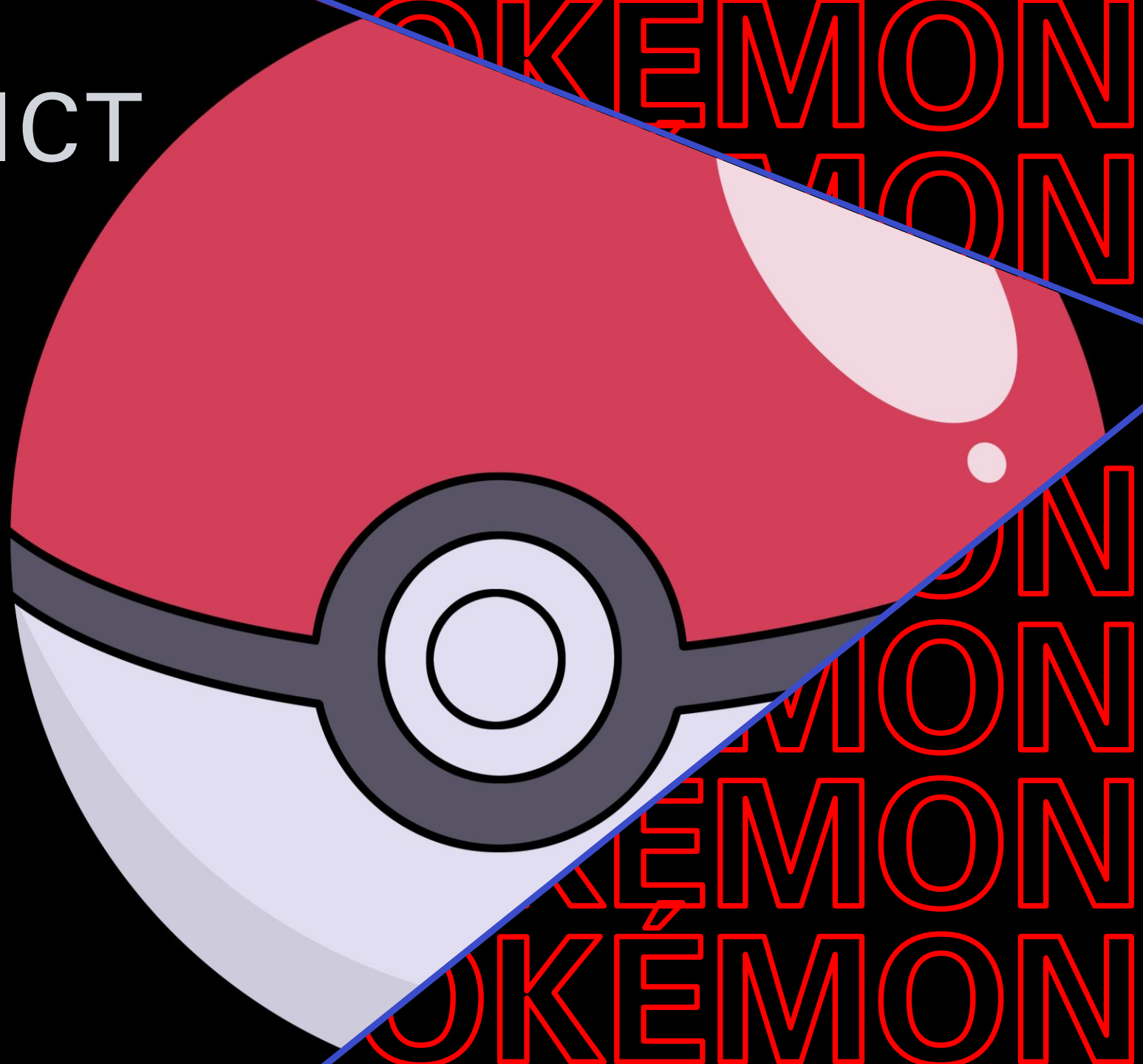
GOTTA PREDICT 'EM ALL:

MACHINE LEARNING POKÉMON BATTLES!

