



# MASS INCARCERATION

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# AGENDA

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- 01 PROBLEM STATEMENT
- 02 EDA/DATA PROCESSING TO MODELING
- 03 APP DEMO
- 04 CONCLUSIONS



# PROBLEM STATEMENT

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We are a team from the Prison Policy Initiative contracted by the U.S. Sentencing Commission to provide insights into sentencing trends in order to identify areas for policy reform related to trial proceeding rights. The aim of this project is to look at the trends in sentencing as federal sentencing guidelines changed over time due to the Booker vs US 2005 Supreme Court Decision to redefine sentencing minimums





# ABOUT BOOKER

Booker is a sentencing supreme court decision from 2005 that created regulations around sentencing to ensure defendants have a fair trial and ultimately fair trial outcomes



# DATA WRANGLING

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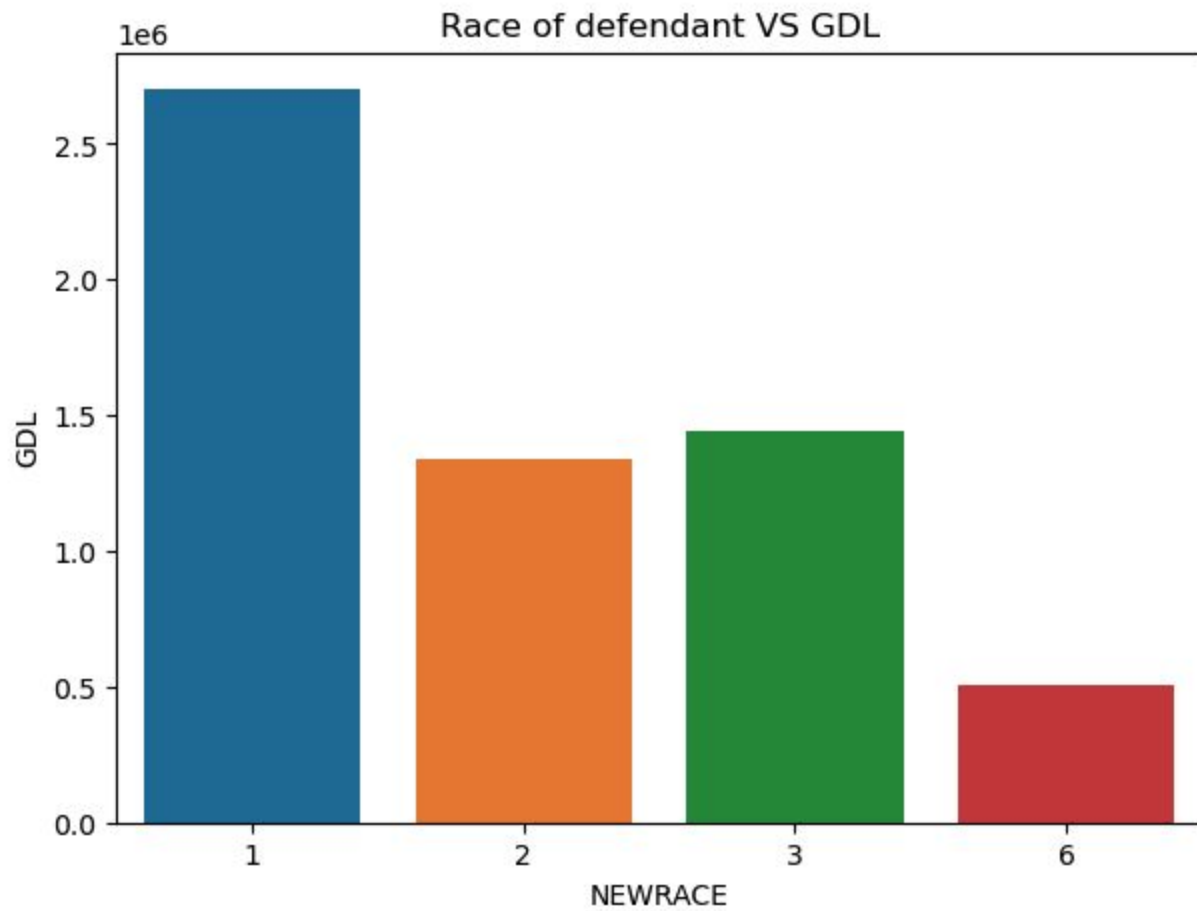
Provided large, un-readable data formats from Booker Report. Data was collected over time based on federal sentencing guidelines set forth in the viable act

