

WEB SCRAPING PROJECT SANJAY PAMNANI



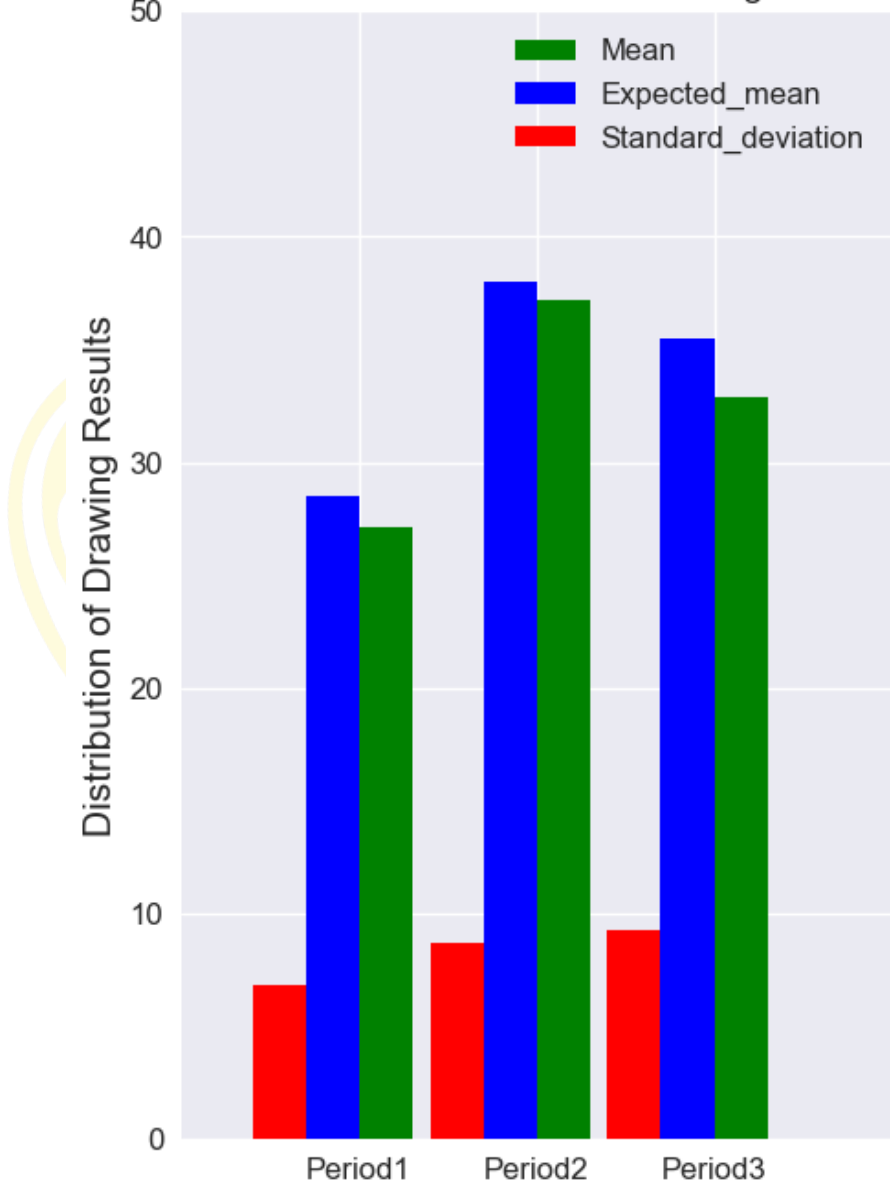
MEGA MILLIONS			MEGAPLIER			
MATCH	PRIZE	ODDS:1in	2x	3x	4x	5x
●●●●●+●	Jackpot	102,579,350	Jackpot	Jackpot	Jackpot	Jackpot
●●●●●	\$1,000,000	12,697,386	\$2,000,000	\$3,000,000	\$4,000,000	\$5,000,000
●●●●●+●	\$10,000	831,081	\$20,000	\$30,000	\$40,000	\$50,000
●●●●●	\$500	38,782	\$1,000	\$1,500	\$2,000	\$2,500
●●●●+●	\$200	14,547	\$400	\$600	\$800	\$1,000
●●●●	\$10	886	\$20	\$30	\$40	\$50
●●●+●	\$10	883	\$20	\$30	\$40	\$50
●●+●	\$4	88	\$8	\$12	\$16	\$20
●	\$2	37	\$4	\$6	\$8	\$10

Mega Millions Jackpot – Lets Get Rich!!

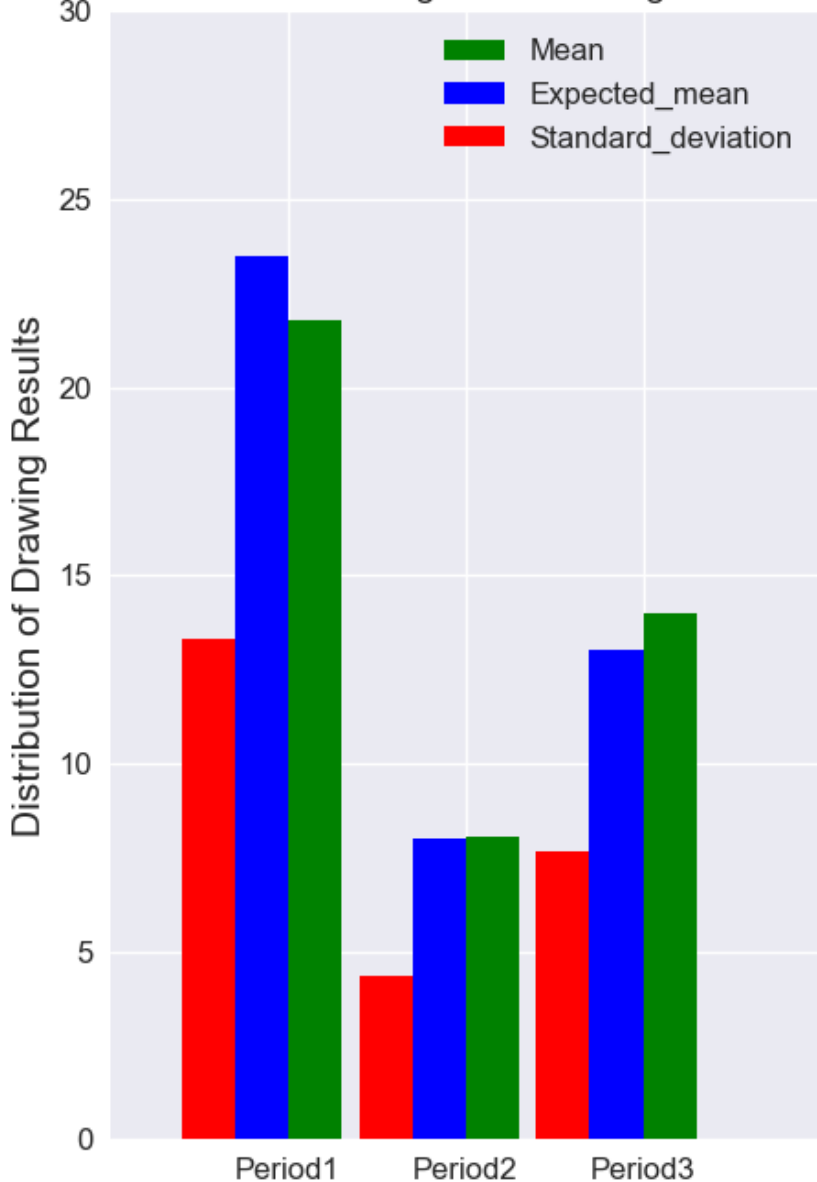
- Web scraped www.usamega.com and gathered drawing results as well as winning results for Mega Millions and Powerball jackpots
 - Total data size of ~10k rows with average of 15 columns
- Questions to answer: What, When, and Where
 - What numbers should one choose
 - When is the best time to play
 - Where should one buy the ticket
- Mega Millions has changed the format of the game twice
 - Original: Main draw of 5 numbers (1 to 56) and Mega Ball (1 to 46/52)
 - Oct 2013: Main draw of 5 numbers (1 to 75) and Mega Ball (1 to 15)
 - Oct 2017: Main draw of 5 numbers (1 to 70) and Mega Ball (1 to 25)
- Odds of winning changed from 1 in 176 million (original) to 1 in 259 million (Oct 2013 – Oct 2017) and currently stand at 1 in 303 million

Summary Statistics of Drawing Results

Distribution of Main Number Drawing Results



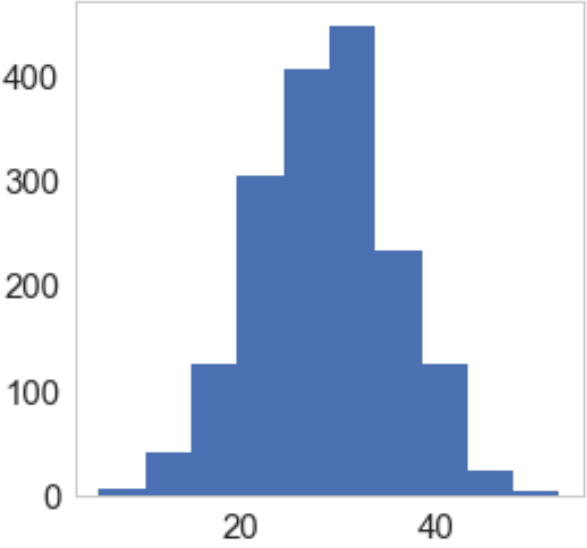
Distribution of Mega Ball Drawing Results



