

# Betting against the spread vs underdog

Final Project Presentation

CSCI 3022 - Introduction to Data Science

# Presentation Outline / Sections Covered

- Project Description
  - Why?
  - Hypotheses?
  - Test Statistic
  - Data Sources
- Data Analysis
  - Analyzed elements
  - Data Vis
  - Linear Regression
- Summary & Recommendations

# Project Description

# Why sports gambling?

- UFC 278
  - Historic upset as pound for pound #1 is knocked out cold with 50 seconds left
- Relatively light history of sports gambling
  - Always kept an eye on the odds
- Can you leverage the sheer processing power of a computer to reliably predict outcomes?
  - Yes if correlation  $> .5$
- Target Audience:
  - Those interested in improving their profits in sports betting, or anyone interested in getting into sports gambling.

# Hypothesis to Test

- Null Hypothesis:
  - Betting against the spread is the most profitable single action way to bet on NBA
    - This is conventional wisdom in the sphere of sports gambling.
- My Hypothesis:
  - Betting on the underdog will be more profitable than betting against the spread

# Test Statistic

- My test statistics were:
  - ML Odds, and their impact on the net money per bet
    - Only used odds that were  $> 0$ , 'Underdog Odds'
  - Opening Spread, and its impact on the net money per bet.
    - Must cover the spread to payout.

# Data Sources

- Due to the sparsity and untidiness of UFC data, settled on NBA game data
- Initial sources were plentiful, containing info going back to 1955 (for NBA)
  - Too much data
  - Other sports had less historic data, and were less useable
- Found historic data for many sports (NBA, NHL, NFL, etc.)
  - Broken into seasons, starting with '07-'08
  - Very clean, contained all of the data I needed, but not an excessive amount