- Pulled data from dat file
- Indexed data based on another file containing feature information

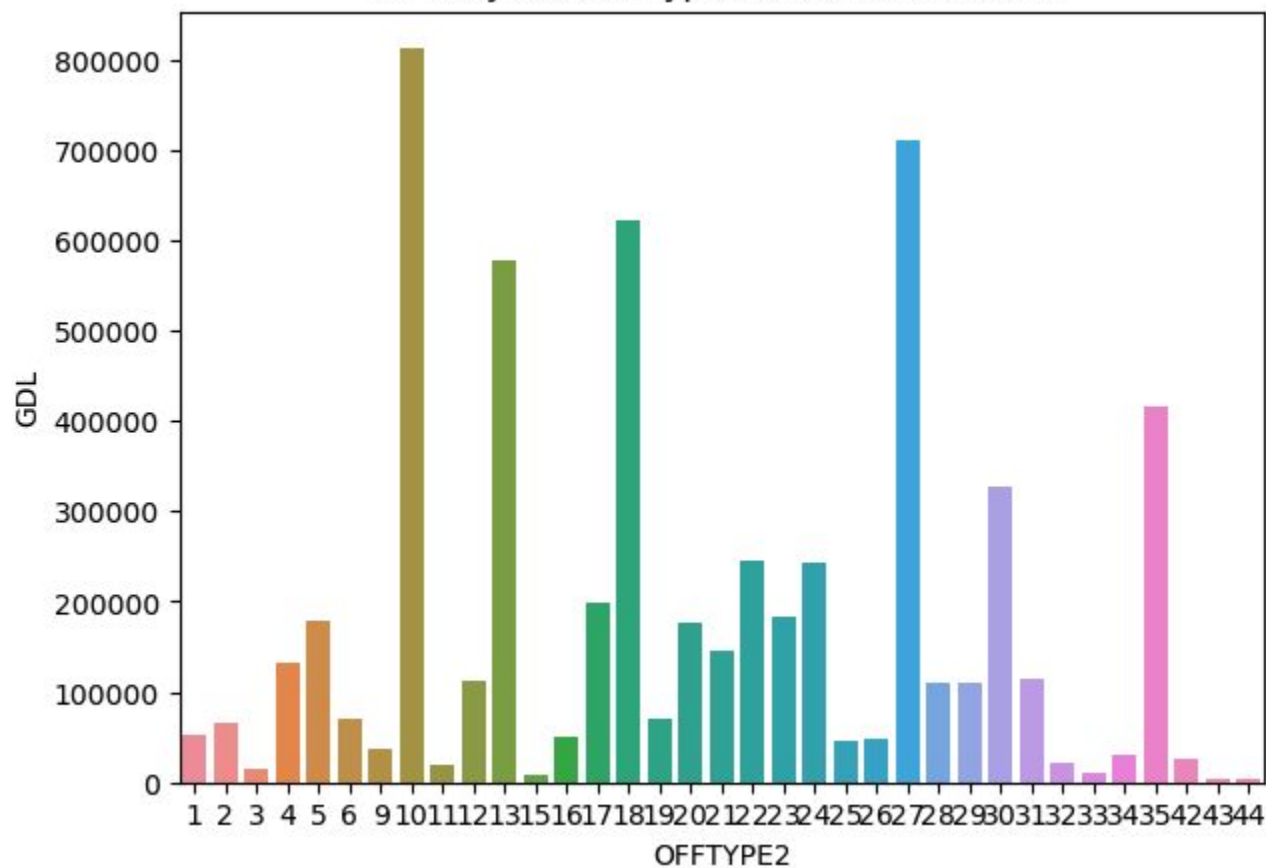
# EDA

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- Cleaning Missing Values
- Dropped columns with more than 75% missing values
- Imputations
- Feature Engineering



