

An Introduction to Machine Learning

With Python

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*We enable our clients
make sense of their data*



DATA ARCHITECTURE



MANAGED SERVICES



DATA STRATEGY



DATA SCIENCE



DATA MANAGEMENT



DATA ANALYTICS

Questions?

Shout them out!!



Where to find the ***slides*** and
demos

<https://github.com/SQLShark>
bit.ly/2uHQS74



In this session we will look to understand what is ***Machine Learning***?

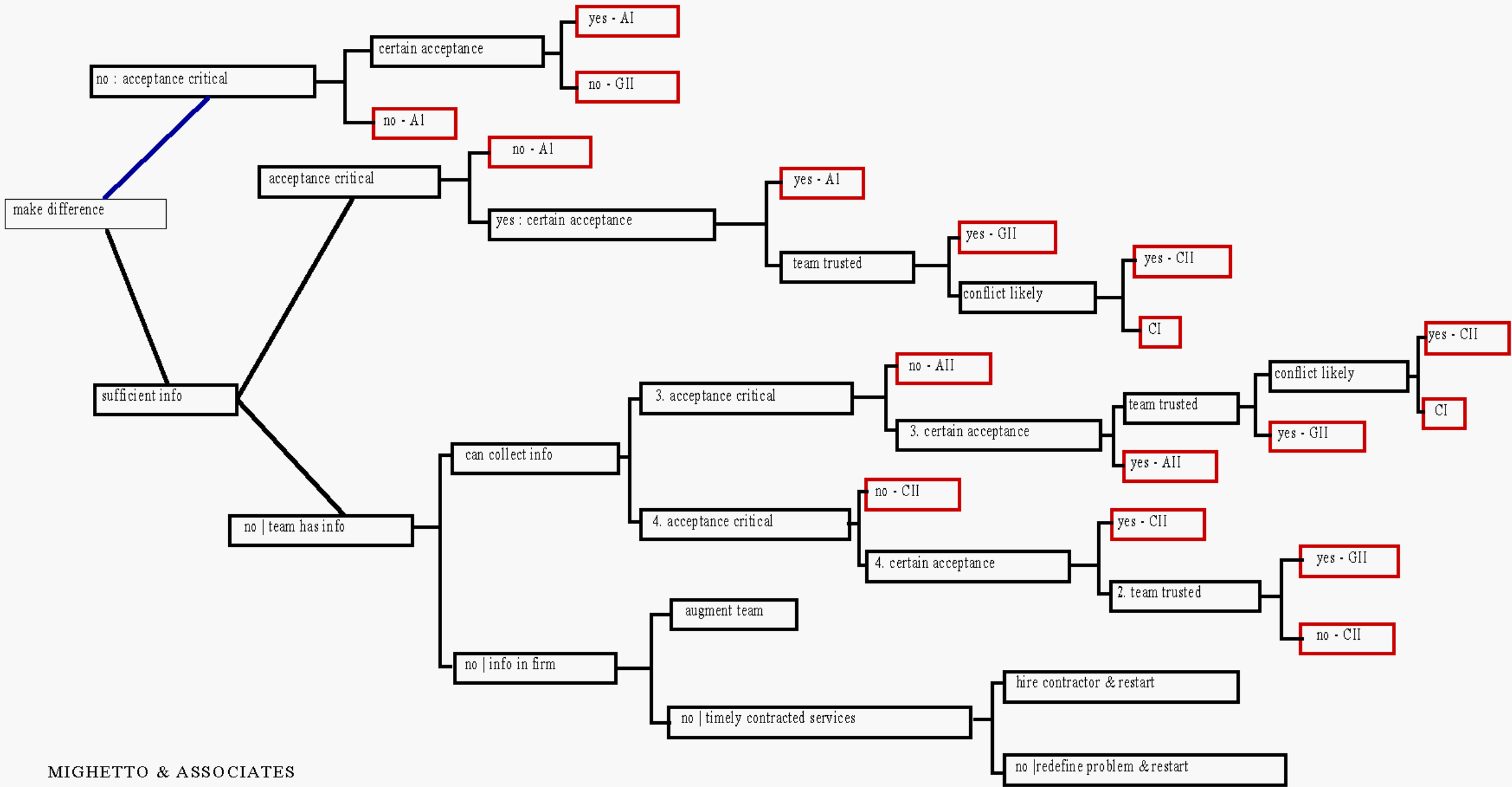
We will explore ***data science***, the process, the use cases and how to get started.

