# Churn Norris – ML para mantener a tus clientes

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#SQLSatMadrid


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# About us

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## Pau Sempere

- Working with SQL Server since 2009
- Microsoft Machine Learning MCSA

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# Agenda

- What is Churn?
- In balance there is virtue
- KISS
- How did we get here?

# What is Churn?

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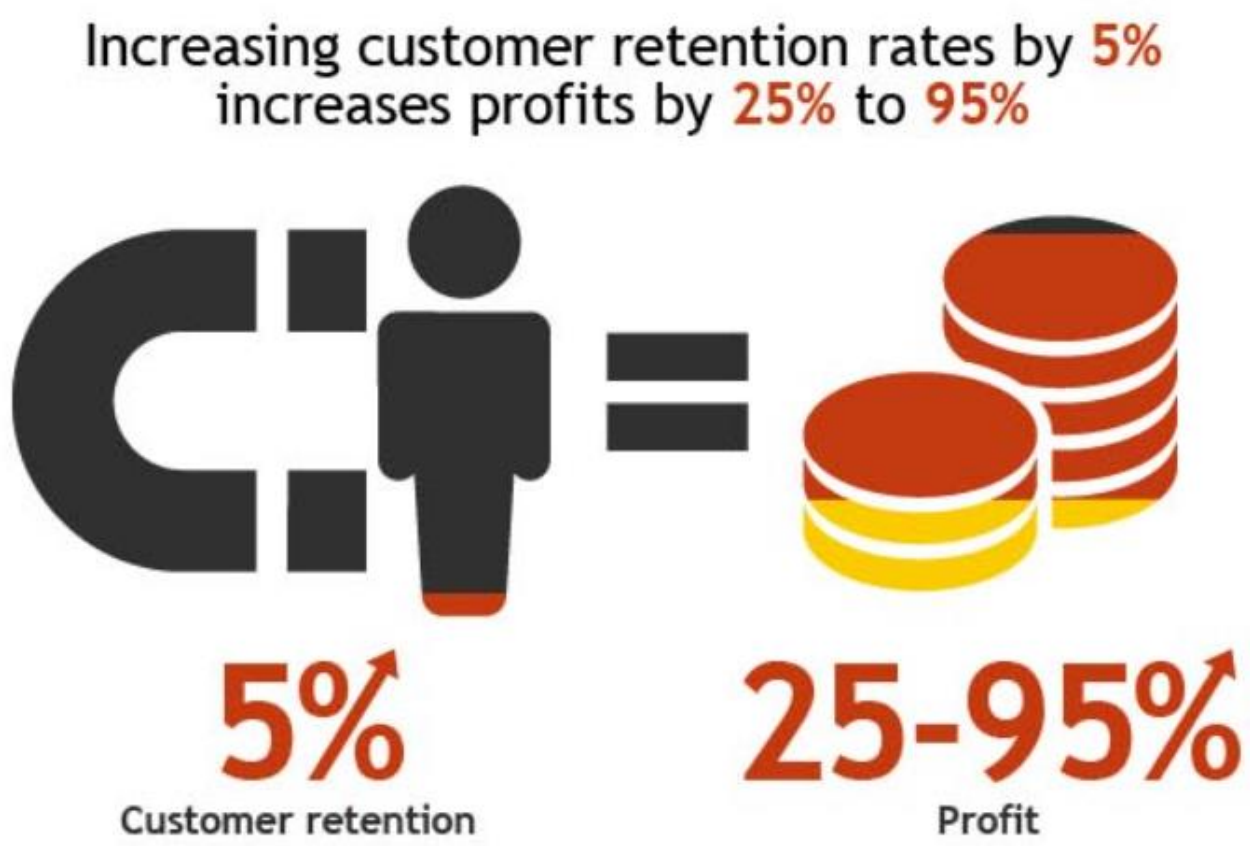
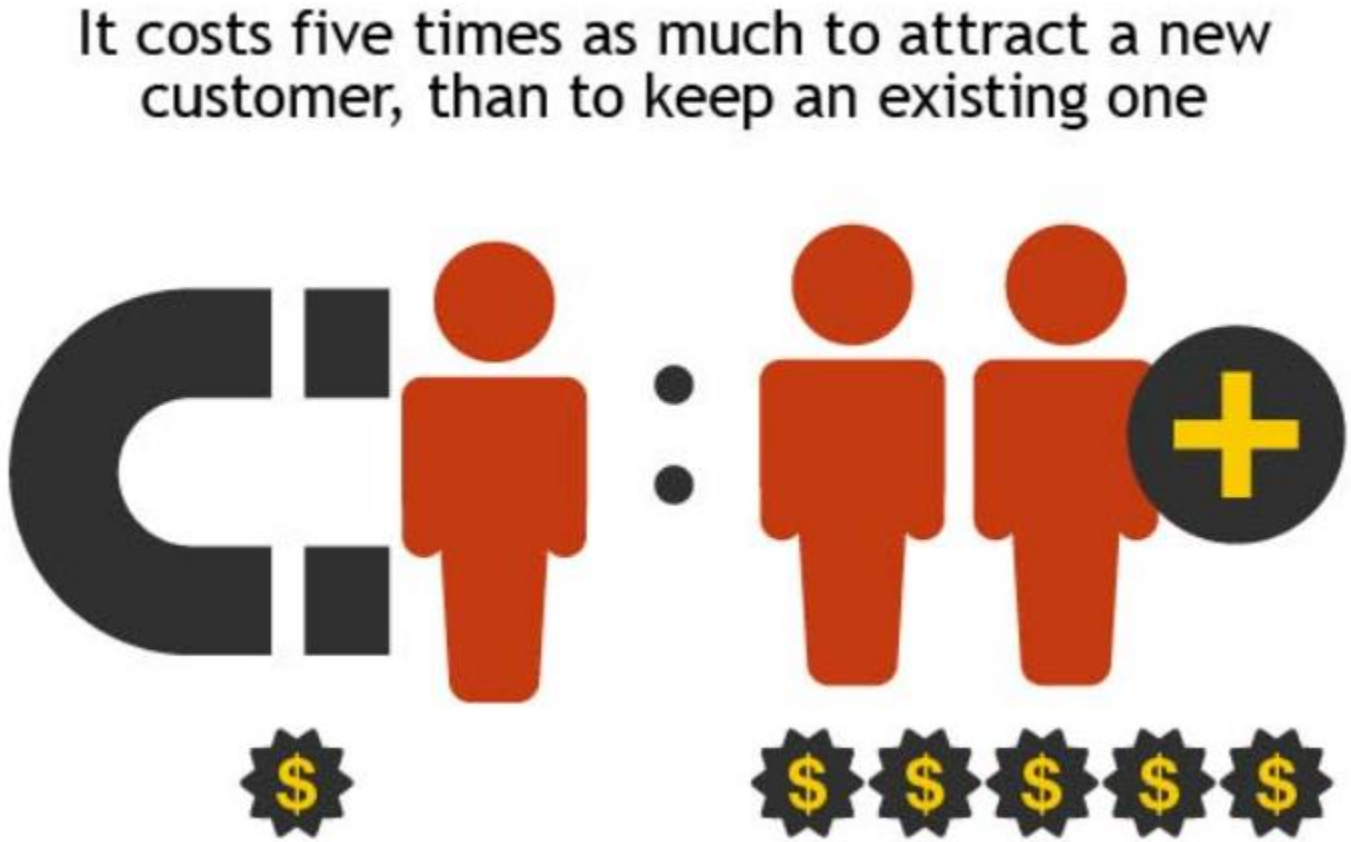



