A Statistical Analysis of Gen 6 Pokémon and Their Competitive Viability

STA210 Final Project

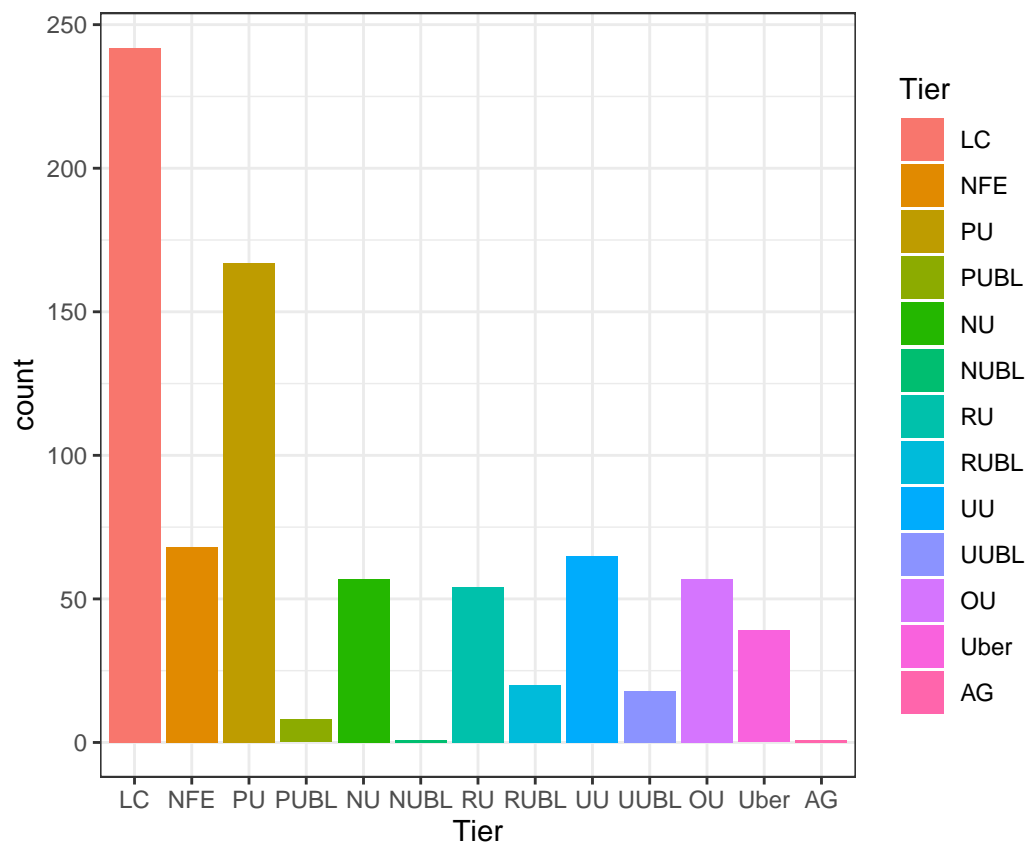Jason Guan

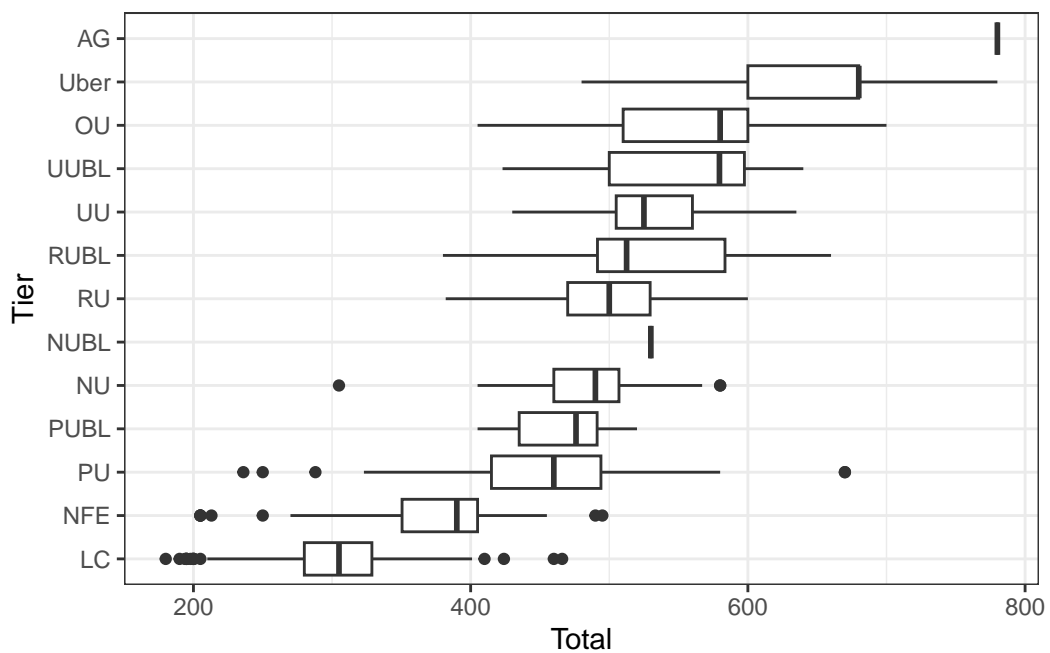