Gotta Get to Know 'em All!

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IST 687, SPRING

Quick Look

803 Pokémon as focus

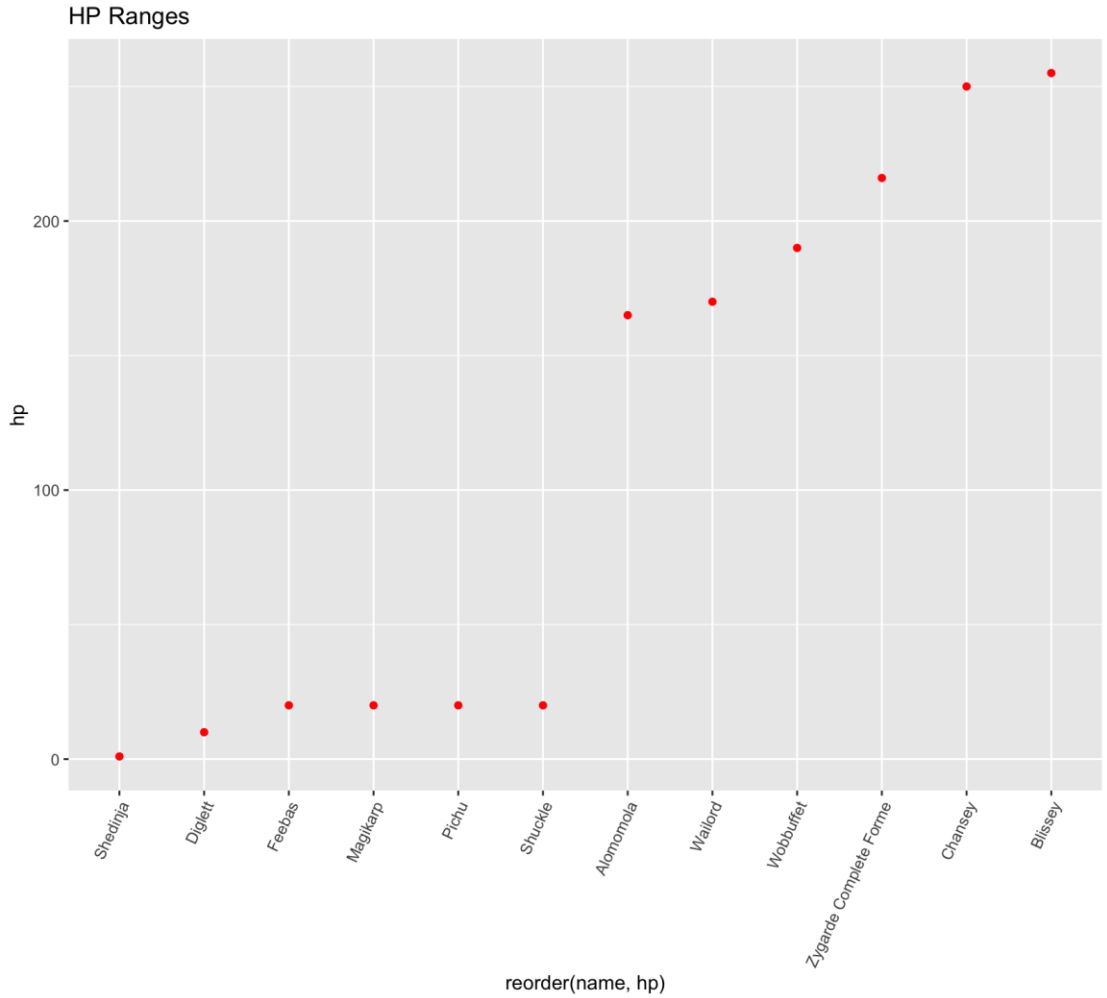
Mainly generations 1-6

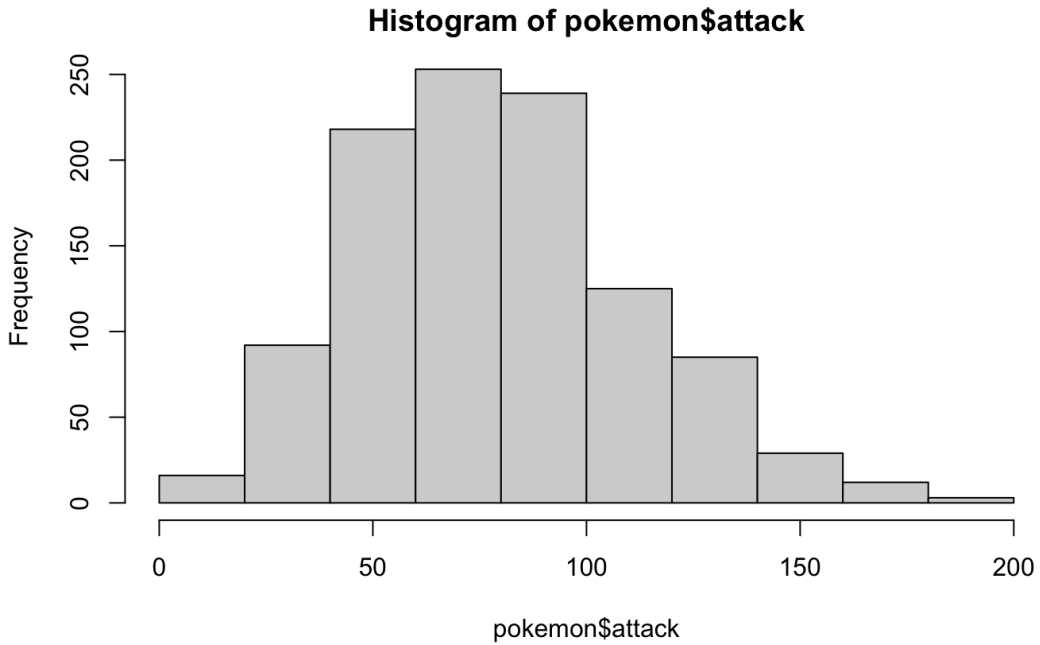
6 stats examined: HP, Attack, Defense, Special Attack, Special Defense, and Speed