We will understand why ***Python*** is a great Language, and how to advance your skills in machine learning



What is Machine Learning?

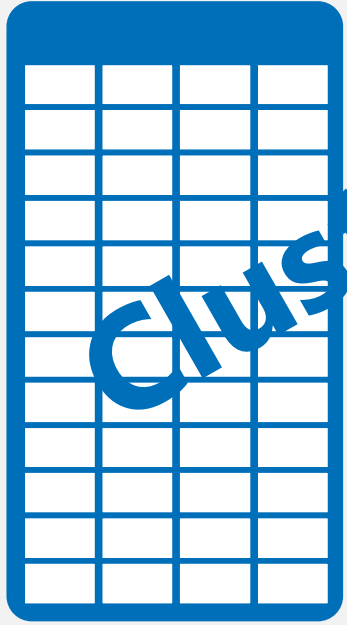
Expert systems



A machine is said to learn from
experience **E** with respect to
some class of tasks **T** and
performance measure **P**

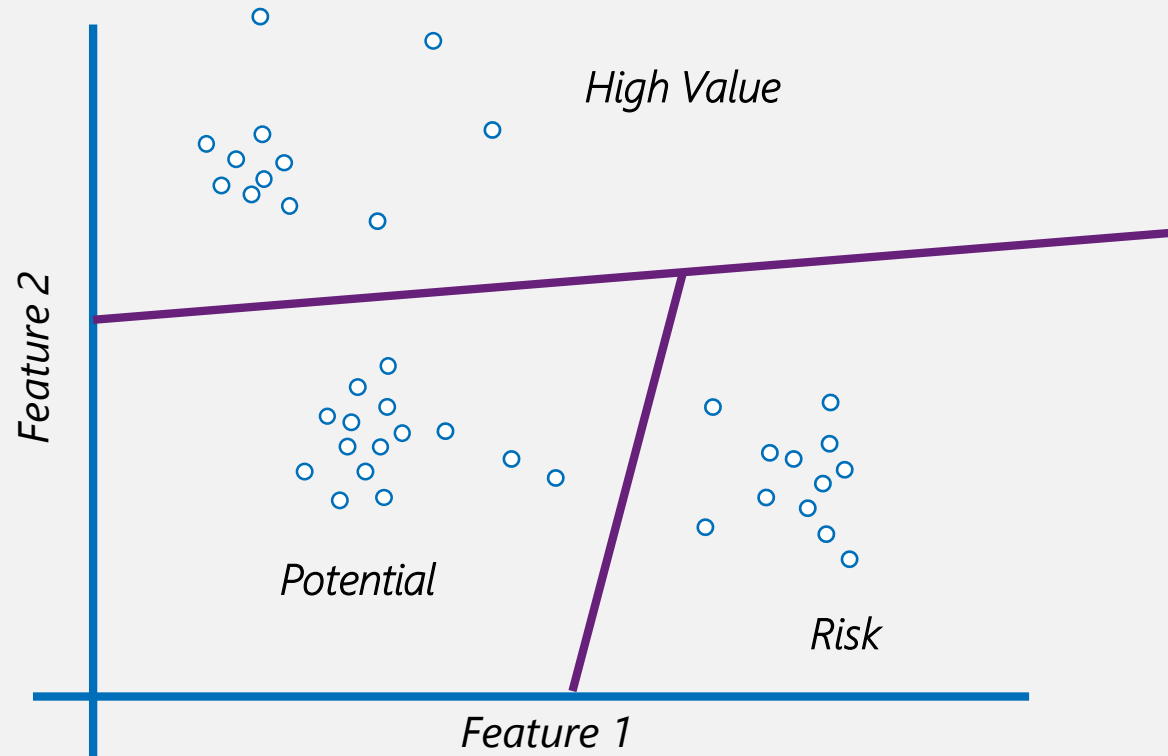
Its performance at tasks in **T**,
as measured by **P**, improves
with experience **E**.

