

PHASE 3 FINAL PROJECT

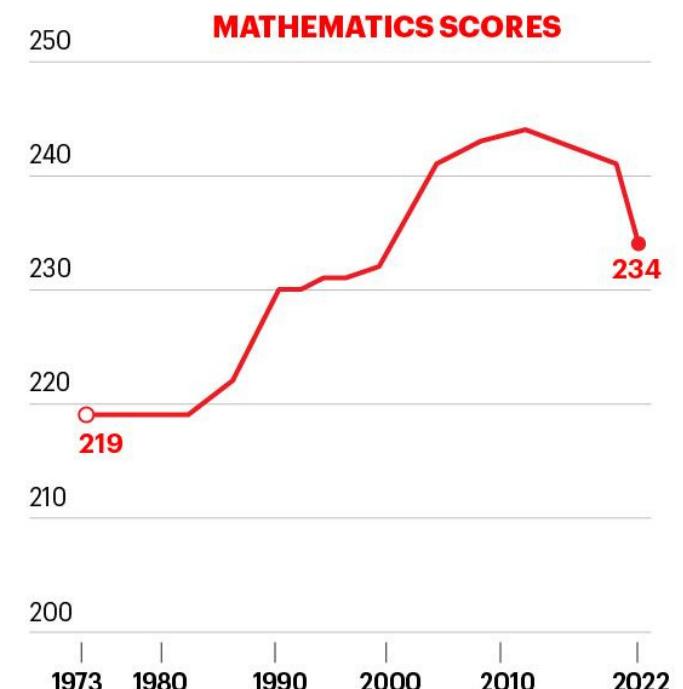


STUDENT ADAPTIVITY TO ONLINE LEARNING

BUSINESS OBJECTIVE

THE DEPARTMENT OF EDUCATION IS CONCERNED WITH THE RATES OF STUDENTS WHO ARE NOT ADAPTING WELL TO ONLINE LEARNING. THEY WANT A WAY TO PREDICT AND PROACTIVELY PREVENT STUDENTS FROM STRUGGLING.

CHANGE IN READING AND MATHEMATICS SCORES



SOURCE: THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS



FORTUNE

TOP 3 MOST IMPORTANT FEATURES



4G NETWORK SPEED



FINANCIAL CONDITION RICH



**ZERO HOURS OF DAILY
INSTRUCTION TIME**

DATA

THE DATASET WAS FOUND ON KAGGLE AND CONTAINS 1205 ENTRIES, 14 FEATURES, AND AN ASSESSMENT OF ADAPTIVITY TO ONLINE LEARNING: LOW, MODERATE, OR HIGH

- Entries collected via online and offline surveys from students in Bangladesh
- Collected Between Dec 10th 2020 and Feb 5th 2021

