

NFL players arrests

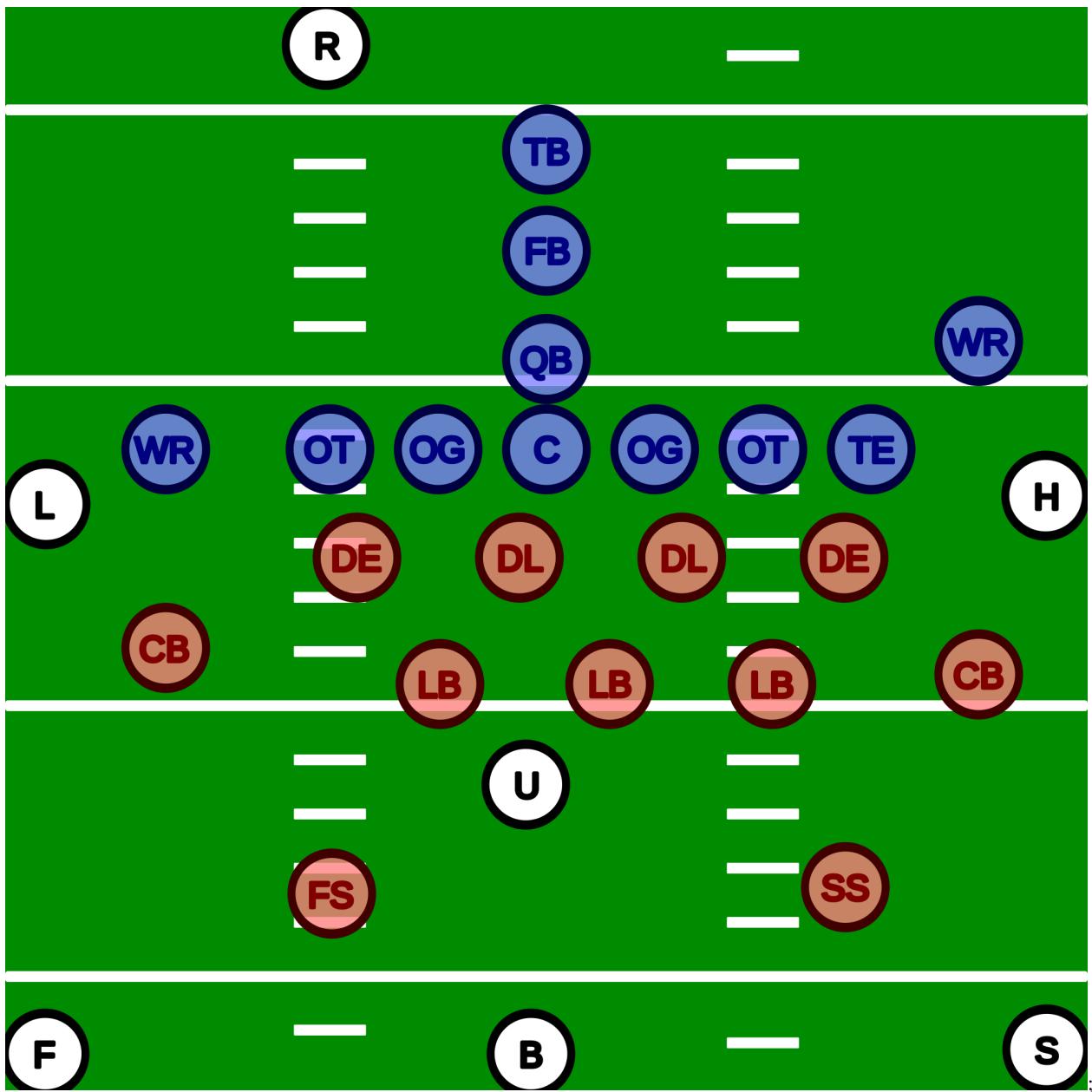
BUSD 2017 Project

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Background

- NFL players have often gotten into a range of offences from DUI to assault to murder
- One of the most infamous cases in recent times is the case of Aaron Hernandez of the New England Patriots, who was charged with first-degree murder in death of friend Odin Lloyd.
- Arrest data (<https://www.usatoday.com/sports/nfl/arrests/>) for NFL players from the past 17 years, including:
 - arrests, charges, indictments, surrenders, citations, etc.
 - Most recent record: Roger Lewis, WR, NYG, 6/4/2017, arrested for DUI and drugs
 - Earliest record: Rod Smith, WR, DEN, 1/24/2000, arrested for domestic violence
- Define alcohol related crimes as arrests made on DUI, Public Intoxication, or Alcohol
- Define violence related crimes as Domestic Violence, Assault, Rape, Murder
- Define player position category as offense, defense, and special team:
 - offense: C, QB, RB, WR, TE, FB, OG, OL, OT
 - defense: DB, DE, DE/DT, DT, LB, CB, S
 - special team: K, P
- A very large proportion of arrests were made up of crimes involving alcohol and/or violence
 - Is there time trend with respect to the crimes committed?
 - Is there any connection between the player positions and the types of crime committed?



