

Permanent Residency

Will I get accepted?

Lauren Howard





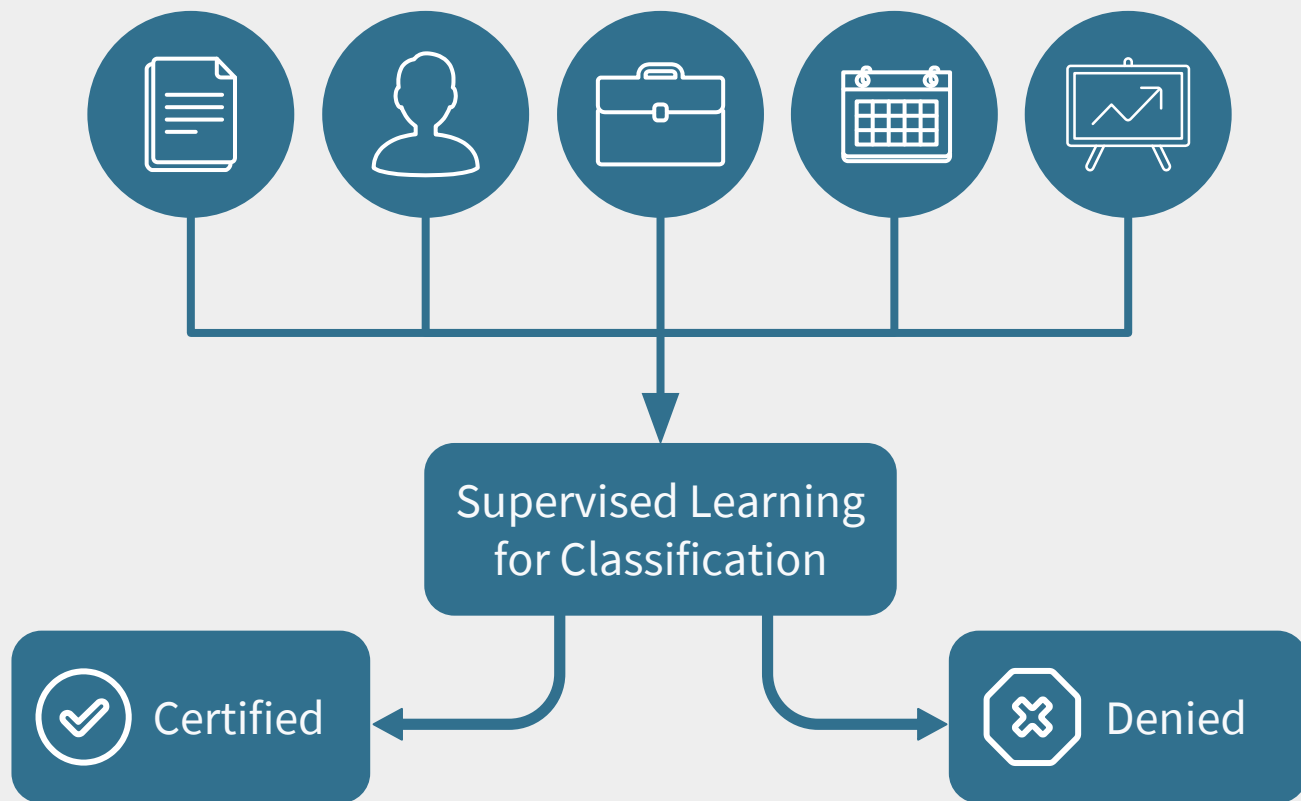
1 in 7

US population
are immigrants

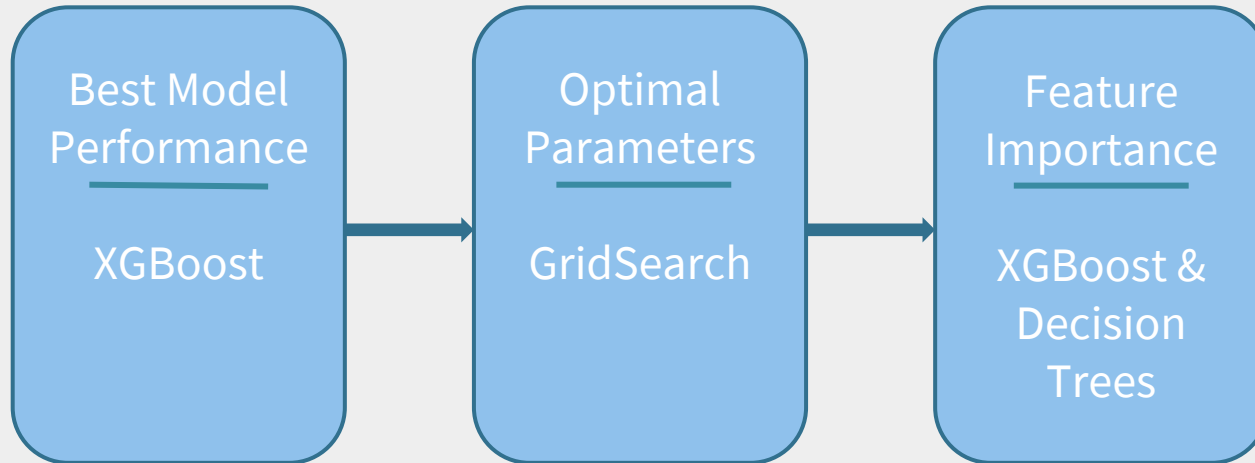
Increase

in applications &
scrutiny

Process is
Expensive
& Lengthy



Final Model Process



Model Outcome

Accuracy:

73%

Precision:

69%

		Predicted Outcome	
		Certified	Denied
Actual Outcome	Certified	Correct Prediction	Better Outcome
	Denied	Worst Case Scenario	Correct Prediction

Model Outcome

