

# Customer Churn Prediction

Mì Ai

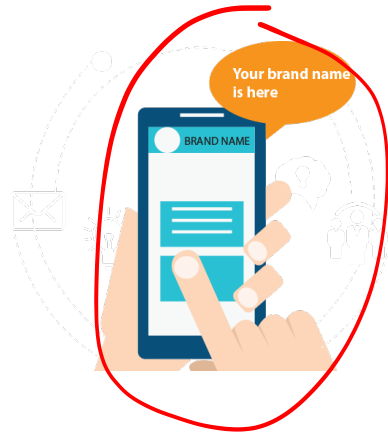


# Problem

It costs five times as much to attract a new customer, than to keep an existing one



# Method



# Cost

- Bank A có 4,000,000 khách hàng và muốn thực hiện một chiến dịch giữ chân khách hàng
- Tổng chi phí SMS là:  $800 \times 4M = 3,2$  tỷ/chiến dịch
- Cần tìm ra đúng phân khúc khách hàng có nguy cơ rời bỏ dịch vụ cao để tiếp cận.



# Pipeline

Bài toán dự đoán trước 6month xem KH có rời bỏ dịch vụ hay không?



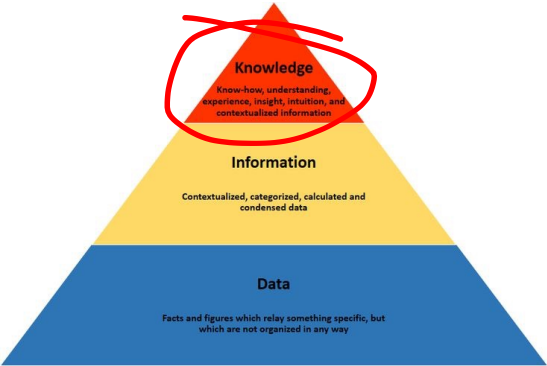
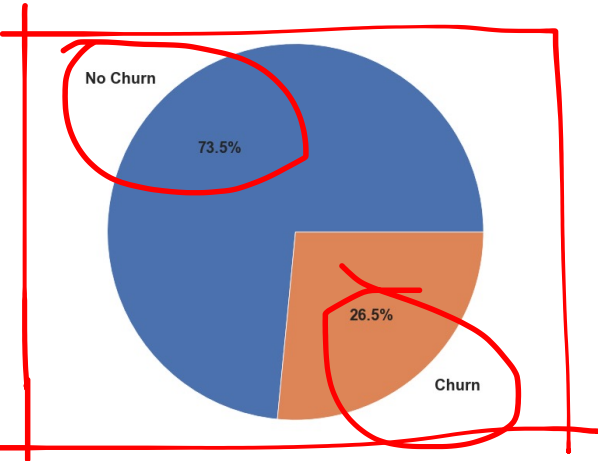
# Difficult points

Bài toán dự đoán trước 6month xem KH có rời bỏ dịch vụ hay không?