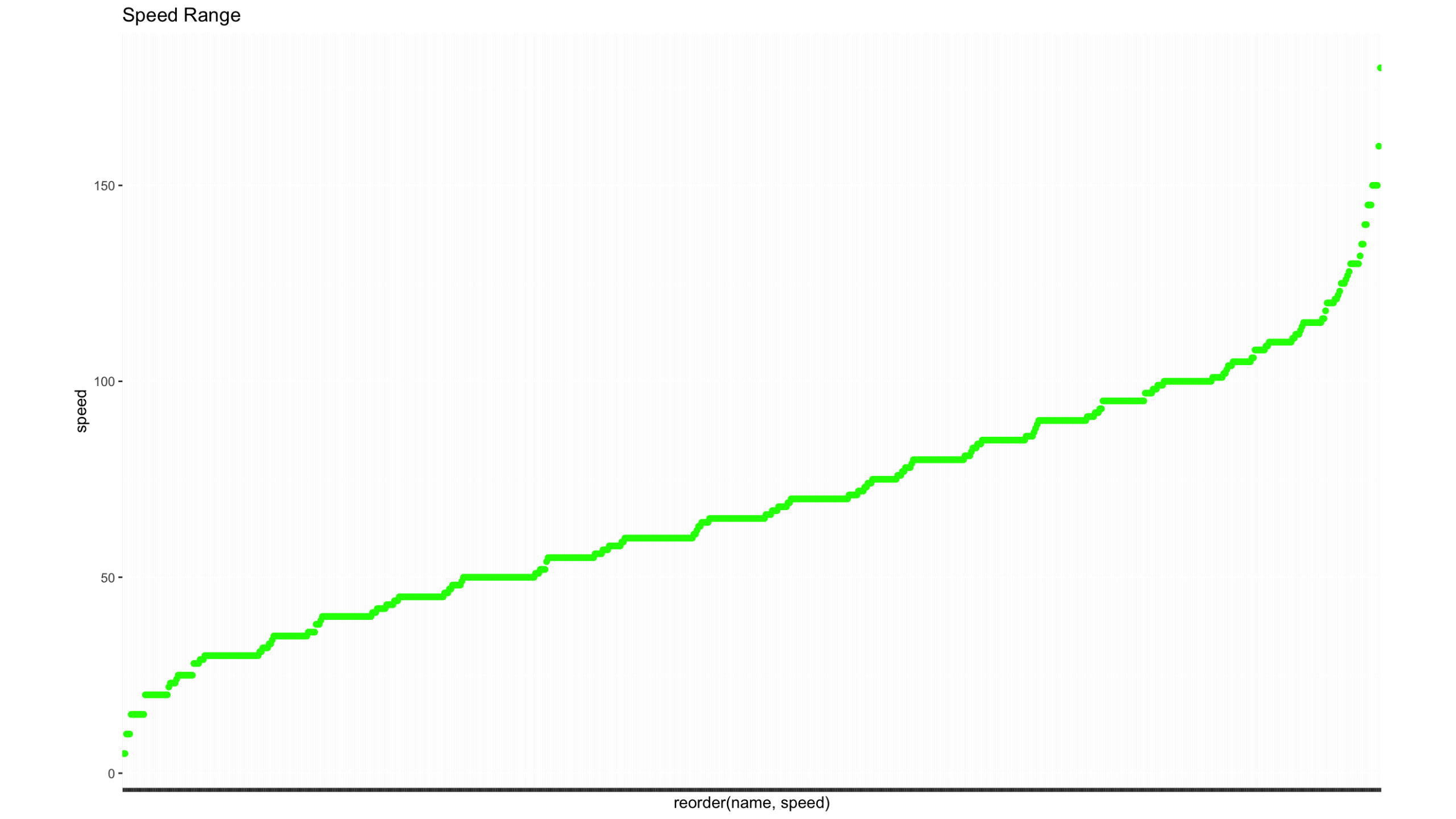
Randomforest used

SCATTERPLOTS AND HISTOGRAMS

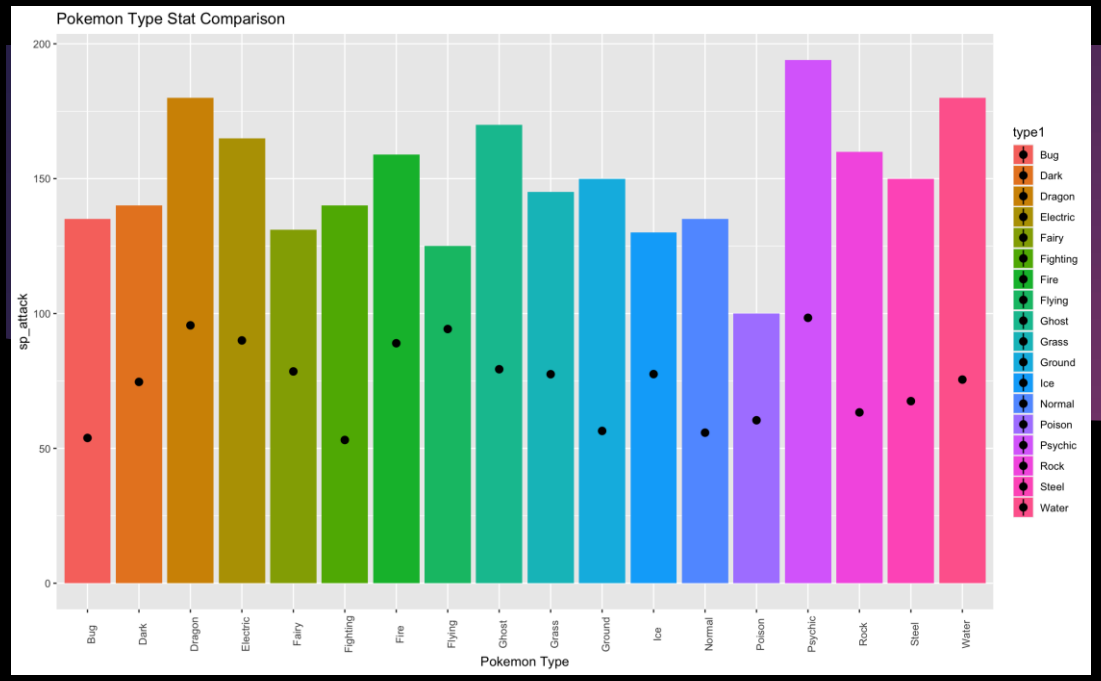
Pokemon Range by Name

