

NHL Trade Deadline Strategies:

Does Trading for an All-Star improve a team's playoff success?

BrainStation Capstone Project

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Why Hockey?

- First on Skates at 4 years old
- Still Play Today
- “Armchair GM”
- New York Rangers
 - Annual Brothers Game
 - (Partial) Season Ticket Holder
 - No Stanley Cups in my memory



NHL Overview:

- 32 Teams, 16 make playoffs
- Trade Deadline
 - “Buyers” - contending teams
 - “Sellers” - rebuilding teams
 - “All Stars” vs. “Role Players”
- Stanley Cup trophy



2023 - 24 NHL Season Timeline



Goal

- Predict playoff success based on a team's midseason trade activity

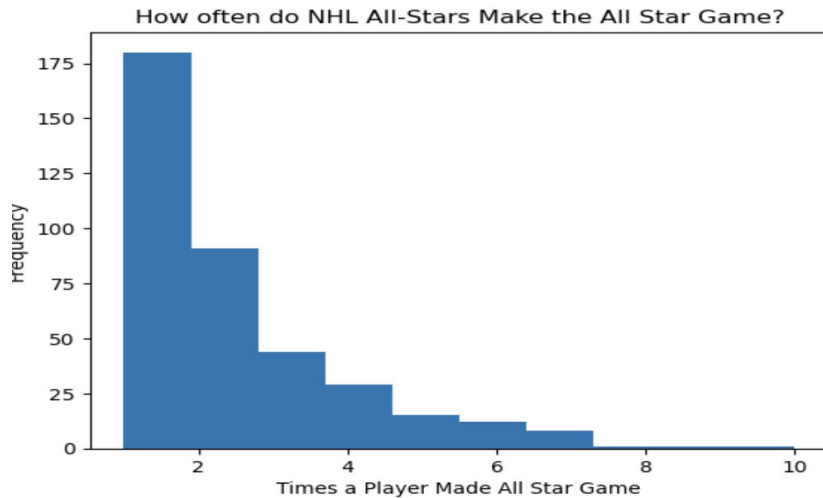
Potential Impact

- Teams often sacrifice future assets in effort to improve their chances for the current season
- Will a team improve their success more by going all in, or by more marginal upgrades?



Data

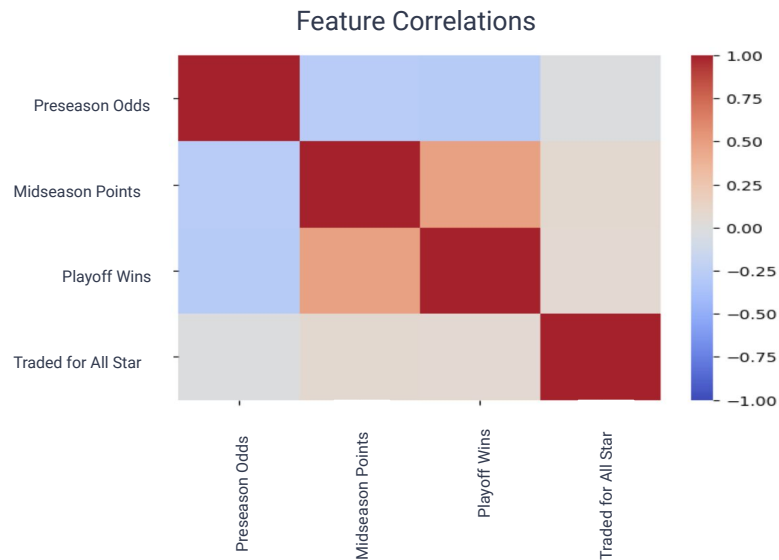
- NHL 2005-06 - Present
- Players - 3500 total
 - ~1000 per season
 - 382 All Stars (2000 - Present)
- Trades ~900+
 - ~120 incl. All stars
- Teams
 - Best - Penguins (3 SC)
 - Worst - Sabres



Model

- Base Model - 62%
 - Logistic Regression
- Models w/ Trade Feature
 - Logistic Regression - report
 - Ridge Classifier
 - Random Forest Classifier
 - Pipeline / Grid Search

	precision	recall	f1-score	support
-1.0	0.76	0.88	0.82	51
0.0	0.47	0.75	0.58	32
1.0	0.00	0.00	0.00	12
2.0	0.00	0.00	0.00	7
3.0	0.00	0.00	0.00	4
4.0	0.00	0.00	0.00	4
accuracy			0.63	110
macro avg	0.21	0.27	0.23	110
weighted avg	0.49	0.63	0.55	110



Data Sources

- CapFriendly
 - NHL Trades 2006 - 2024
- Hockey Reference
 - NHL Team Data
 - Preseason Odds
 - Playoff Results
 - NHL Player Data
 - Active Players 2006 - 2024
 - NHL All Stars 2006 - 2024
- SHRP Sports
 - NHL Team Data
 - Mid-season Standings

Approach

- 1) Data Collection
- 2) Data Exploration
- 3) Process Data
- 4) Model
- 5) Reiterate & Optimize



Challenges

- Data Collection
- Grand Scope
- Complexity of Data
- Found no significance

Successes

- Learned how to Web Scrape
- Reframing / Chunking
- Fun to look back through past data
- Rewarding to work through issues

Next Steps

- More Efficient Code
- Add Features
- Try Additional Models
 - Predict 2024 Playoffs
- Part 2:
 - Model for 'All-Star caliber'
 - Player Roles
 - Feed back into this model

