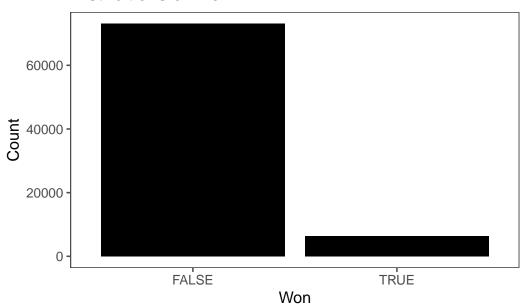
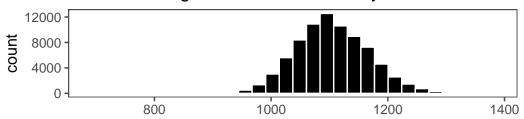
# **EDA**

## Distribitions of Won

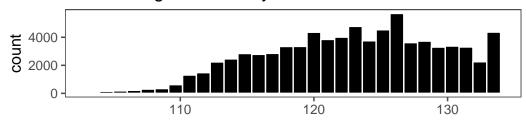


The average number of horses per race is 12.65. On average the chance odds against winning are  $\frac{1-p}{p}=\frac{11.65}{1}$ , so 11.65:1. Even though there is  $\approx 0.079$  chance of winning, with 806 wins in our 10,000 training data we satisfy the one in ten rule.

