



Creating a URL Phishing Detector

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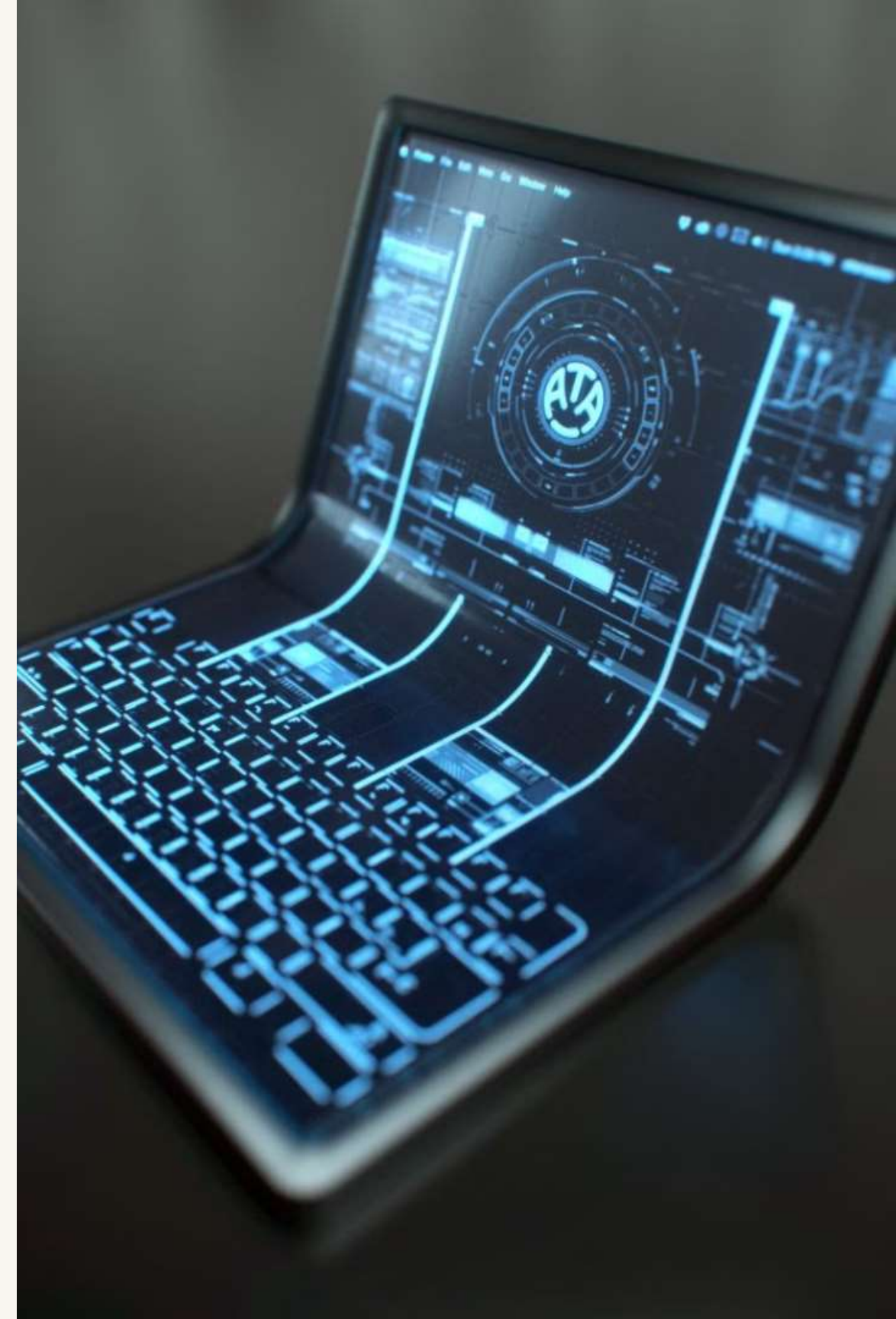
What is Phishing?