Primary offense type for the case VS GDL



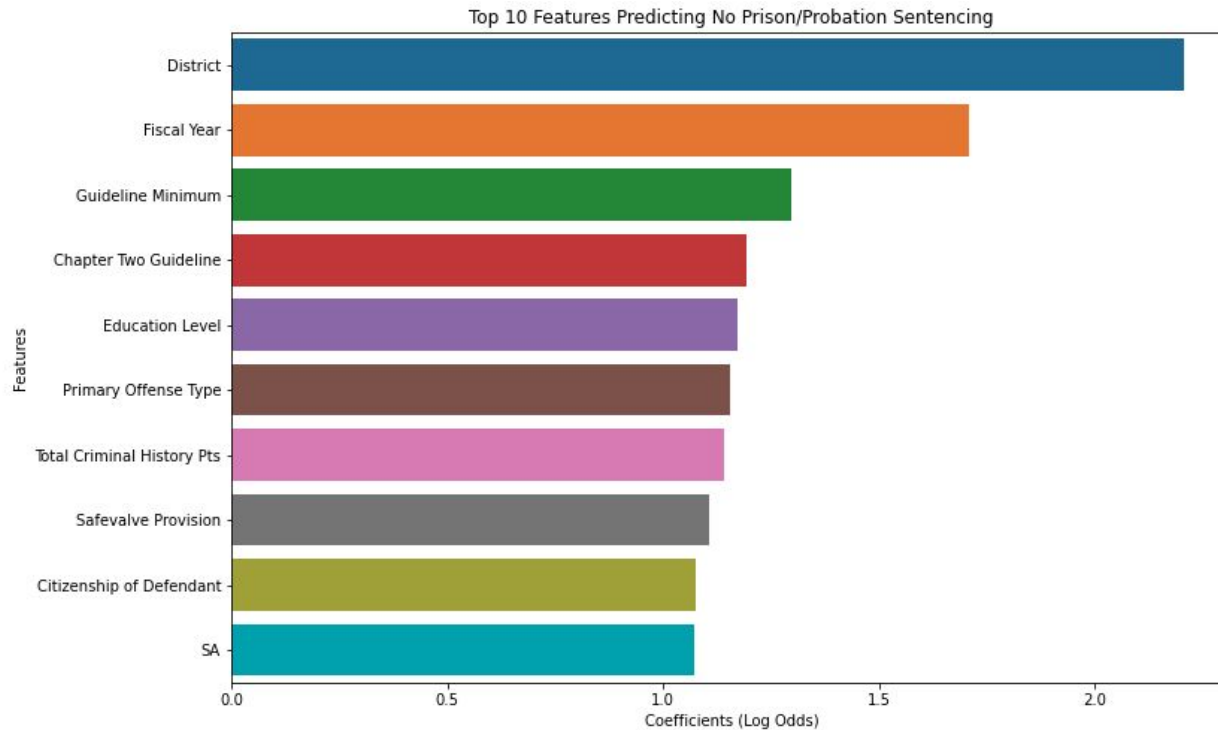




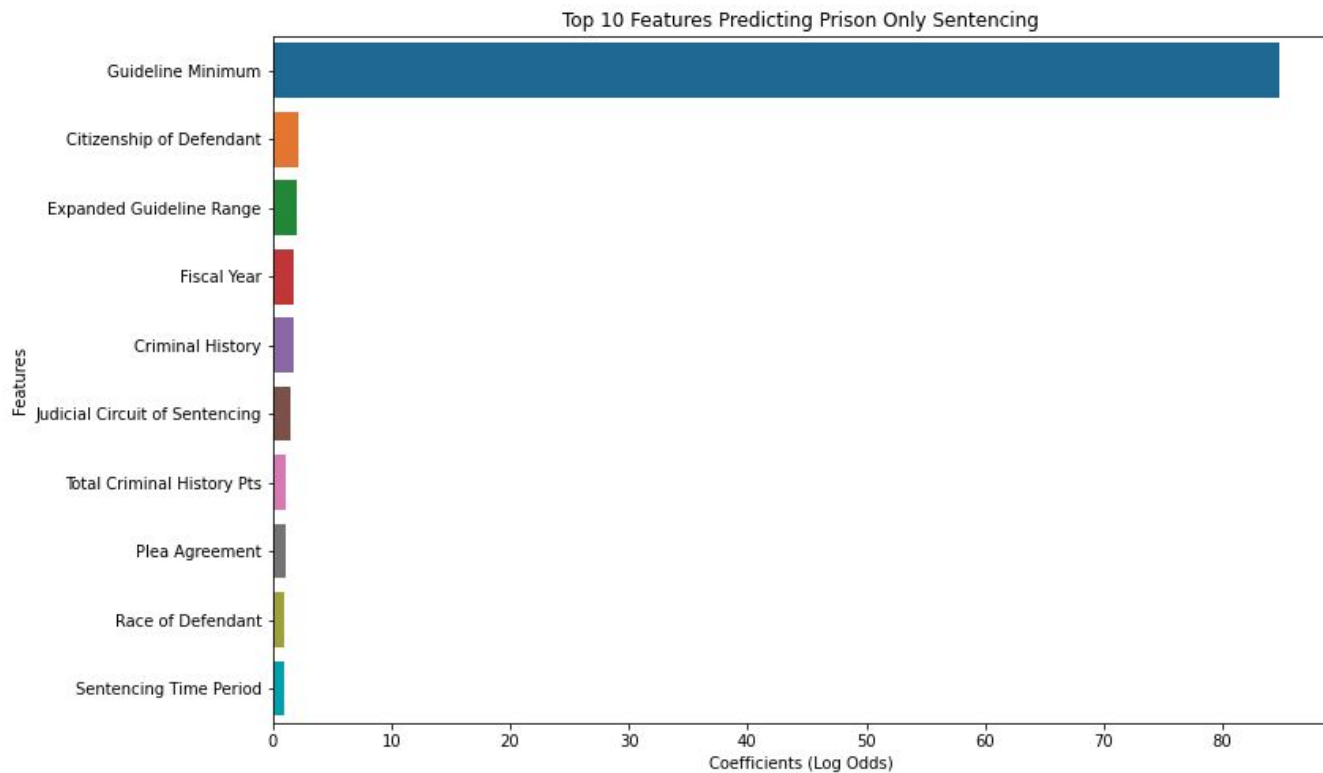
# MODELING

- Three Targets
  - Sentencing : Random Forest w/Bayes Search CV
  - Period: Random Forest w/Bayes Search CV
  - District: Random Forest w/Bayes Search CV