data

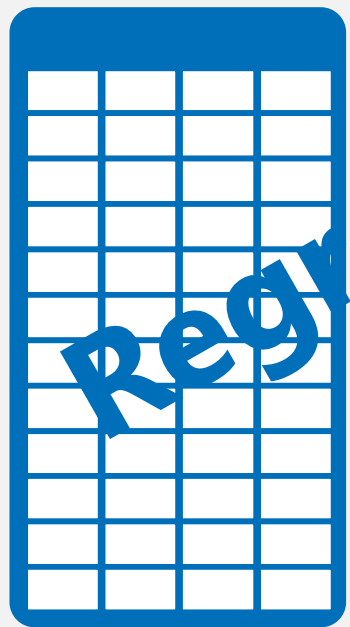


Clustering

"Hey, I am trying to better **understand** my customers. I think there might be a **pattern** in their **behaviour**, but I am struggling to see it"

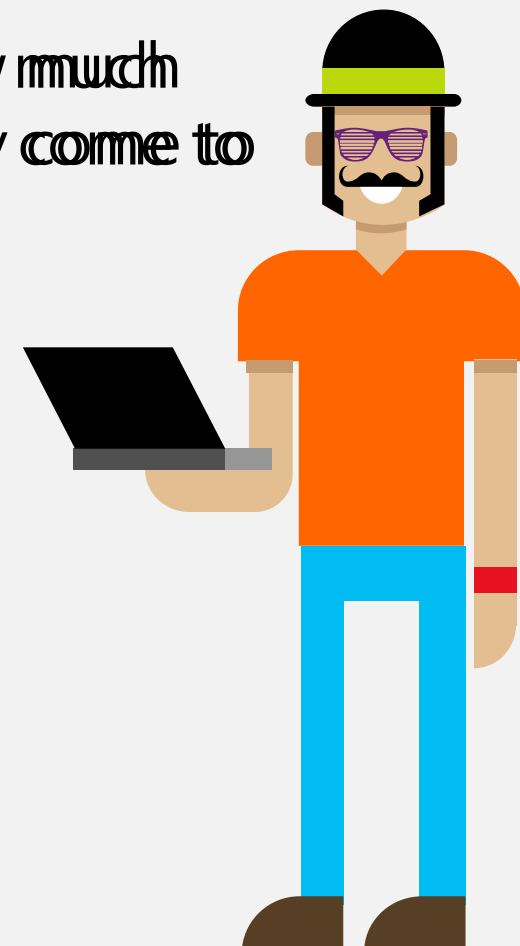
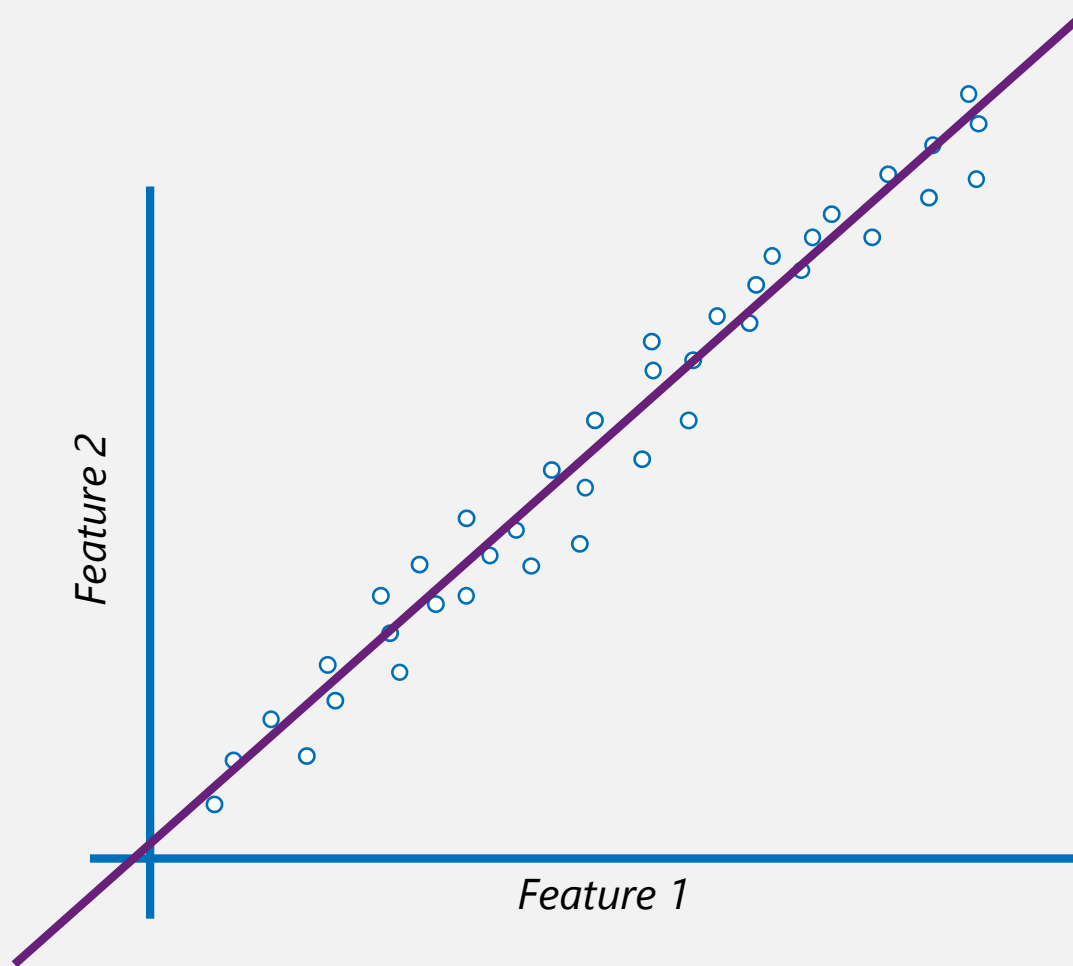