Deceptive Tactics

- Fraudsters use email, social media, and other online channels to trick users into revealing sensitive information.

Real-World Examples

- Emails impersonating banks, government agencies, and trusted brands are common phishing techniques.



Understanding Phishing Attacks

- 1 Business Risks
 - Financial losses
 - reputational damage.
- 2 Cybercrime Sophistication
 - Advanced tactics
 - Social engineering.
- 3 Protection Necessity
 - Tools to identify phishing URLs for real-time detection.





Business Objectives



High-Accuracy
Detection



User-Friendly
Deployment



Real-Time
Classification





Expected Impact Globally

1

Financial Security

- Reduce financial losses due to phishing scams.

2

User Trust

- Build confidence in online interactions.



Preparing a Training Dataset

1

Data Collection

- Gather diverse labelled URLs from Mendely Dataset .

2

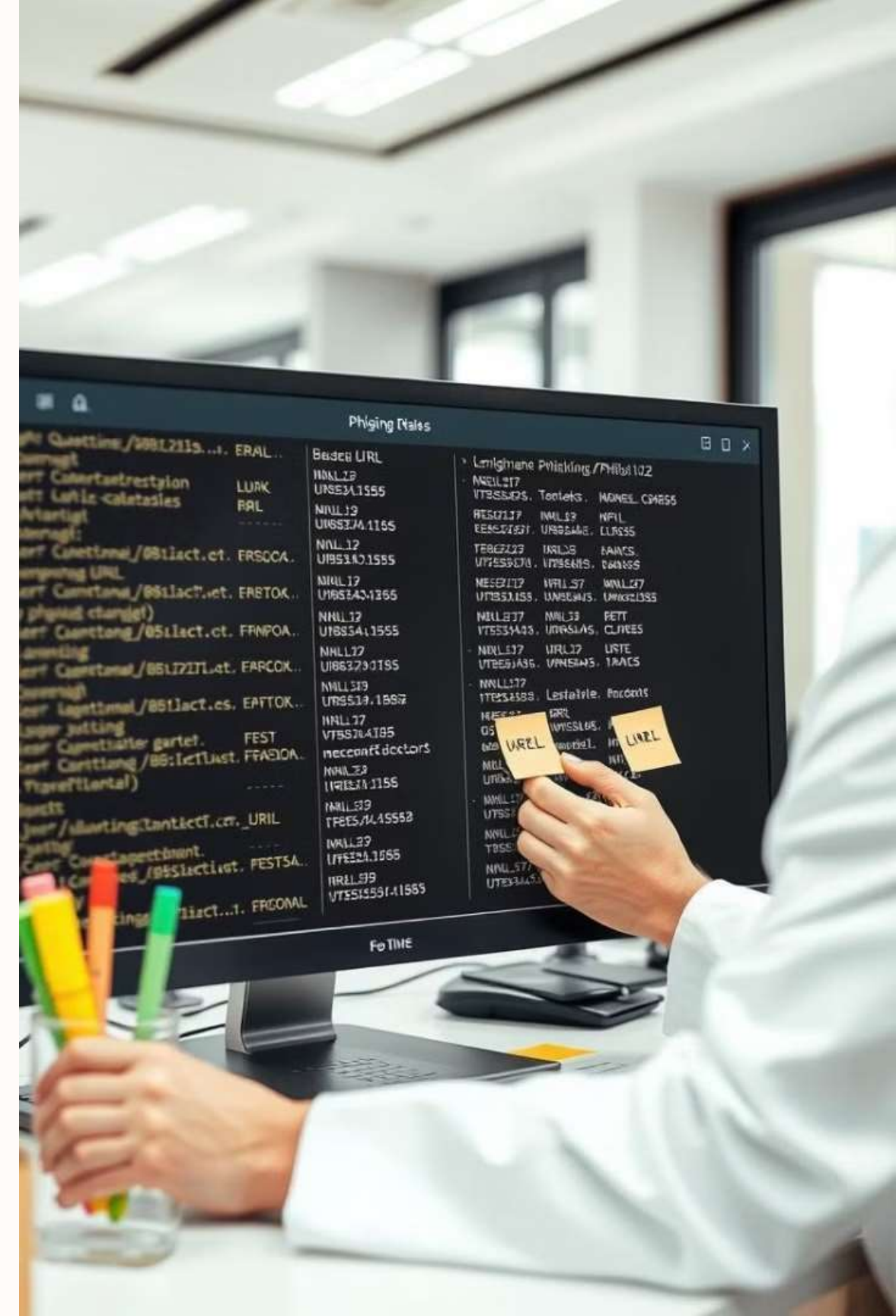
Data Preprocessing

- Clean dataset by removing duplicates and invalid entries.