https://www.invespcro.com/blog/customer-acquisition-retention/

# What is Churn?

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# What is Churn?

# What is Churn?

# Key concepts about Churn

CLEAR DEFINITION

HISTORICAL DATA

CONTEXT

# DEMO

## Basic Churn

# Looking for a better model

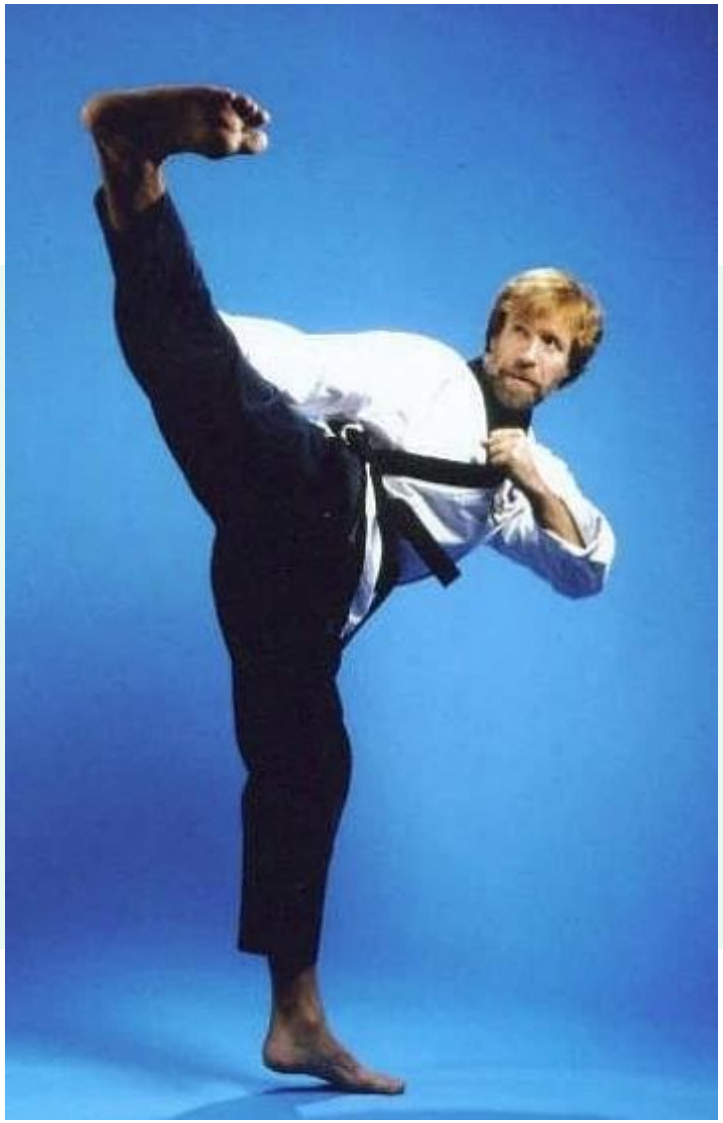
Random forest has:

- N_estimators
- Max_Depth
- Max_leaf_nodes
- …

We need to find a better model exploring such combinations

# DEMO

## Tuned Churn



# In balance there is virtue

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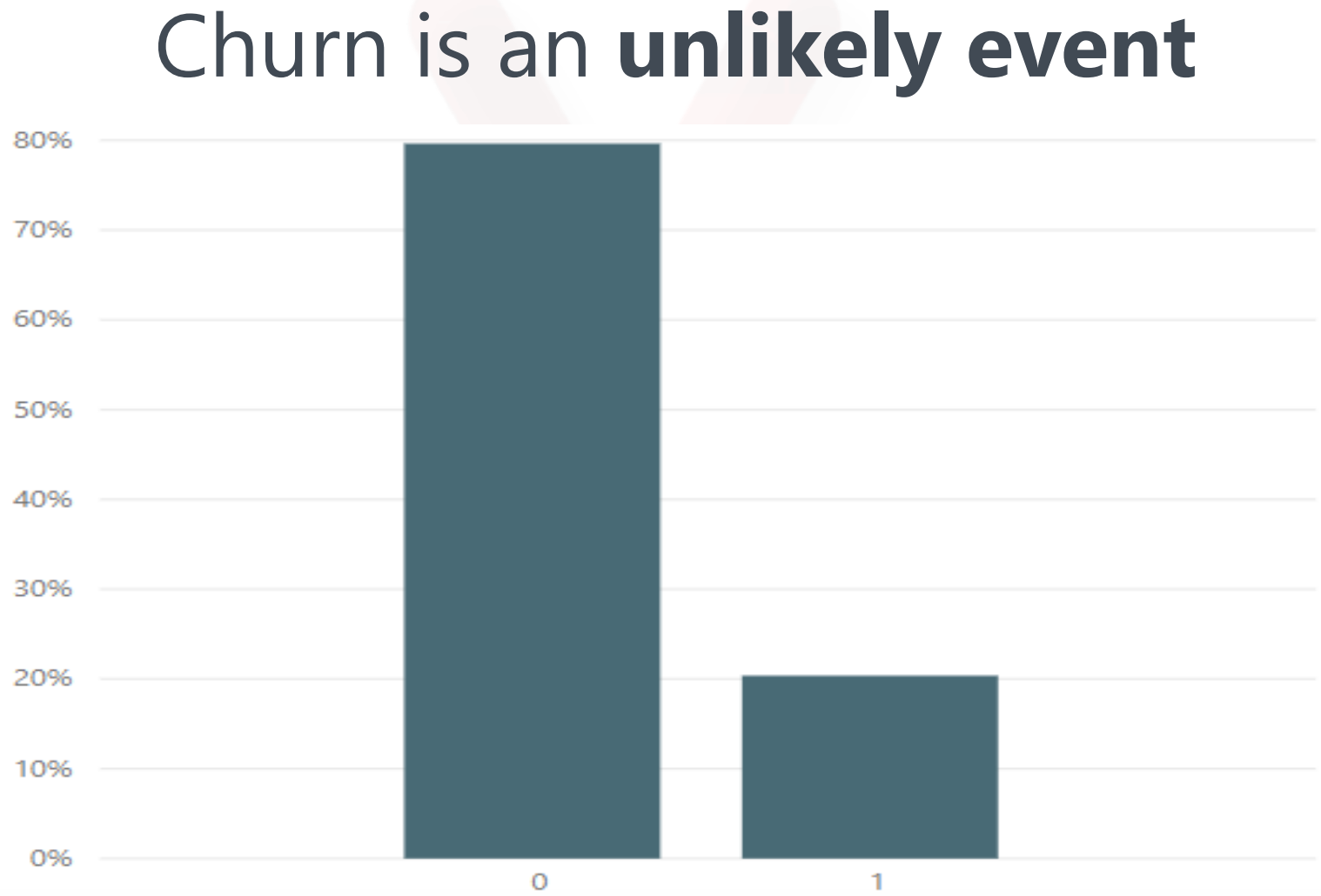

