Model

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### Model

We made a logistic regression where we find how choosing a particular characters affects your probability of winning

#Logistic Regression Model

m1.logit <- glm(data=win.test, result~., family=binomial)  
summary(m1.logit)

##   
## Call:  
## glm(formula = result ~ ., family = binomial, data = win.test)  
##   
## Deviance Residuals:   
## Min 1Q Median 3Q Max   
## -1.8588 -1.1896 0.8476 1.0947 1.7920   
##   
## Coefficients: (3 not defined because of singularities)  
## Estimate Std. Error z value Pr(>|z|)   
## (Intercept) -4.032e-01 1.062e+00 -0.380 0.70418   
## region -5.058e-05 5.967e-04 -0.085 0.93245   
## mode 6.346e-03 8.204e-03 0.773 0.43926   
## type -2.011e-02 4.344e-02 -0.463 0.64345   
## antimage -3.910e-02 2.247e-01 -0.174 0.86187   
## axe 1.587e-01 2.204e-01 0.720 0.47159   
## bane 2.526e-01 2.687e-01 0.940 0.34722   
## bloodseeker 4.458e-02 2.273e-01 0.196 0.84450   
## crystal\_maiden 3.324e-01 2.287e-01 1.454 0.14602   
## drow\_ranger 1.453e-01 2.196e-01 0.662 0.50820   
## earthshaker 1.022e-01 2.270e-01 0.450 0.65254   
## juggernaut 1.679e-01 2.203e-01 0.762 0.44604   
## mirana 3.700e-01 2.175e-01 1.701 0.08892 .   
## morphling 2.687e-01 2.304e-01 1.166 0.24347   
## nevermore -1.035e-01 2.286e-01 -0.453 0.65082   
## phantom\_lancer -2.663e-01 2.364e-01 -1.126 0.25999   
## puck -2.494e-01 2.452e-01 -1.017 0.30899   
## pudge 2.856e-01 2.188e-01 1.306 0.19171   
## razor 5.863e-03 2.528e-01 0.023 0.98150   
## sand\_king 2.446e-02 2.270e-01 0.108 0.91419   
## storm\_spirit 2.213e-02 2.259e-01 0.098 0.92196   
## sven 3.080e-01 2.229e-01 1.382 0.16688   
## tiny -1.203e-01 2.349e-01 -0.512 0.60856   
## vengefulspirit 1.878e-01 2.343e-01 0.802 0.42283   
## windrunner -2.977e-02 2.236e-01 -0.133 0.89405   
## zuus 2.578e-01 2.283e-01 1.129 0.25893   
## kunkka -6.402e-03 2.293e-01 -0.028 0.97773   
## monkey\_king NA NA NA NA   
## lina -2.608e-01 2.360e-01 -1.105 0.26909   
## lion 1.001e-01 2.278e-01 0.440 0.66017   
## shadow\_shaman 2.578e-01 2.418e-01 1.066 0.28636   
## slardar 8.019e-02 2.279e-01 0.352 0.72491   
## tidehunter 2.234e-01 2.414e-01 0.925 0.35475   
## witch\_doctor 2.877e-01 2.384e-01 1.207 0.22738   
## lich 4.166e-01 2.515e-01 1.656 0.09764 .   
## riki 3.267e-01 2.211e-01 1.478 0.13948   
## enigma 1.683e-01 2.515e-01 0.669 0.50338   
## tinker 1.055e-02 2.264e-01 0.047 0.96285   
## sniper 8.198e-02 2.224e-01 0.369 0.71236   
## necrolyte 3.080e-01 2.289e-01 1.345 0.17854   
## warlock 4.396e-01 2.544e-01 1.728 0.08399 .   
## beastmaster 1.596e-01 2.753e-01 0.580 0.56208   
## queenofpain -2.298e-01 2.369e-01 -0.970 0.33209   
## venomancer 3.481e-02 2.484e-01 0.140 0.88852   
## faceless\_void 2.838e-02 2.238e-01 0.127 0.89911   
## skeleton\_king 2.945e-01 2.282e-01 1.291 0.19683   
## death\_prophet -2.065e-01 2.488e-01 -0.830 0.40653   
## phantom\_assassin 1.527e-01 2.183e-01 0.700 0.48423   
## pugna 1.817e-01 2.666e-01 0.682 0.49540   
## templar\_assassin -5.522e-02 2.479e-01 -0.223 0.82371   
## viper 1.690e-01 2.380e-01 0.710 0.47767   
## luna 2.374e-01 2.339e-01 1.015 0.31006   
## dragon\_knight 1.179e-01 2.447e-01 0.482 0.63007   
## dazzle 8.897e-02 2.405e-01 0.370 0.71147   
## rattletrap 2.457e-01 2.556e-01 0.961 0.33637   
## leshrac -2.962e-02 2.697e-01 -0.110 0.91256   
## furion -2.689e-01 