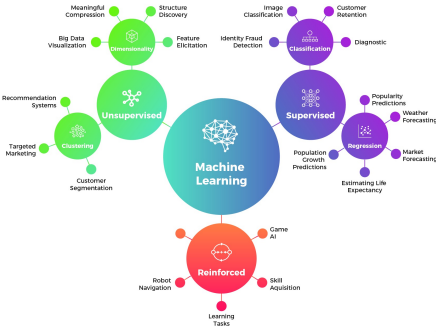
Dữ liệu Imbalance

Data Featurng

Select model

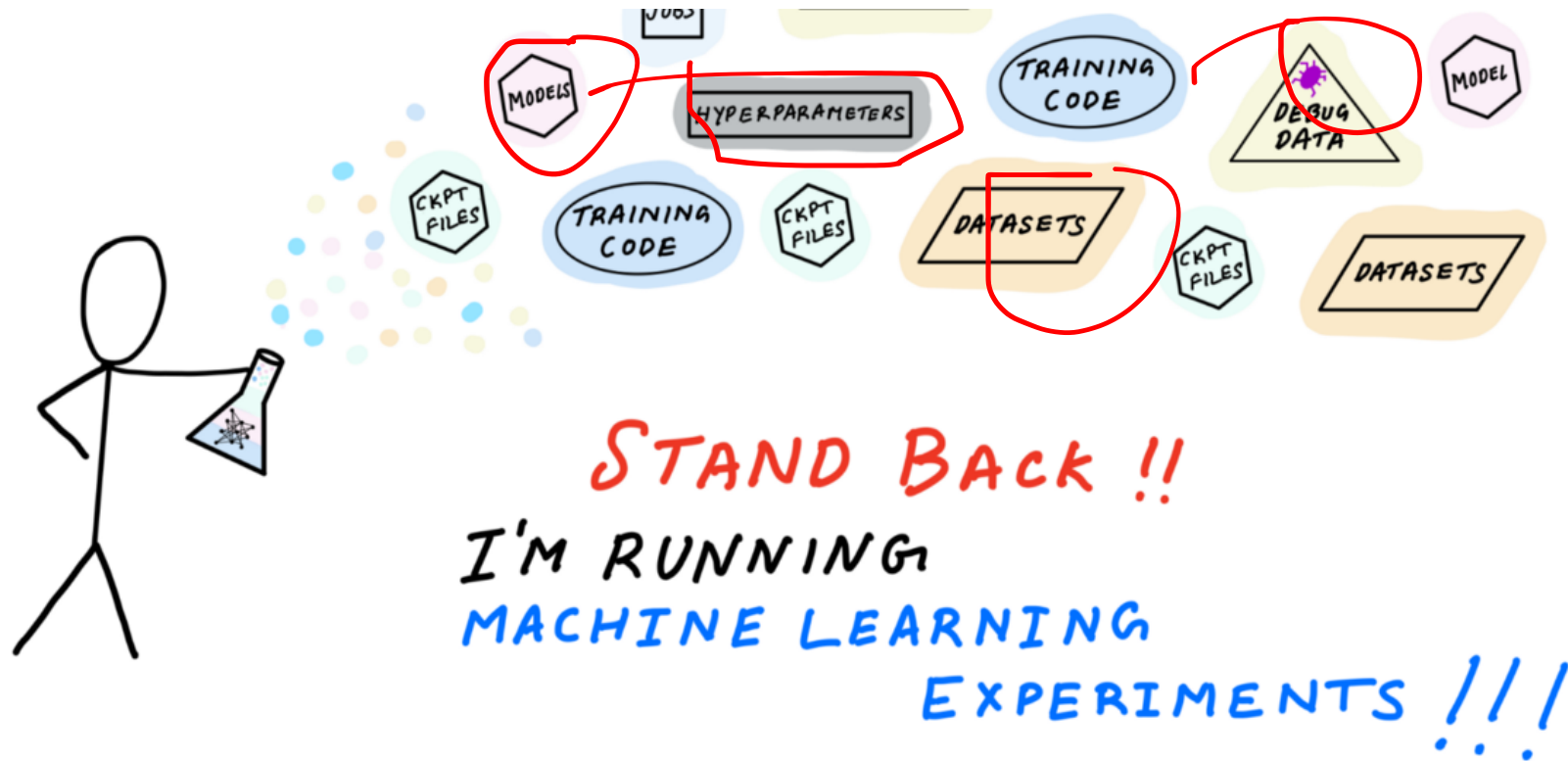


DIFFERENT TYPES OF MACHINE LEARNING





# Training experiment

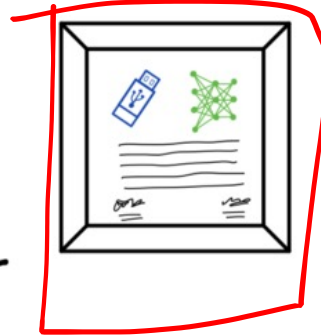


# Training experiment

WHY DO YOU  
HAVE A USB FLASH  
DRIVE IN A  
PICTURE FRAME?