Methods

1

BUILD MODELS

Using the dataset, multiple types of models were created

2

ASSESS MODELS PERFORMANCE

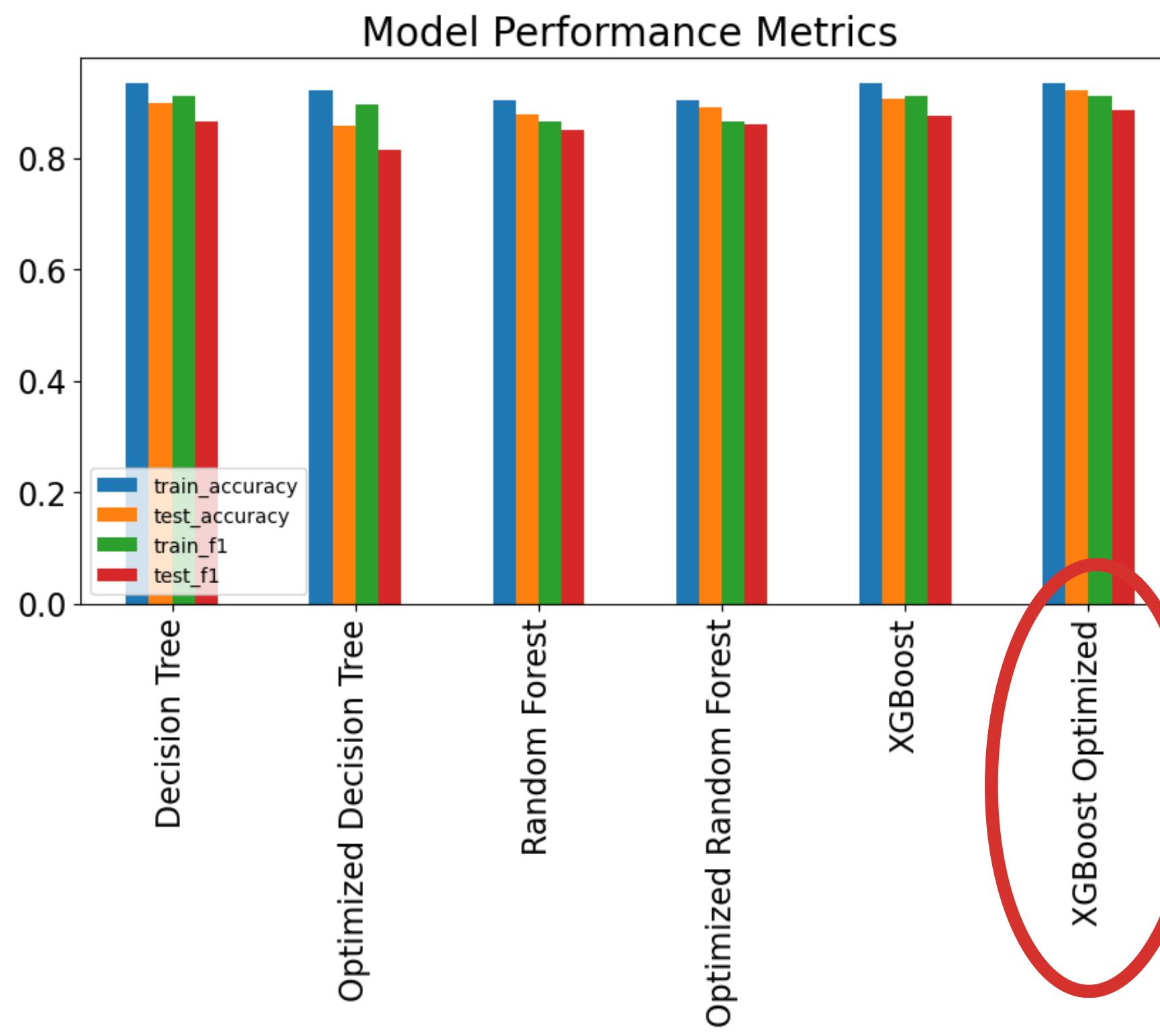
Since the model is a multi-classification problem, the F1 score which combines precision and recall will you be used

3

FEATURE IMPORTANCE

After a Final Model has been selected, using SHAP values feature importance will be determined