**Introduction**

[put intro here]
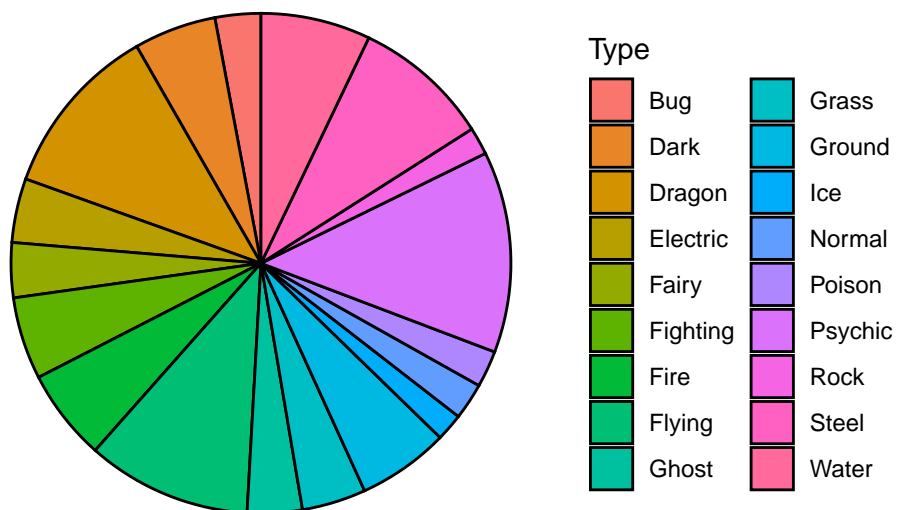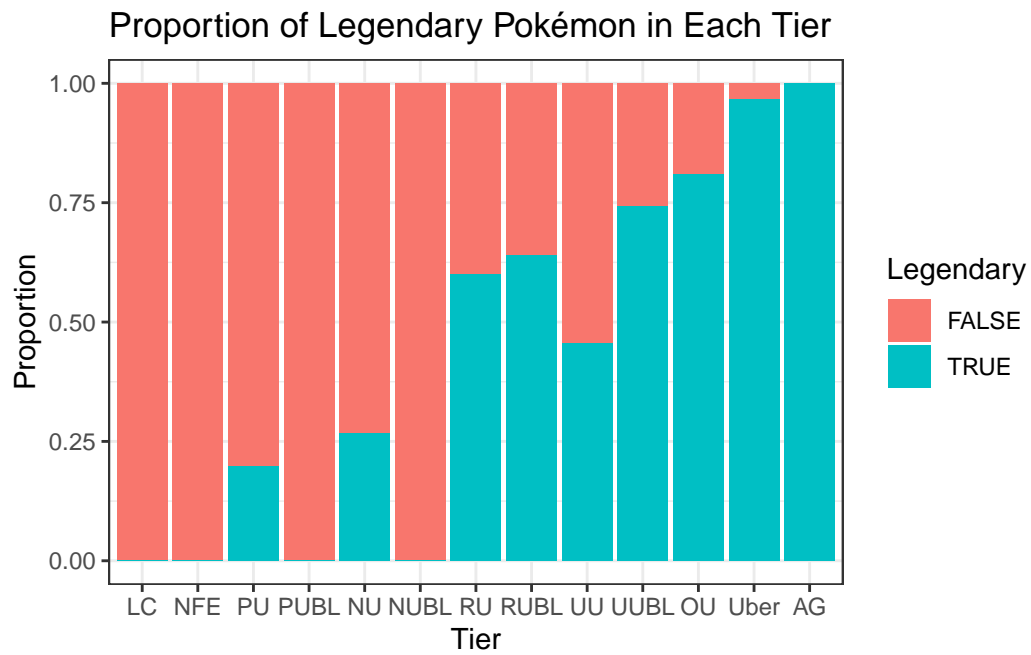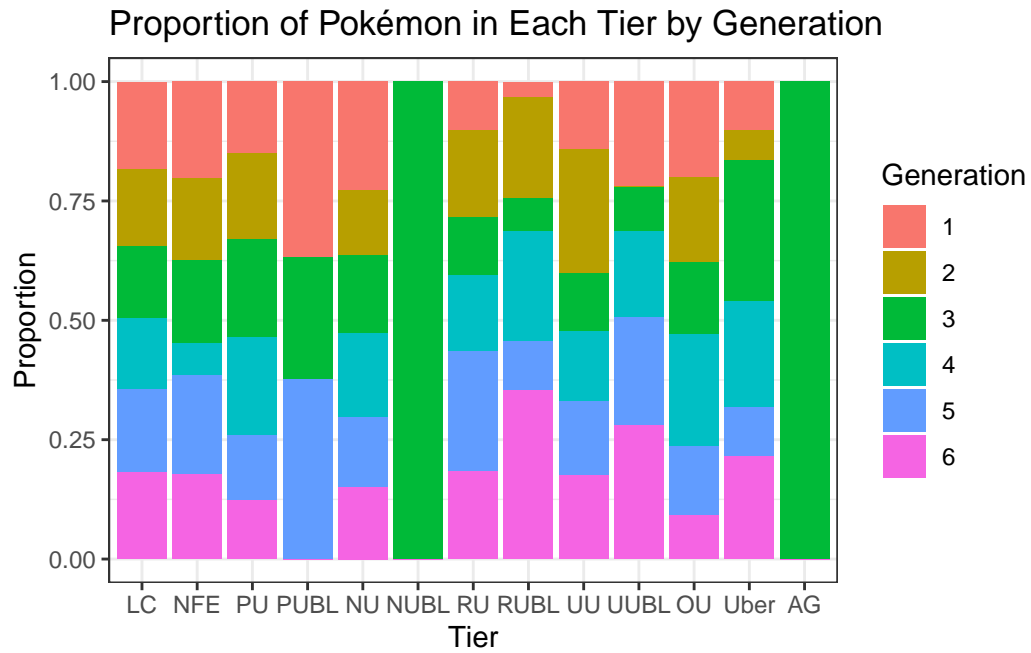
Data