Comparing Distribution of Mean Results: Actual vs. Random Sample

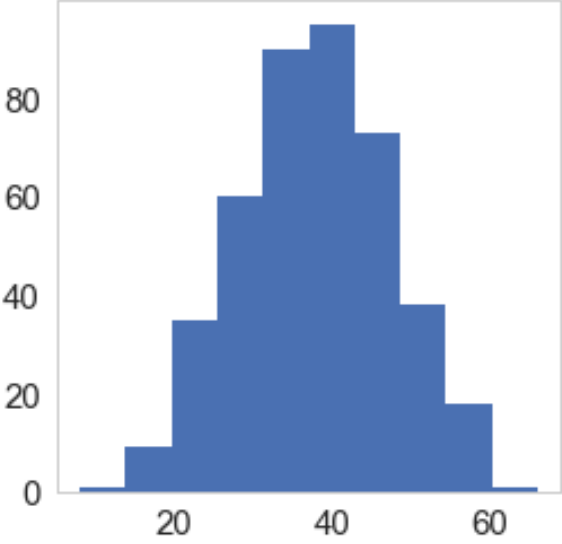
1713 Drawings

Period 1: Random Sample



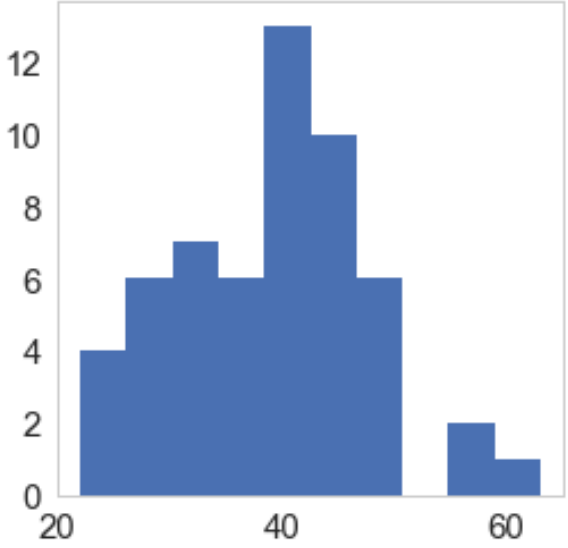
420 Drawings

Period 2: Random Sample

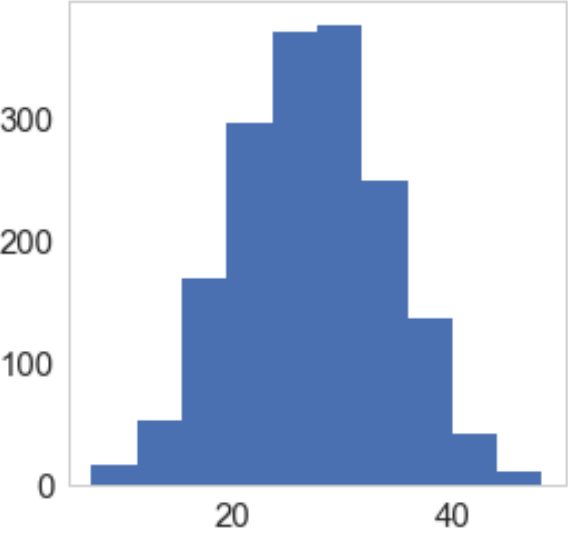


55 Drawings

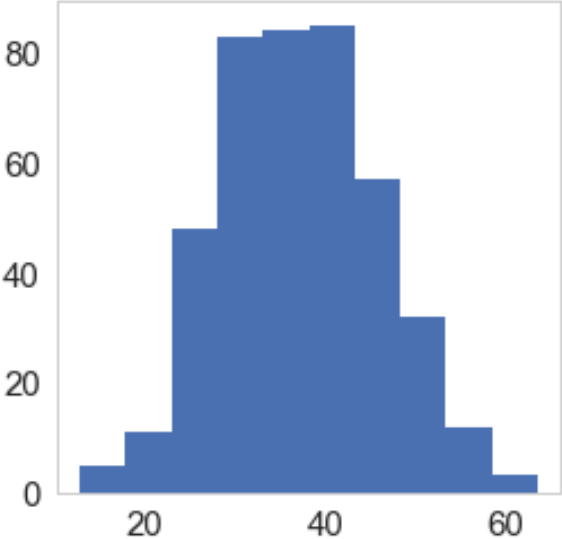
Period 3: Random Sample



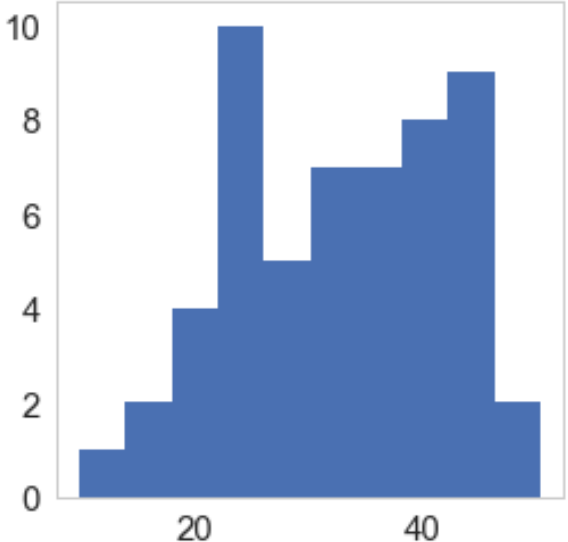
Period 1: Actual Drawing



Period 2: Actual Drawing



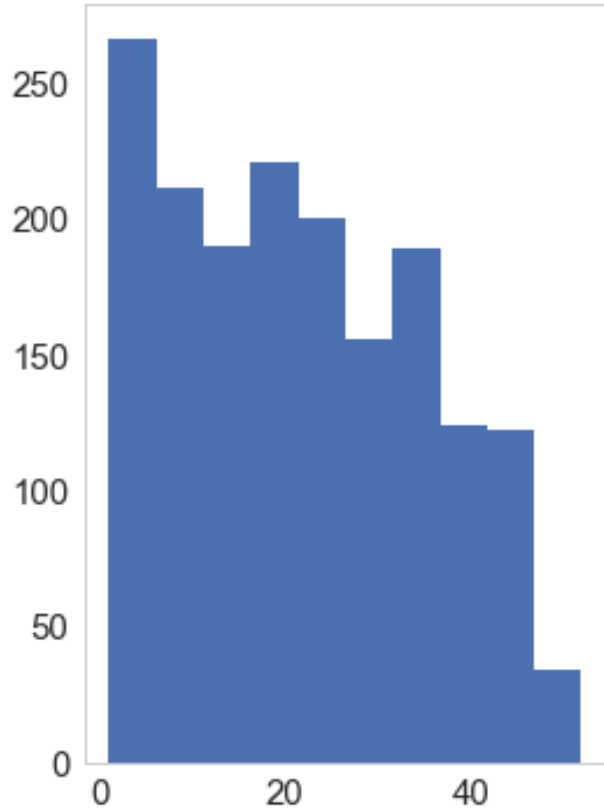