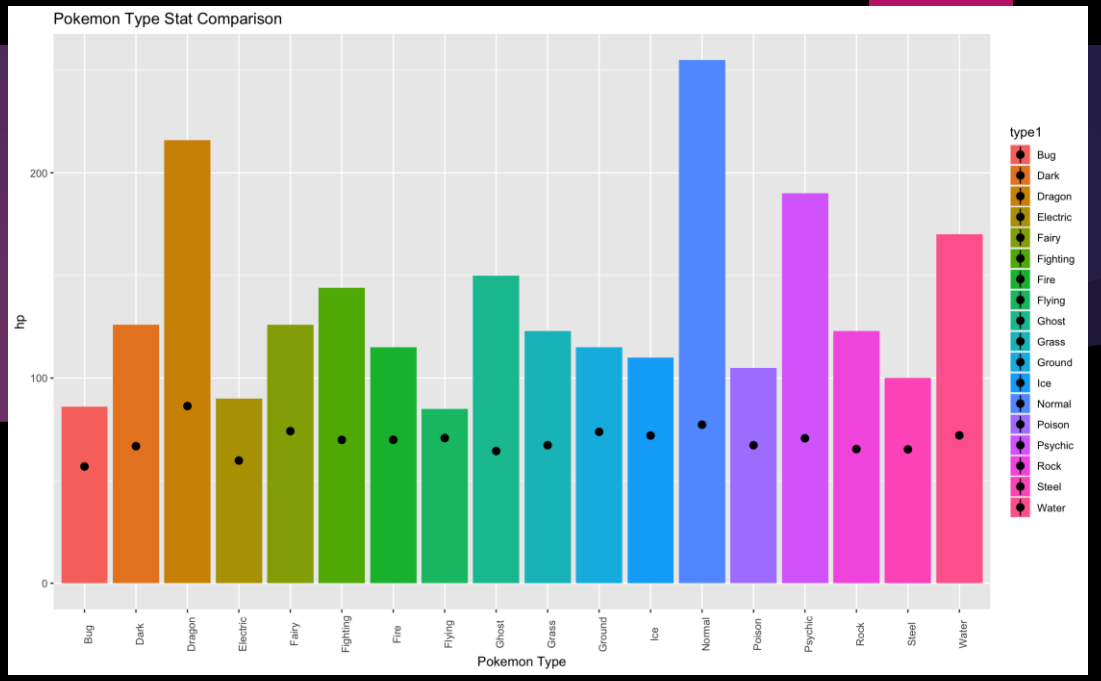

HP Ranges
hp
200
100
0
Shedinja
Diglett
Feebas
Magikarp
Pichu
Shuckle
Alomomola
Wailord
Wobbuffet
Zygarde Complete Forme
Chansey