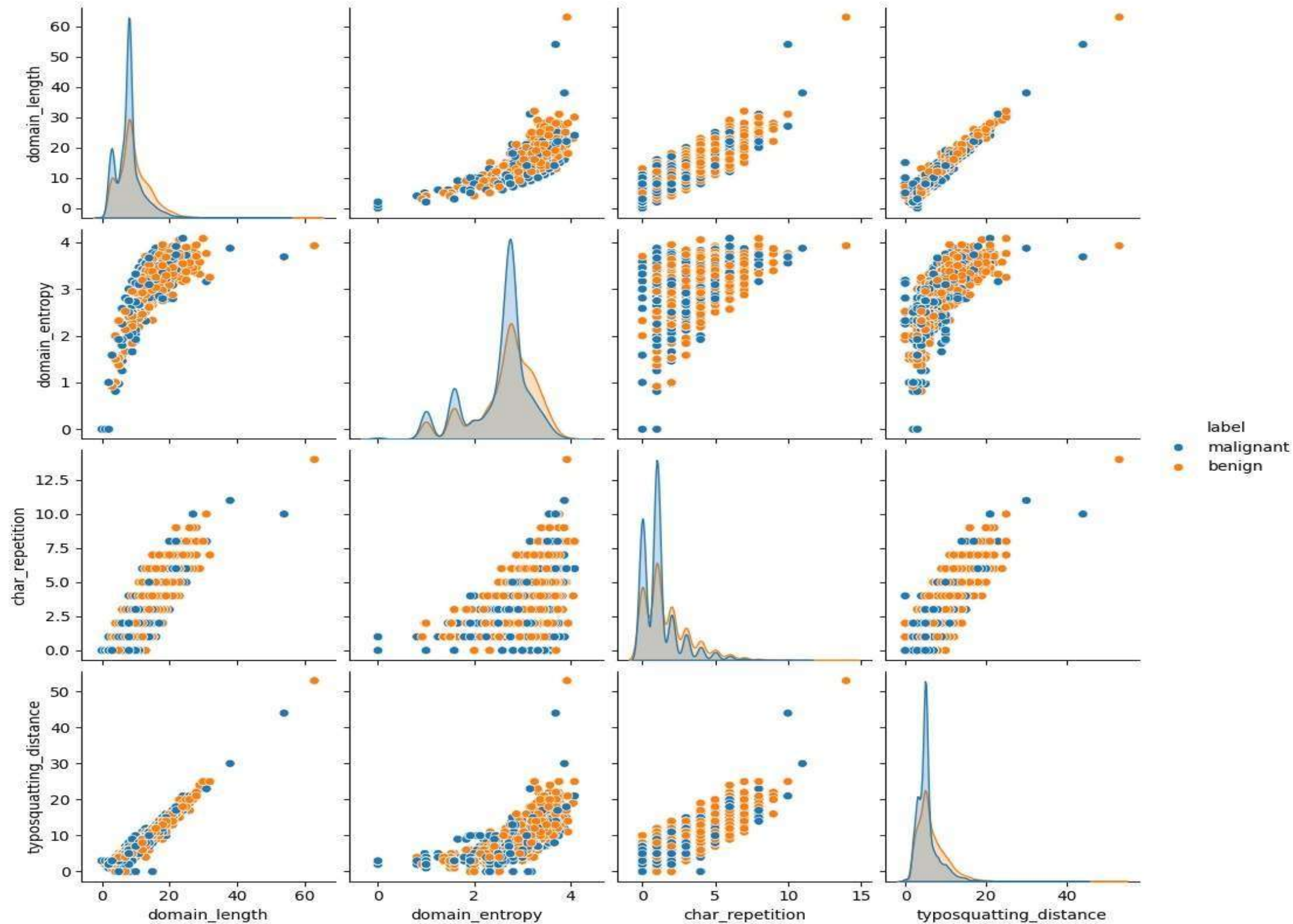
3

Feature Extraction and Engineering

- Extract relevant URL attributes like domain age, URL length.



Pair Plot of Selected Features by Label



VISUALIZATION

- The pair plot shows distinct feature distributions and relationships between benign and malignant labels, with noticeable patterns in domain length, entropy, character repetition, and typosquatting distance, indicating potential separation between the two classes based on these features.

Classification Report for XGBClassifier on Test Set

Class	Precision	Recall	F1-Score	Support
0	0.89	0.96	0.93	1856
1	0.96	0.9	0.93	2116
Accuracy	-	-	0.93	3972
Macro Avg	0.93	0.93	0.93	3972
Weighted Avg	0.93	0.93	0.93	3972

- Test F1 Score: 0.9294
- XGBoost with preprocessor saved to xgboost_model.joblib
- XGBoost appears to have a good fit.

Classification Report for XGBClassifier on Train Set

Class	Precision	Recall	F1-Score	Support
0	1.00	1.00	1.00	2743
1	1.00	1.00	1.00	3215
Accuracy	-	-	0.93	5958
Macro Avg	1.00	1.00	1.00	5958
Weighted Avg	1.00	1.00	1.00	5958