2.354e-01 -1.142 0.25334   
## life\_stealer 1.978e-01 2.277e-01 0.869 0.38500   
## dark\_seer 1.314e-01 2.570e-01 0.511 0.60911   
## clinkz -8.997e-02 2.340e-01 -0.384 0.70064   
## omniknight 6.979e-01 2.339e-01 2.984 0.00284 \*\*  
## enchantress -1.002e-01 2.710e-01 -0.370 0.71156   
## huskar 6.202e-02 2.260e-01 0.274 0.78371   
## night\_stalker 8.227e-02 2.506e-01 0.328 0.74265   
## broodmother 4.477e-02 2.958e-01 0.151 0.87971   
## bounty\_hunter 1.230e-02 2.258e-01 0.054 0.95655   
## weaver 2.850e-03 2.322e-01 0.012 0.99021   
## jakiro 2.279e-01 2.564e-01 0.889 0.37420   
## batrider -1.371e-01 2.574e-01 -0.533 0.59428   
## chen 3.504e-01 3.621e-01 0.968 0.33316   
## spectre 5.082e-01 2.373e-01 2.142 0.03223 \*   
## ancient\_apparition 2.486e-01 2.392e-01 1.039 0.29861   
## doom\_bringer -1.949e-01 2.629e-01 -0.741 0.45842   
## ursa 4.348e-01 2.276e-01 1.911 0.05602 .   
## spirit\_breaker 6.071e-02 2.286e-01 0.266 0.79055   
## gyrocopter -2.107e-01 2.546e-01 -0.828 0.40790   
## alchemist -6.744e-02 2.279e-01 -0.296 0.76730   
## invoker -5.916e-02 2.190e-01 -0.270 0.78705   
## silencer 2.212e-01 2.375e-01 0.931 0.35174   
## obsidian\_destroyer 6.163e-02 2.506e-01 0.246 0.80577   
## lycan -1.525e-01 2.735e-01 -0.558 0.57704   
## brewmaster -1.713e-01 2.965e-01 -0.578 0.56336   
## shadow\_demon 1.024e-01 2.440e-01 0.420 0.67483   
## lone\_druid -4.303e-01 3.210e-01 -1.341 0.17997   
## chaos\_knight 7.818e-02 2.499e-01 0.313 0.75442   
## meepo -2.695e-01 2.582e-01 -1.044 0.29667   
## treant 5.050e-01 2.748e-01 1.838 0.06610 .   
## ogre\_magi 4.327e-01 2.303e-01 1.879 0.06023 .   
## undying 8.663e-02 2.540e-01 0.341 0.73309   
## rubick -1.704e-01 2.346e-01 -0.726 0.46764   
## disruptor 2.225e-01 2.493e-01 0.892 0.37214   
## nyx\_assassin 1.769e-01 2.338e-01 0.757 0.44926   
## naga\_siren -8.605e-02 2.757e-01 -0.312 0.75493   
## keeper\_of\_the\_light 4.078e-02 2.459e-01 0.166 0.86830   
## wisp -2.482e-01 2.982e-01 -0.833 0.40512   
## visage -2.683e-01 3.522e-01 -0.762 0.44623   
## slark -3.183e-02 2.197e-01 -0.145 0.88478   
## medusa 3.032e-01 2.320e-01 1.307 0.19123   
## troll\_warlord 1.159e-01 2.399e-01 0.483 0.62916   
## centaur 5.520e-01 2.519e-01 2.191 0.02843 \*   
## magnataur 1.741e-01 2.411e-01 0.722 0.47017   
## shredder 1.642e-01 2.222e-01 0.739 0.45989   
## bristleback 1.879e-01 2.347e-01 0.801 0.42332   
## tusk -4.094e-01 2.552e-01 -1.604 0.10861   
## skywrath\_mage 7.940e-02 2.476e-01 0.321 0.74842   
## abaddon 4.838e-01 2.584e-01 1.872 0.06116 .   
## elder\_titan 4.137e-01 2.437e-01 1.698 0.08957 .   
## legion\_commander 6.957e-02 2.190e-01 0.318 0.75073   
## techies -7.991e-02 2.521e-01 -0.317 0.75124   
## ember\_spirit -2.662e-01 2.351e-01 -1.132 0.25763   
## earth\_spirit -3.319e-01 2.925e-01 -1.135 0.25644   
## abyssal\_underlord NA NA NA NA   
## terrorblade 2.040e-01 2.469e-01 0.826 0.40866   
## phoenix 2.309e-01 2.504e-01 0.922 0.35636   
## oracle -4.441e-01 2.750e-01 -1.615 0.10632   
## winter\_wyvern -3.339e-01 2.658e-01 -1.256 0.20894   
## arc\_warden NA NA NA NA   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## (Dispersion parameter for binomial family taken to be 1)  
##   
## Null deviance: 14222 on 10293 degrees of freedom  
## Residual deviance: 13801 on 10180 degrees of freedom  
## AIC: 14029  
##   
## Number of Fisher Scoring iterations: 4

