Cricket (Darts):

& Time Dependency

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Cricket

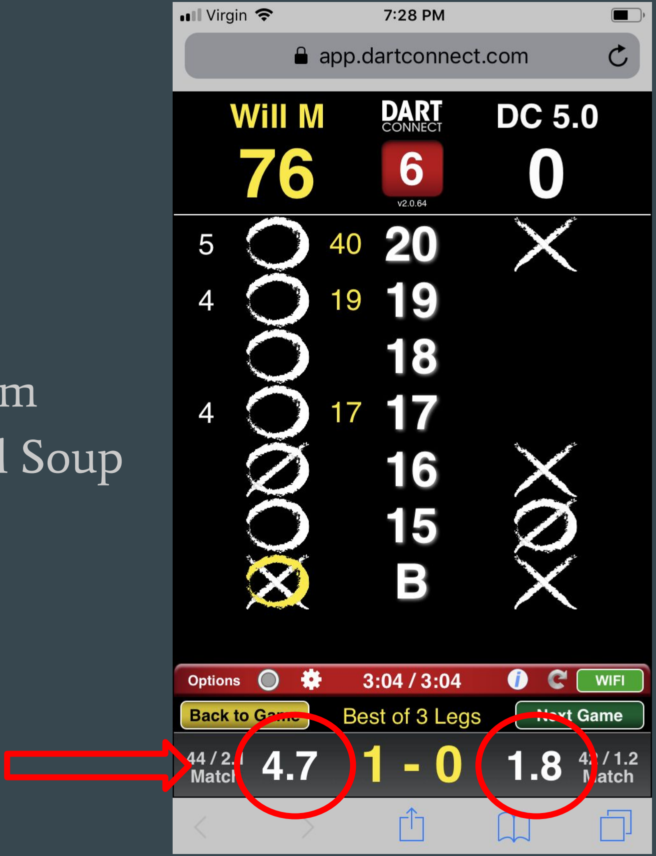
- Most popular darts game in USA

- Two teams of 1-2 players hit each of the numbers from 15-20 as well as the bullseye at least 3 times.

Data

- Data scraped from dartconnect.com
- Dartconnect is a web-based app for scoring darts
- Data from league standing scraped using Selenium
- Data from league matches scraped with Beautiful Soup