# Data Analysis

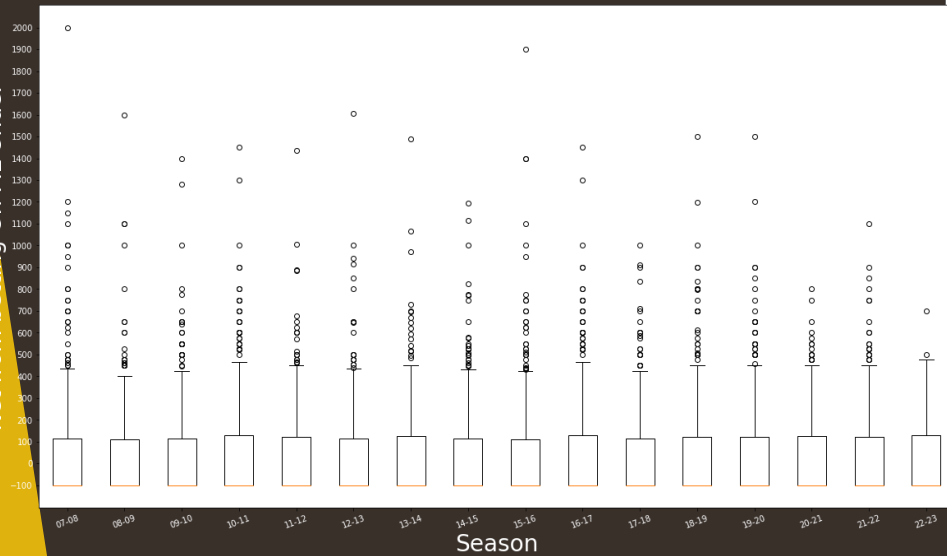


# Data Elements Analyzed

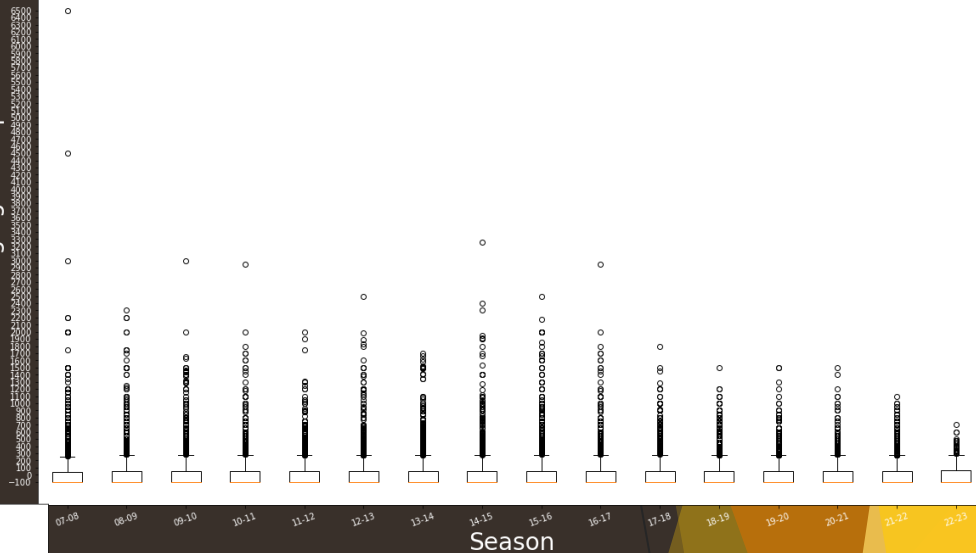
- ML Underdog
  - Team slated to lose at open, presented as +xyz (ex. 150, 485, etc)
- Point Spread
  - Uses ML values, but only if the spread is covered.
  - If favorite, they must either win by the spread or more to pay out.
    - Presented as -x (ex. -1, -12, -7, etc.)
  - If Underdog, they must either win, or lose by or less than the point spread to pay out.
    - Presented as x (ex. 1, 12, 7, etc.)

# Data Visualization

Net from betting On ML Under



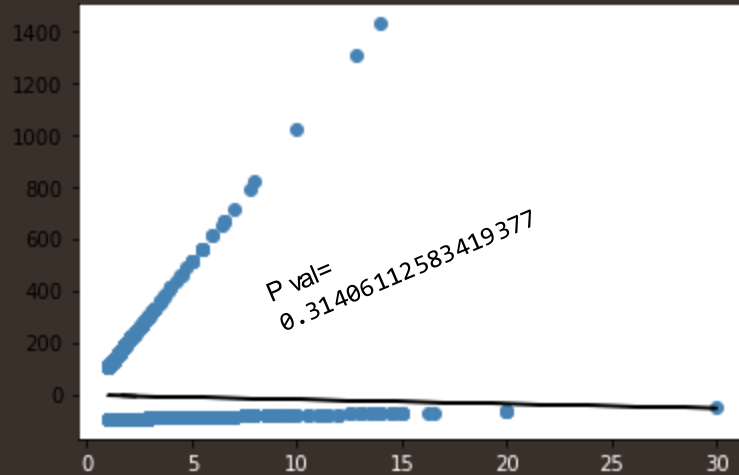
Net from betting against spread



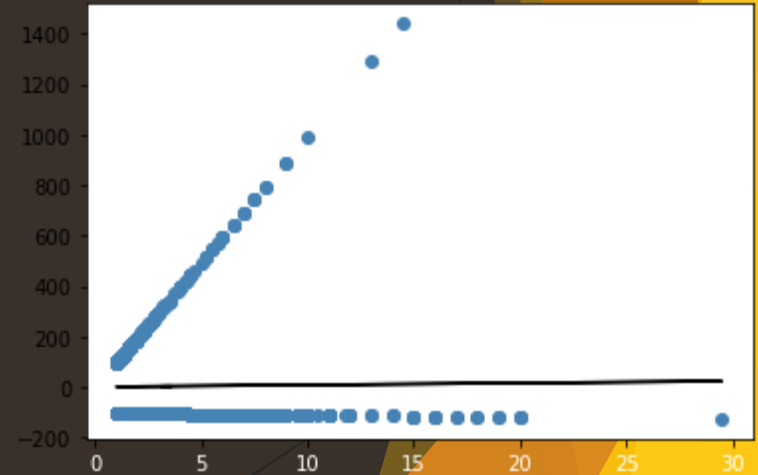
# Linear Regression Analysis

Underdog:

'09-'10



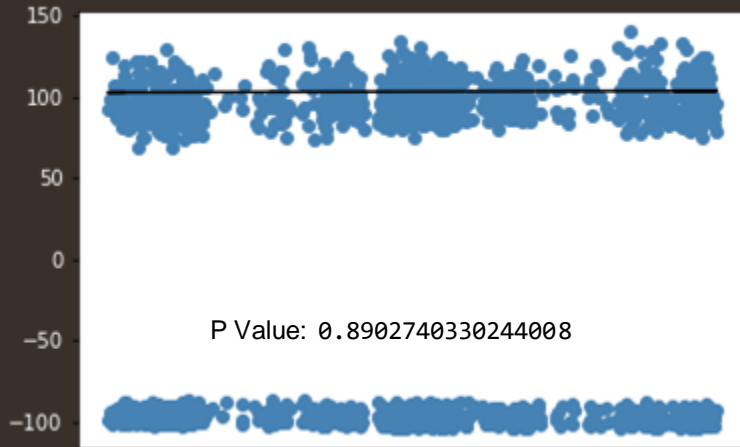
'16-'17



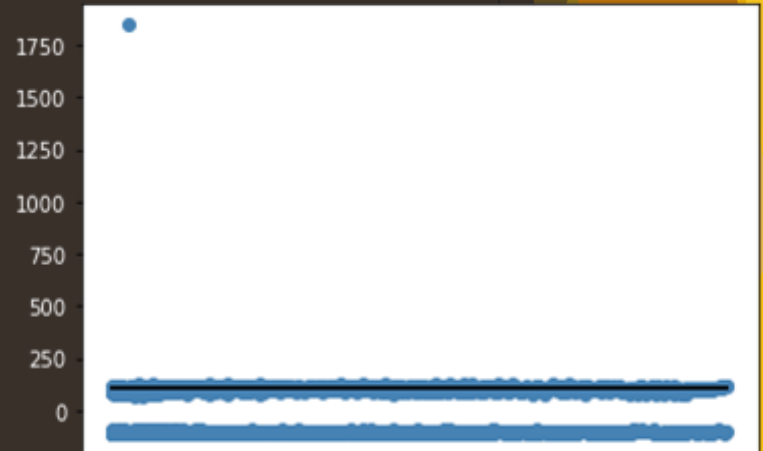
# Linear Regression Analysis

Spread:

'09-'10



'16-'17

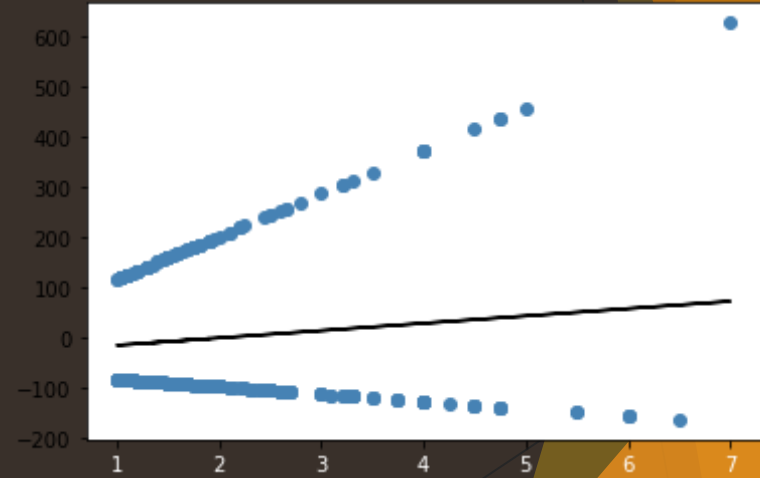


$P=0.06302274798231114$

Spread



Under



# Summary & Recommendations

# In Summation...

- Sports betting is a popular and now very legal way of gambling (In a handful of states)
- Conventionally, betting on the spread is the best way to bet, I was unable to reject this null hypothesis with my hypothesis “Betting on UD is more profitable than betting against the spread.”
- My data was very clean, but at the cost of relevant columns
  - Final Spread, Win or Loss, Win Factor, and the net amount for each method all were created in excel, through many hours of data wrangling through algorithm revision for column creation.
  - Ideally, every dataset I downloaded would have all the columns I needed, so that I will not have to go through this very tedious process.

# Recommendations

- Recommendation differs depending on your risk tolerance.
- If you have high risk tolerance, betting on the UD will net you higher gains at far less frequency. Will incur aggressive losses if used regularly.
- If you have low risk tolerance, or are just looking to start sports gambling, betting on the spread may be better for you. The returns are often less but are more consistent.
- Based on this model, you will not gain money either way, but you will lose less betting on the spread.



**Thank You!**