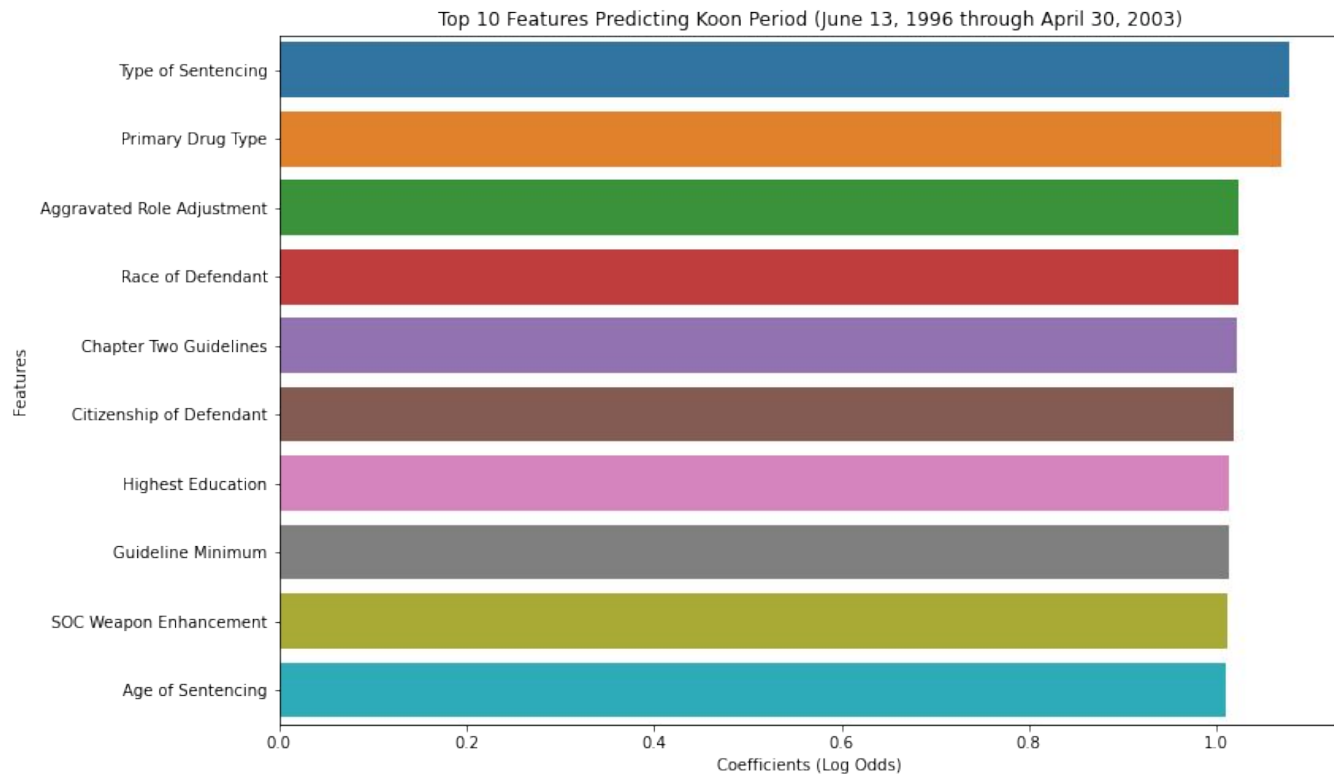
# SENTENCING