Flowchart for filtering the data

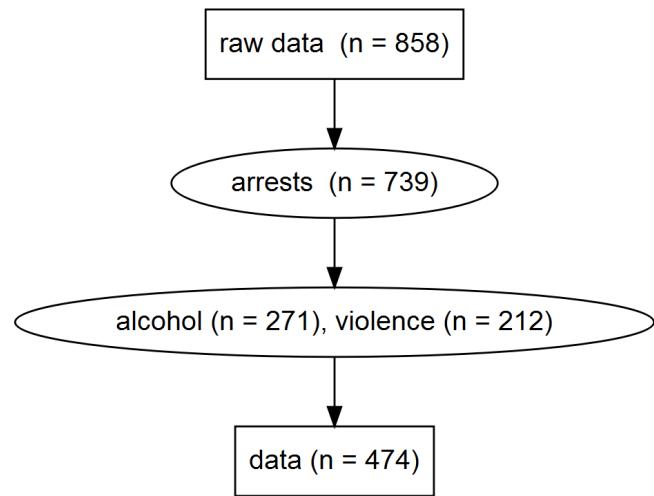


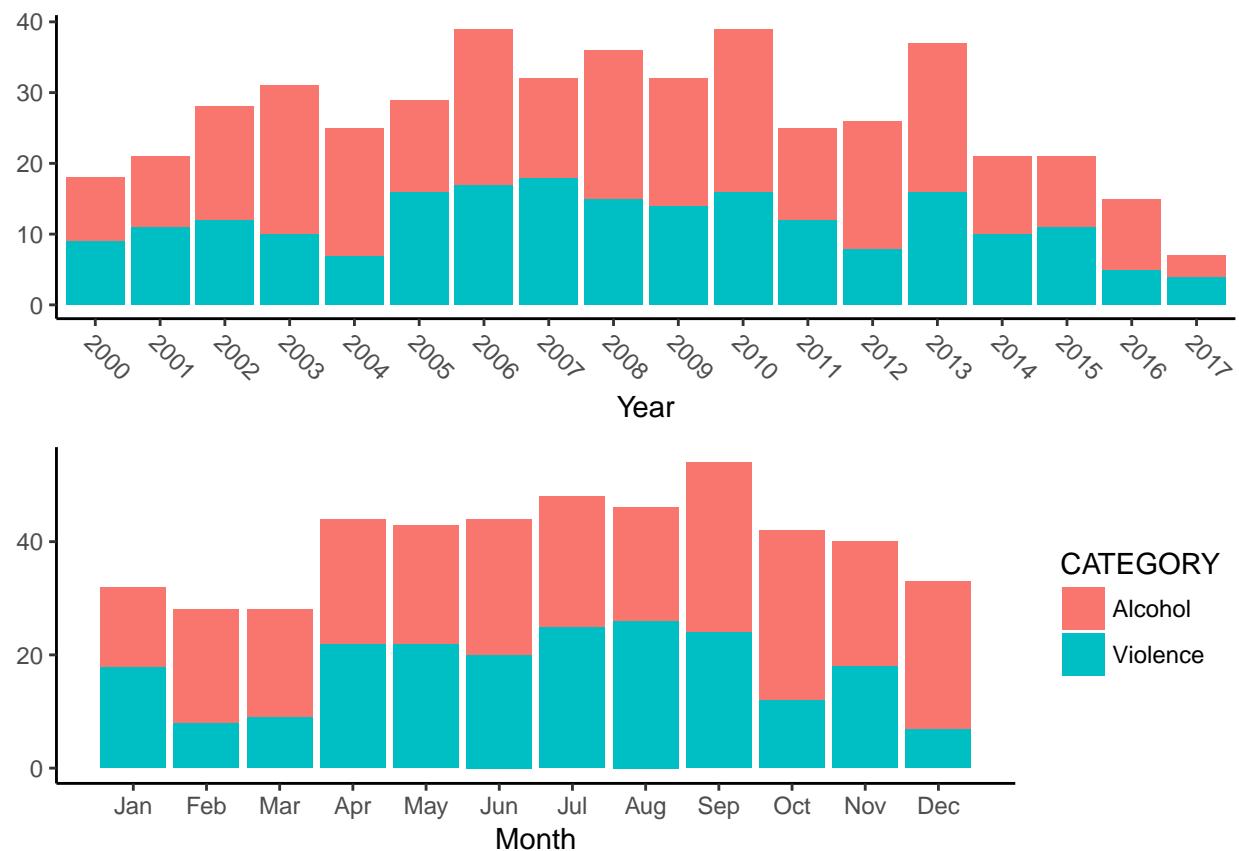
Figure 1: Flow diagram of filtering final dataset

