 0.5 0.5 0.5 0.5 1 ...  
## $ against\_water : num [1:801] 0.5 0.5 0.5 2 2 2 0.5 0.5 0.5 1 ...  
## $ attack : num [1:801] 49 62 100 52 64 104 48 63 103 30 ...  
## $ base\_egg\_steps : num [1:801] 5120 5120 5120 5120 5120 5120 5120 5120 5120 3840 ...  
## $ base\_happiness : num [1:801] 70 70 70 70 70 70 70 70 70 70 ...  
## $ base\_total : num [1:801] 318 405 625 309 405 634 314 405 630 195 ...  
## $ capture\_rate : chr [1:801] "45" "45" "45" "45" ...  
## $ classfication : chr [1:801] "Seed Pokémon" "Seed Pokémon" "Seed Pokémon" "Lizard Pokémon" ...  
## $ defense : num [1:801] 49 63 123 43 58 78 65 80 120 35 ...  
## $ experience\_growth: num [1:801] 1059860 1059860 1059860 1059860 1059860 ...  
## $ height\_m : num [1:801] 0.7 1 2 0.6 1.1 1.7 0.5 1 1.6 0.3 ...  
## $ hp : num [1:801] 45 60 80 39 58 78 44 59 79 45 ...  
## $ japanese\_name : chr [1:801] "Fushigidaneフシギダネ" "Fushigisouフシギソウ" "Fushigibanaフシギバナ" "Hitokageヒトカゲ" ...  
## $ name : chr [1:801] "Bulbasaur" "Ivysaur" "Venusaur" "Charmander" ...  
## $ percentage\_male : num [1:801] 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 88.1 50 ...  
## $ pokedex\_number : num [1:801] 1 2 3 4 5 6 7 8 9 10 ...  
## $ sp\_attack : num [1:801] 65 80 122 60 80 159 50 65 135 20 ...  
## $ sp\_defense : num [1:801] 65 80 120 50 65 115 64 80 115 20 ...  
## $ speed : num [1:801] 45 60 80 65 80 100 43 58 78 45 ...  
## $ type1 : chr [1:801] "grass" "grass" "grass" "fire" ...  
## $ type2 : chr [1:801] "poison" "poison" "poison" NA ...  
## $ weight\_kg : num [1:801] 6.9 13 100 8.5 19 90.5 9 22.5 85.5 2.9 ...  
## $ generation : num [1:801] 1 1 1 1 1 1 1 1 1 1 ...  
## $ is\_legendary : num [1:801] 0 0 0 0 0 0 0 0 0 0 ...  
## - attr(\*, "spec")=  
## .. cols(  
## .. abilities = col\_character(),  
## .. against\_bug = col\_double(),  
## .. against\_dark = col\_double(),  
## .. against\_dragon = col\_double(),  
## .. against\_electric = col\_double(),  
## .. against\_fairy = col\_double(),  
## .. against\_fight = col\_double(),  
## .. against\_fire = col\_double(),  
## .. against\_flying = col\_double(),  
## .. against\_ghost = col\_double(),  
## .. against\_grass = col\_double(),  
## .. against\_ground = col\_double(),  
## .. against\_ice = col\_double(),  
## .. against\_normal = col\_double(),  
## .. against\_poison = col\_double(),  
## .. against\_psychic = col\_double(),  
## .. against\_rock = col\_double(),  
## .. against\_steel = col\_double(),  
## .. against\_water = col\_double(),  
## .. attack = col\_double(),  
## .. base\_egg\_steps = col\_double(),  
## .. base\_happiness = col\_double(),  
## .. base\_total = col\_double(),  
## .. capture\_rate = col\_character(),  
## .. classfication = col\_character(),  
## .. defense = col\_double(),  
## .. experience\_growth = col\_double(),  
## .. height\_m = col\_double(),  
## .. hp = col\_double(),  
## .. japanese\_name = col\_character(),  
## .. name = col\_character(),  
## .. percentage\_male = col\_double(),  
## .. pokedex\_number = col\_double(),  
## .. sp\_attack = col\_double(),  
## .. sp\_defense = col\_double(),  
## .. speed = col\_double(),  
## .. type1 = col\_character(),  
## .. type2 = col\_character(),  
## .. weight\_kg = col\_double(),  
## .. generation = col\_double(),  
## .. is\_legendary = col\_double()  
## .. )  
## - attr(\*, "problems")=<externalptr>

grep("ab",id$classfication)

## [1] 80 98 184 427 428 503 740

grepl("hi",id[3,])

## [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  
## [13] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE  
## [25] FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE  
## [37] FALSE FALSE FALSE FALSE FALSE

toupper(id[4,13])

## [1] "0.5"

tolower(id[4,13])

## [1] "0.5"

substring(id[5,12],0,30)

## [1] "2"