Period 3: Actual Drawing



Distribution of Mega Ball Results

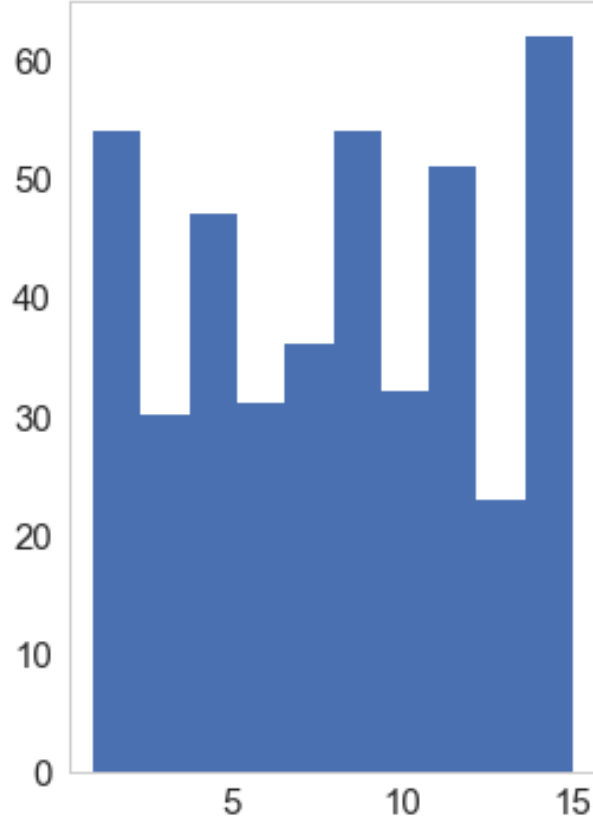
1713 Drawings

Period 1: Actual Mega Ball



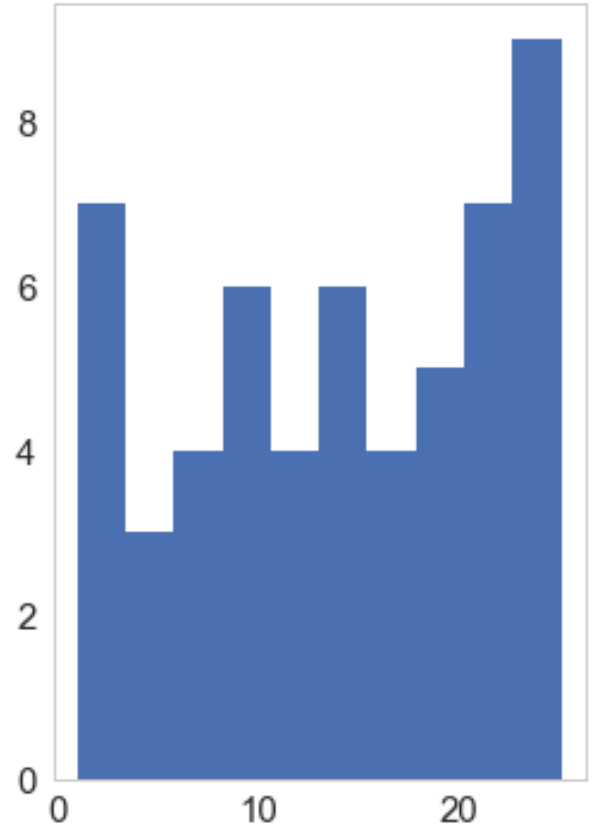
420 Drawings

Period 2: Actual Mega Ball



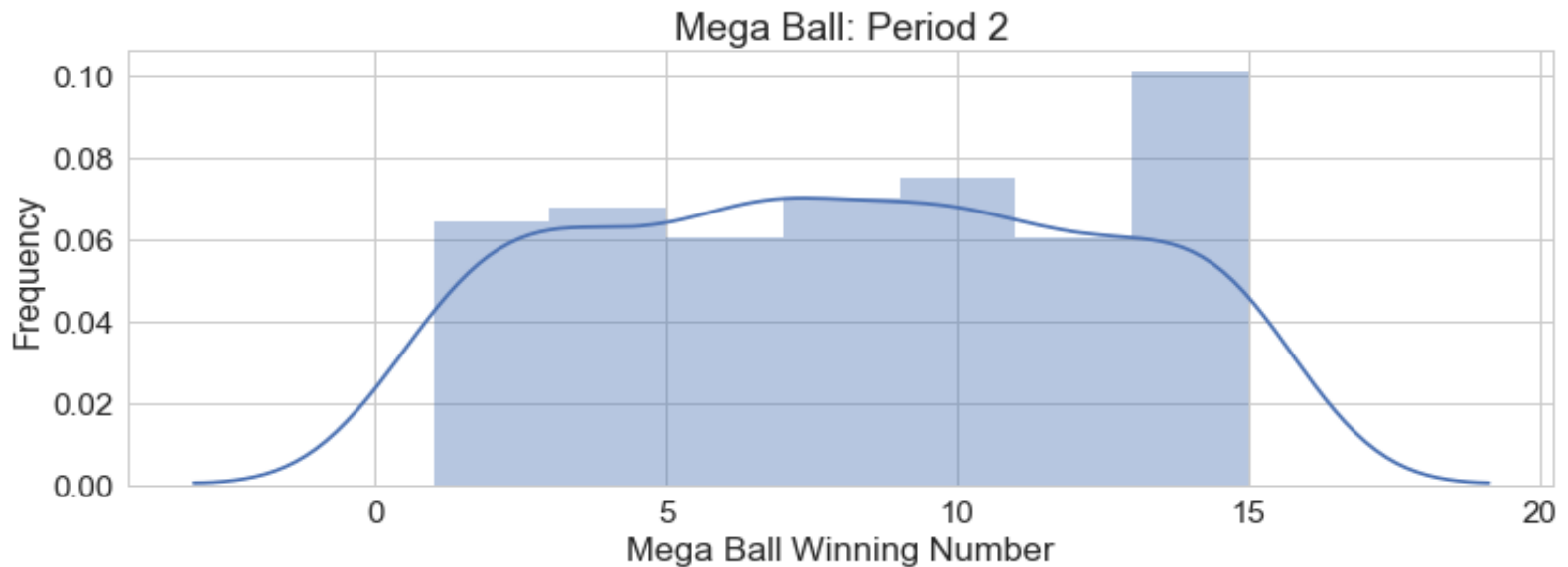
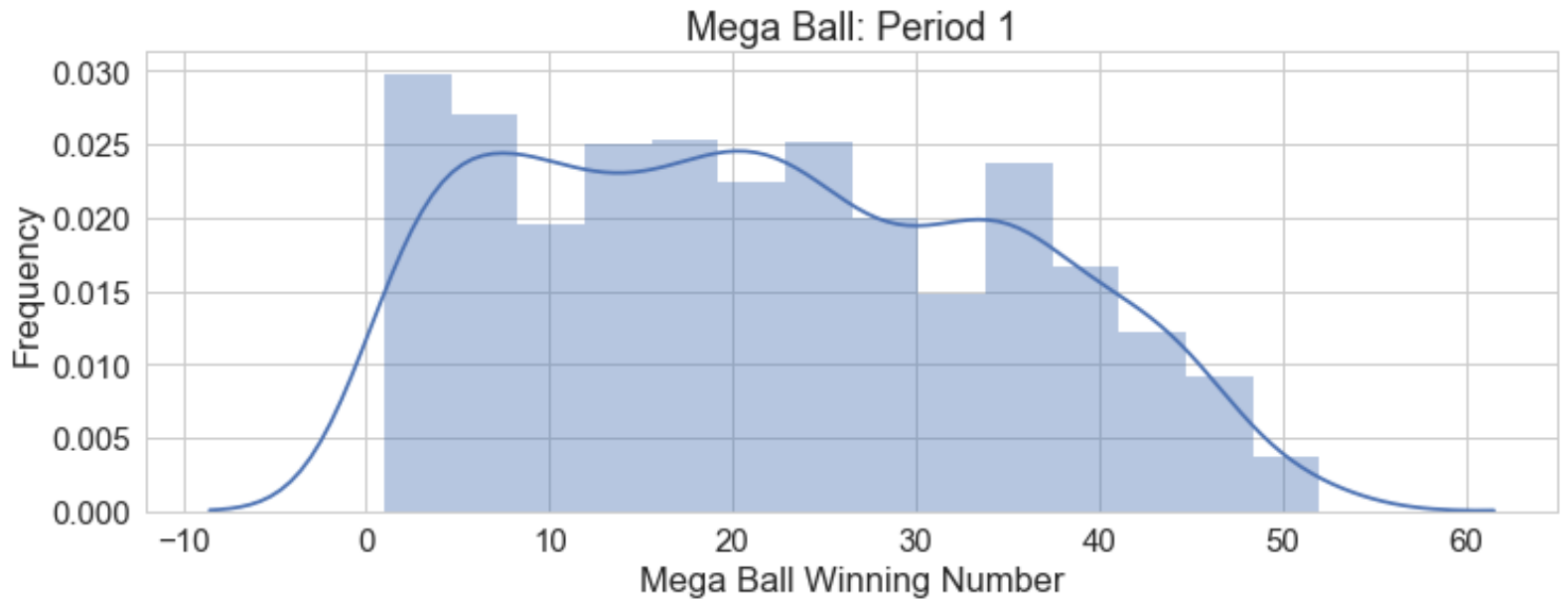
55 Drawings

Period 3: Actual Drawing



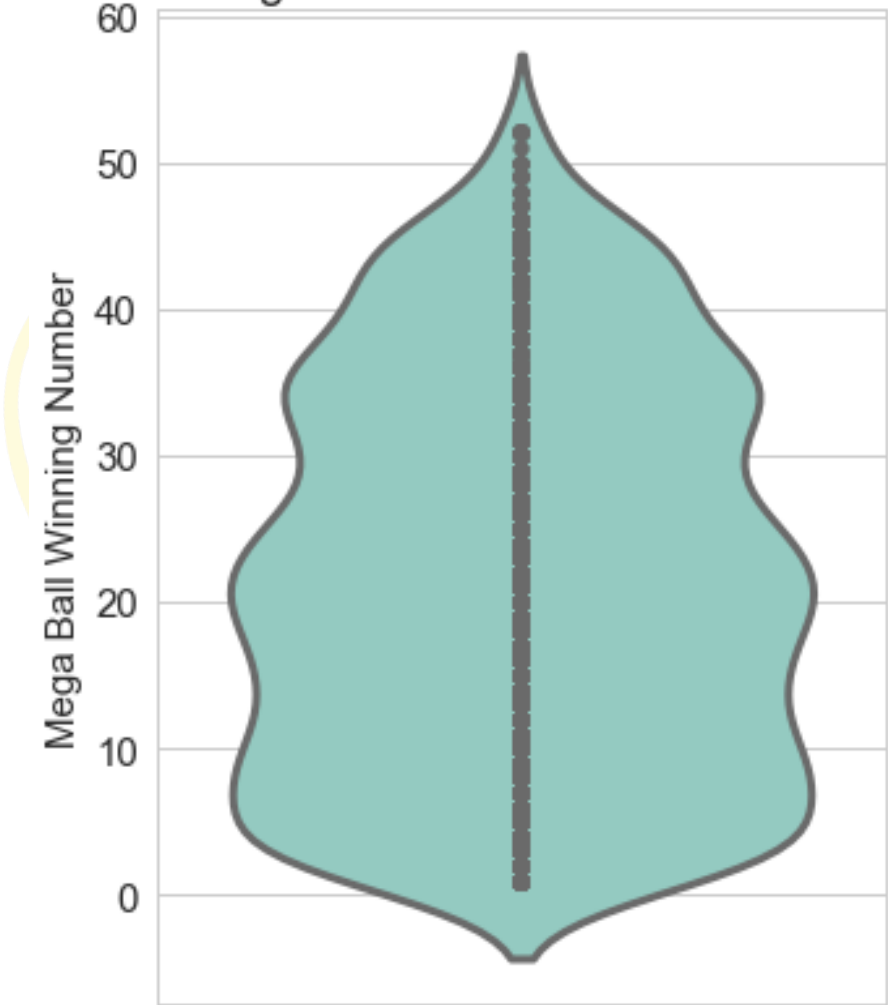
Mega Ball distribution is Period 1 is not uniform as would be expected.