- Train F1 Score: 1.0000

Deploying the Detector



Phishing URL Detection

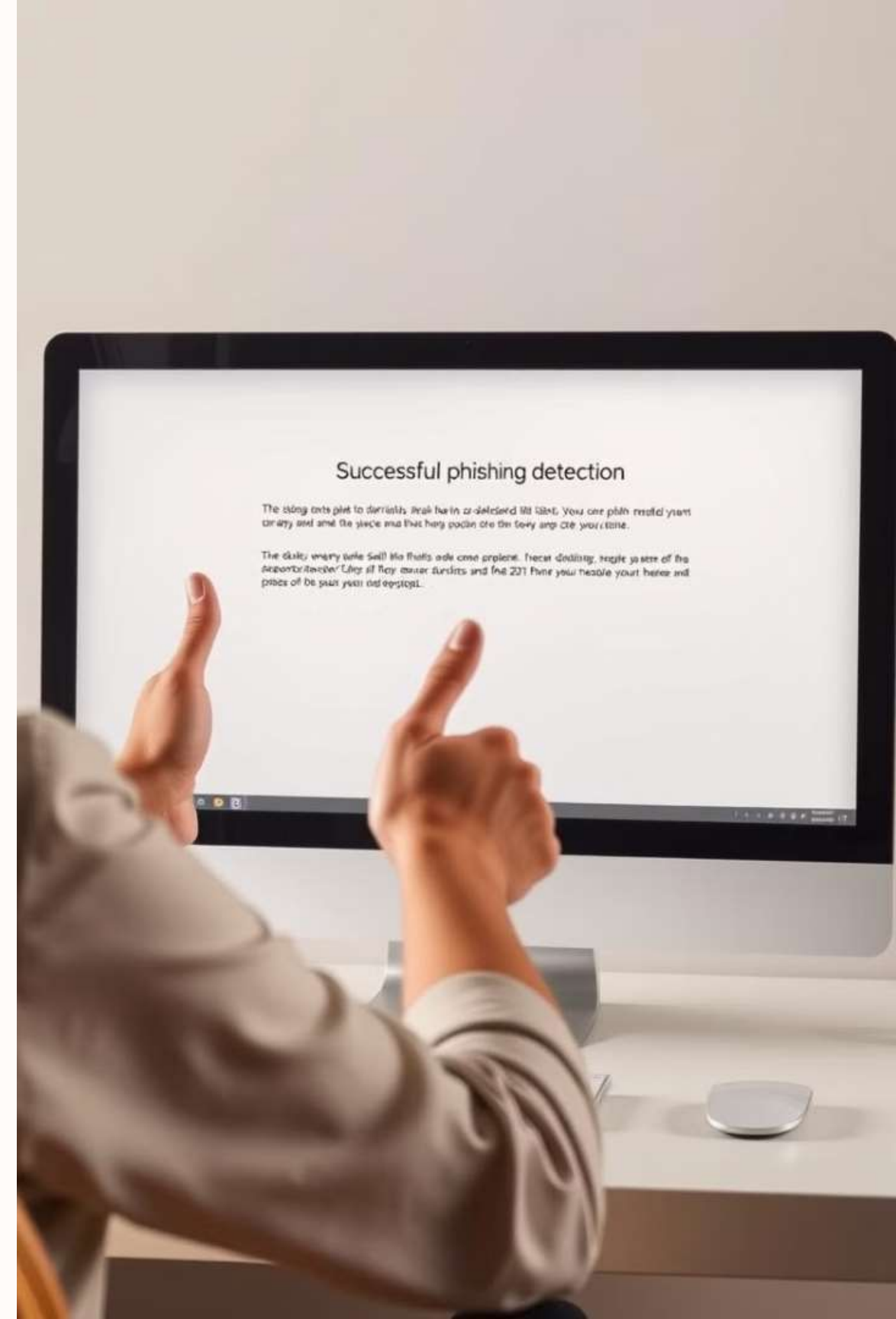
Paste the URL here...

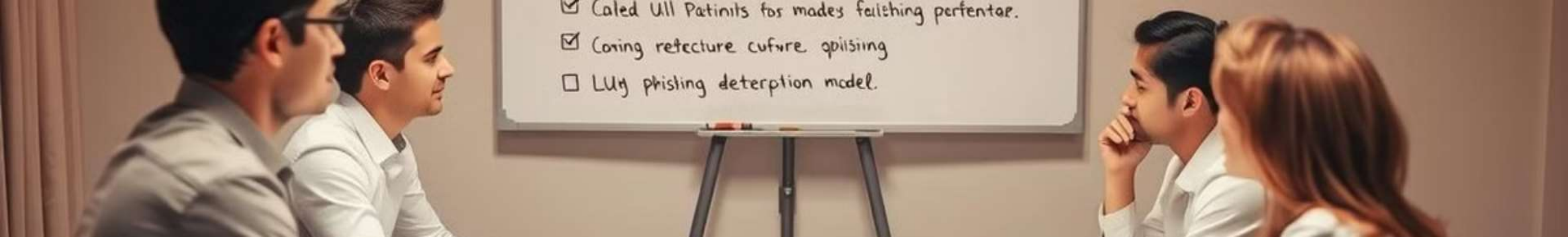
SUBMIT

Result will be displayed here...

Conclusion

- High-Accuracy Phishing Detection.
- Balanced F1-Score
- User-Friendly Web Deployment
- Real-Time Classification
- Identify Important Features





Recommendations

- Implement Continuous Model Retraining
- Train the Model Using More URLs
- Consider Deployment as a Browser Extension
- User Feedback

Q&A





Thank You

