



# MARCH MACHINE LEARNING MANIA 2024

FORECASTING THE 2024 MEN'S COLLEGE BASKETBALL TOURNAMENTS

A close-up, low-angle shot of a basketball hoop and net. The net is white and hangs from a red rim. The background is a blurred wooden floor. The image is partially obscured by a white diagonal shape on the right side.

# THE PROBLEM

OUR GOAL IS TO PREDICT THE  
RESULTS OF THE MEN'S 2024  
COLLEGE BASKETBALL  
TOURNAMENTS BY SUBMITTING A  
COLLECTION OF BRACKETS  
INFORMED BY HISTORICAL DATA,  
WHICH WILL BE A CLASSIFICATION  
PROBLEM.







# ALGORITHMS USED

- Logistic Regression
- Decision Tree
- Random Forest
  - XGBoost
- MLP Classifier (Neural network)
  - Naïve Bayes



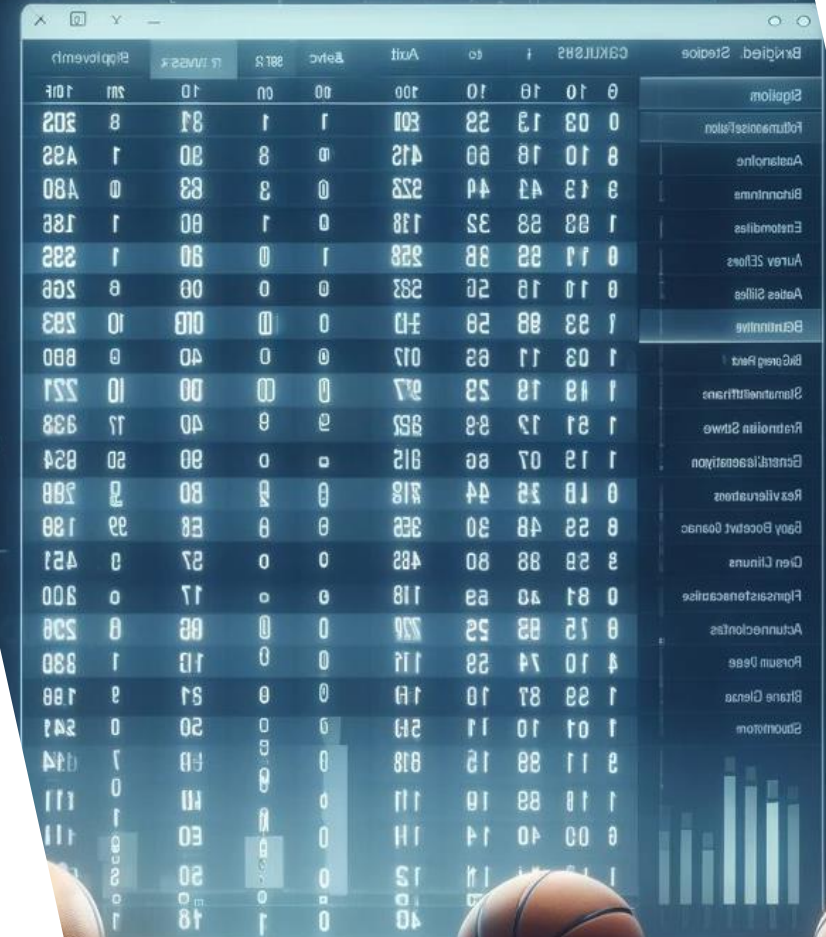
SIZE ON THE DISK:  
712MB

NUMBER OF TRAINING INSTANCES:  
20

NUMBER OF FEATURES:  
60-180

RANGE:  
2

## INFORMATION ON THE DATASET



# HOW THE ALGORITHMS PERFORMED



# THE BASELINE

THE INITIAL AVERAGE PERFORMANCE –  
LOGISTIC REGRESSION

- The initial assessment of the average performance of the Logistic Regression algorithm on our dataset was 0.73.
- The initial feature configuration was a test using the model as a general test.

# ALGORITHM TRAINING & CONTINUOUS EVALUATION

ADDITIONAL ALGORITHMS USED

# ALGORITHMS USED - CLASSIFICATION

## Top Performers

- Logistic Regression – 77.3%
- MLP Classifier – 77.2%
- XGBoost – 76.0%

## Worst Performers

- Naïve Bayes – 75.3%
- Random Forest – 75.1%
- Decision Tree – 68.0%





# INTERPRETING THE TOP PERFORMER

- OUR TOP PERFORMING ALGORITHM WAS LOGISTIC REGRESSION, WITH AN ACCURACY OF 77.3%.
- TOP PERFORMING CONFIGURATIONS
  - LOGISTIC REGRESSION WITHOUT RATINGS
  - MLP CLASSIFICATION WITH RATINGS
  - XGBOOST WITH RATINGS



# AVERAGES FOR EACH ALGORITHM

Data Variants	Averages	Averages with Ratings	Average of Past 10 Games	Average of Past 10 Games W Rating
Naïve Bayes	0.694963	0.717608	0.743741	0.752905
Logistical Regression	0.735479	0.730485	0.776097	0.772723
Decision Tree	0.642981	0.644373	0.692437	0.680367
Random Forest	0.726145	0.713783	0.756219	0.751237
XGBoost	0.719841	0.718567	0.755495	0.760408
MLP	0.731234	0.729159	0.770152	0.772158



A vibrant digital illustration featuring a man in a dark t-shirt and red shorts jumping towards the right. His right arm is extended upwards, reaching towards a bright, glowing digital trail that curves across the frame. The background is a complex, futuristic digital space filled with various elements: a basketball hoop and net in the upper left; floating cubes and geometric shapes; streams of colorful binary code (0s and 1s) and alphanumeric characters; and several computer monitors displaying data and code. The overall color palette is dominated by blues, oranges, and yellows, creating a high-tech, energetic atmosphere.

# TRICKS





# THANK YOU

Project 1

Team: The Overfitting Overlords Taking this to Vegas.

Members: Anton Maynard, Larry Jones, & Kenneth Mitchell

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