Period 1 : Mega Ball Skewed to Lower Numbers

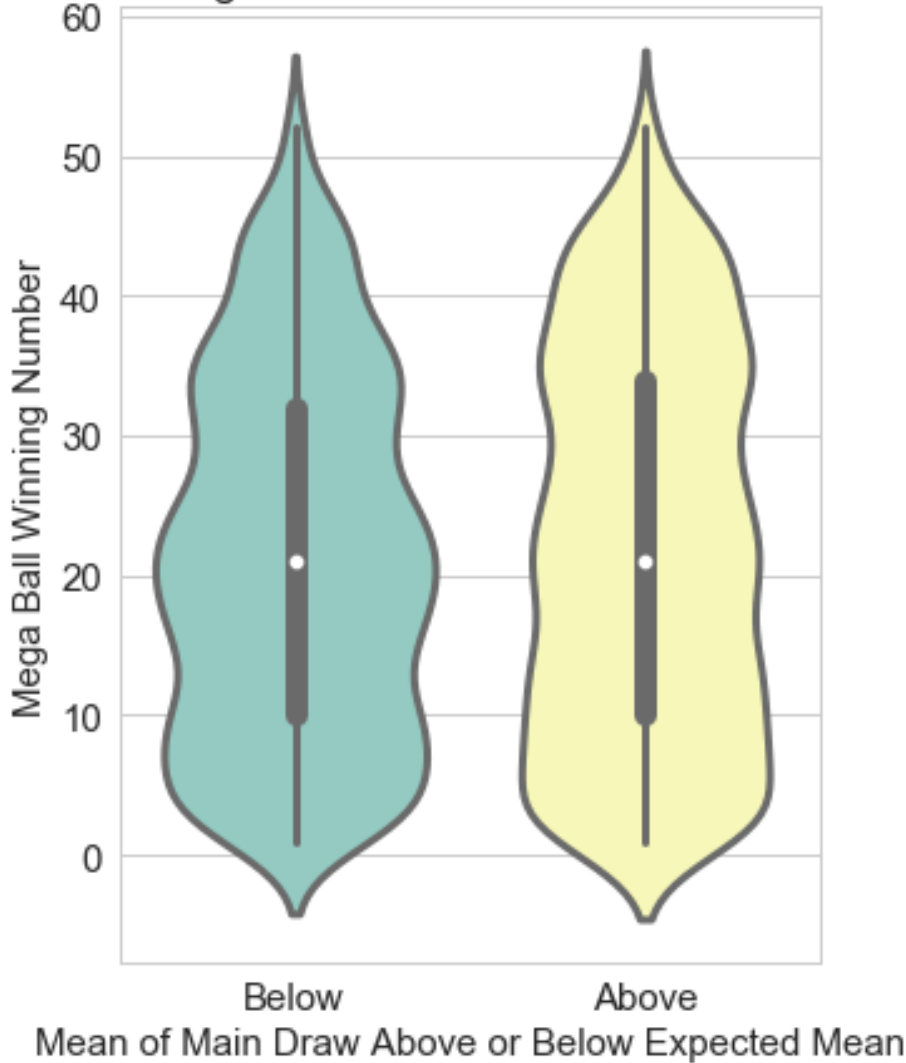


Period 1: Mega Ball Skewed to Lower Numbers

Mega Ball Violin Chart:Period 1

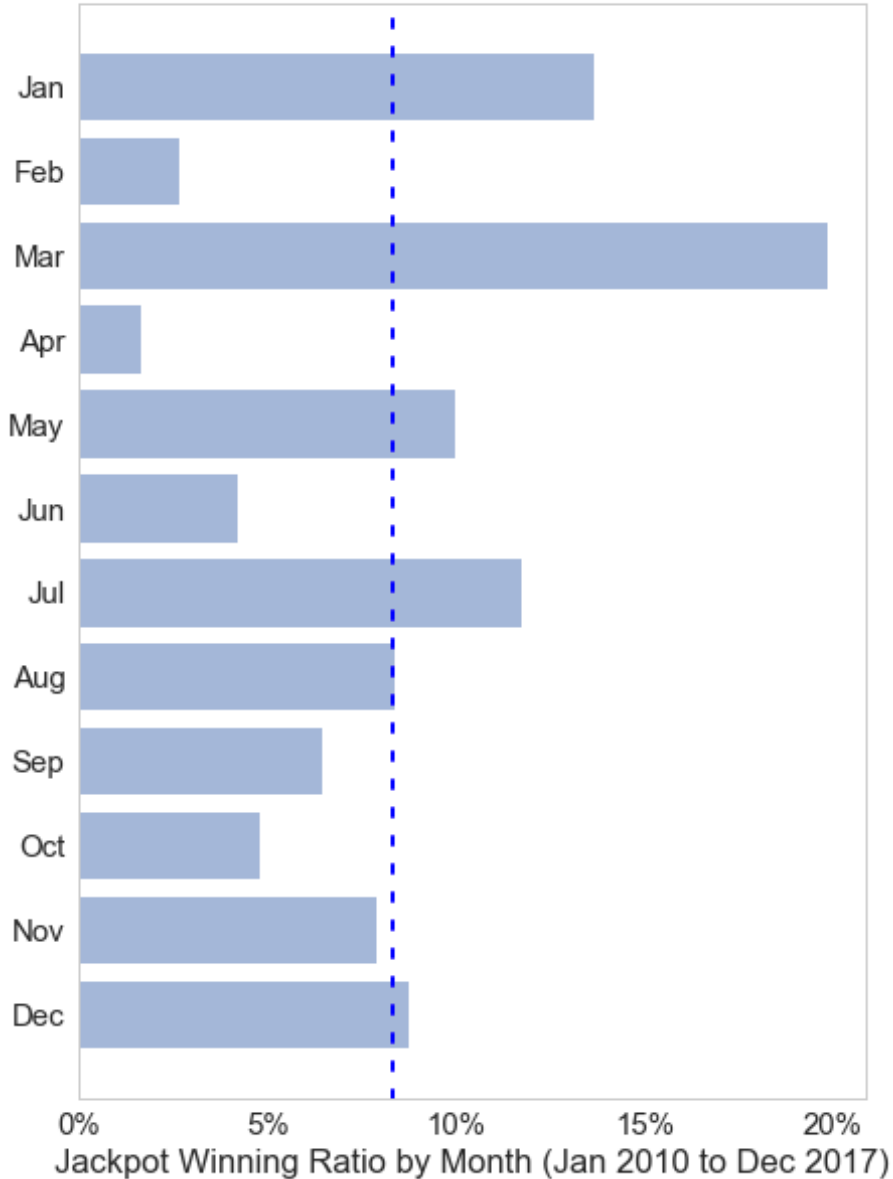


Mega Ball Violin Chart: Period 1

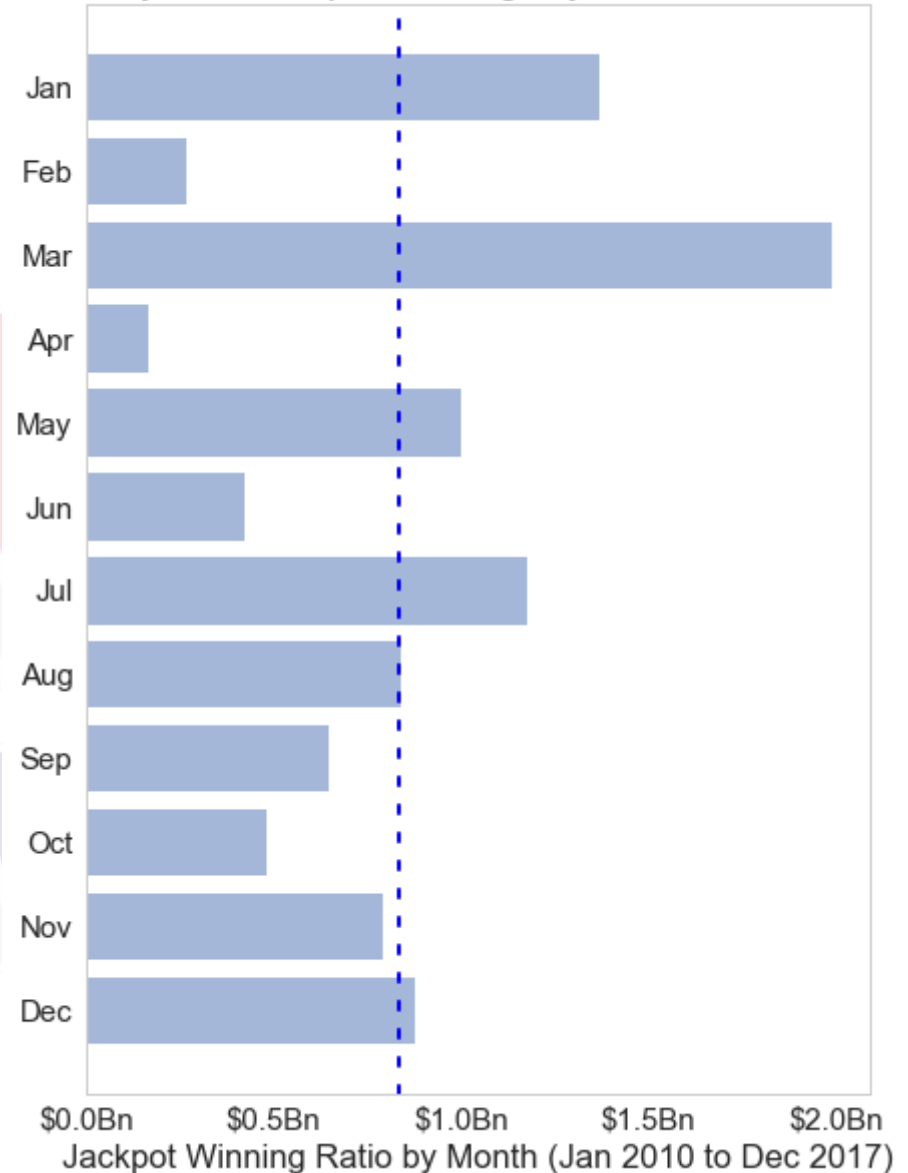


Jackpot Winnings by Month: 2010 to 2017