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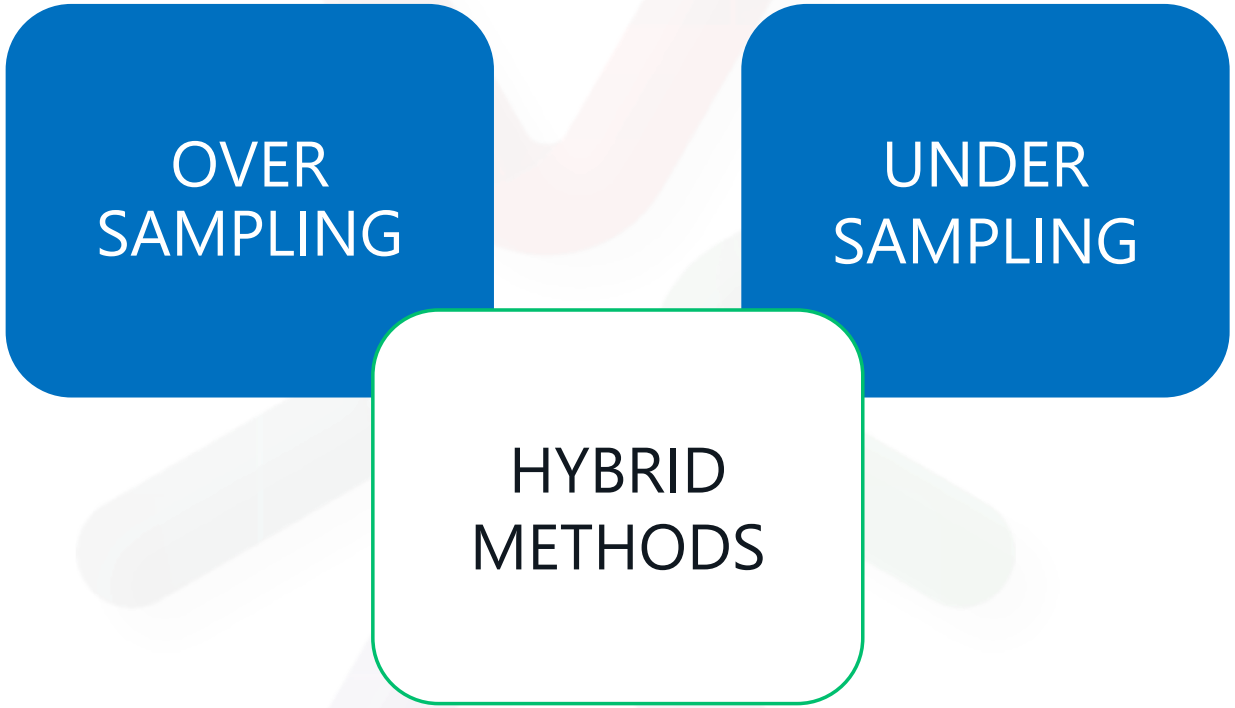

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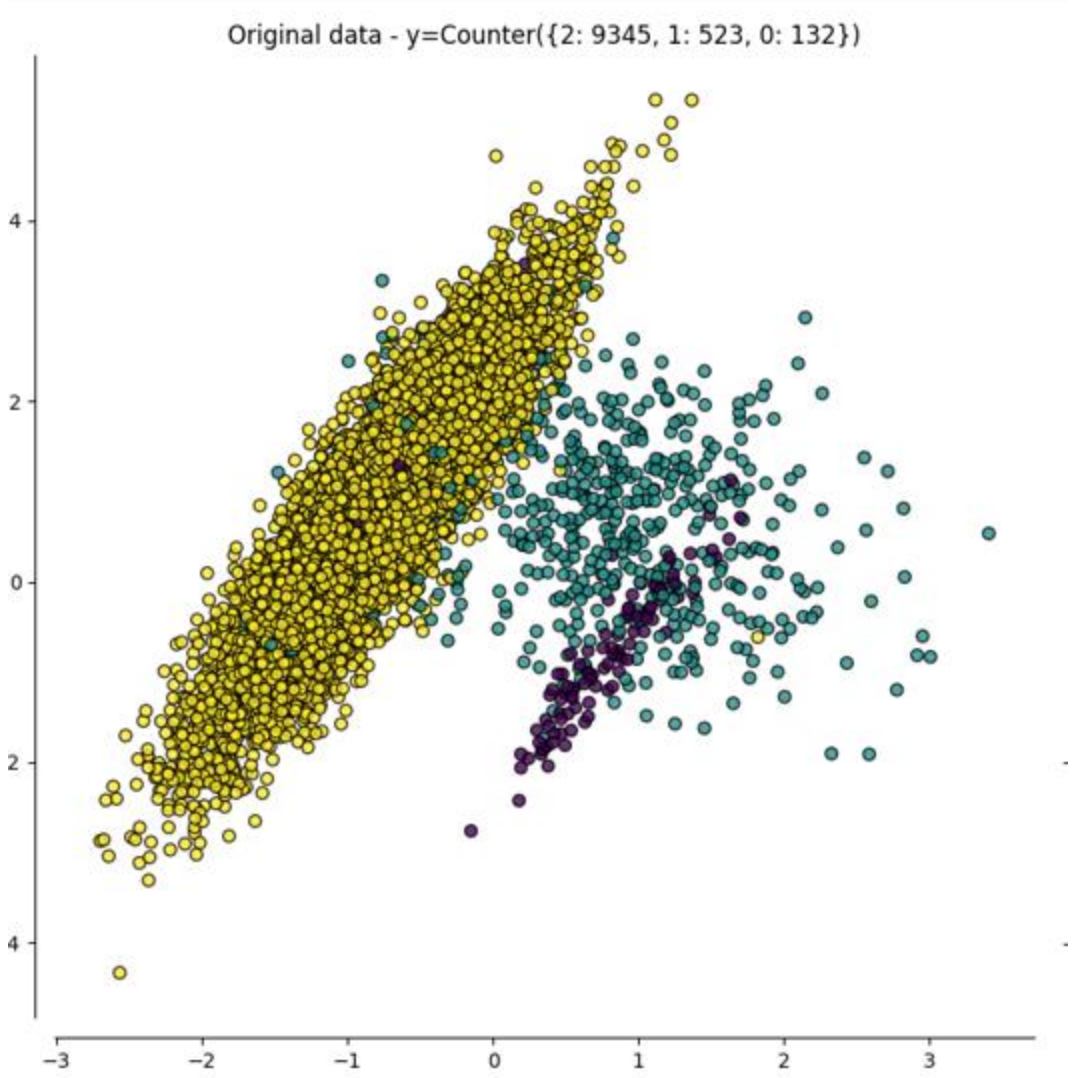