data

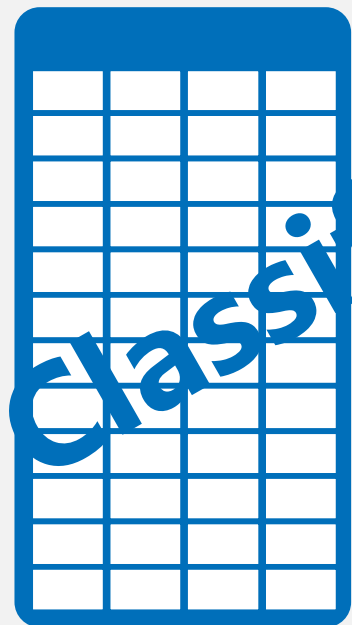


Regression

"Hey, I am trying to **predict** how much someone will **spend** next time they come to my store"

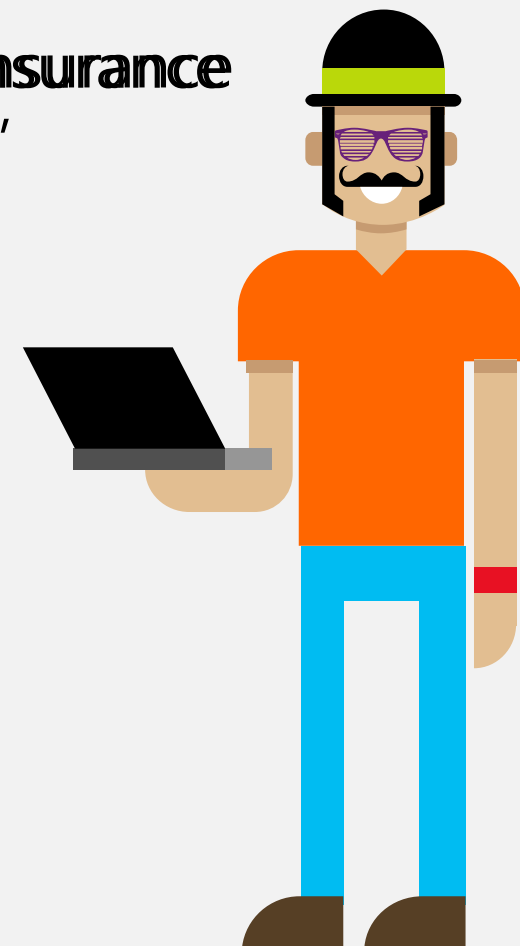