Analysis of Jackpot Winnings by Month Since 2010

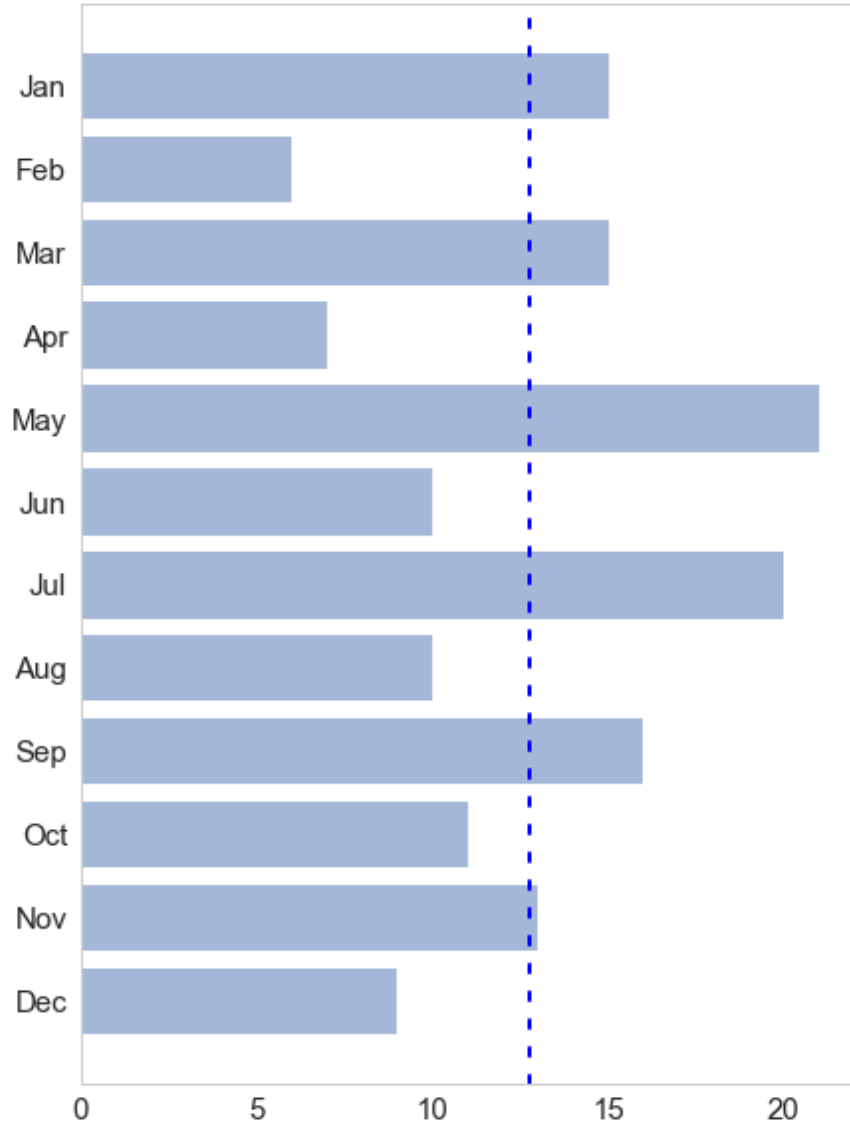


Analysis of Jackpot Winnings by Month Since 2010



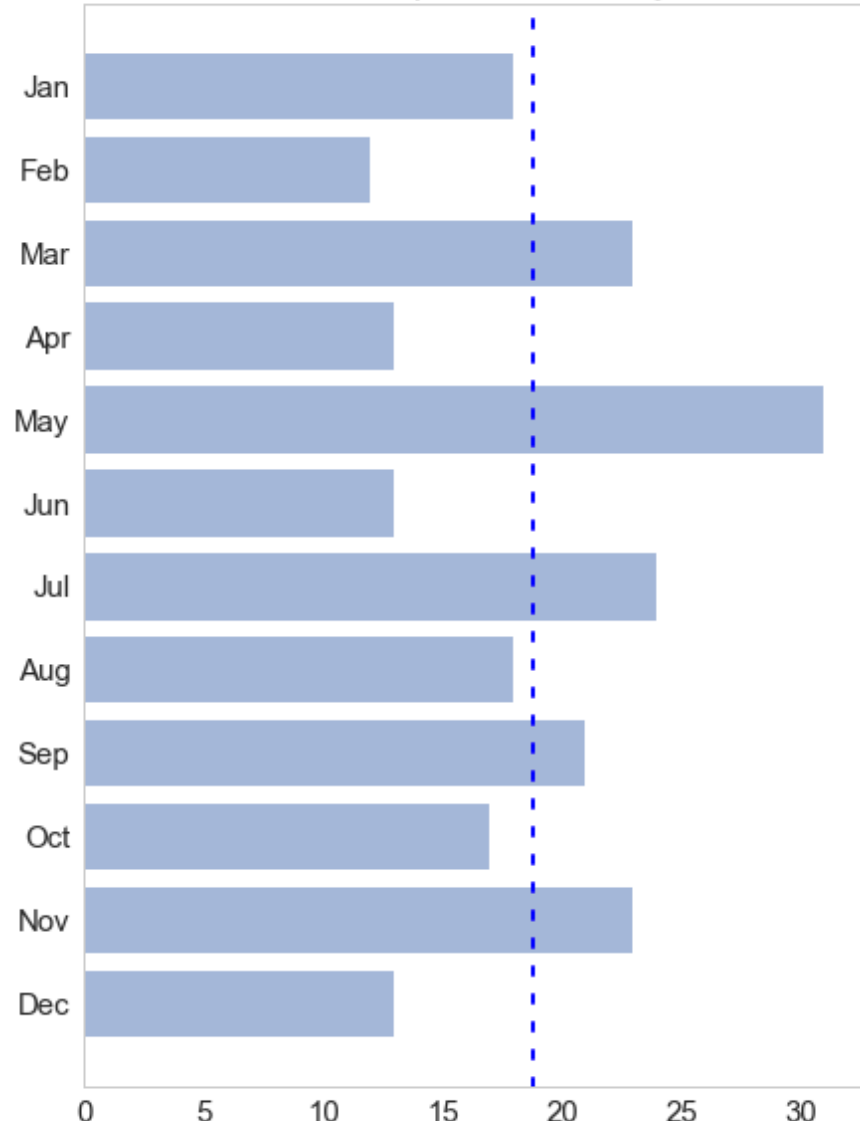
Jackpot Winnings by Month

Count of Jackpots Won by Month



Count of Jackpots Won (excludes impact of multiple winning tickets)