RYAN JOHNSON

DANIEL HALL

ROBERT MAYSENT



AGENDA

AGENDA
AGENDA

- INTRODUCTION
- WHAT DOES OUR MODEL DO?
- GET READY TO BATTLE !
- LIMITATIONS
- SUMMARY

INTRODUCTION

INTRODUCTION
INTRODUCTION

Pokémon, a globally recognized brand, invites you to step into a captivating universe where trainers embark on extraordinary journeys to capture and engage in epic battles with creatures nestled within iconic Poké Balls. With its rich history and enduring legacy, Pokémon has not only conquered the realm of animated series and video games but has also captured the hearts of millions worldwide.

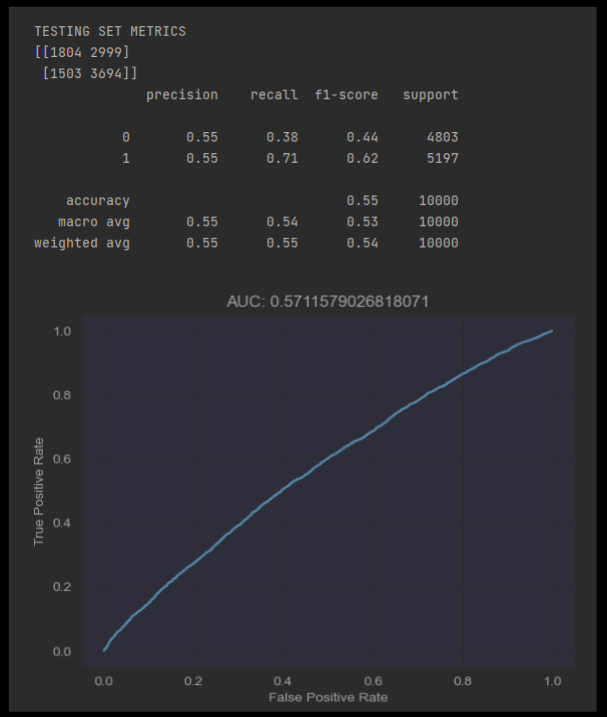
WHAT DOES OUR MODEL DO?

Machine Learning

- Our goal was to create a classification model that predicted the outcomes of Pokémon battles by taking in factors such as Attack, HP, abilities, and type weaknesses and advantages.
- We chose to use an LGBM model due to its lack of overfitting and its high recall score, as well as the feature importance matching our expected weights.
- We tested eight different types of models on various combinations of our original data.

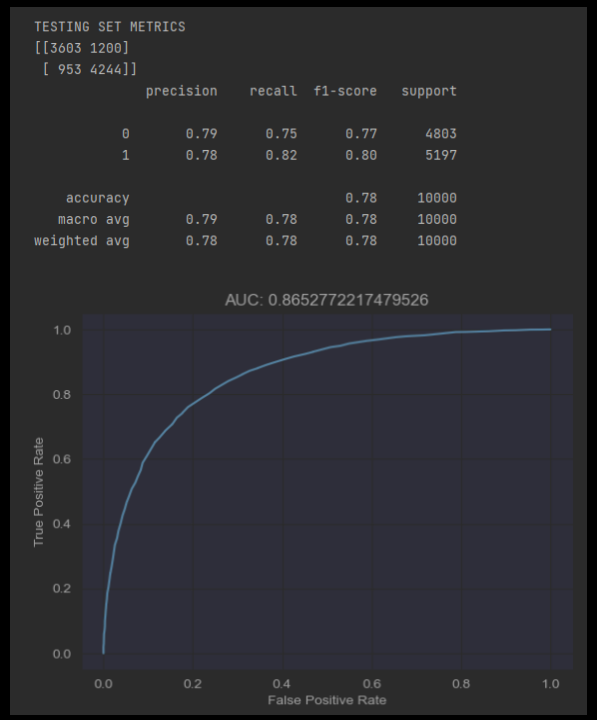
TESTING SET METRICS
[[1804 2999]
 [1503 3694]]

	precision	recall	f1-score	support
0	0.55	0.38	0.44	4803
1	0.55	0.71	0.62	5197
accuracy			0.55	10000
macro avg	0.55	0.54	0.53	10000
weighted avg	0.55	0.55	0.54	10000