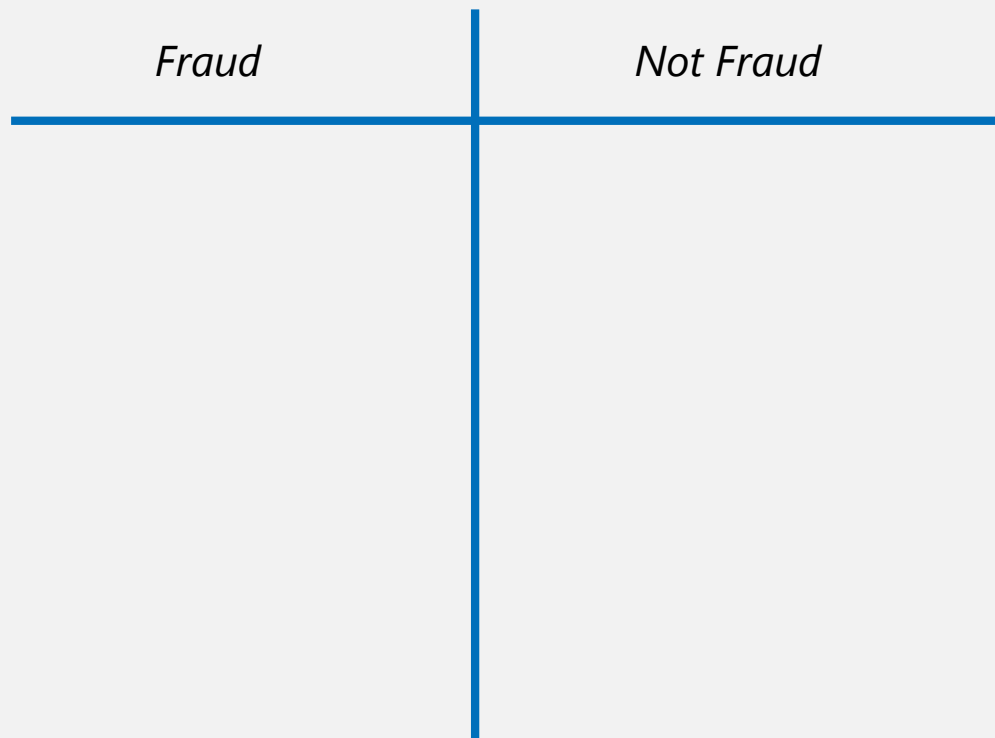


data

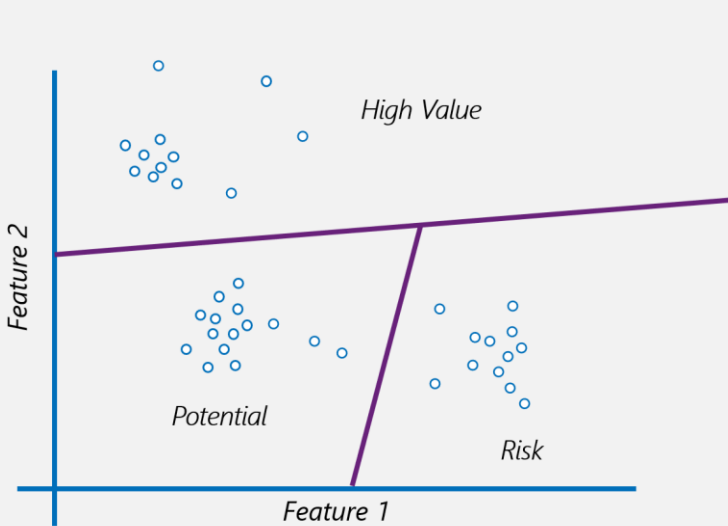


Classification

"Hey, I am trying to **predict** if an insurance claim is **fraudulent** or not"