Blissey
reorder(name, hp)

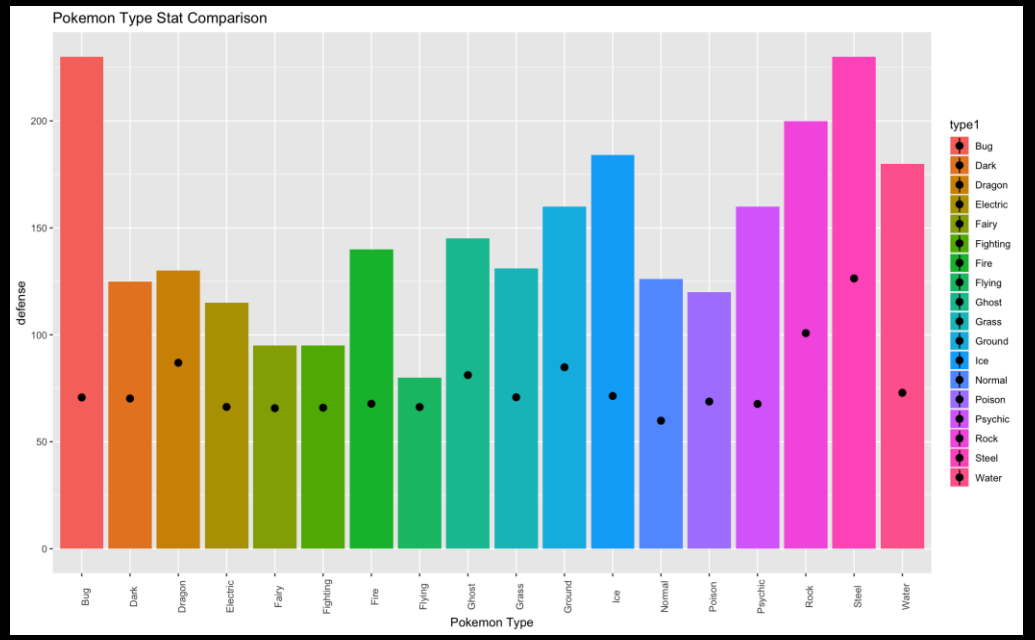

Histogram of pokemon$attack
Frequency
0
50
100
150
200
250
0
50
100
150
200
pokemon$attack