RESULTS



RESULTS

TOP 3 MOST IMPORTANT FEATURES



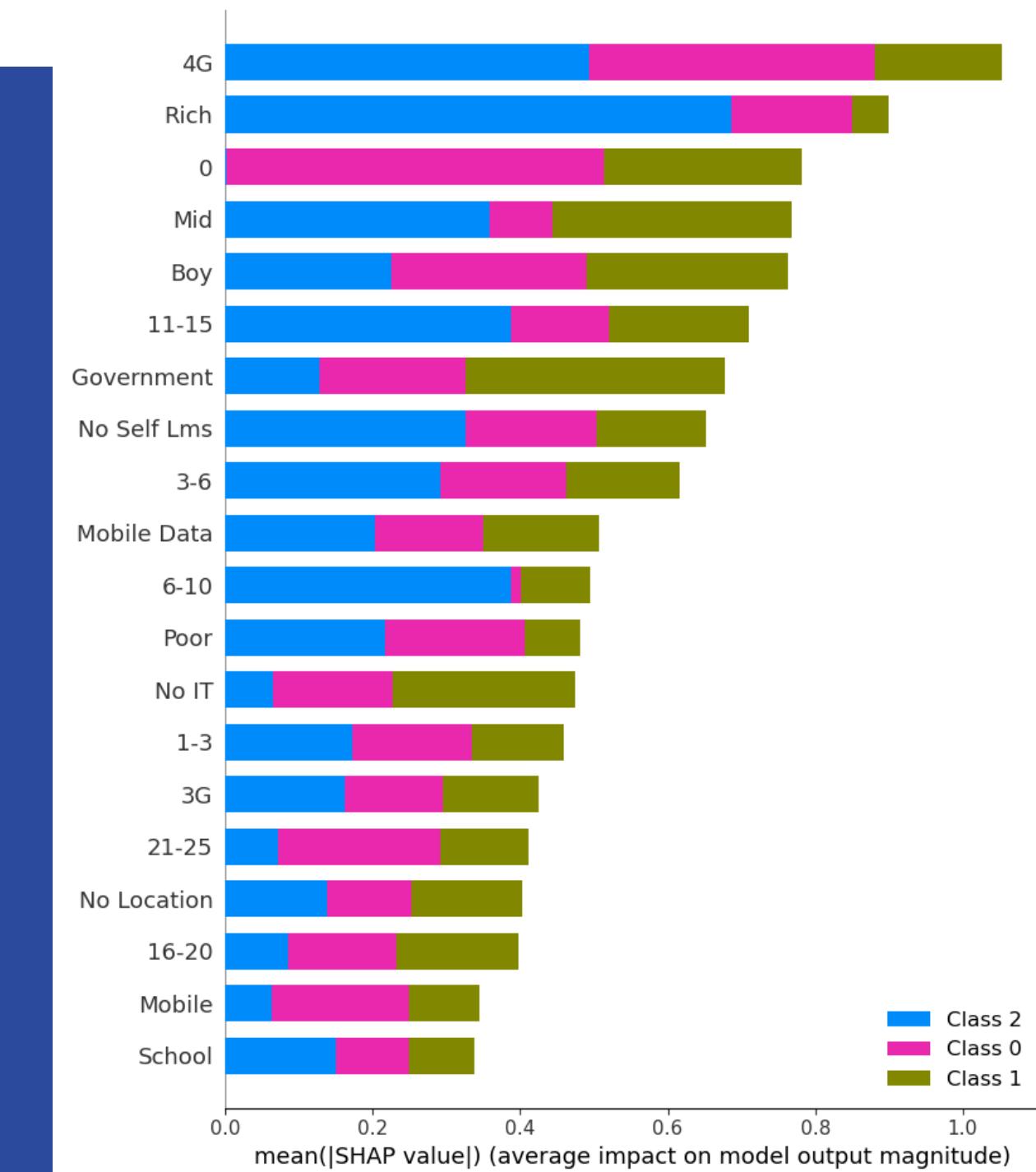
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CONCLUSION

93% PROBABILITY OF ACCURATELY PREDICTING A STUDENT WITH LOW ADAPTIVITY

92% PROBABILITY OF ACCURATELY PREDICTING A STUDENT WITH MODERATE ADAPTIVITY

79% PROBABILITY OF ACCURATELY PREDICTING A STUDENT WITH HIGH ADAPTIVITY

THE AVERAGE F1 SCORE OF THE MODEL IS .91

TOP 3 MOST IMPORTANT FEATURES



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Next Steps

- 1 CONDUCT ADDITIONAL SURVEYS WITH STUDENTS WITHIN THE UNITED STATES EDUCATIONAL SYSTEM
- 2 CONDUCT ADDITIONAL RESEARCH INTO THE IMPACT OF TOP FEATURES ON LOW, MODERATE, AND HIGH ADAPTIVITY LEVELS
- 3 ADDITIONAL EXPLORATION INTO OPTIMIZED PARAMETERS FOR THE XGBOOST MODEL TO INCREASE AUC AND F1 SCORES

ANY QUESTIONS?

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