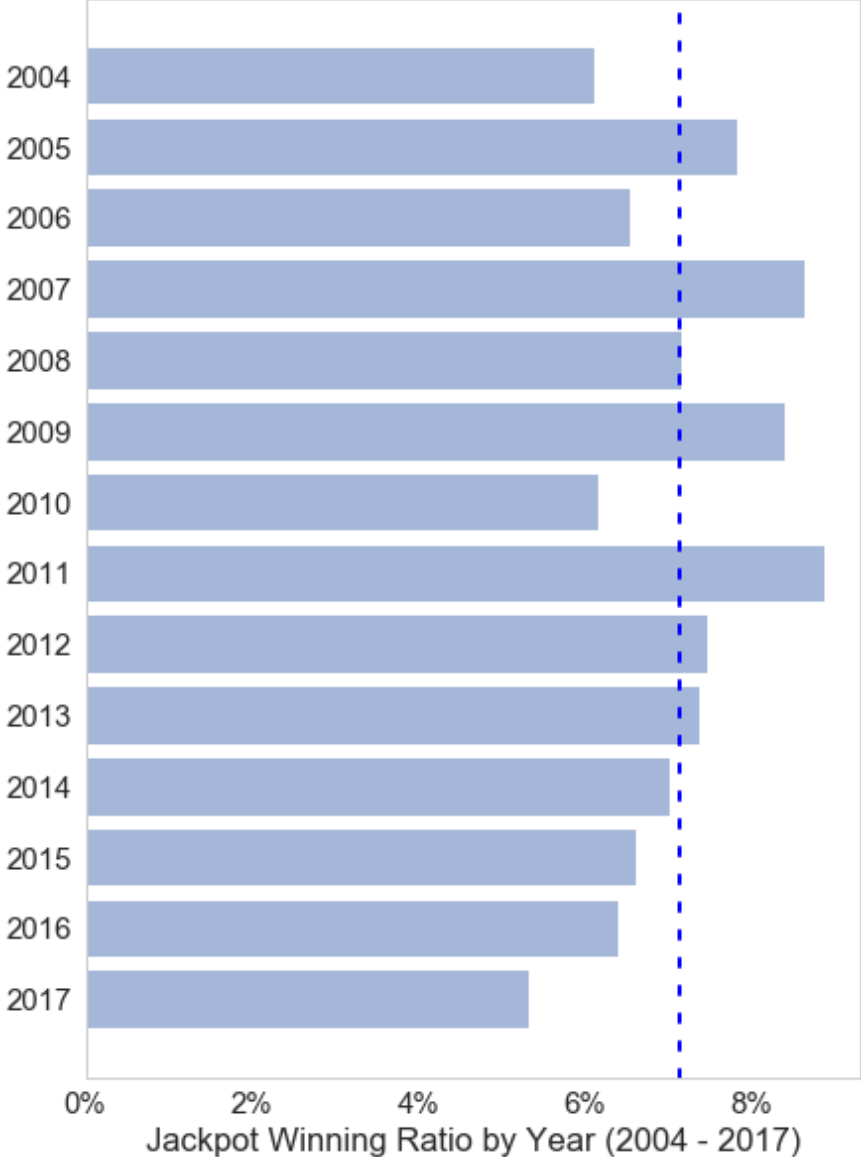
Number of Jackpots Winners by Month



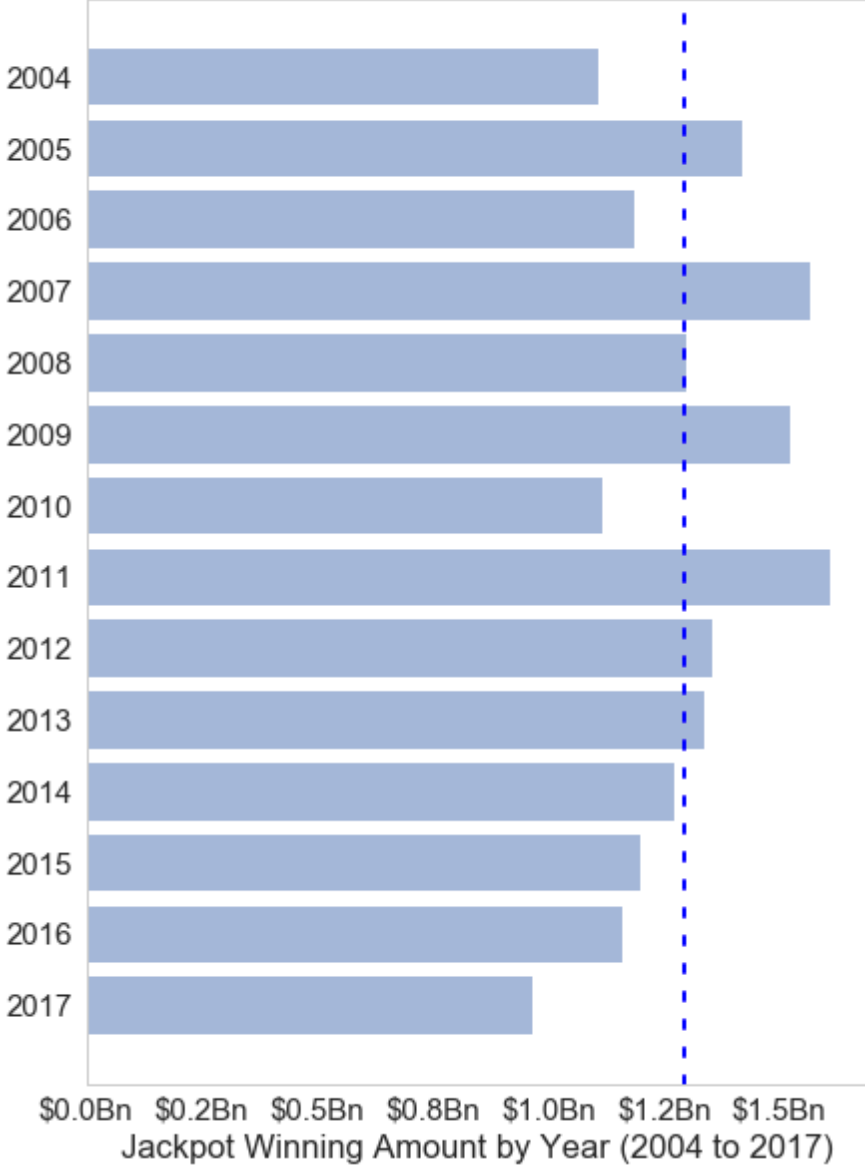
Number of Jackpot Winners (# of Winning Tickets)