Accuracy:

73%

Precision:

69%

		Predicted Outcome	
		Certified	Denied
Actual Outcome	Certified	100%	0%
	Denied	0%	100%

Model Outcome

Accuracy:

73%

Precision:

69%

		Predicted Outcome	
		Certified	Denied
Actual Outcome	Certified	76%	24%
	Denied	30%	70%

Naïve Bayes Comparison

Accuracy:

54%

Precision:

52%

		Predicted Outcome	
		Certified	Denied
Actual Outcome	Certified	14%	86%
	Denied	6%	94%

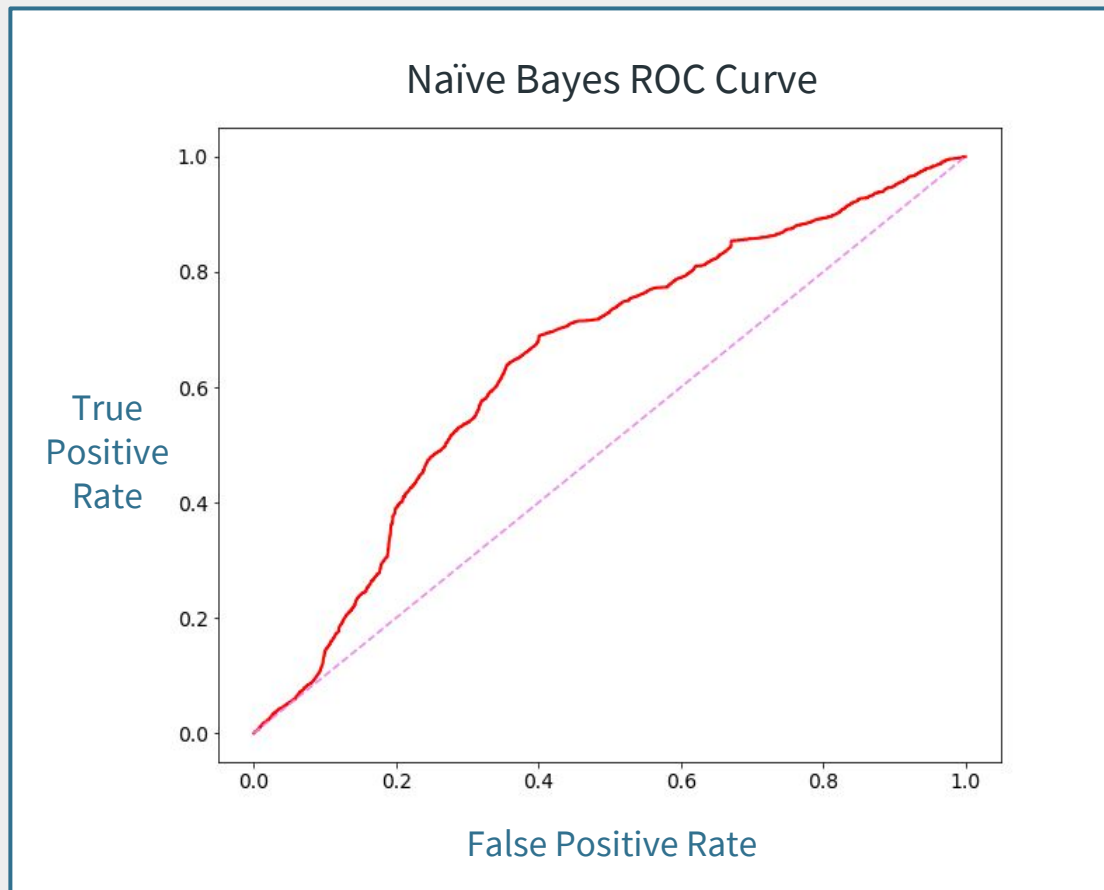
Using ROC Curves & AUC Scores

ROC:

Measures model performance at different thresholds

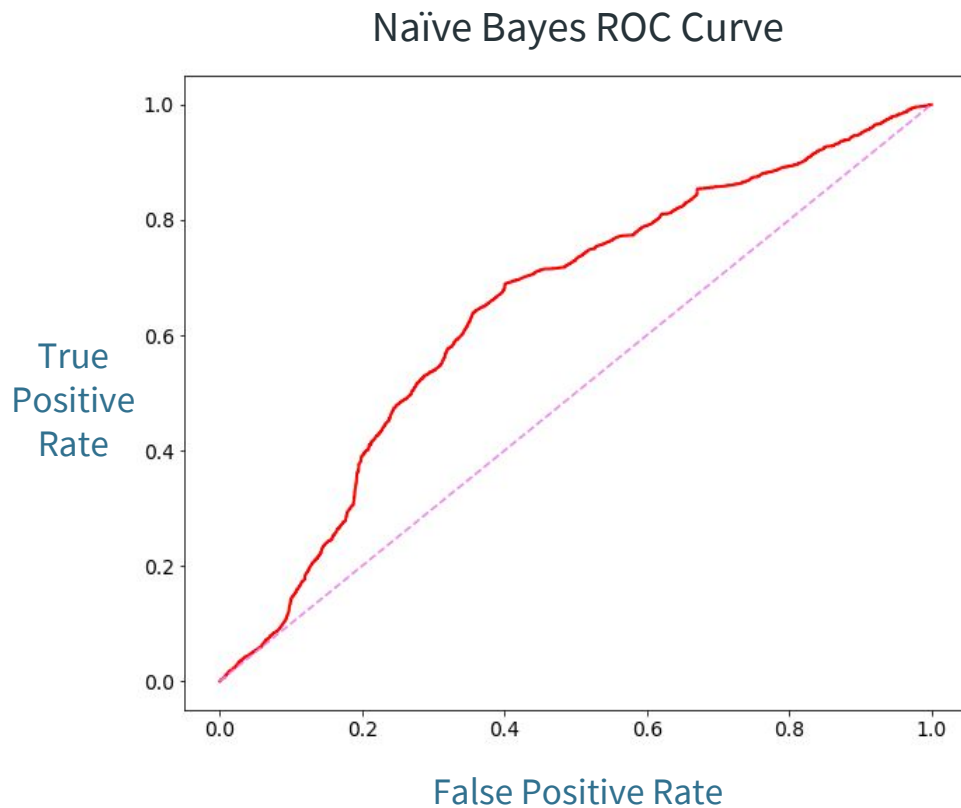
AUC:

Represents degree of separability



Using ROC AUC Curves

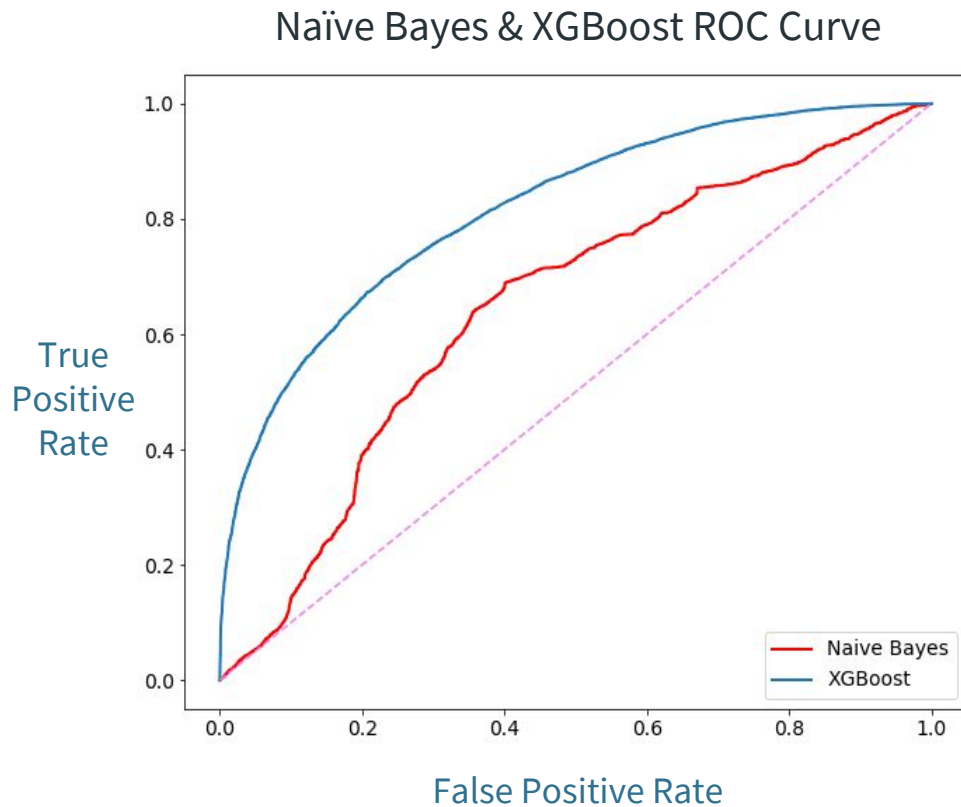
Naïve Bayes AUC:
0.65



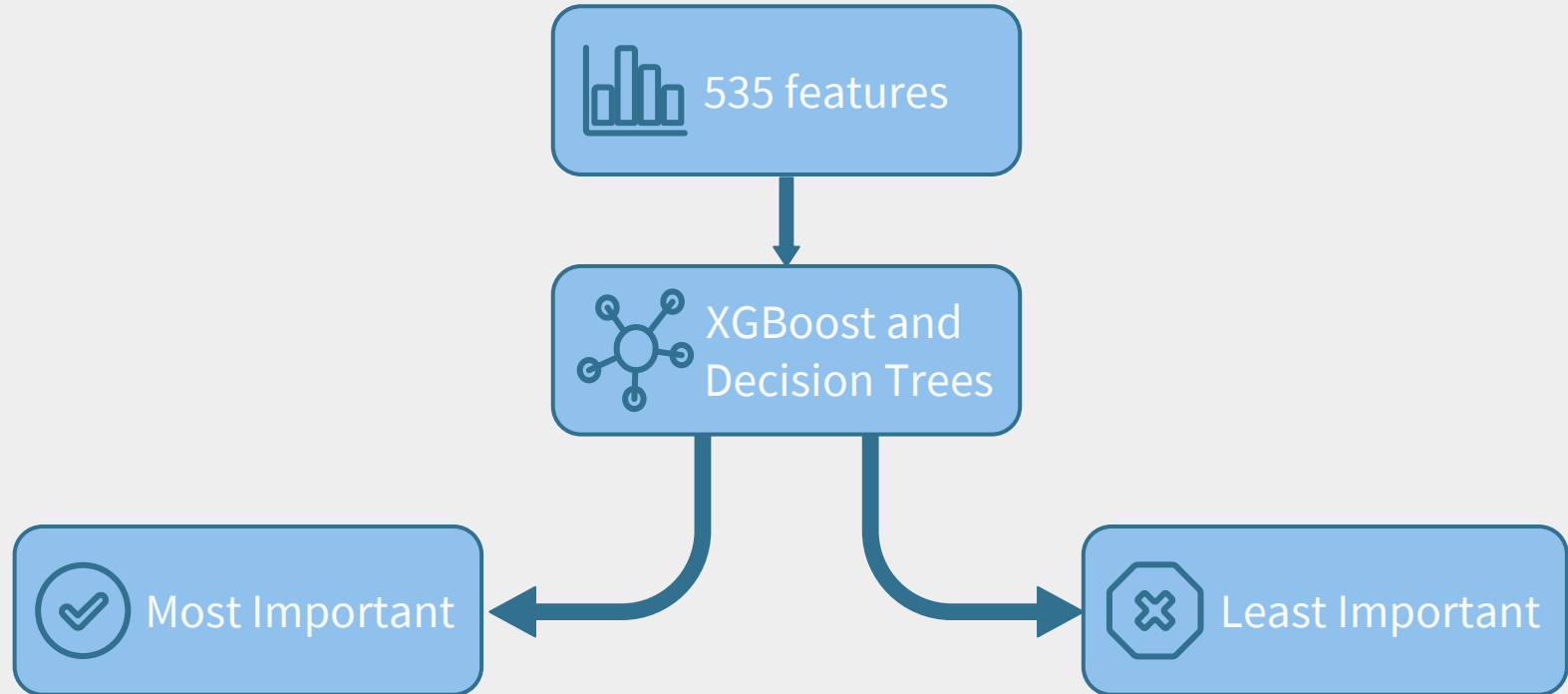
Using ROC AUC Curves

Naïve Bayes AUC:
0.65

XGBoost AUC:
0.82



Interpreting Feature Importance



Most Important

Prevailing wage for job

Number of employees in
company

Country of citizenship GDP

Training required for job

Least Important

Citizenship

Residential state

Visa class of admission

Job sector

Thank You



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