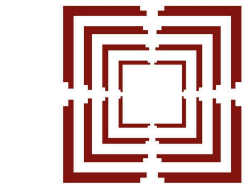

Ahmedabad
University

CSE623: Machine Learning Theory and Practice

Report-4

Group 1

Name	Enr No.
Dhaivat Patel	AU2240022
Dhyey Patel	AU2240054
Tirthraj Raval	AU2240079
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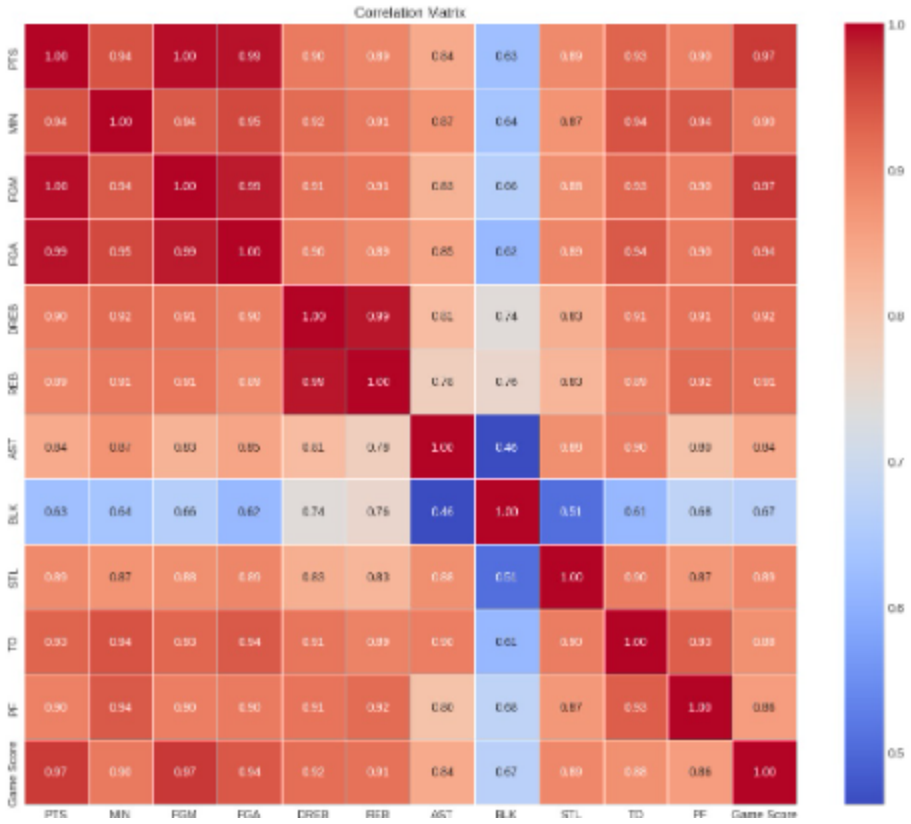
Sloka Thakkar	AU2240103

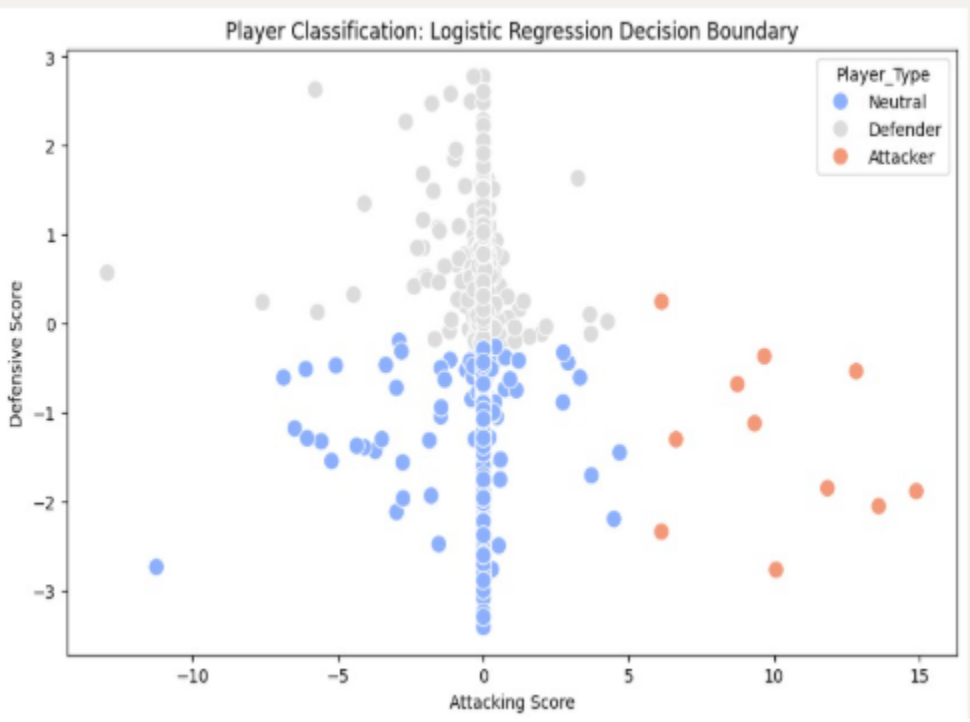
Work Done:

- **Refined Approach for Optimal Lineup Prediction:** Further clarified the methodology but have not yet implemented the lineup optimization process.

- **Mid term Presentation:** had a presentation on the project progress, including exploratory data analysis, player categorization, and regression-based classification. Addressed key insights and received feedback for improvement.

- **Model Refinement:** Fine-tuned the logistic regression model by validating feature selection and improving classification accuracy for player roles (offensive, defensive, all-rounder).


Correlation Matrix
PTS
MIN
FGM
FGA
DREB
REB
AST
BLK
STL
TO
PF
Game Score
1.0
0.9
0.8
0.7
0.6
0.5


Player Classification: Logistic Regression Decision Boundary
Player_Type
Neutral
Defender
Attacker
Defensive Score
Attacking Score
3
2
1
0
−1
−2
−3
−10
−5
0
5
10
15

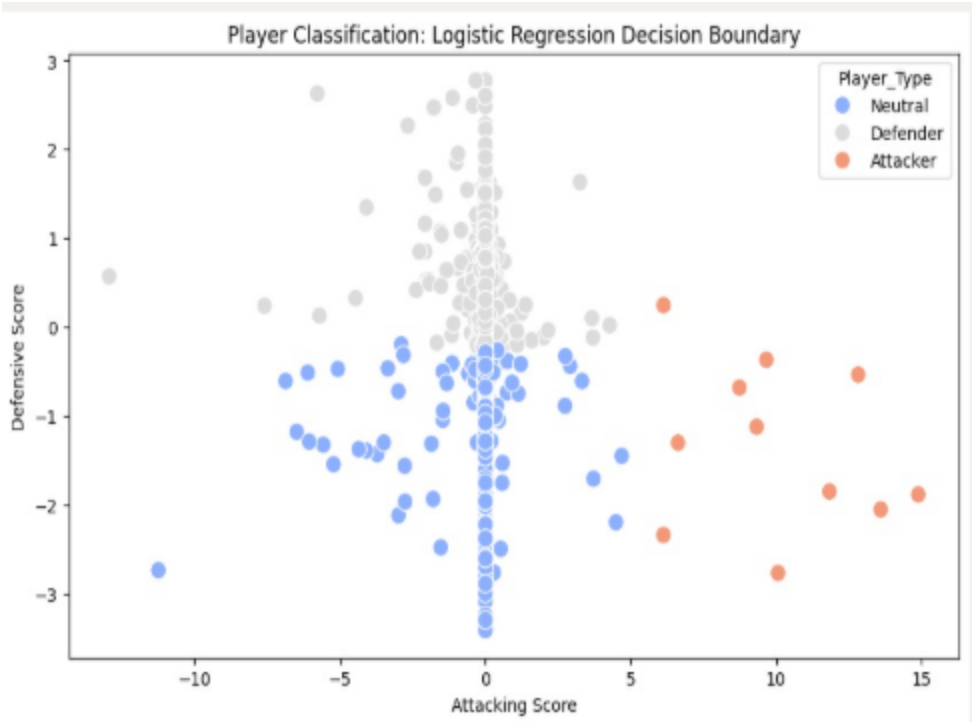
Class	Precision	Recall	F1-score	Support
0	0.00	0.00	0.00	1
1	1.00	1.00	1.00	289
2	0.99	1.00	1.00	167
Accuracy		1.00		457
Macro Avg	0.66	0.67	0.67	457
Weighted Avg	1.00	1.00	1.00	457

TABLE I
CLASSIFICATION REPORT

- **Preparation for Optimal Lineup Implementation:** Reviewed additional research papers and statistical models to support lineup optimization.

Goals for next week:

- Finalize the optimal lineup prediction model based on the discussion with the professor and mentor.
- Implement the chosen approach for lineup optimization and test its effectiveness.
- Validate results through simulated match scenarios and performance evaluation metrics.
- Work upon accuracy of currently implemented model.



(Work upon this as it is currently too scattered and analysis the reason)

References:

D. Oliver, *Basketball on Paper: Rules and Tools for Performance Analysis*. S.l.: Potomac Books, 2020.