Speed Range
150
100
50
0
speed
reorder(name, speed)

Type Distribution and Average by Type

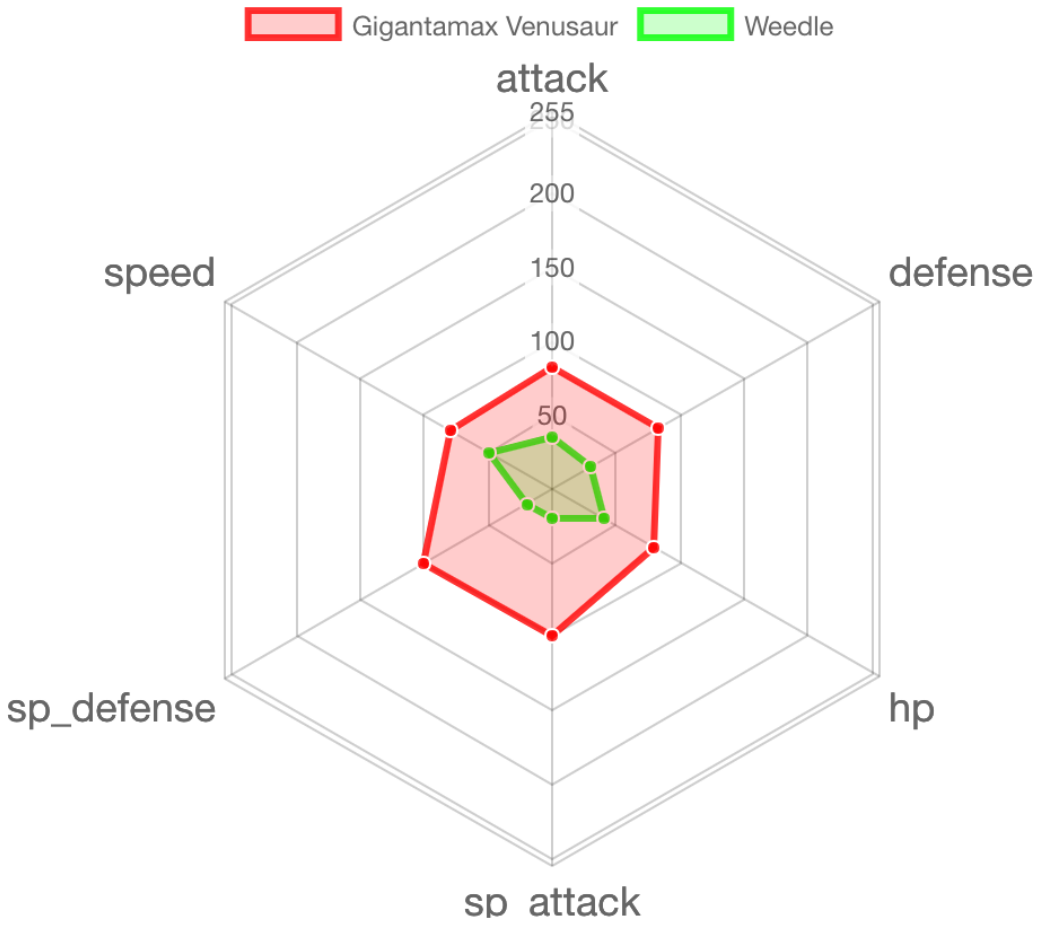

Pokemon Type Stat Comparison
sp_attack
200
150
100
50
0
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water
Pokemon Type
type1
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water


Pokemon Type Stat Comparison
hp
200
100
0
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water
Pokemon Type
type1
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water


Pokemon Type Stat Comparison
defense
200
150
100
50
0
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water
Pokemon Type
type1
Bug
Dark
Dragon
Electric
Fairy
Fighting
Fire
Flying
Ghost
Grass
Ground
Ice
Normal
Poison
Psychic
Rock
Steel
Water