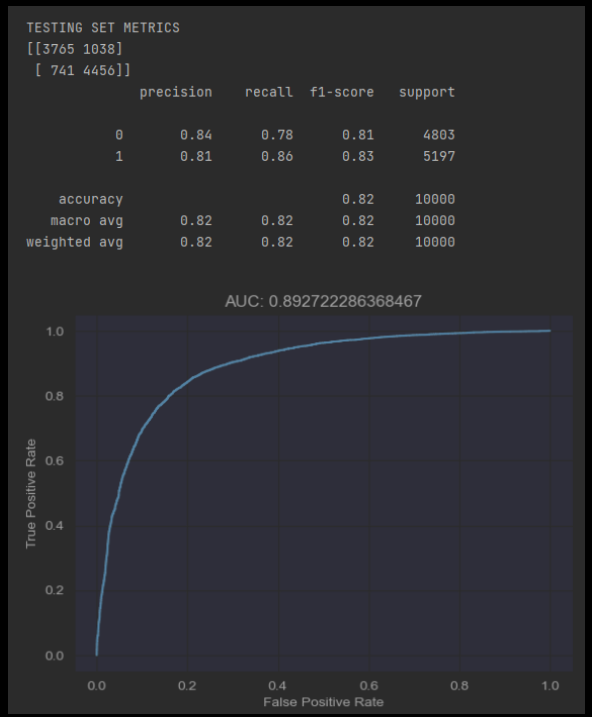
TESTING SET METRICS
[[3603 1200]
 [953 4244]]

	precision	recall	f1-score	support
0	0.79	0.75	0.77	4803
1	0.78	0.82	0.80	5197
accuracy			0.78	10000
macro avg	0.79	0.78	0.78	10000
weighted avg	0.78	0.78	0.78	10000



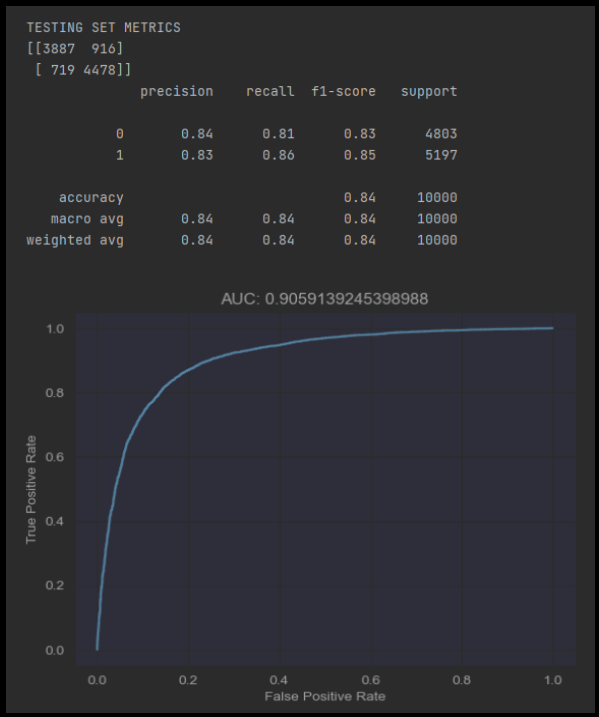
TESTING SET METRICS
[[3765 1038]
 [741 4456]]

	precision	recall	f1-score	support
0	0.84	0.78	0.81	4803
1	0.81	0.86	0.83	5197
accuracy			0.82	10000
macro avg	0.82	0.82	0.82	10000
weighted avg	0.82	0.82	0.82	10000



TESTING SET METRICS
[[3887 916]
 [719 4478]]

	precision	recall	f1-score	support
0	0.84	0.81	0.83	4803
1	0.83	0.86	0.85	5197
accuracy			0.84	10000
macro avg	0.84	0.84	0.84	10000
weighted avg	0.84	0.84	0.84	10000



I see now that one's birth is irrelevant. It's what you do that determines who you are.