- 3-Dart Average is especially important



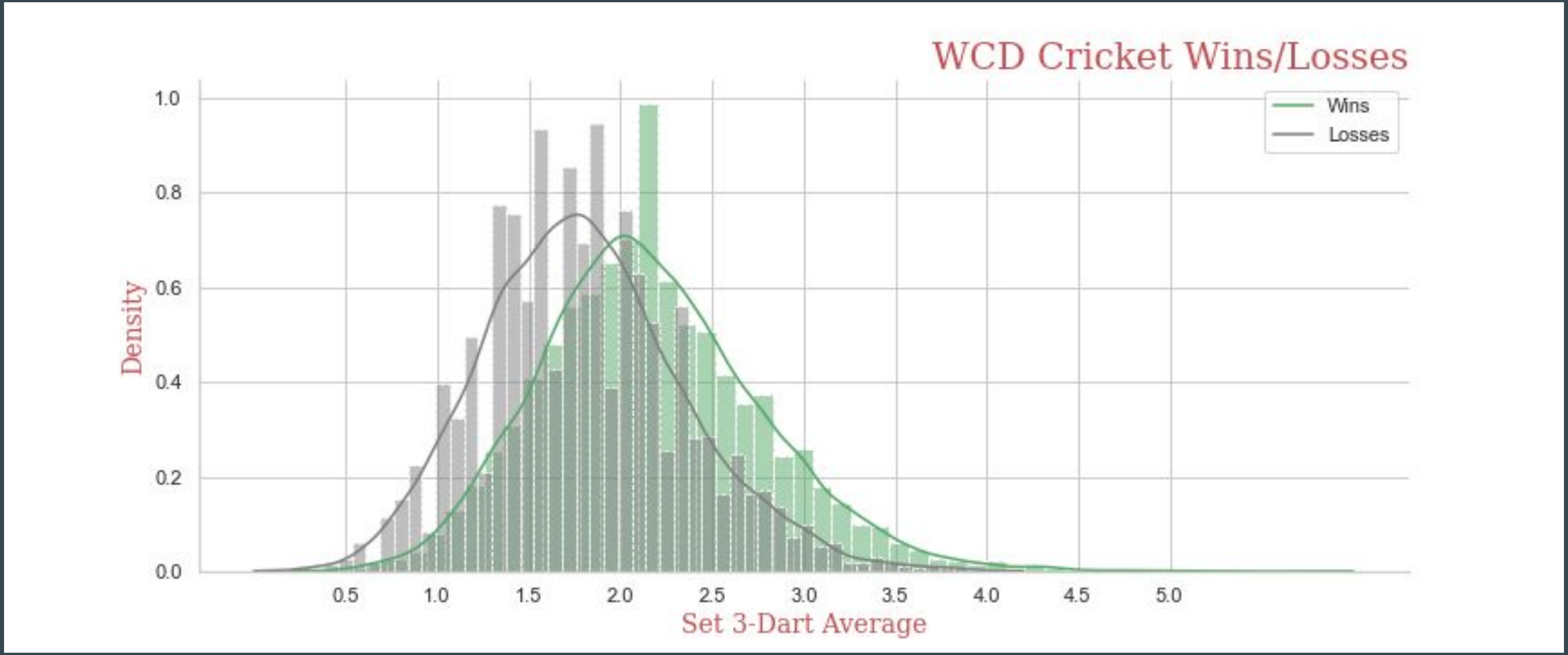
League

- Windy City Darters is Chicago’s largest darts league
- League data is more accurate since there is oversight in data entry
- 150,000 rows of Windy City Darters league data scraped

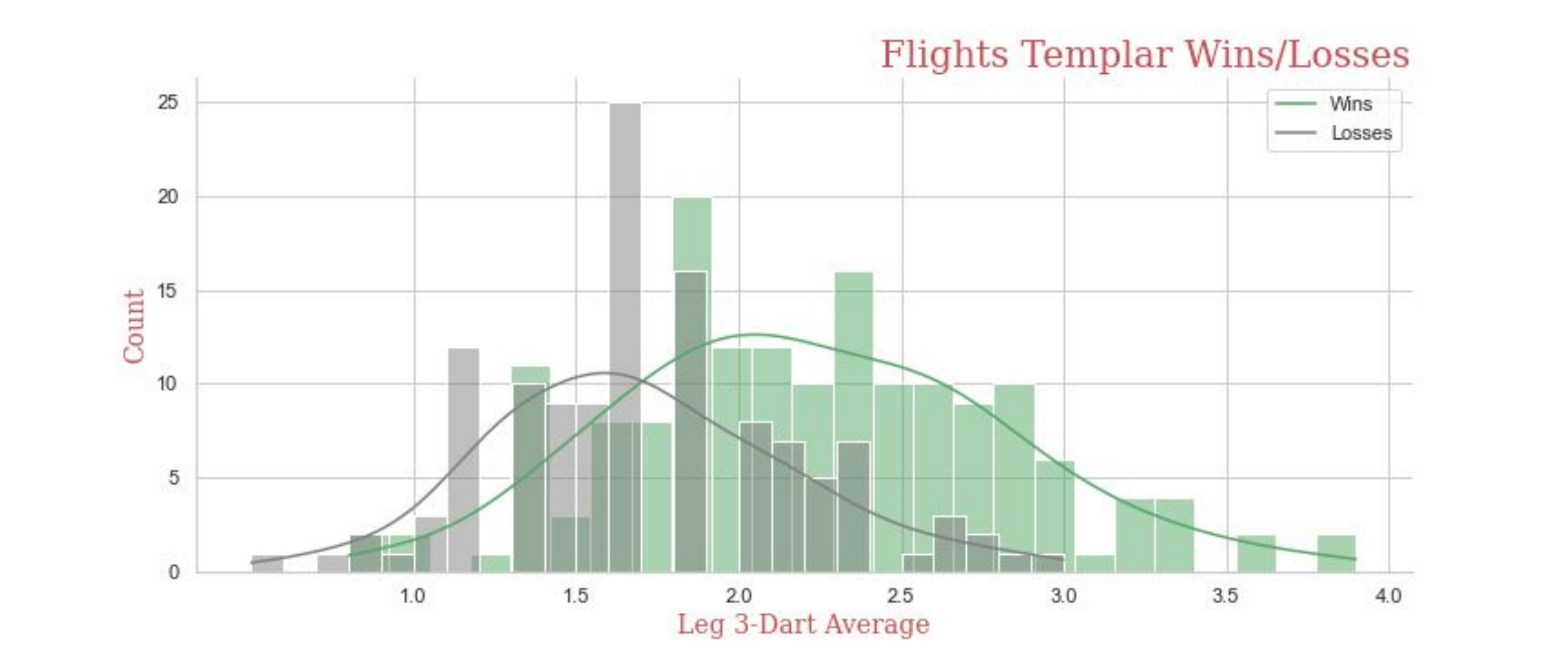
Why/Who

- Captain of Flights Templar
- Opponent appraisal
- Roster creation
- Automation, eventually