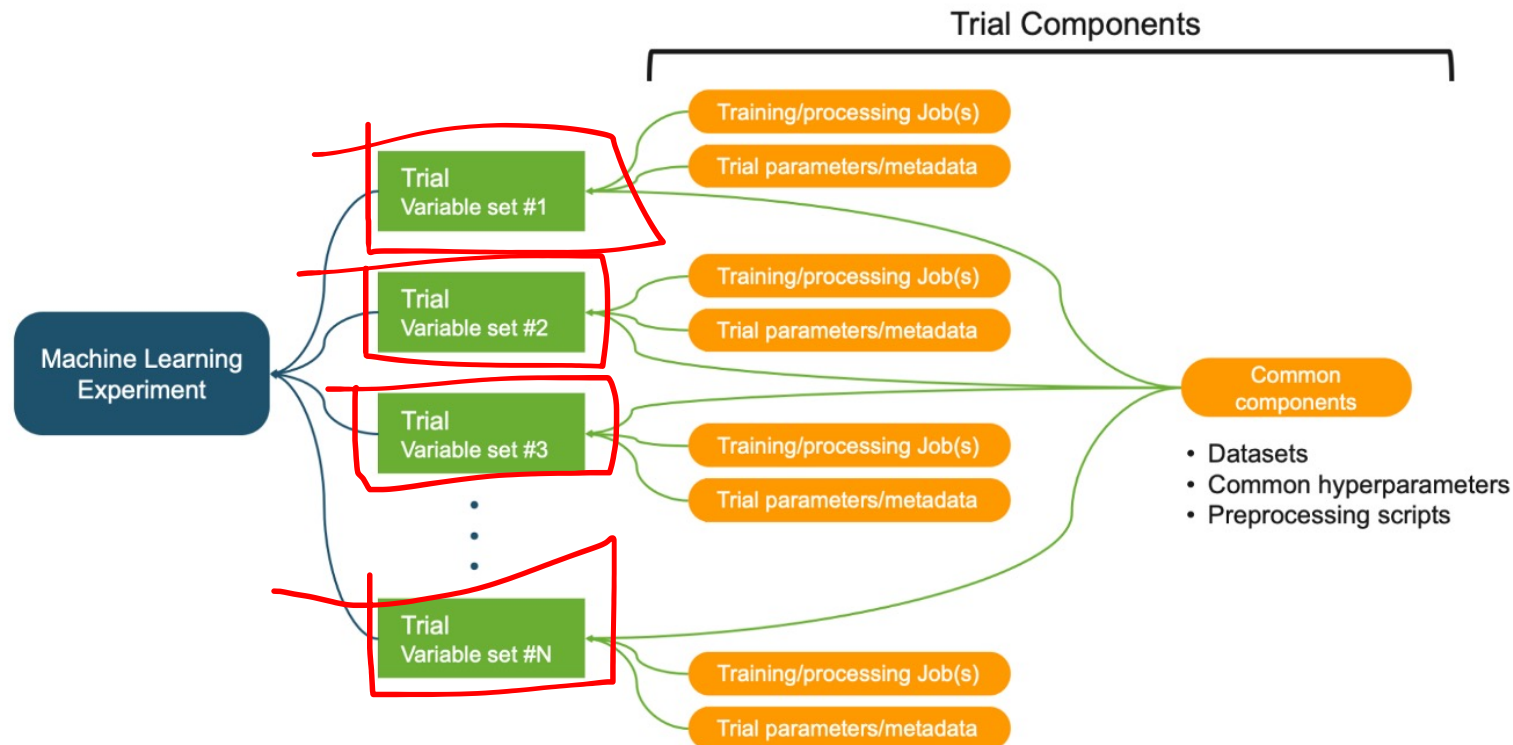
OH, THAT'S A COPY OF OUR  
PRODUCTION MACHINE LEARNING MODEL

NO ONE IN THE COMPANY KNOWS  
HOW TO REPRODUCE THE  
RESULTS





# Training experiment



Example variable sets:

```
{'optimizer': 'adam', 'model': 'resnet', 'epochs': 30}
```

```
{'optimizer': 'sgd', 'model': 'custom', 'epochs': 120}
```

# Training experiment

TrialComponentName	test_acc - Last	model	batch-size	epochs	learning-rate	optimizer
cifar10-training-adam-custom-120-1594536575-aw...	0.850260	"custom"	128.0	120	0.001	"adam"
cifar10-training-adam-resnet-120-1594536562-aw...	0.843450	"resnet"	128.0	120	0.001	"adam"
cifar10-training-adam-custom-60-1594536571-aws...	0.841747	"custom"	128.0	60	0.001	"adam"
cifar10-training-rmsprop-custom-120-1594536631...	0.838542	"custom"	128.0	120	0.001	"rmsprop"
cifar10-training-sgd-resnet-120-1594536589-aws...	0.827524	"resnet"	128.0	120	0.001	"sgd"
cifar10-training-rmsprop-custom-60-1594536627-...	0.825421	"custom"	128.0	60	0.001	"rmsprop"
cifar10-training-sgd-resnet-60-1594536585-aws-...	0.824519	"resnet"	128.0	60	0.001	"sgd"
cifar10-training-rmsprop-custom-30-1594536622-...	0.819912	"custom"	128.0	30	0.001	"rmsprop"
cifar10-training-adam-resnet-60-1594536557-aws...	0.817608	"resnet"	128.0	60	0.001	"adam"
cifar10-training-adam-custom-30-1594536566-aws...	0.814704	"custom"	128.0	30	0.001	"adam"
cifar10-training-sgd-resnet-30-1594536580-aws-...	0.799179	"resnet"	128.0	30	0.001	"sgd"
cifar10-training-adam-resnet-30-1594536553-aws...	0.774840	"resnet"	128.0	30	0.001	"adam"
cifar10-training-rmsprop-resnet-30-1594536608-...	0.774339	"resnet"	128.0	30	0.001	"rmsprop"
cifar10-training-sgd-custom-120-1594536604-aws...	0.774339	"custom"	128.0	120	0.001	"sgd"
cifar10-training-sgd-custom-60-1594536598-aws-...	0.735677	"custom"	128.0	60	0.001	"sgd"
cifar10-training-rmsprop-resnet-60-1594536613-...	0.713542	"resnet"	128.0	60	0.001	"rmsprop"
cifar10-training-sgd-custom-30-1594536594-aws-...	0.664163	"custom"	128.0	30	0.001	"sgd"
cifar10-training-rmsprop-resnet-120-1594536617...	0.449119	"resnet"	128.0	120	0.001	"rmsprop"

# Handson

- Dự đoán rời bỏ dịch vụ dựa vào dữ liệu của Telco
- Submit kết quả để kiểm tra model.