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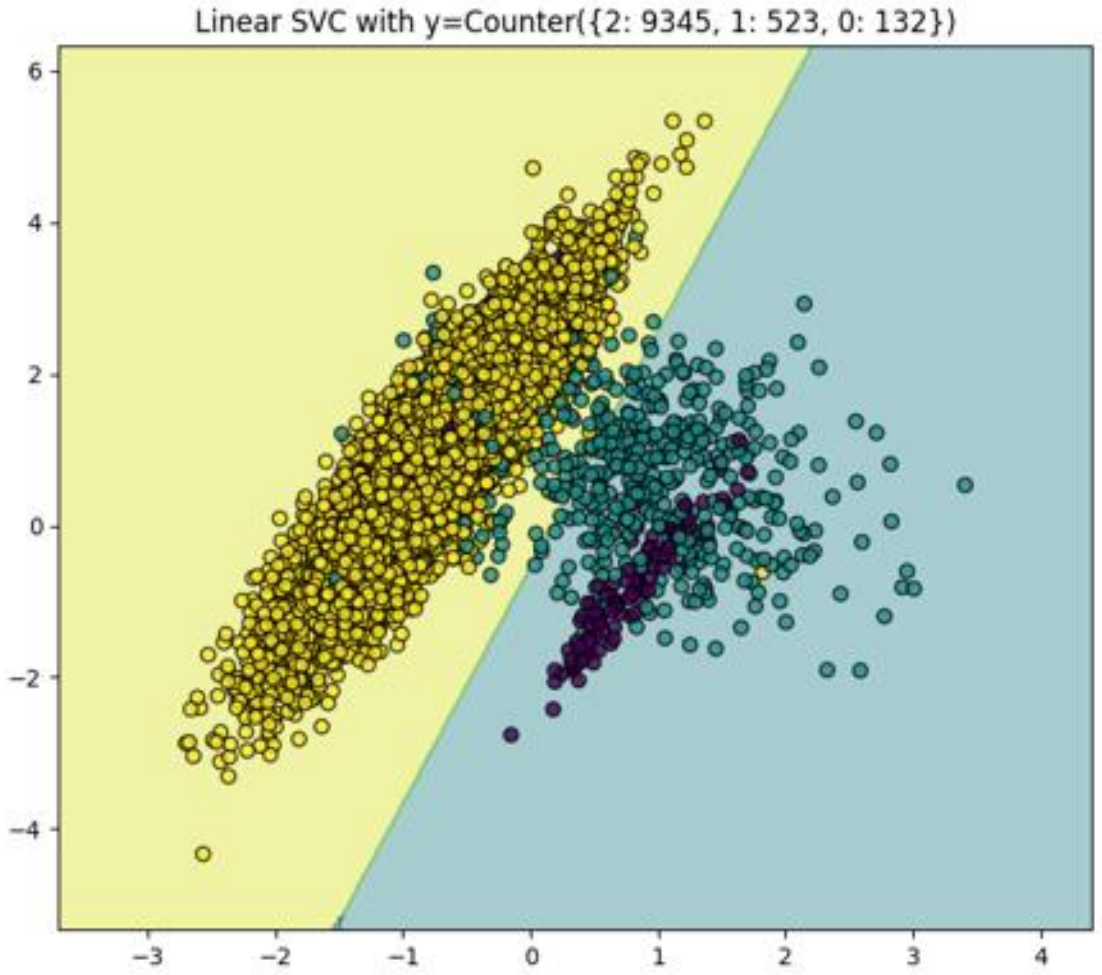