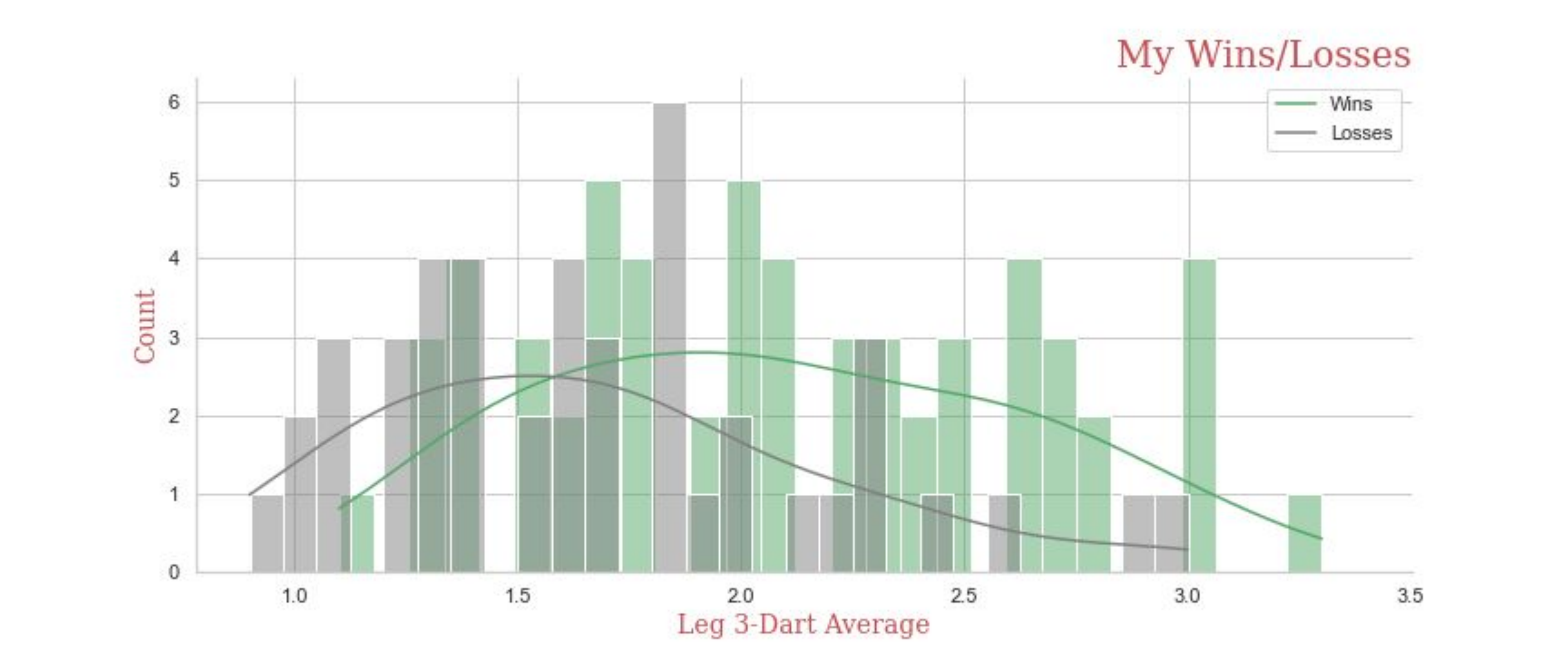
Charts


WCD Cricket Wins/Losses
Wins
Losses
Density
1.0
0.8
0.6
0.4
0.2
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
4.5
5.0
Set 3-Dart Average

Charts


Flights Templar Wins/Losses
Wins
Losses
Count
25
20
15
10
5
0
1.0
1.5
2.0
2.5
3.0
3.5
4.0
Leg 3-Dart Average

Charts


My Wins/Losses
Wins
Losses
Count
0
1
2
3
4
5
6
1.0
1.5
2.0
2.5
3.0
3.5
Leg 3-Dart Average