Jackpot Winnings by Year: 2004 to 2017

Analysis of Jackpot Winnings by Year

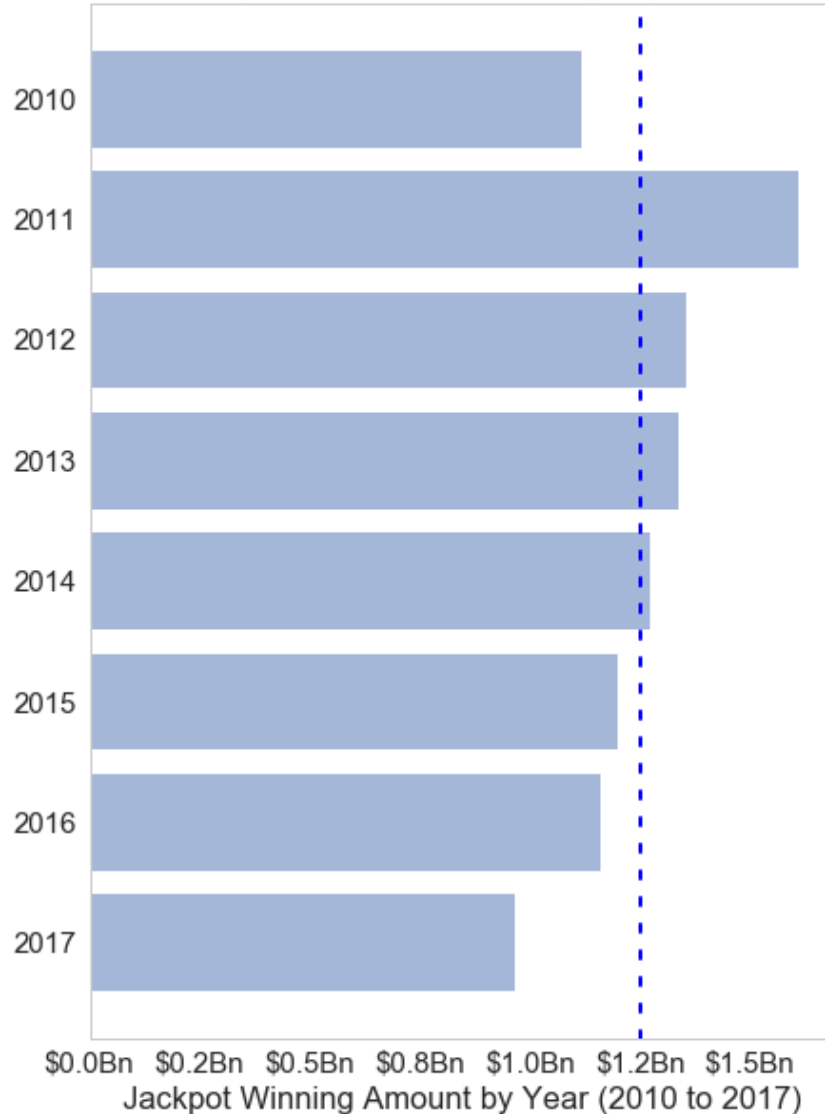


Analysis of Jackpot Winnings by Year

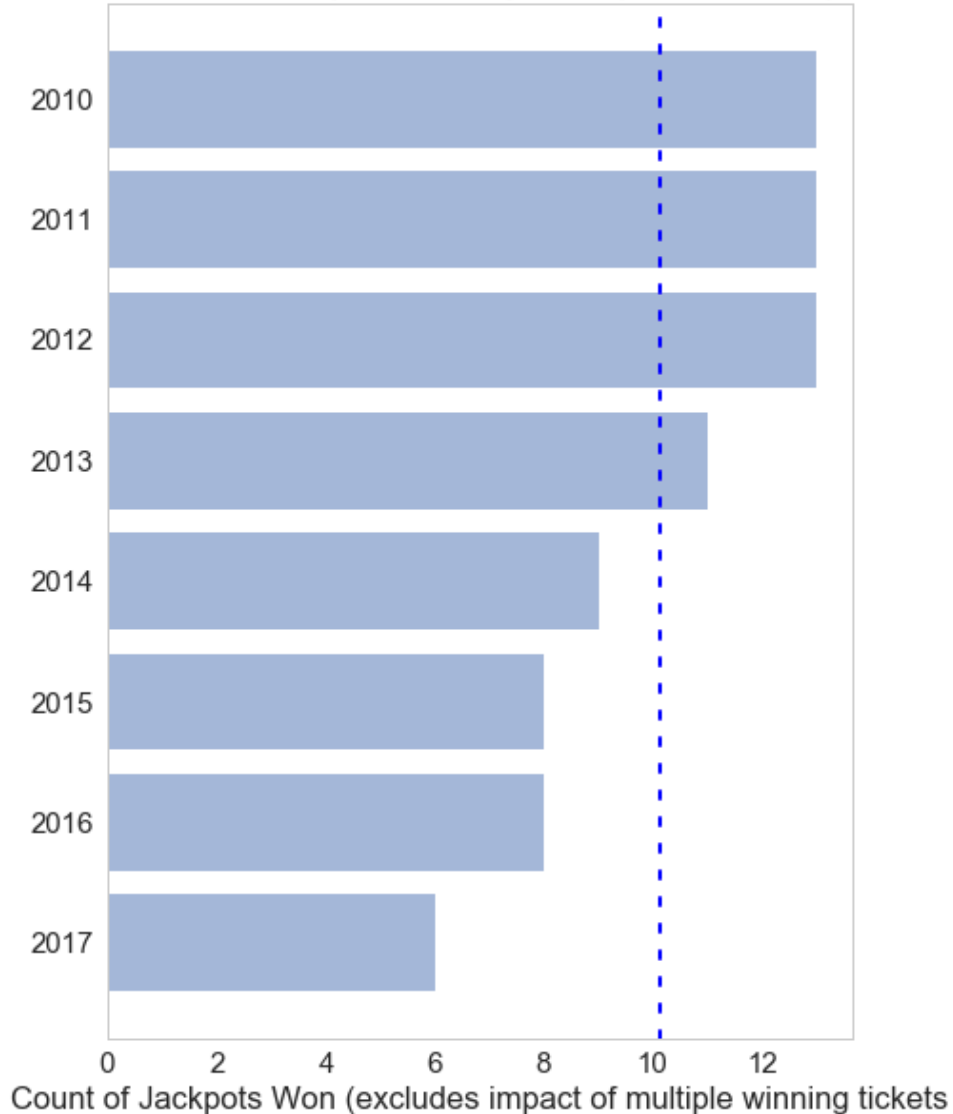


Jackpot Winnings by Year: 2010 to 2017

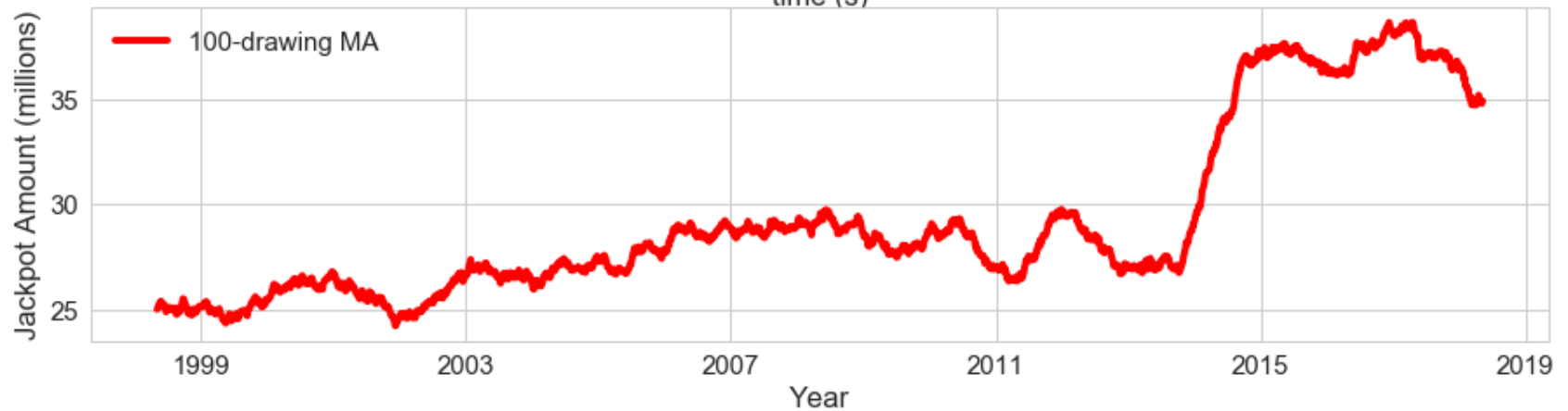
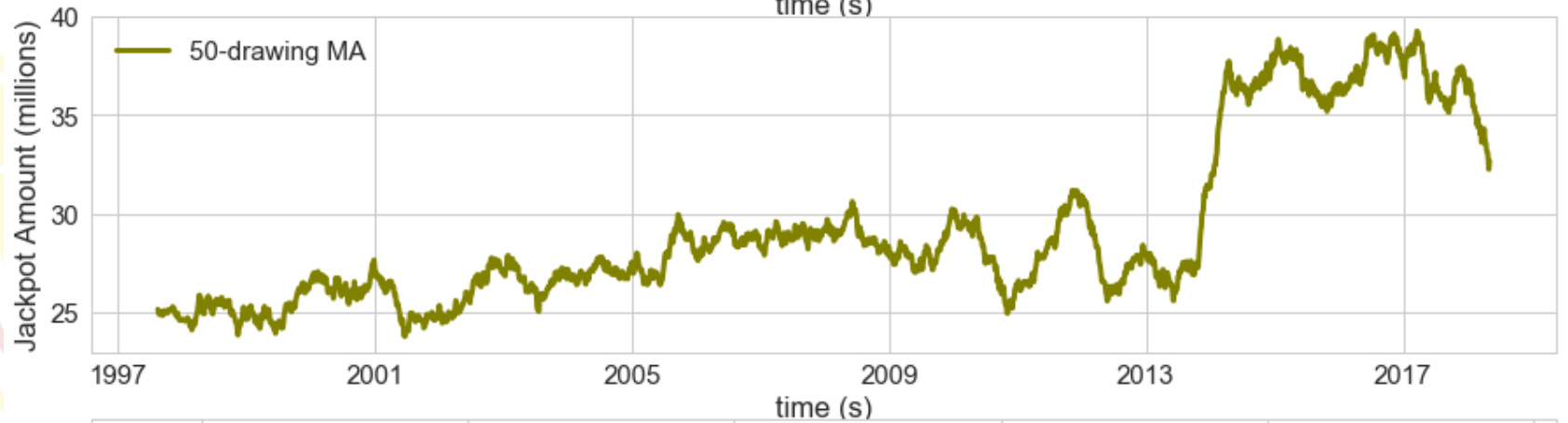
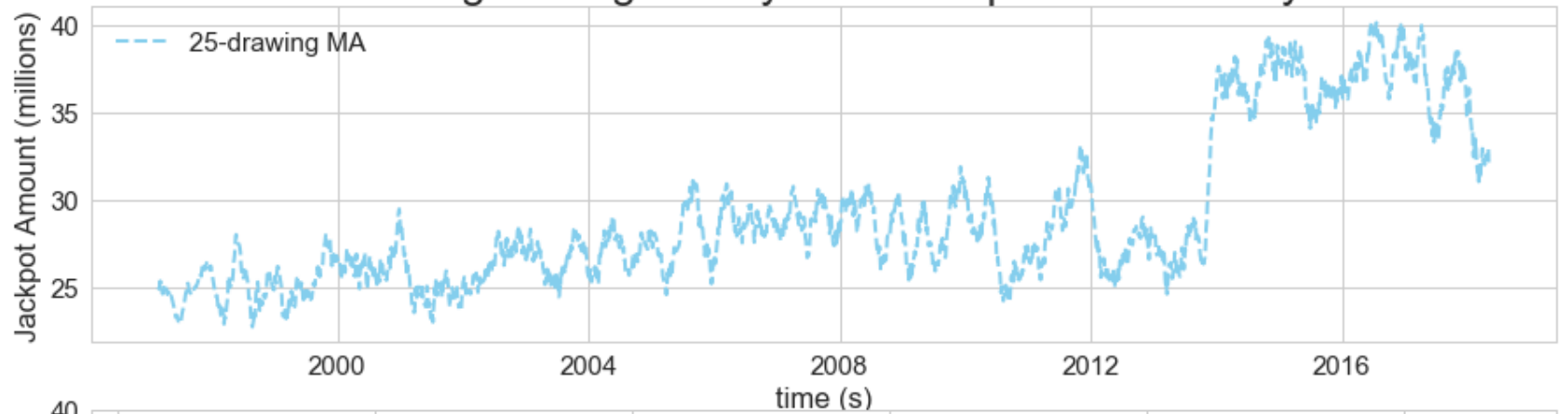
Analysis of Jackpot Winnings by Year