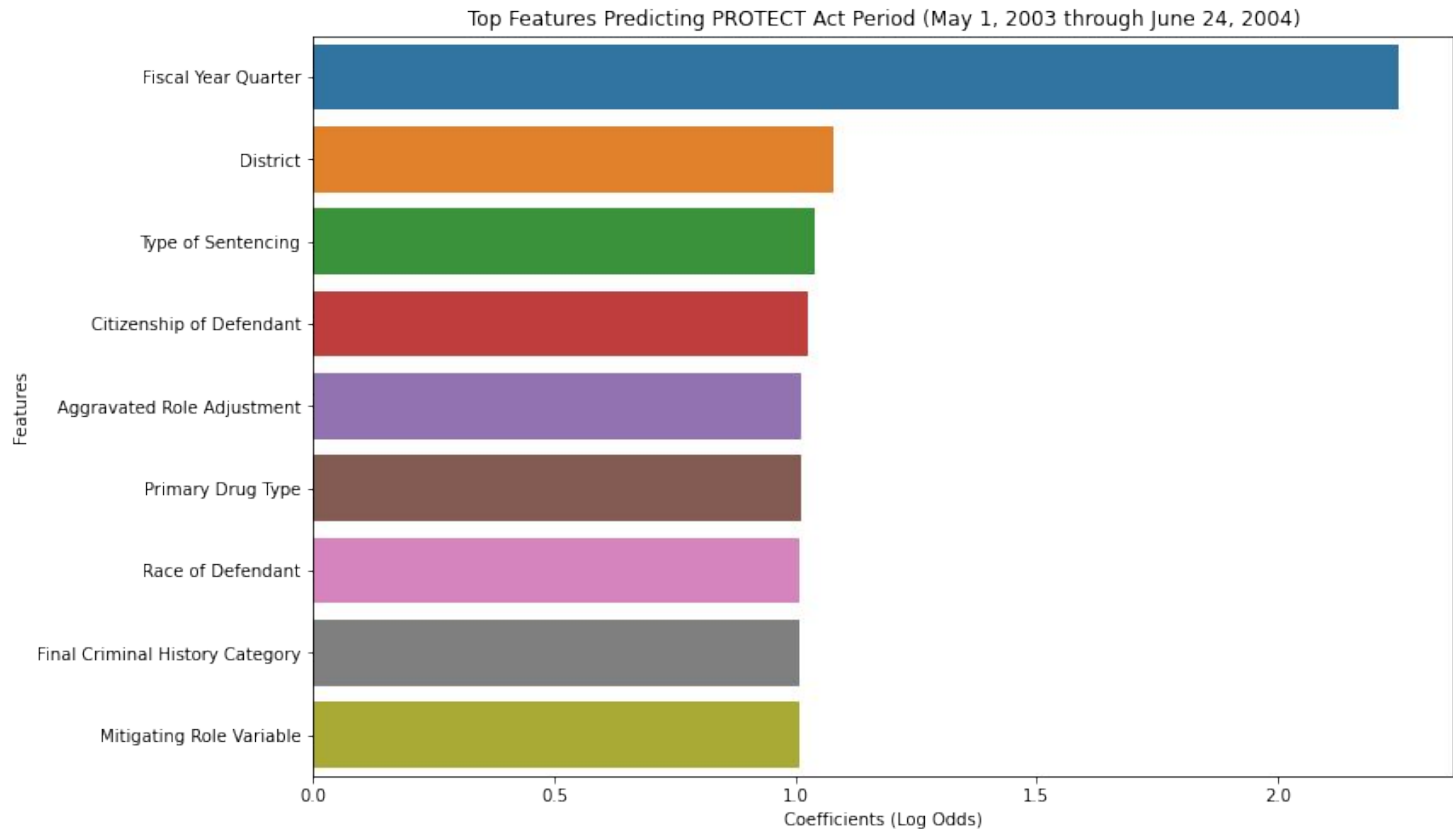
# SENTENCING



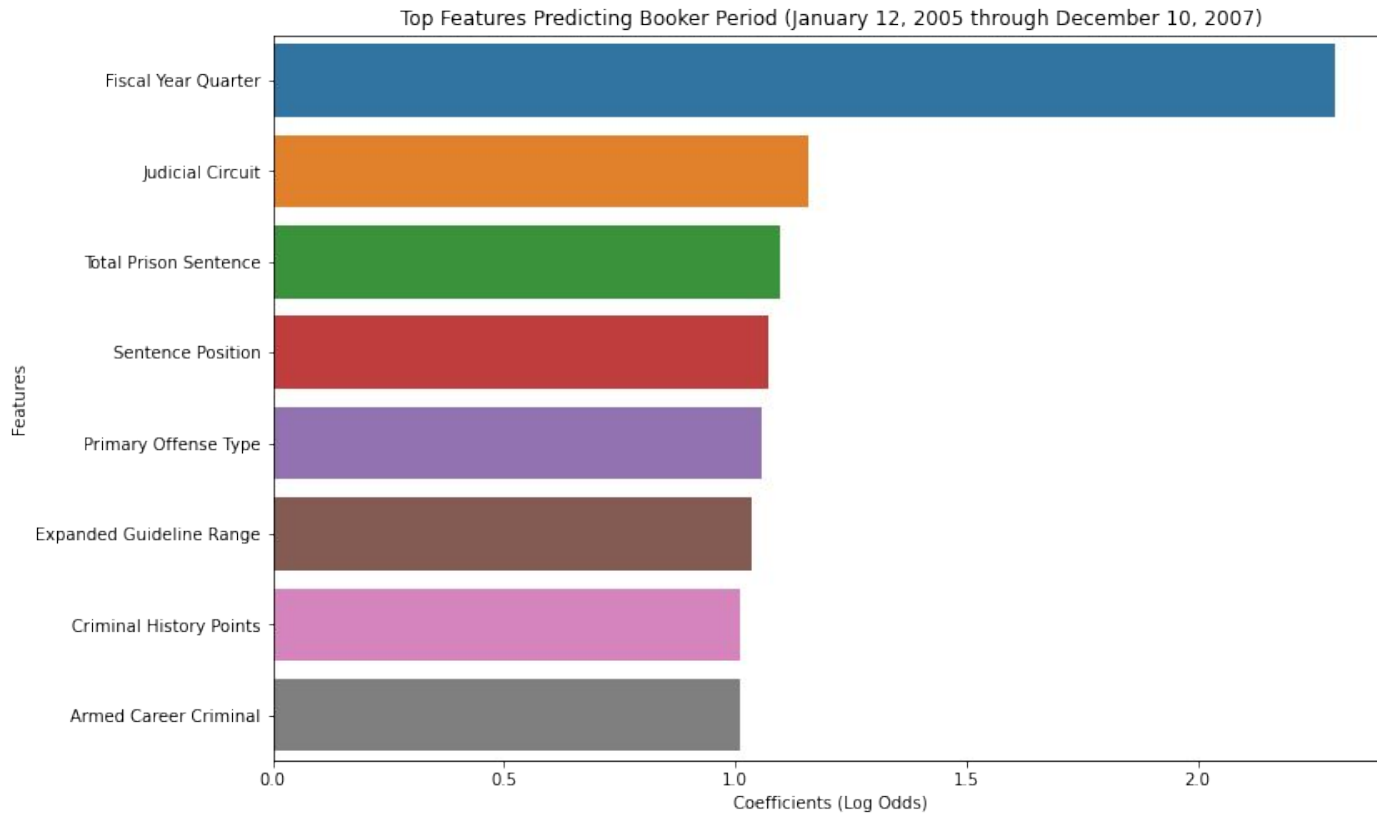
# KOON PERIOD (JUNE 13, 1996 THROUGH APRIL 30, 2003)