Regression

- Player is the best prediction for 3DA
- Want a model that accounted for time in season
- R^2 for Lasso = .948; Ridge = .948
- Indexed season day eventually accounted for .013 in Lasso and Ridge
- Higher R^2 contribution than binary ‘Wins’ (.010) for predicting 3DA

Future Work

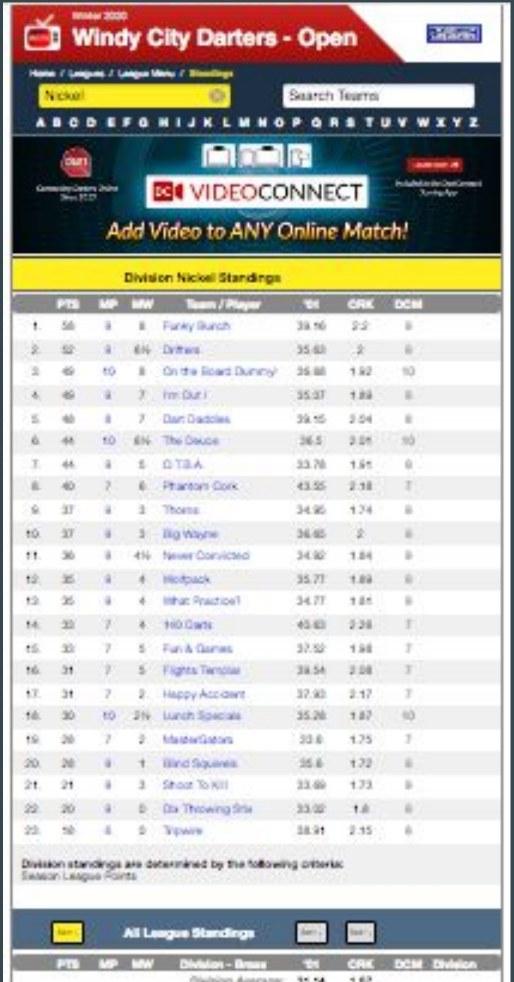
- Other games
- Other data
  - 3DA calculation for cricket
  - Cork
  - Trips, bulls, miss%
- Roster automation

Thanks!