[talk about data here]

Exploratory Data Analysis

Distribution of Pokémon Types in OU and Above

Proportion of Pokémon in Each Tier by Generation

Proportion of Legendary Pokémon in Each Tier

Methodology

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Call:
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```
polr(formula = Tier ~ HP + Attack + Defense + Sp..Atk + Sp..Def +
    Speed + Normal + Fire + Water + Electric + Grass + Ice +
    Fighting + Poison + Ground + Flying + Psychic + Bug + Rock +
    Ghost + Dragon + Dark + Steel + Fairy, data = smogon)

Coefficients:
            Value Std. Error t value
HP        0.04436    0.003933 11.2789
Attack    0.02704    0.003422  7.9010
Defense   0.03564    0.003678  9.6889
Sp..Atk   0.03682    0.003538 10.4072
Sp..Def   0.02316    0.003816  6.0680
Speed     0.04523    0.003588 12.6054
Normal    0.60057    0.310673  1.9331
Fire     -0.20579    0.320367 -0.6423
Water     0.45967    0.265246  1.7330
Electric  0.45807    0.348529  1.3143
Grass    -0.16877    0.274554 -0.6147
Ice      -0.38934    0.394869 -0.9860
Fighting  1.87135    0.335771  5.5733
Poison    1.16525    0.300012  3.8840
Ground    1.01491    0.291224  3.4850
Flying    0.66525    0.237961  2.7956
Psychic   0.47004    0.292720  1.6058
Bug       1.57115    0.302486  5.1941
Rock     -0.77990    0.323092 -2.4139
Ghost     1.16304    0.359641  3.2339
Dragon    0.10198    0.337720  0.3020
Dark      1.41955    0.317607  4.4695
Steel     1.46024    0.354207  4.1225
Fairy     2.08832    0.387508  5.3891

