Stratified K-fold Cross Validation
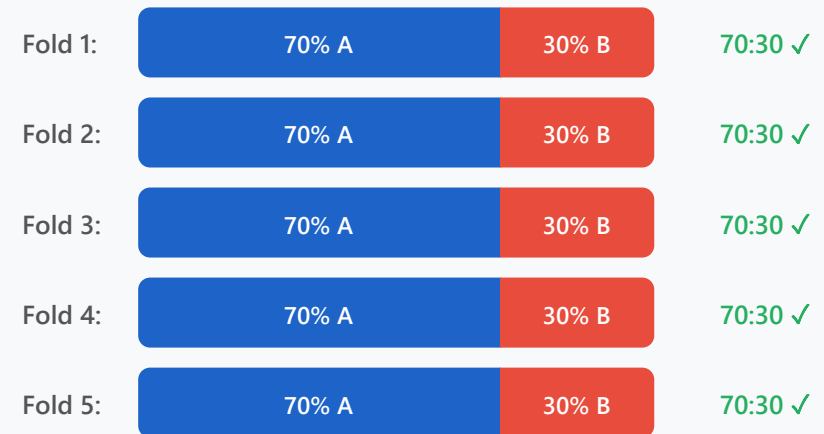
❌ Regular K-fold

Original: **70% Class A, 30% Class B**

Fold	Distribution	Ratio
Fold 1:	80% A / 20% B	80:20 ⚠️
Fold 2:	60% A / 40% B	60:40 ⚠️
Fold 3:	75% A / 25% B	75:25 ⚠️
Fold 4:	65% A / 35% B	65:35 ⚠️
Fold 5:	70% A / 30% B	70:30 ⚠️
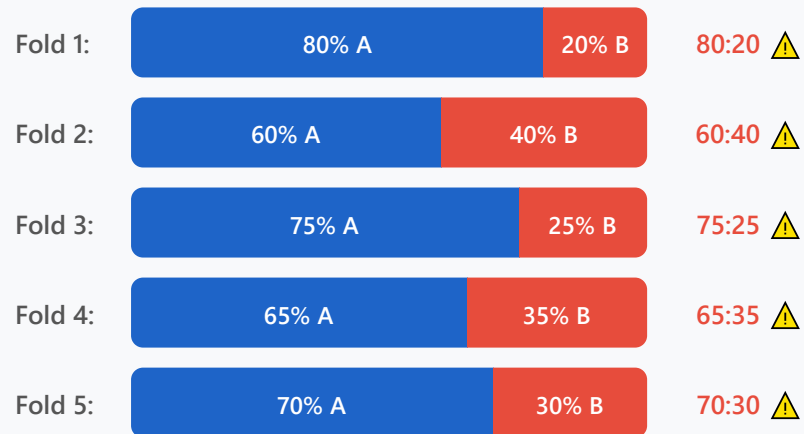
✅ Stratified K-fold

Original: **70% Class A, 30% Class B**

Fold	Distribution	Ratio
Fold 1:	70% A / 30% B	70:30 ✓
Fold 2:	70% A / 30% B	70:30 ✓
Fold 3:	70% A / 30% B	70:30 ✓
Fold 4:	70% A / 30% B	70:30 ✓
Fold 5:	70% A / 30% B	70:30 ✓

🎯 Key Benefits

⚖️ Maintains class distribution in each fold

📊 Reduces variance in performance estimates

| 🎯 Essential for imbalanced datasets | ✓ More reliable for classification tasks |

💡 When to Use

Always prefer stratified K-fold for classification problems, especially with imbalanced classes