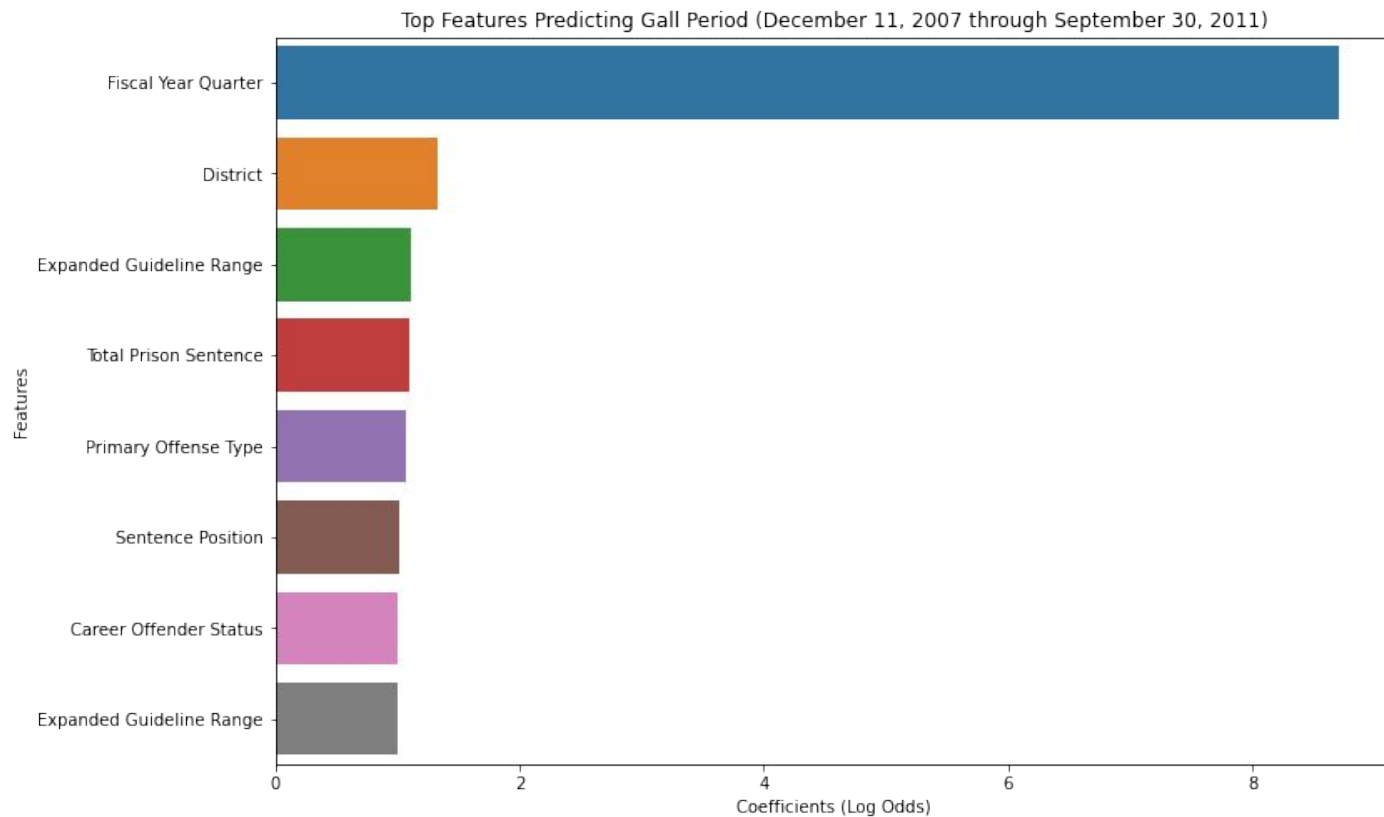
# PROTECT ACT PERIOD (MAY 1, 2003 THROUGH JUNE 24, 2004)



# BOOKER PERIOD (JANUARY 12, 2005 THROUGH DECEMBER 10, 2007)



# GALL PERIOD (DECEMBER 11, 2007 THROUGH SEPTEMBER 30, 2011)



# APPLICATION DEMO!!

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# CONCLUSIONS AND RECOMMENDATIONS

- We are seeing that over time sentencing is becoming less indicative of crime features and more indicative of time of year/time period and district of sentencing
- Focus is on guideline minimums vs overall type of sentencing impact
- Biases in data collection

## **We recommend:**

- To inform research for lobbying efforts on federal sentencing guidelines
- To target politicians from circuit districts with high bias rates
- To focus on reducing bias in federal sentencing guidelines

## **Continued Research:**

- Look more deeply into the specific bias districts
- Look further into who these biases are impacting and how

THANK YOU!!