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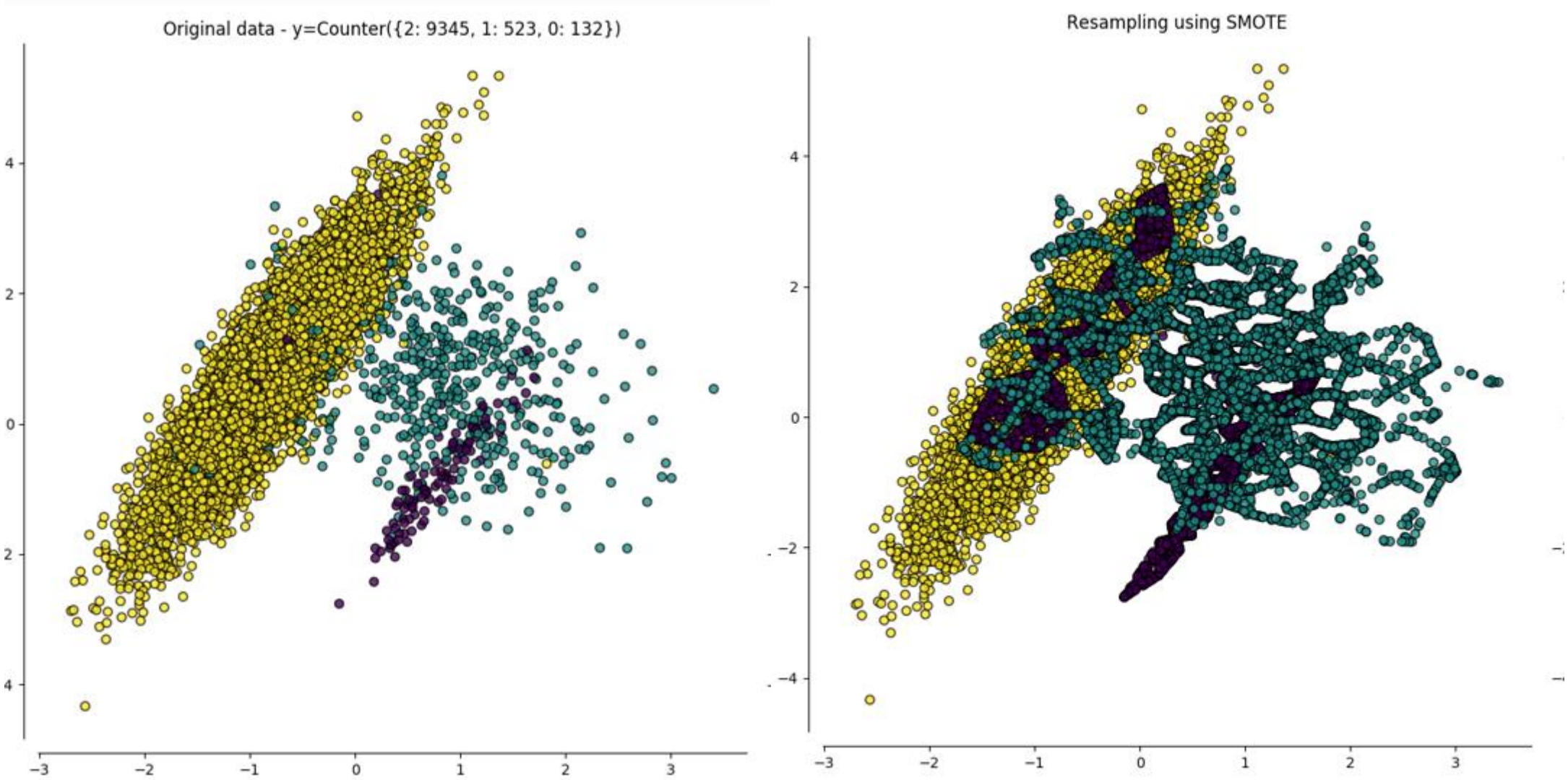

