

# Drop-Column Importance

Feature Removal Impact Analysis

## Importance Score Comparison

Feature	Permutation	Drop-Column	$\Delta$ Diff
Credit Score	0.085	0.092	+0.007
Income	0.072	0.078	+0.006
Age	0.065	0.048	-0.017
Debt Ratio	0.058	0.061	+0.003
Employment	0.048	0.032	-0.016
Education	0.042	0.044	+0.002
Experience	0.035	0.036	+0.001
Savings	0.028	0.028	0.000

## Method

### Process

- 1 Train with all features
- 2 Remove one feature
- 3 Retrain model
- 4 Measure performance drop

### Accuracy

More accurate than permutation

### Cost

Requires n retrains for n features

### Correlations

Handles feature correlations better

### Use Case

Final feature selection decisions

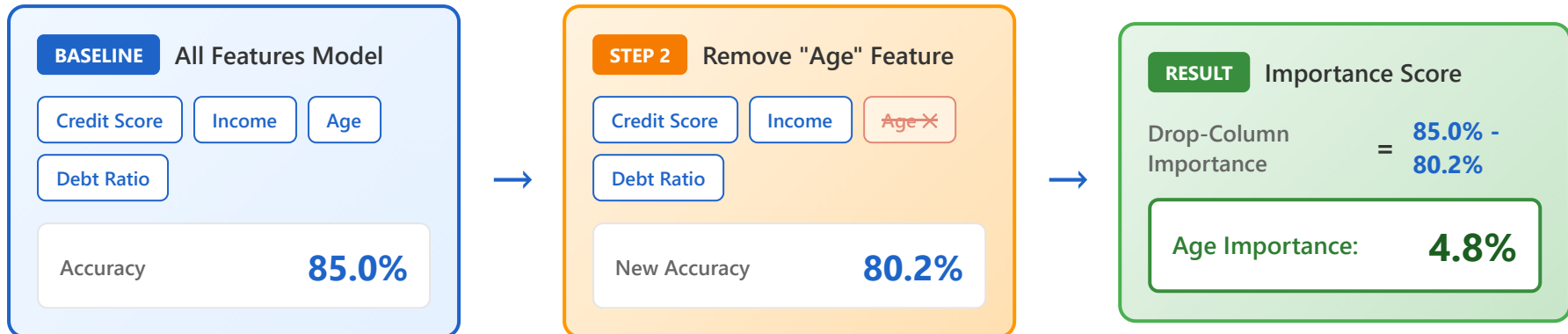
### Key Insight

Fast

Accurate

Highlighted rows show redundant features

## Calculation Example



**Interpretation:** Removing "Age" causes a 4.8% drop in accuracy, indicating it's a moderately important feature. Compare this across all features to identify which ones are truly essential for your model. Features showing lower importance in Drop-Column than Permutation (like Age: -0.017) might be redundant when other correlated features are present.