Appendix

- League season table, left

- Match table, right



Winter 2020

Windy City Darters - Open

Home / Leagues / League Menu / Standings

Nickel

Search Teams

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

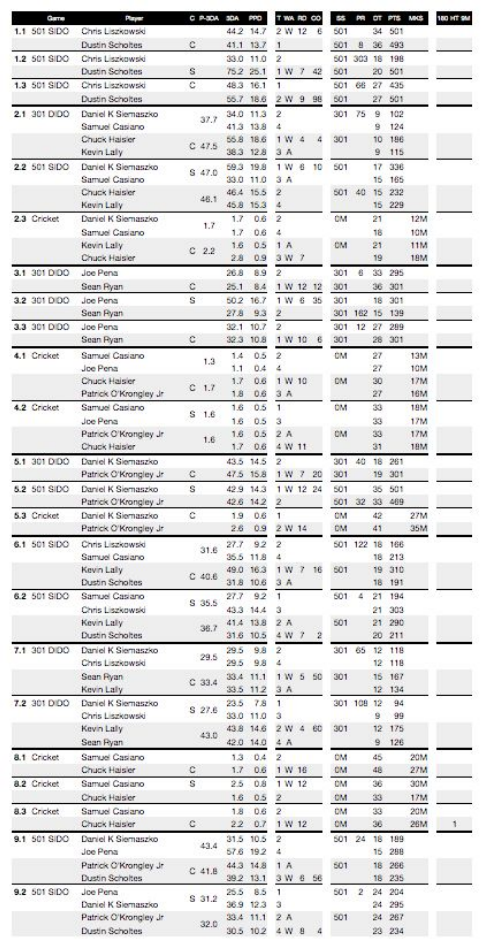
Division Nickel Standings

	PTS	MP	MW	Team / Player	'01	CRK	DCM
1.	56	9	8	Funky Bunch	39.16	2.2	9
2.	52	9	6½	Drifters	35.60	2	9
3.	49	10	8	On the Board Dummy!	35.88	1.92	10
4.	49	9	7	I'm Out !	35.37	1.88	9
5.	48	8	7	Dart Daddies	39.15	2.04	8
6.	44	10	6½	The Deuce	36.5	2.01	10
7.	44	9	5	O.T.B.A.	33.78	1.91	9
8.	40	7	6	Phantom Cork	43.55	2.18	7
9.	37	9	3	Thorns	34.95	1.74	9
10.	37	9	3	Big Wayne	36.65	2	9
11.	36	9	4½	Never Convicted	34.92	1.84	9
12.	35	9	4	Wolfpack	35.71	1.89	9
13.	35	9	4	What Practice?	34.77	1.81	9
14.	33	7	4	180 Darts	45.63	2.28	7
15.	33	7	5	Fun & Games	37.52	1.98	7
16.	31	7	5	Flights Templar	38.54	2.08	7
17.	31	7	2	Happy Accident	37.93	2.17	7
18.	30	10	2½	Lunch Specials	35.28	1.87	10
19.	28	7	2	MasterGators	33.6	1.75	7
20.	28	9	1	Blind Squirrels	35.6	1.72	9
21.	21	9	3	Shoot To Kill	33.69	1.73	9
22.	20	9	0	Da Throwing Stix	33.02	1.8	9
23.	18	8	0	Tripwire	38.91	2.15	8

Division standings are determined by the following criteria:
Season League Points

All League Standings

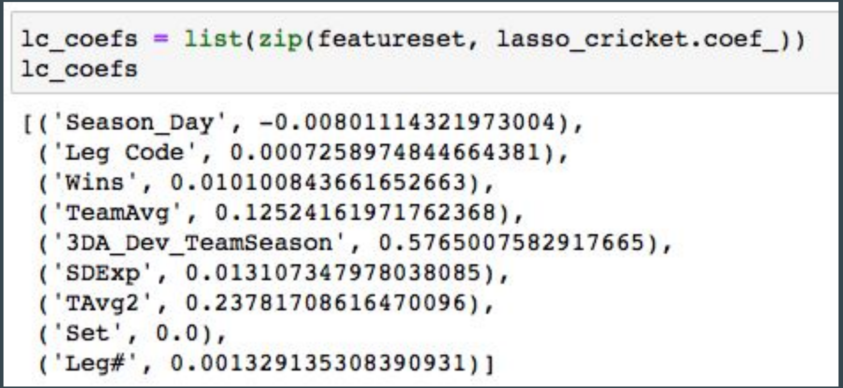
PTS	MP	MW	Division - Brass	'01	CRK	DCM	Division
			Division Average	35.14	1.87		