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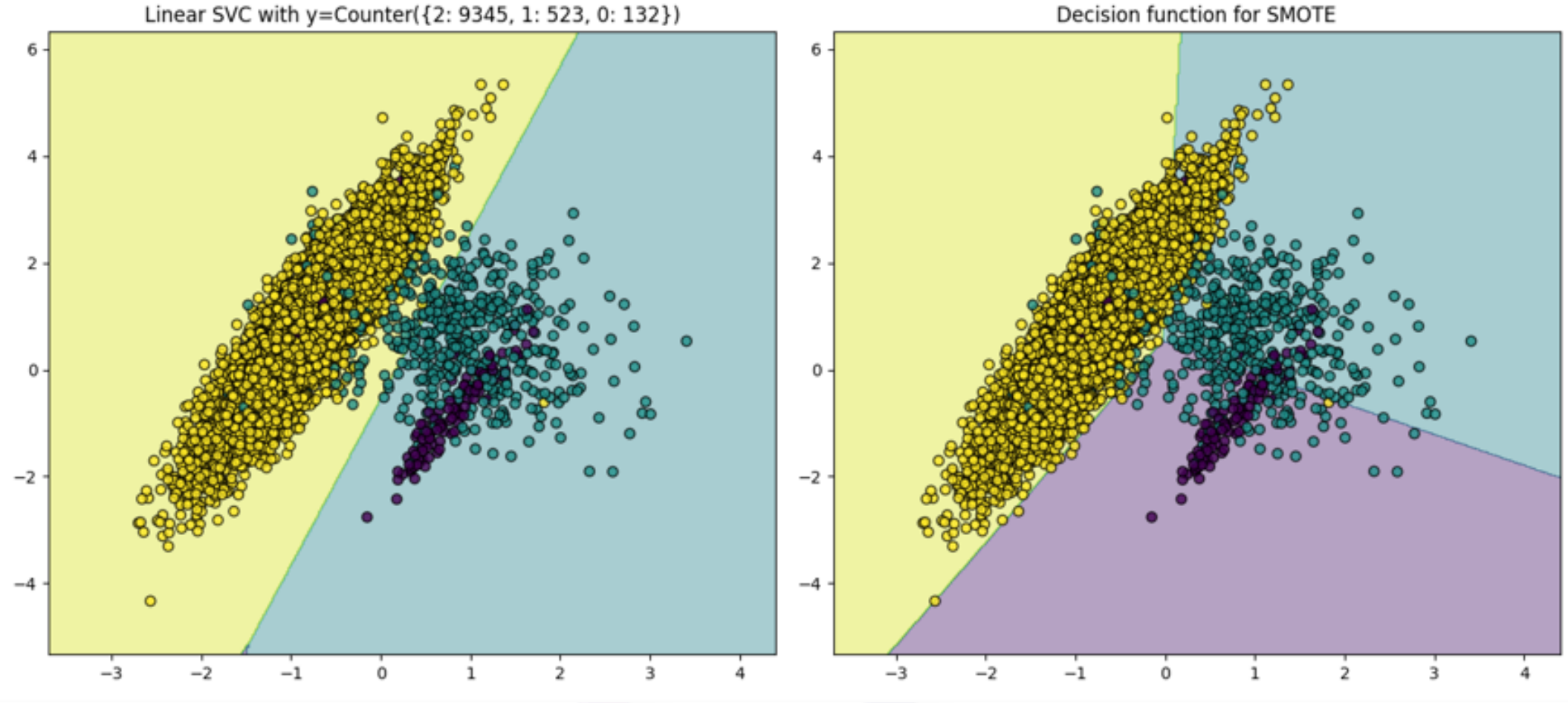


# In balance there is virtue

## Extra techniques (algorithm based)

WEIGHT VECTORS

BALANCED EXPLORATION

# DEMO

## Balanced Churn

# KISS

# KISS


**Simple models with significant features are usually better models**

# Tree-based methods

Decision Trees

Random Forests

Boosted Trees (lightgbm, xgboost, rxFastTrees…)