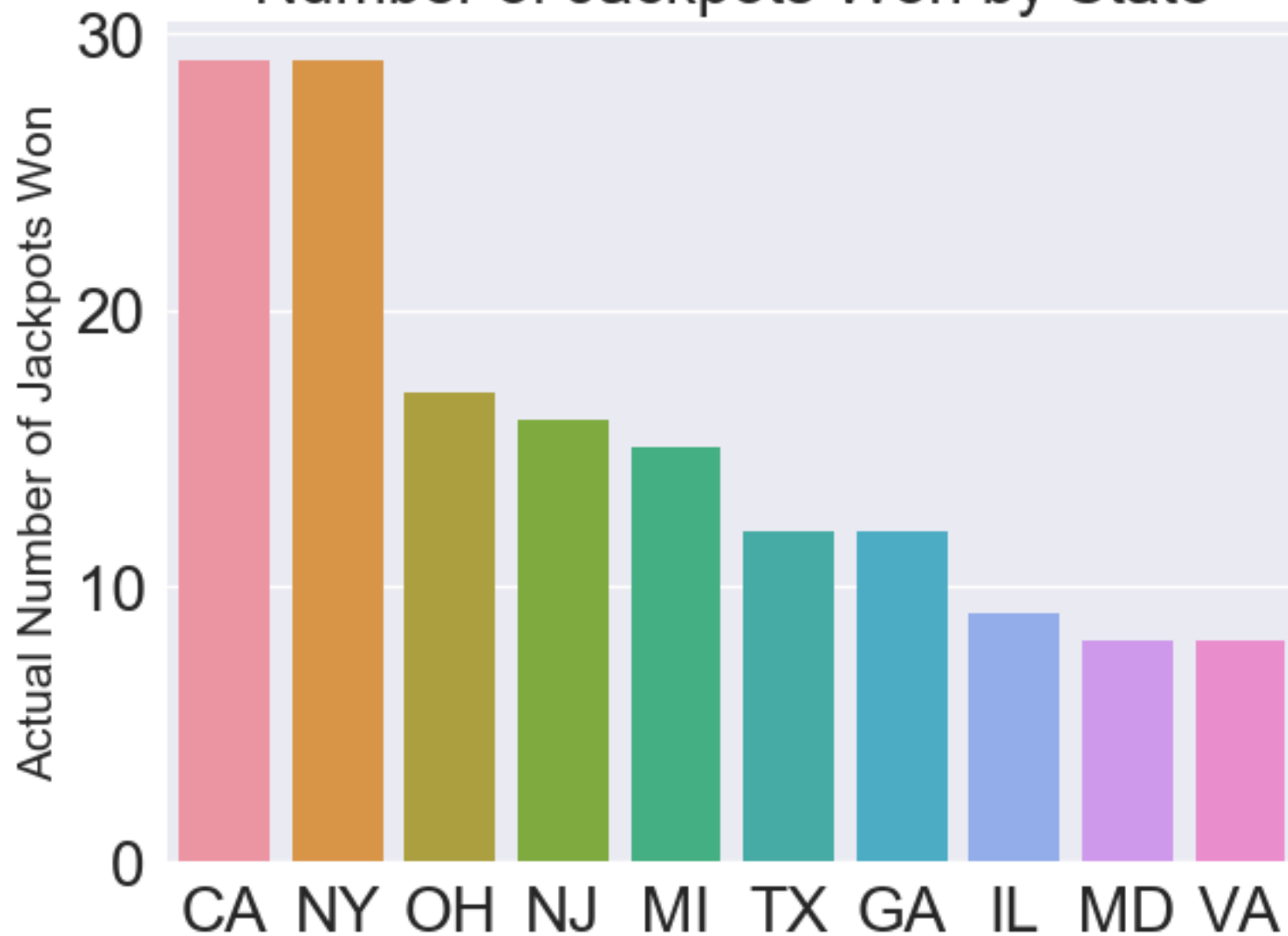
Count of Jackpots Won by Year (2010 to 2017)



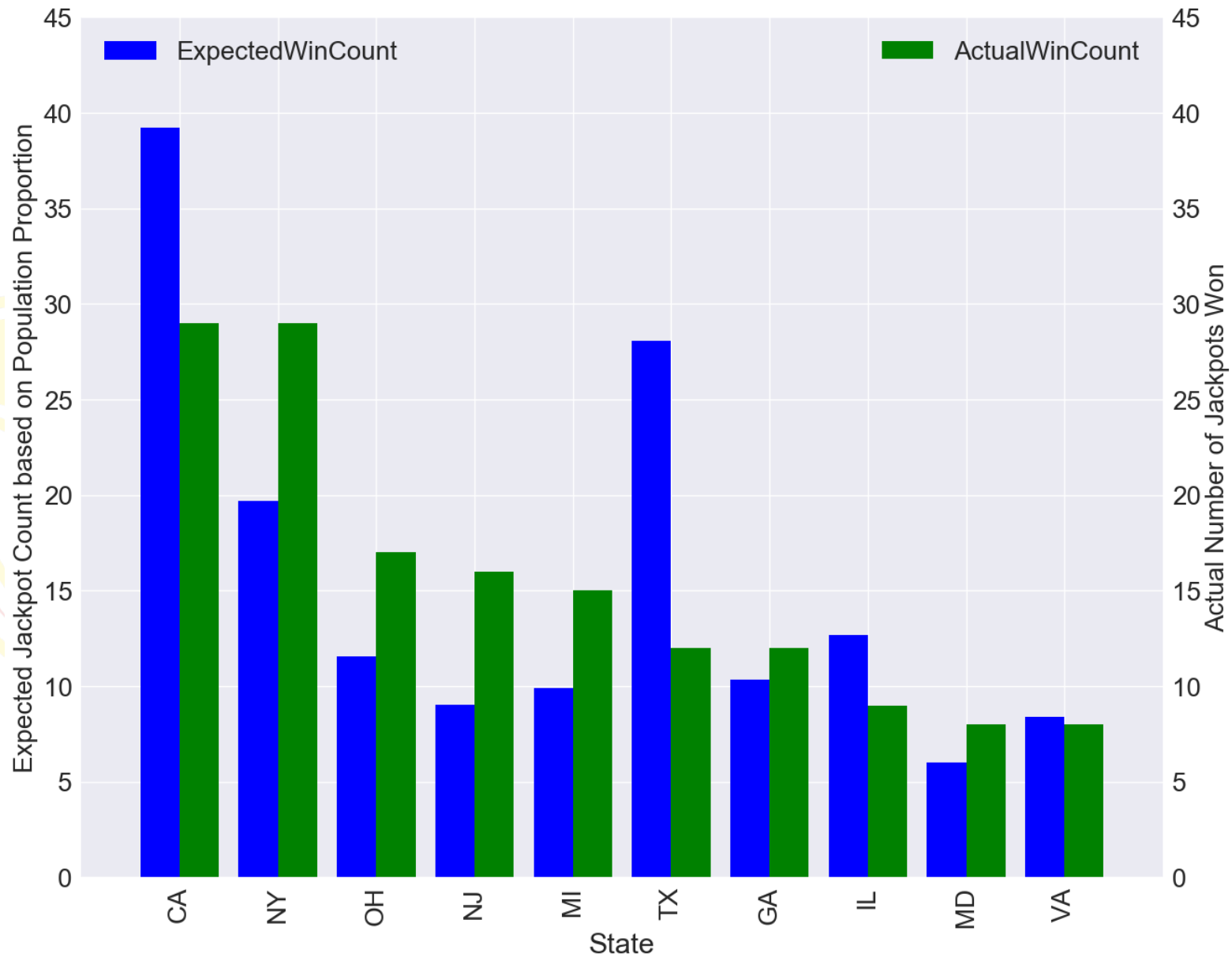
Moving Average Analysis of Jackpot Prize Money



Number of Jackpots Won by State



Jackpot Win Count by State: Actual versus Expected



Conclusions

- No significant findings on selections of numbers in the main draw
 - However Mega Ball results have skewed to the lower end in the past
- Best time to buy a lotto ticket is in the odd months as well as in odd years
- NY residents has been relatively more "lucky" compared to other large states like CA and TX

Additional Work

- Normalize jackpot results by state using actual sales data of lotto tickets
- Create a simulation that allows user to test out different lotto strategies against actual lotto results