Game		Player	C	P-3DA	3DA	PPD	T	WA	RD	CO	SS	PR	DT	PTS	MKS	180	HT	9M
1.1	501 SIDO	Chris Liszkowski			44.2	14.7	2	W	12	6	501		34	501				
		Dustin Scholtes	C		41.1	13.7	1				501	8	36	493				
1.2	501 SIDO	Chris Liszkowski			33.0	11.0	2				501	303	18	198				
		Dustin Scholtes	S		75.2	25.1	1	W	7	42	501		20	501				
1.3	501 SIDO	Chris Liszkowski	C		48.3	16.1	1				501	66	27	435				
		Dustin Scholtes			55.7	18.6	2	W	9	98	501		27	501				
2.1	301 DIDO	Daniel K Siemaszko		37.7	34.0	11.3	2				301	75	9	102				
		Samuel Casiano			41.3	13.8	4						9	124				
		Chuck Haisler	C	47.5	55.8	18.6	1	W	4	4	301		10	186				
		Kevin Lally			38.3	12.8	3	A					9	115				
2.2	501 SIDO	Daniel K Siemaszko	S	47.0	59.3	19.8	1	W	6	10	501		17	336				
		Samuel Casiano			33.0	11.0	3	A					15	165				
		Chuck Haisler		46.1	46.4	15.5	2				501	40	15	232				
		Kevin Lally			45.8	15.3	4						15	229				
2.3	Cricket	Daniel K Siemaszko		1.7	1.7	0.6	2				0M		21		12M			
		Samuel Casiano			1.7	0.6	4						18		10M			
		Kevin Lally	C	2.2	1.6	0.5	1	A			0M		21		11M			
		Chuck Haisler			2.8	0.9	3	W	7				19		18M			
3.1	301 DIDO	Joe Pena			26.8	8.9	2				301	6	33	295				
		Sean Ryan	C		25.1	8.4	1	W	12	12	301		36	301				
3.2	301 DIDO	Joe Pena	S		50.2	16.7	1	W	6	35	301		18	301				
		Sean Ryan			27.8	9.3	2				301	162	15	139				
3.3	301 DIDO	Joe Pena			32.1	10.7	2				301	12	27	289				
		Sean Ryan	C		32.3	10.8	1	W	10	6	301		28	301				
4.1	Cricket	Samuel Casiano		1.3	1.4	0.5	2				0M		27		13M			
		Joe Pena			1.1	0.4	4						27		10M			
		Chuck Haisler	C	1.7	1.7	0.6	1	W	10		0M		30		17M			
		Patrick O'Krongley Jr			1.8	0.6	3	A					27		16M			
4.2	Cricket	Samuel Casiano	S	1.6	1.6	0.5	1				0M		33		18M			
		Joe Pena			1.6	0.5	3						33		17M			
		Patrick O'Krongley Jr		1.6	1.6	0.5	2	A			0M		33		17M			
		Chuck Haisler			1.7	0.6	4	W	11				31		18M			
5.1	301 DIDO	Daniel K Siemaszko			43.5	14.5	2				301	40	18	261				
		Patrick O'Krongley Jr	C		47.5	15.8	1	W	7	20	301		19	301				
5.2	501 SIDO	Daniel K Siemaszko	S		42.9	14.3	1	W	12	24	501		35	501				
		Patrick O'Krongley Jr			42.6	14.2	2				501	32	33	469				
5.3	Cricket	Daniel K Siemaszko	C		1.9	0.6	1				0M		42		27M			
		Patrick O'Krongley Jr			2.6	0.9	2	W	14		0M		41		35M			
6.1	501 SIDO	Chris Liszkowski		31.6	27.7	9.2	2				501	122	18	166				
		Samuel Casiano			35.5	11.8	4						18	213				
		Kevin Lally	C	40.6	49.0	16.3	1	W	7	16	501		19	310				
		Dustin Scholtes			31.8	10.6	3	A					18	191				
6.2	501 SIDO	Samuel Casiano	S	35.5	27.7	9.2	1				501	4	21	194				
		Chris Liszkowski			43.3	14.4	3						21	303				
		Kevin Lally		36.7	41.4	13.8	2	A			501		21	290				
		Dustin Scholtes			31.6	10.5	4	W	7	2			20	211				
7.1	301 DIDO	Daniel K Siemaszko		29.5	29.5	9.8	2				301	65	12	118				
		Chris Liszkowski			29.5	9.8	4						12	118				
		Sean Ryan	C	33.4	33.4	11.1	1	W	5	50	301		15	167				
		Kevin Lally			33.5	11.2	3	A					12	134				
7.2	301 DIDO	Daniel K Siemaszko	S	27.6	23.5	7.8	1				301	108	12	94				
		Chris Liszkowski			33.0	11.0	3						9	99				
		Kevin Lally		43.0	43.8	14.6	2	W	4	60	301		12	175				
		Sean Ryan			42.0	14.0	4	A					9	126				
8.1	Cricket	Samuel Casiano			1.3	0.4	2				0M		45		20M			
		Chuck Haisler	C		1.7	0.6	1	W	16		0M		48		27M			
8.2	Cricket	Samuel Casiano	S		2.5	0.8	1	W	12		0M		36		30M			
		Chuck Haisler			1.6	0.5	2				0M		33		17M			
8.3	Cricket	Samuel Casiano			1.8	0.6	2				0M		33		20M			
		Chuck Haisler	C		2.2	0.7	1	W	12		0M		36		26M		1	
9.1	501 SIDO	Daniel K Siemaszko		43.4	31.5	10.5	2				501	24	18	189				
		Joe Pena			57.6	19.2	4						15	288				
		Patrick O'Krongley Jr	C	41.8	44.3	14.8	1	A			501		18	266				
		Dustin Scholtes			39.2	13.1	3	W	6	56			18	235				
9.2	501 SIDO	Joe Pena	S	31.2	25.5	8.5	1				501	2	24	204				
		Daniel K Siemaszko			36.9	12.3	3						24	295				
		Patrick O'Krongley Jr		32.0	33.4	11.1	2	A			501		24	267				
		Dustin Scholtes			30.5	10.2	4	W	8	4			23	234				

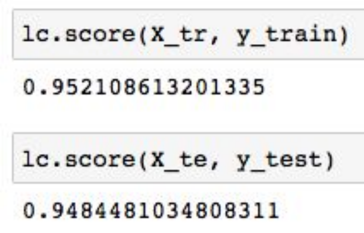
Appendix - SDExp = (Season_Day+50)**5

Lasso



```
lc_coefs = list(zip(featureset, lasso_cricket.coef_))
lc_coefs
```

```
[('Season_Day', -0.008011114321973004),
 ('Leg Code', 0.0007258974844664381),
 ('Wins', 0.010100843661652663),
 ('TeamAvg', 0.12524161971762368),
 ('3DA_Dev_TeamSeason', 0.5765007582917665),
 ('SDExp', 0.013107347978038085),
 ('TAvg2', 0.23781708616470096),
 ('Set', 0.0),
 ('Leg#', 0.0013291353083909931)]
```