-MEWTWO

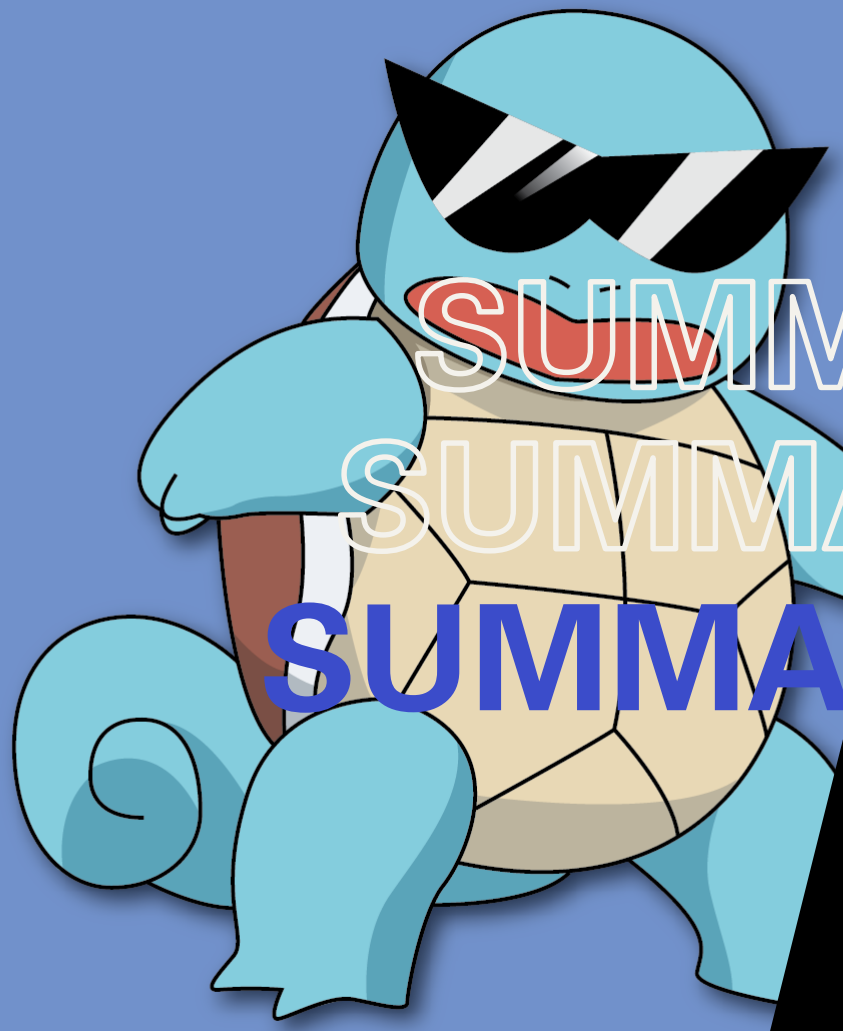
GET READY TO BATTLE !

HTTPS://POKEMON-THEROBMAY.PYTHONANYWHERE.COM/

LIMITATIONS

LIMITATIONS
LIMITATIONS
LIMITATIONS

Some limitations we encountered were that some types of Pokémon are not represented well, which presented some wildly unexpected outcomes. One example is Magikarp, a generally weak fish Pokémon, beating Rayquaza, a legendary dragon. To counter this we have added the percentage chance the model has determined that corresponds to the odds of the winner being correct.



SUMMARY

SUMMARY
SUMMARY

Our goal was to help users gain valuable insight into the massive world of Pokémon using data utilization.

Whether you choose methods of machine learning models, data research, or just gut instinct to win your battles, there are many varying ways to achieve this.

If you're looking to build the best team to beat the Elite 4, find the best matchups of your favorite types or generations, or just marvel over your favorite Pokémon, we hope you add our resource to your toolset.

Now, it's time to get out there and catch 'em all!

THANK YOU

ROB MAYSENT
RYAN JOHNSON
DANIEL HALL