Individual Comparisons

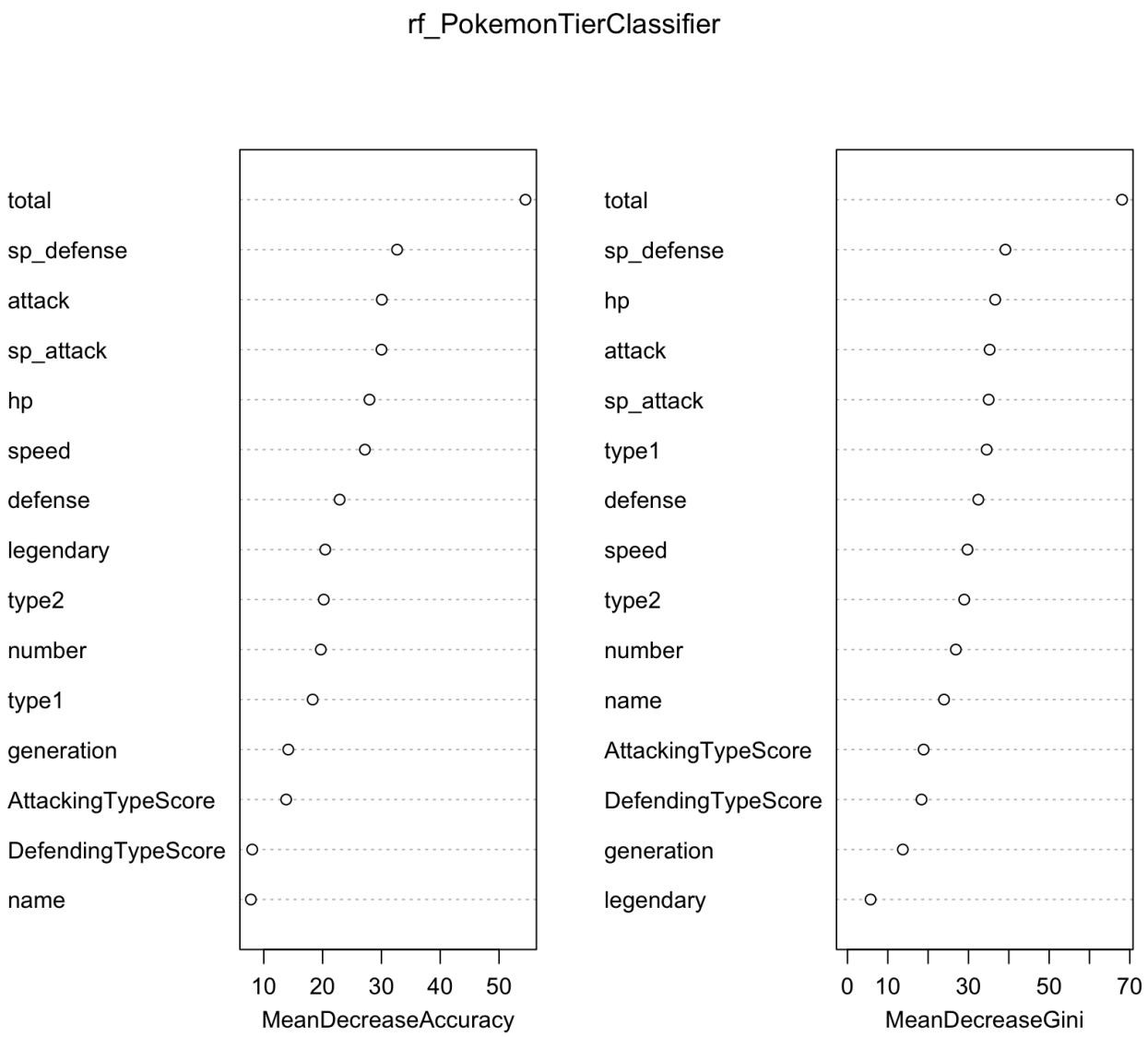
WHAT JUST LOOKS BETTER?