GAIN

COVER

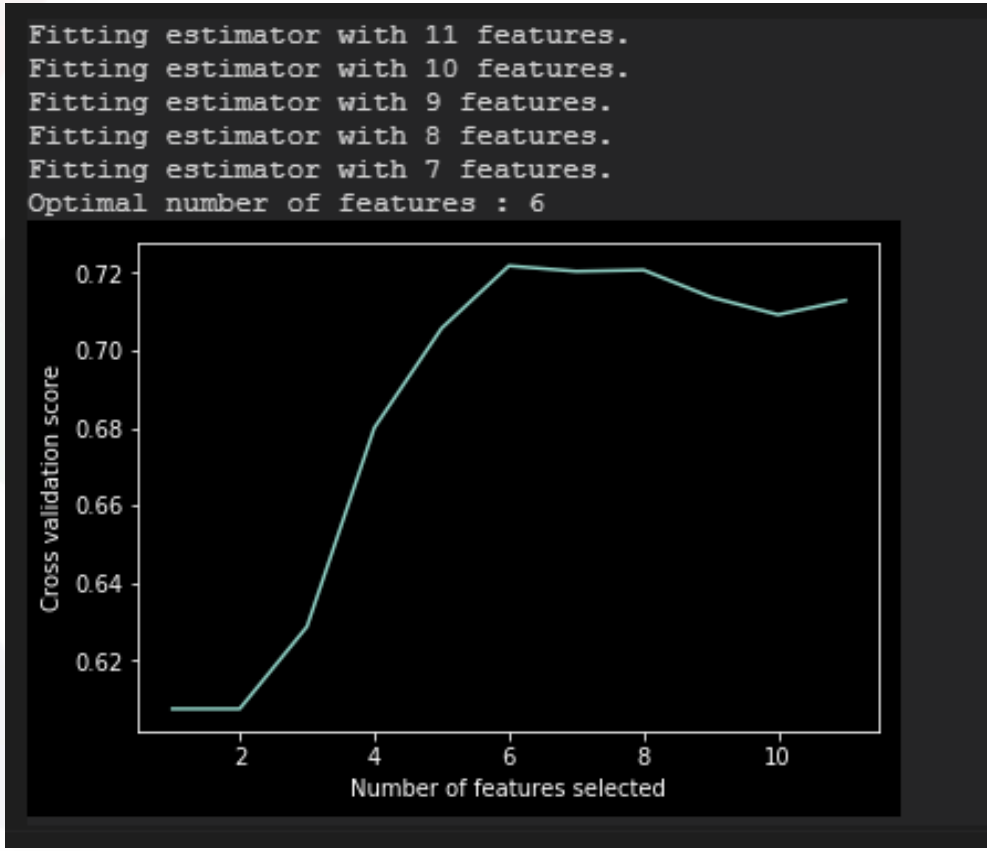
FREQUENCY

**DISCARD THE LESS USED FEATURES**

# Recursive Feature Elimination

Different combinations of features are tried **iteratively** and performance data is gathered

Requires an estimator (model)



# DEMO

## A simpler Churn

# How did we get here?

# How did we get here?

Churn is a **business problem**

**Business is key**

If our model is ONLY precise, **is not enough**

# Why do we need to interpret?

To understand the results we are receiving from our models

Debug and improve models

Avoid bias

Prescriptive analytics

# What can we see?

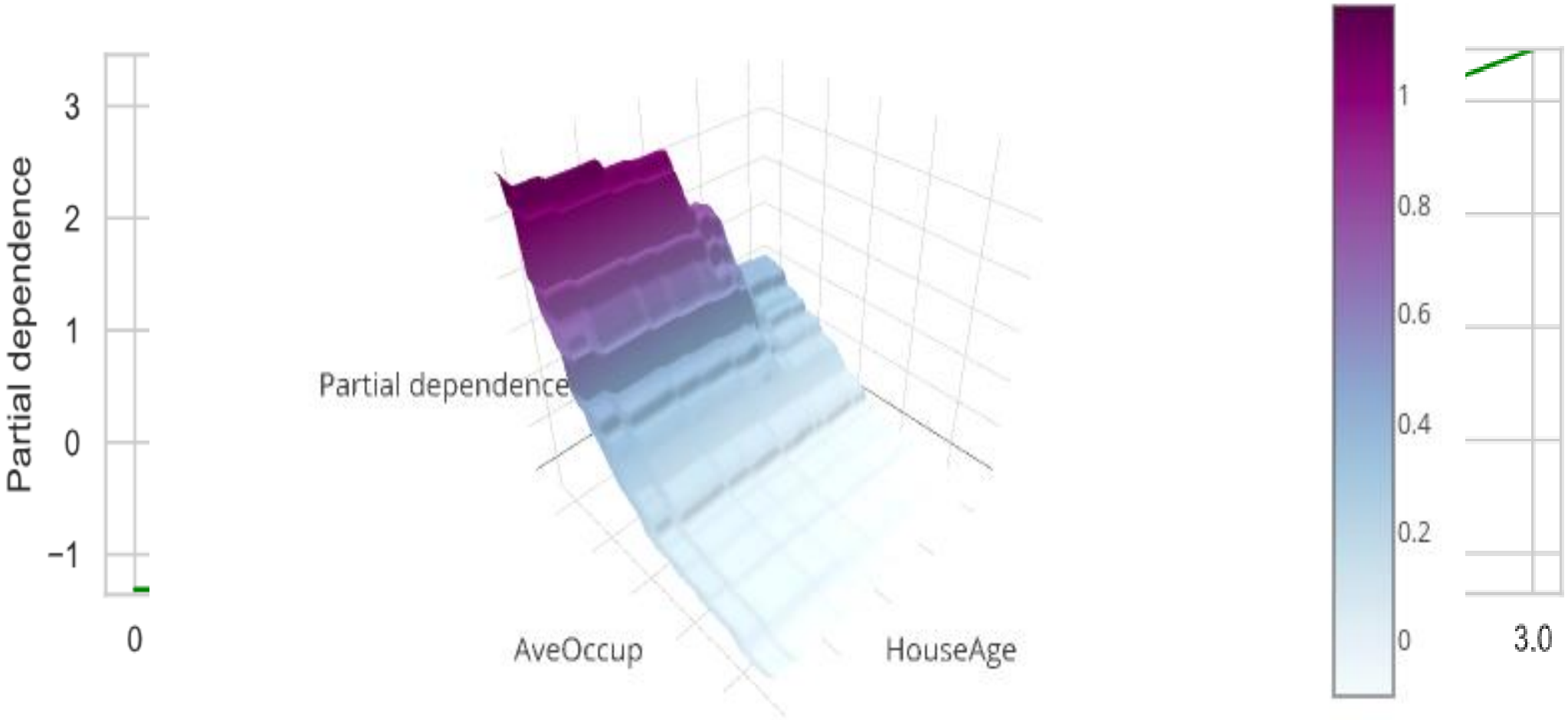
Returned values

- Regression
- Classification

Measures Can we rely ONLY in measures?

# Clever Hans

# Partial dependency plots



# DEMO

## Show me the model!

# QUESTIONS?

# THANK YOU!

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