# Exponential of Coefficients

exp(m1.logit$coefficients)

## (Intercept) region mode   
## 0.6681983 0.9999494 1.0063658   
## type antimage axe   
## 0.9800915 0.9616558 1.1719600   
## bane bloodseeker crystal\_maiden   
## 1.2873641 1.0455934 1.3943309   
## drow\_ranger earthshaker juggernaut   
## 1.1564116 1.1076134 1.1827602   
## mirana morphling nevermore   
## 1.4477374 1.3083069 0.9017093   
## phantom\_lancer puck pudge   
## 0.7662018 0.7792441 1.3306012   
## razor sand\_king storm\_spirit   
## 1.0058800 1.0247614 1.0223786   
## sven tiny vengefulspirit   
## 1.3607660 0.8866532 1.2066237   
## windrunner zuus kunkka   
## 0.9706648 1.2940369 0.9936185   
## monkey\_king lina lion   
## NA 0.7704619 1.1053344   
## shadow\_shaman slardar tidehunter   
## 1.2940156 1.0834911 1.2503146   
## witch\_doctor lich riki   
## 1.3333987 1.5167552 1.3864082   
## enigma tinker sniper   
## 1.1832582 1.0106020 1.0854319   
## necrolyte warlock beastmaster   
## 1.3606526 1.5521052 1.1730535   
## queenofpain venomancer faceless\_void   
## 0.7947015 1.0354248 1.0287863   
## skeleton\_king death\_prophet phantom\_assassin   
## 1.3424161 0.8134240 1.1649877   
## pugna templar\_assassin viper   
## 1.1992824 0.9462739 1.1841279   
## luna dragon\_knight dazzle   
## 1.2679658 1.1250944 1.0930496   
## rattletrap leshrac furion   
## 1.2785546 0.9708184 0.7642381   
## life\_stealer dark\_seer clinkz   
## 1.2187198 1.1404311 0.9139586   
## omniknight enchantress huskar   
## 2.0094745 0.9046599 1.0639860   
## night\_stalker broodmother bounty\_hunter   
## 1.0857521 1.0457821 1.0123760   
## weaver jakiro batrider   
## 1.0028542 1.2559247 0.8718871   
## chen spectre ancient\_apparition   
## 1.4196448 1.6623665 1.2822468   
## doom\_bringer ursa spirit\_breaker   
## 0.8229182 1.5446905 1.0625873   
## gyrocopter alchemist invoker   
## 0.8099966 0.9347800 0.9425575   
## silencer obsidian\_destroyer lycan   
## 1.2475737 1.0635655 0.8585271   
## brewmaster shadow\_demon lone\_druid   
## 0.8425490 1.1077949 0.6502825   
## chaos\_knight meepo treant   
## 1.0813148 0.7637933 1.6570321   
## ogre\_magi undying rubick   
## 1.5413970 1.0904931 0.8433372   
## disruptor nyx\_assassin naga\_siren   
## 1.2491671 1.1935427 0.9175517   
## keeper\_of\_the\_light wisp visage   
## 1.0416192 0.7801762 0.7646867   
## slark medusa troll\_warlord   
## 0.9686676 1.3541546 1.1228283   
## centaur magnataur shredder   
## 1.7367098 1.1901757 1.1784649   
## bristleback tusk skywrath\_mage   
## 1.2066933 0.6640576 1.0826325   
## abaddon elder\_titan legion\_commander   
## 1.6222896 1.5123650 1.0720440   
## techies ember\_spirit earth\_spirit   
## 0.9231952 0.7662978 0.7175375   
## abyssal\_underlord terrorblade phoenix   
## NA 1.2262938 1.2597516   
## oracle winter\_wyvern arc\_warden   
## 0.6413789 0.7161028 NA