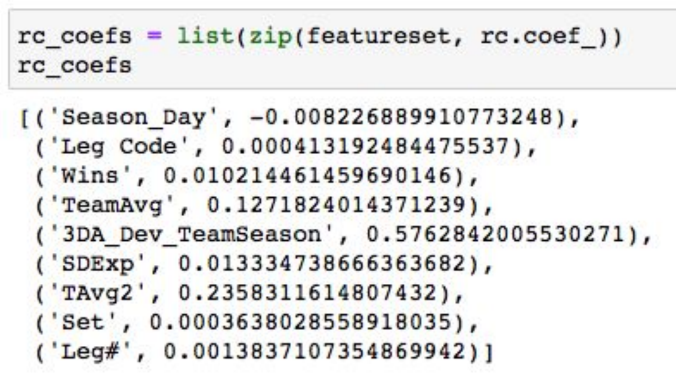
```
lc.score(X_tr, y_train)
```

```
0.952108613201335
```

```
lc.score(X_te, y_test)
```

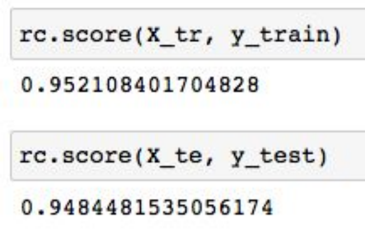
```
0.9484481034808311
```

Ridge



```
rc_coefs = list(zip(featureset, rc.coef_))
rc_coefs
```

```
[('Season_Day', -0.008226889910773248),
 ('Leg Code', 0.000413192484475537),
 ('Wins', 0.010214461459690146),
 ('TeamAvg', 0.1271824014371239),
 ('3DA_Dev_TeamSeason', 0.5762842005530271),
 ('SDExp', 0.013334738666363682),
 ('TAvg2', 0.2358311614807432),
 ('Set', 0.0003638028558918035),
 ('Leg#', 0.0013837107354869942)]
```



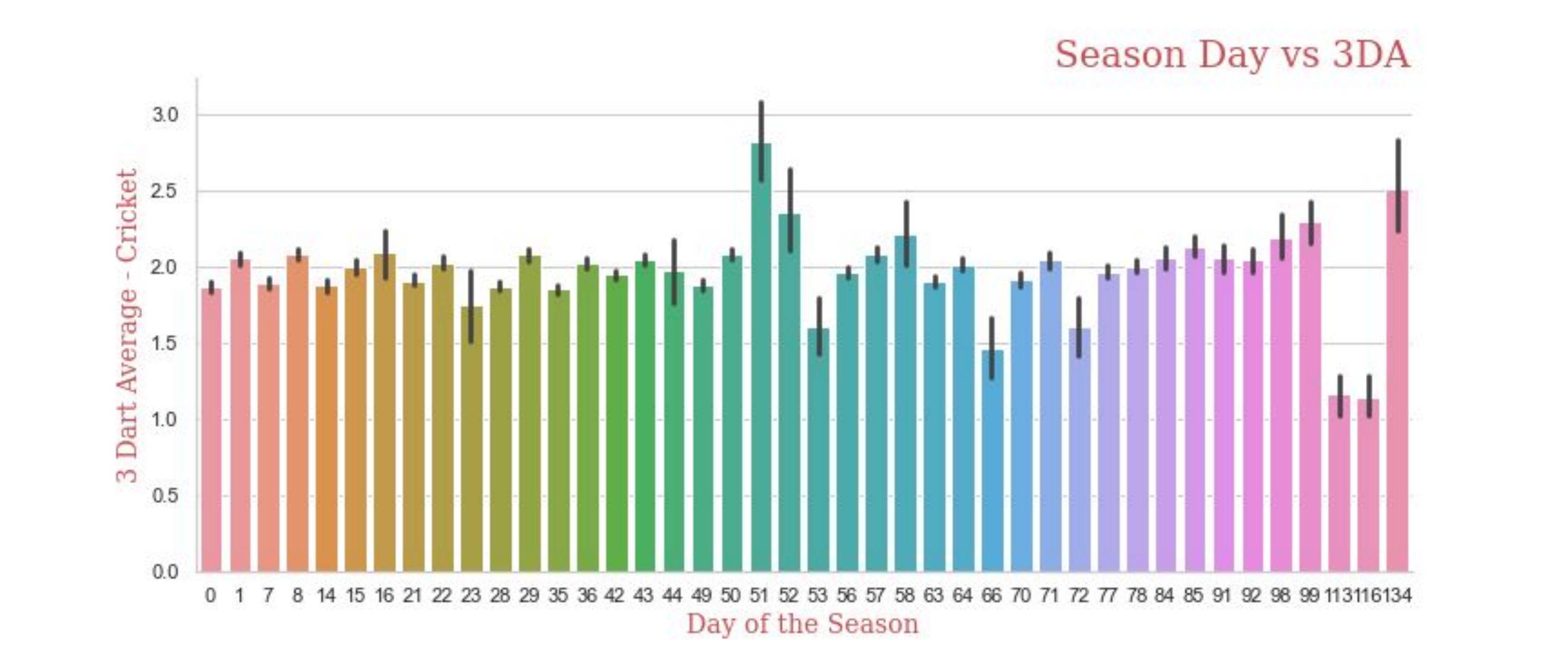
```
rc.score(X_tr, y_train)
```

```
0.952108401704828
```

```
rc.score(X_te, y_test)
```