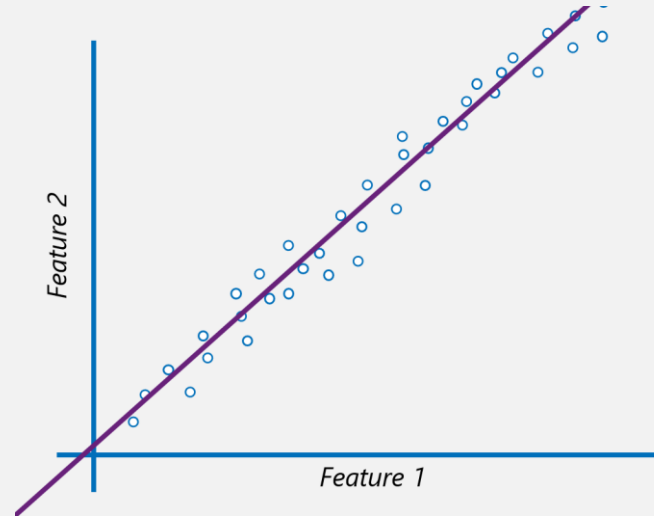


Types of machine learning

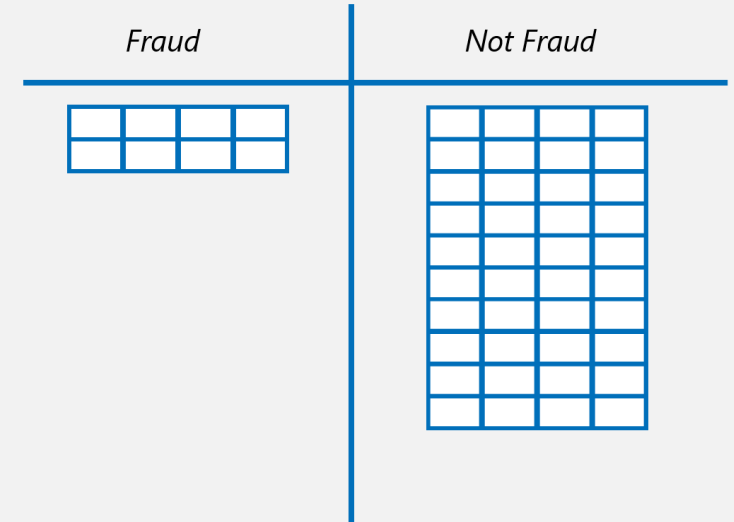


Clustering

Unsupervised

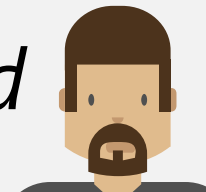


Regression



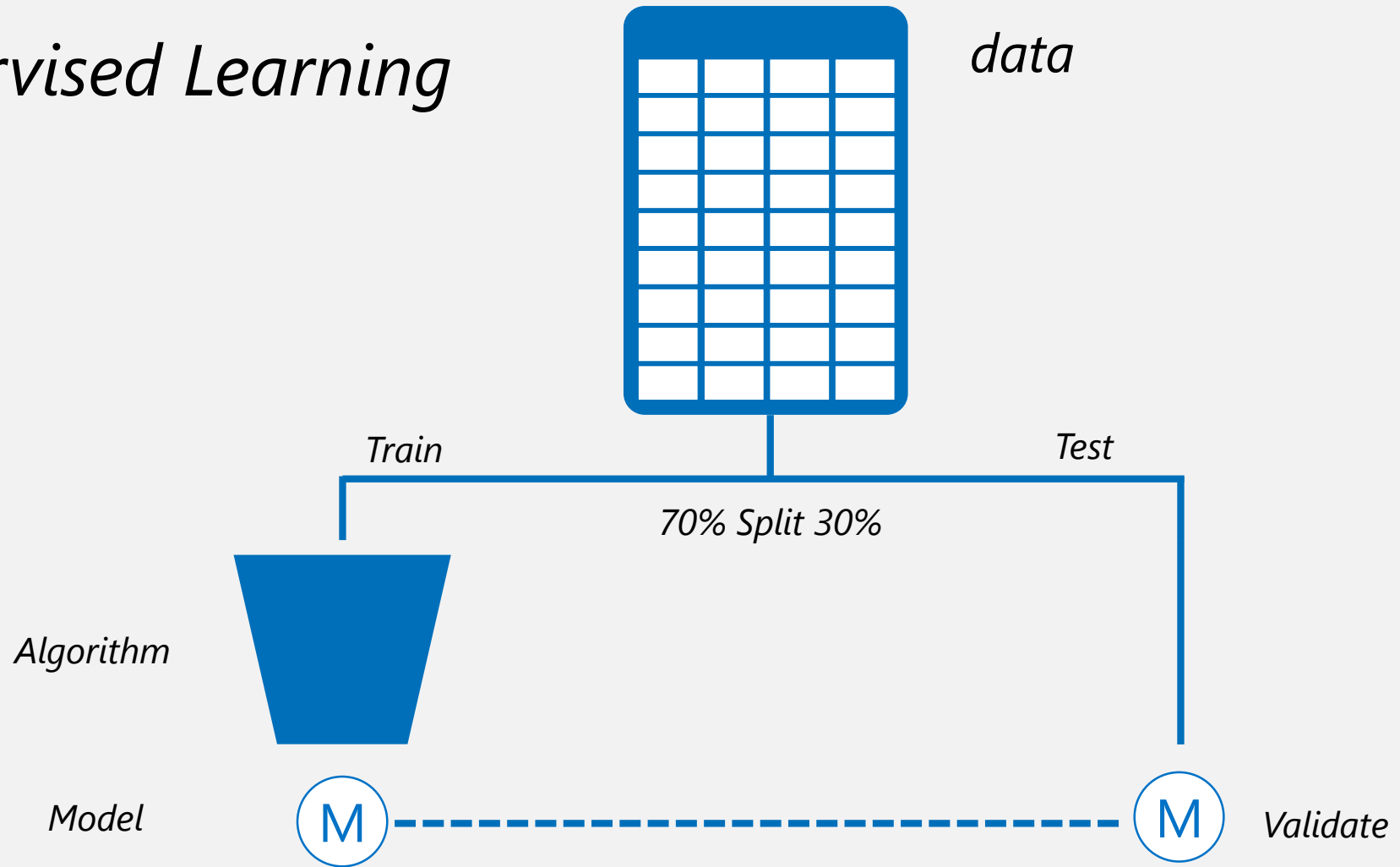
Classification

Supervised