Descriptive statistics of players involved in alcohol related crimes

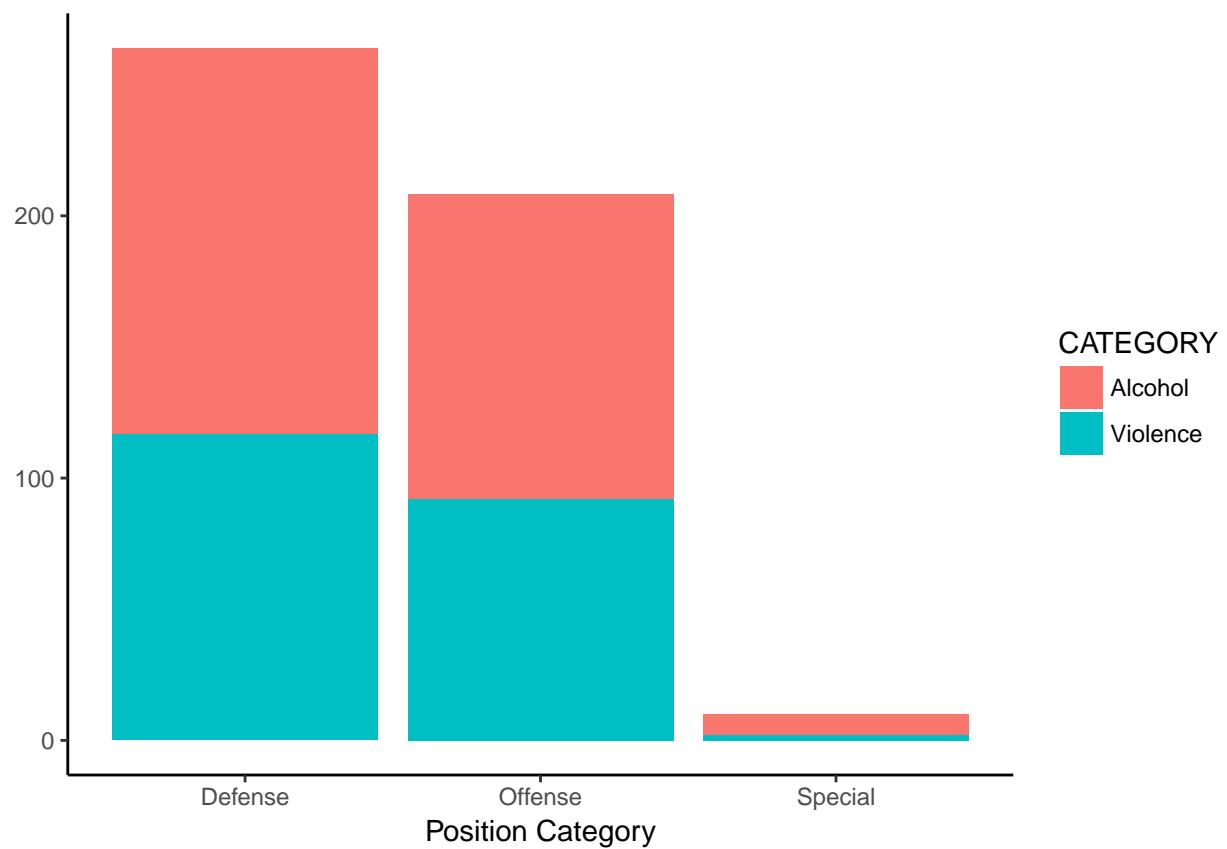
DATE	ROLE	CATEGORY	MONTH	YEAR
Min. :2000-01-24	Defense:264	Alcohol :271	Apr:32	2000:18
1st Qu.:2004-12-06	Offense:208	Violence:211	Aug:28	2001:21
Median :2008-04-28	Special: 10		Dec:28	2002:28
Mean :2008-07-05			Feb:44	2003:31
3rd Qu.:2012-05-19			Jan:43	2004:25
Max. :2017-06-04			Jul:44	2005:29
			Jun:48	2006:39
			Mar:46	2007:32
			May:54	2008:36
			Nov:42	2009:32
			Oct:40	2010:39
			Sep:33	2011:25
				2012:26
				2013:37
				2014:21
				2015:21
				2016:15
				2017: 7

Table 1: Summary statistics of NFL players arrested for crimes involving alcohol and violence, between 2000-2017.

Number of NFL players arrested for crimes involving alcohol or violence by year and month from 2000-2017



Number of NFL players arrested for crimes involving alcohol or violence by player position category from 2000-2017



Chi-square test result

CATEGORY	ROLE			
	Frequency	Defense	Offense	Total
Alcohol		147	116	263
Violence		117	92	209
Total		264	208	472

$$\chi^2 = 0.0004, P = 0.985, \text{OR} = 0.997 \text{ (95\% CI } 0.69, 1.44)$$

Figure 2: Simple 2x2 table of crime by position categories

There is no significant association between player position and crime category.

CATEGORY	season			
	Frequency	cold	warm	Total
Alcohol		124	139	263
Violence		109	100	209
Total		233	239	472

$$\chi^2 = 1.167, P = 0.28, \text{OR} = 0.8 \text{ (95\% CI } 0.57, 1.18)$$

Figure 3: Simple 2x2 table of crime by seasons

There is no significant association between the seasons and crime category

Conclusion

So what can we conclude about this story...