# Declared Weight of Horse and Jockey in lbs

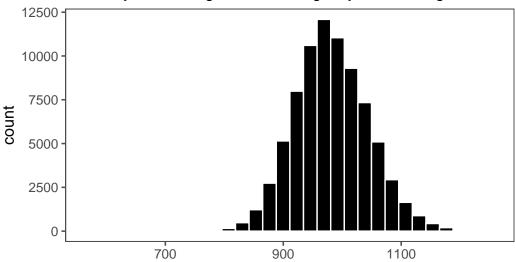


# Actual Weight Carried by Horse in lbs

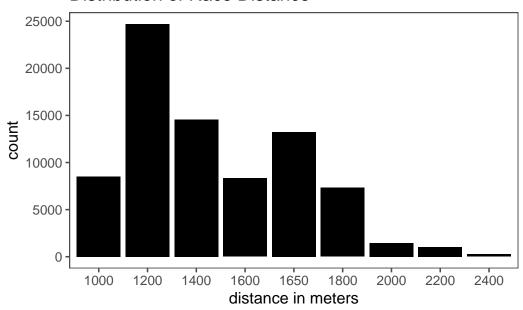


# Weight of Horse

## Found by subtracting declared\_weight by actual\_weight



#### Distribution of Race Distance

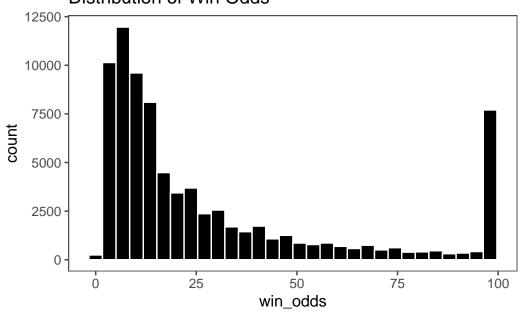


#### Percentiles For Horse Ratings

10% 15% 20% 50% 80% 85% 90% 52 58 60 60 60 65 72

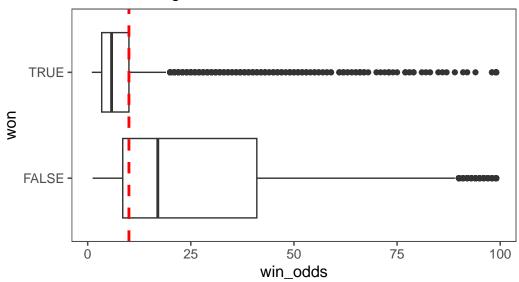
About 60% of horses have a rating of 60

## Distribution of Win Odds

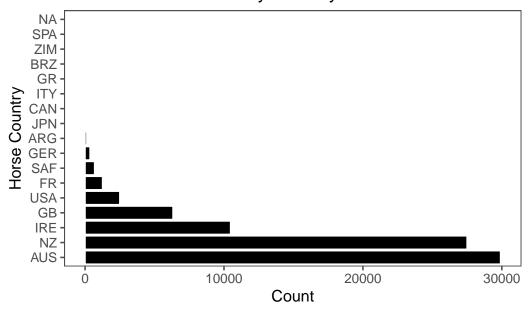


# Distribution of Win Odds per Winning

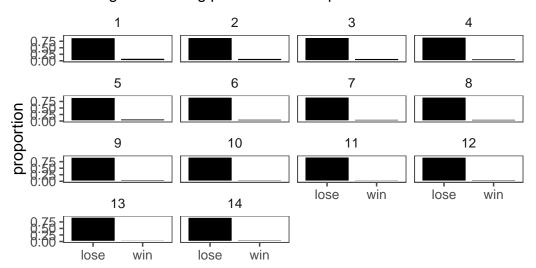
75% of winning horses have win odds of less than 10:1



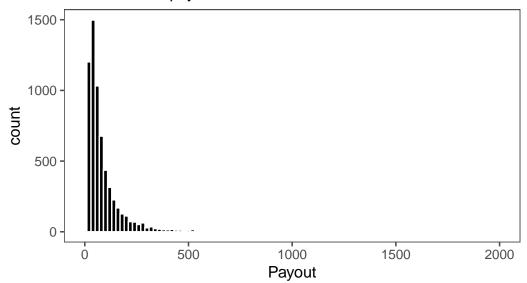
# Distribution of Horses by Country



# Proportion of Wins and Losses per Draw winning and starting position are independent



# Distribution of First Place Dividend The maximum payout was 2687.50



As Win Odds increase by 1, payout increases by 10 Per a SLR model that excludes win odds greater than 98

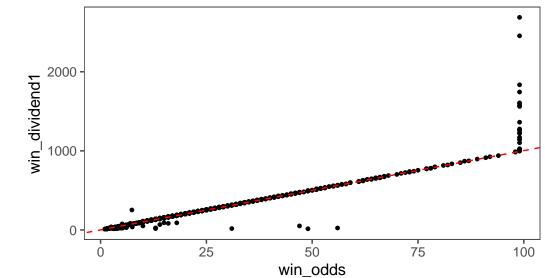


Table 1: Number of Levels per Character Variable

race_id         6348           horse_id         4405           horse_gear         822           jockey_id         186           trainer_id         176           horse_ratings         31           horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2           surface         2	Variable	Number of Levels
horse_gear         822           jockey_id         186           trainer_id         176           horse_ratings         31           horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	race_id	6348
jockey_id         186           trainer_id         176           horse_ratings         31           horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	horse_id	4405
trainer_id         176           horse_ratings         31           horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	horse_gear	822
horse_ratings         31           horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	jockey_id	186
horse_country         17           draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	trainer_id	176
draw         15           position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	horse_ratings	31
position_sec4         15           position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	horse_country	17
position_sec5         15           position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	draw	15
position_sec6         15           place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec4	15
place_combination3         15           horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec5	15
horse_no         14           result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec6	15
result         14           position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	place_combination3	15
position_sec1         14           position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	horse_no	14
position_sec2         14           position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	result	14
position_sec3         14           place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec1	14
place_combination1         14           place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec2	14
place_combination2         14           race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	position_sec3	14
race_no         11           place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	place_combination1	14
place_combination4         11           horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	place_combination2	14
horse_type         10           going         10           race_class         10           distance         9           config         6           venue         2	race_no	11
going         10           race_class         10           distance         9           config         6           venue         2	place_combination4	11
race_class         10           distance         9           config         6           venue         2	horse_type	10
distance 9 config 6 venue 2	going	10
config 6 venue 2	race_class	10
venue 2	distance	9
	config	6
surface 2		2
	surface	2