Intercepts:
         Value   Std. Error t value
LC|NFE   13.4681 0.6184     21.7786
NFE|PU   14.9075 0.6686     22.2951
PU|PUBL  17.6998 0.7655     23.1225
PUBL|NU  17.8163 0.7683     23.1904
NU|NUBL  18.6841 0.7906     23.6334
NUBL|RU  18.7001 0.7910     23.6413
RU|RUBL  19.6130 0.8168     24.0124
RUBL|UU  19.9768 0.8271     24.1529
UU|UUBL  21.3030 0.8665     24.5850
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UUBL|OU 21.7338  0.8781     24.7512
OU|Uber 23.8090  0.9501     25.0589
Uber|AG 29.9885  1.5871     18.8950


Residual Deviance: 1967.881
AIC: 2039.881


       HP     Attack    Defense   Sp..Atk    Sp..Def     Speed     Normal       Fire
1.0453633 1.0274061 1.0362805 1.0375060 1.0234283 1.0462710 1.8231593 0.8140069
    Water   Electric      Grass        Ice   Fighting     Poison     Ground     Flying
1.5835463 1.5810251 0.8446999 0.6775060 6.4970903 3.2067255 2.7591154 1.9449707
  Psychic        Bug       Rock      Ghost     Dragon       Dark      Steel      Fairy
1.6000600 4.8121987 0.4584517 3.1996600 1.1073574 4.1352681 4.3069724 8.0713259



Call:
glm(formula = Banned ~ Total + Mega + Legendary, family = "binomial",
    data = smogon)

Coefficients:
              Estimate Std. Error z value Pr(>|z|)
(Intercept)  -15.564943   2.374760  -6.554 5.59e-11 ***
Total          0.022243   0.004413   5.041 4.64e-07 ***
MegaTRUE      -0.209495   0.745531  -0.281   0.7787
LegendaryTRUE  1.171466   0.654118   1.791   0.0733 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

    Null deviance: 317.32  on 796  degrees of freedom
Residual deviance: 149.56  on 793  degrees of freedom
AIC: 157.56

Number of Fisher Scoring iterations: 8
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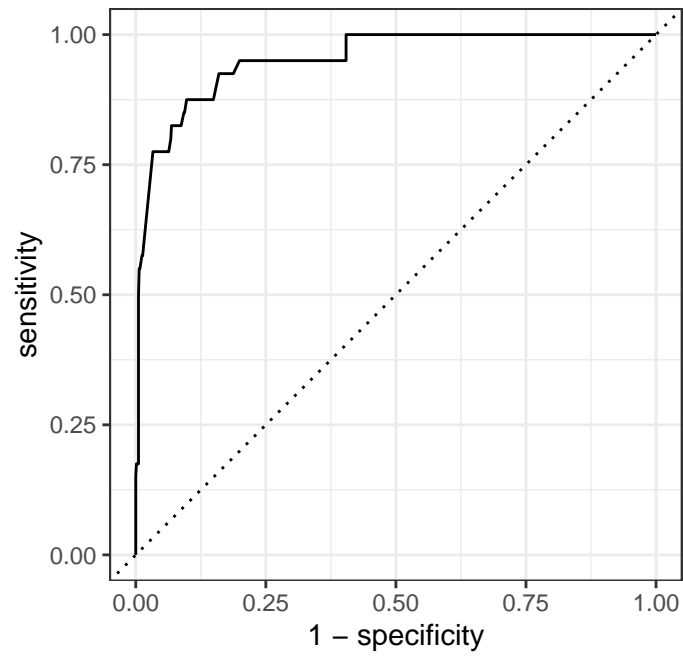
```
# A tibble: 1 x 3
  .metric .estimator .estimate
  <chr>   <chr>          <dbl>
1 roc_auc binary         0.952
```