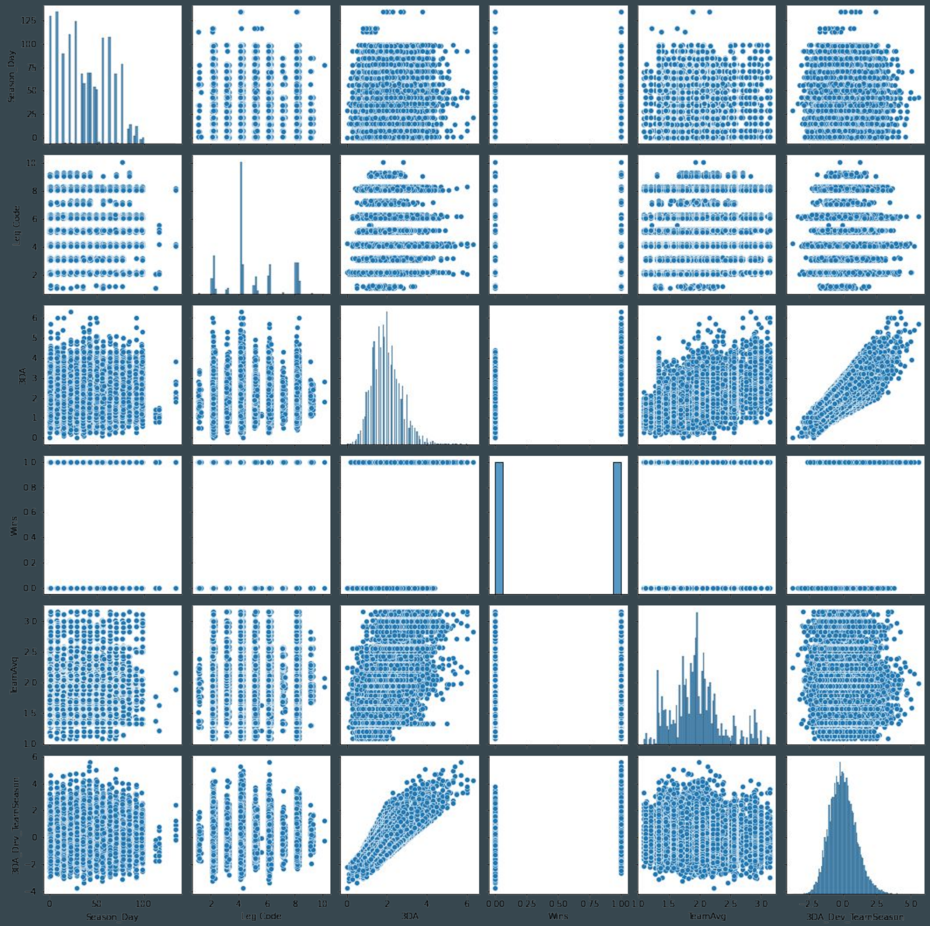
```
0.9484481535056174
```

Appendix - Starting point - Pure correlation chart



Appendix - Starting point

- Pair plots to determine correlations


Season_Day
Leg Code
3DA
Wins
TeamAvg
3DA_Dev_TeamSeason