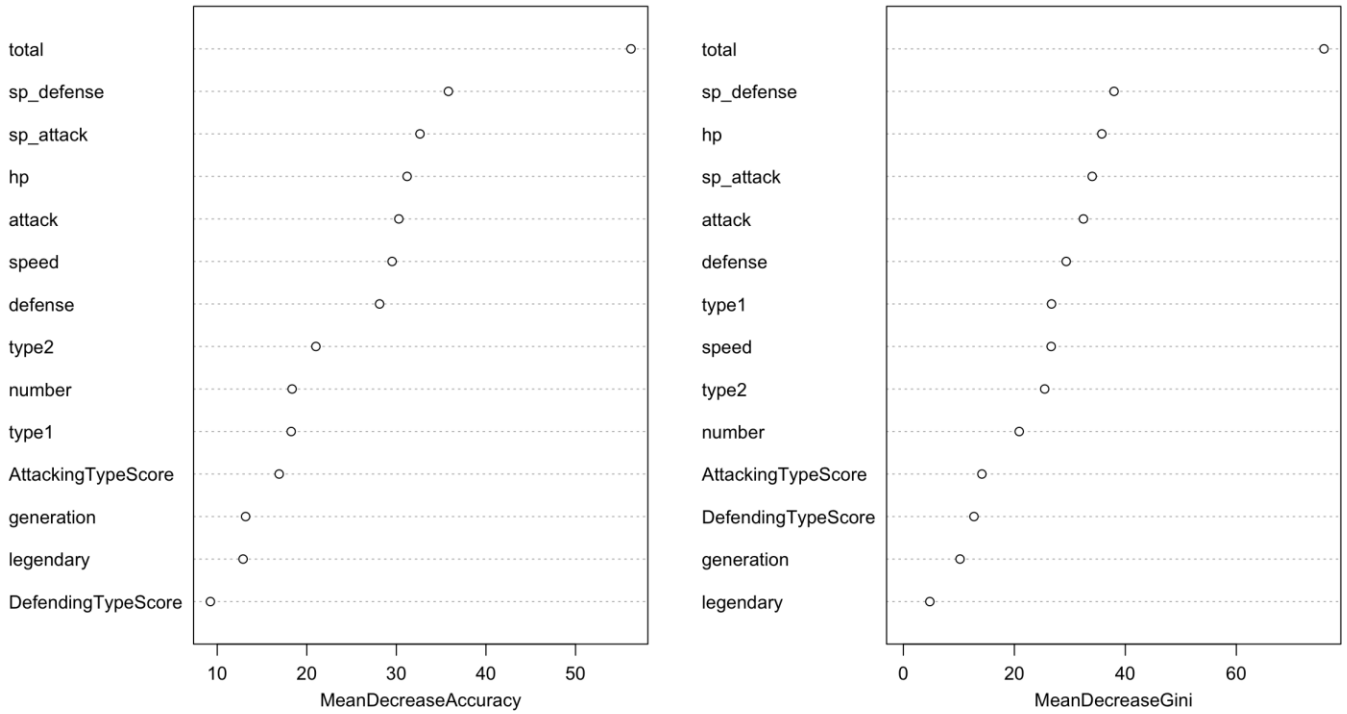

Gigantamax Venusaur
Weedle
attack
255
200
150
100
50
defense
hp
sp_attack
sp_defense
speed

Randomforest at Work

```
Call:
 randomForest(formula = tier ~ ., data = train, ntree = 1000,      mtry = 2, importance = TRUE)
               Type of random forest: classification
                     Number of trees: 1000
No. of variables tried at each split: 2

        OOB estimate of  error rate: 38.31%
Confusion matrix:
   1  2  3 4 5  6   7 class.error
1 13  4  1 0 0  2   2   0.4090909
2  1 16 13 5 0  8   7   0.6800000
3  1 12 19 3 4 17   6   0.6935484
4  0  3 10 3 3 19   0   0.9210526
5  0  0  9 3 1 31   5   0.9795918
6  1  0  5 1 4 86  29   0.3174603
7  2  1  0 0 0 19 234   0.0859375
```


rf_PokemonTierClassifier
total
sp_defense
attack
sp_attack
hp
speed
defense
legendary
type2
number
type1
generation
AttackingTypeScore
DefendingTypeScore
name
10
20
30
40
50
MeanDecreaseAccuracy
total
sp_defense
hp
attack
sp_attack
type1
defense
speed
type2
number
name
AttackingTypeScore
DefendingTypeScore
generation
legendary
0
10
30
50
70
MeanDecreaseGini




```
               Type of random forest: classification
                     Number of trees: 1000
No. of variables tried at each split: 2

        OOB estimate of  error rate: 20.9%
Confusion matrix:
            Bottom Tier Mid Tier Top Tier class.error
Bottom Tier         224       20       12   0.1250000
Mid Tier             24      168       21   0.2112676
Top Tier              3       46       85   0.3656716
```

Team Rocket's Blasting Off Again!