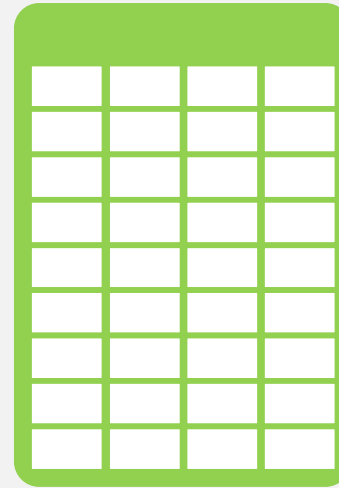


Supervised Learning





Supervised Learning



New data



Model

Prediction

A visual introduction to machine learning

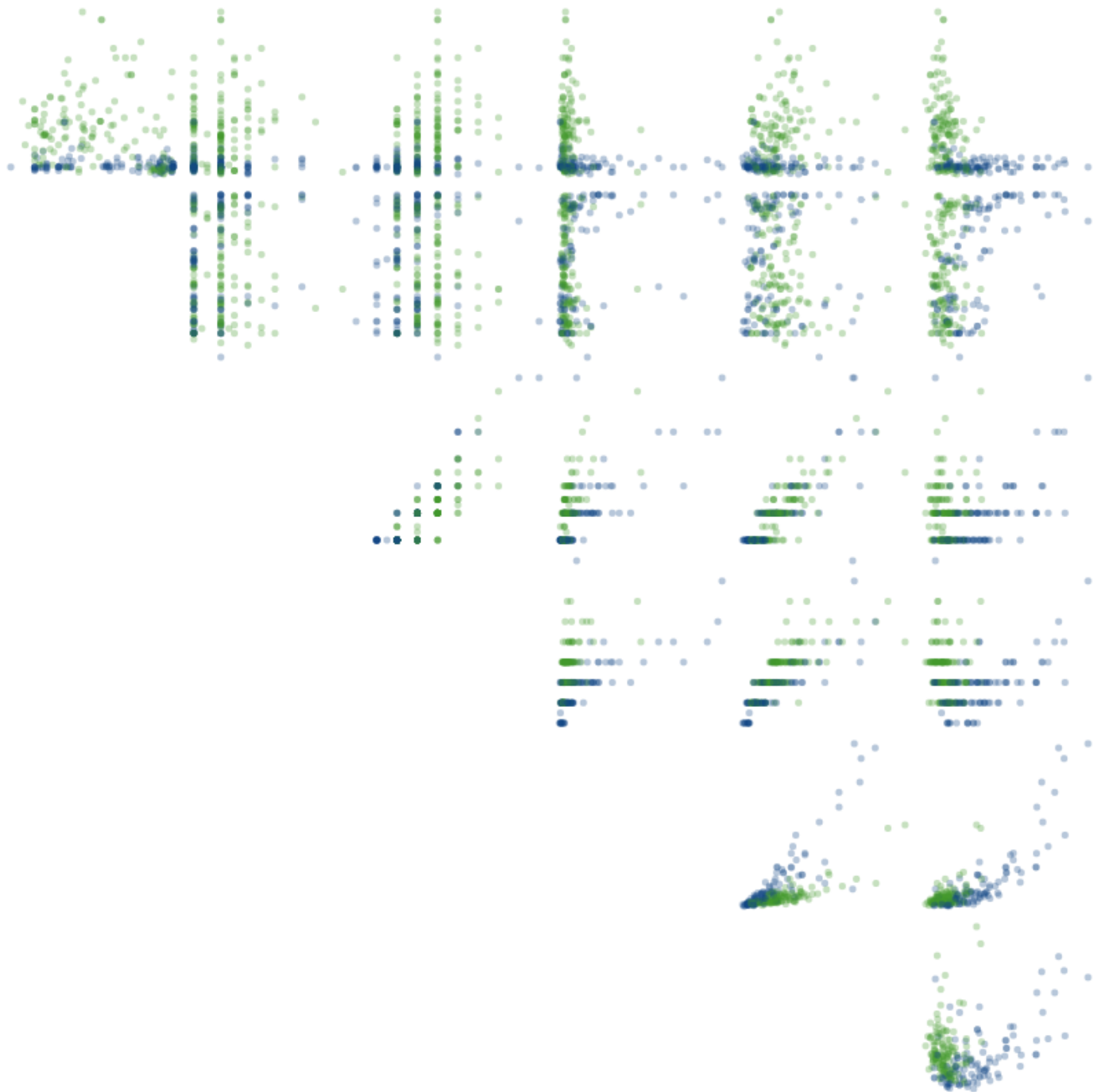


English ▼

In machine learning, computers apply **statistical learning** techniques to automatically identify patterns in data. These techniques can be used to make highly accurate predictions.

Keep scrolling. Using a data set about homes, we will create a machine learning model to distinguish homes in New York from homes in San Francisco.

SCROLL

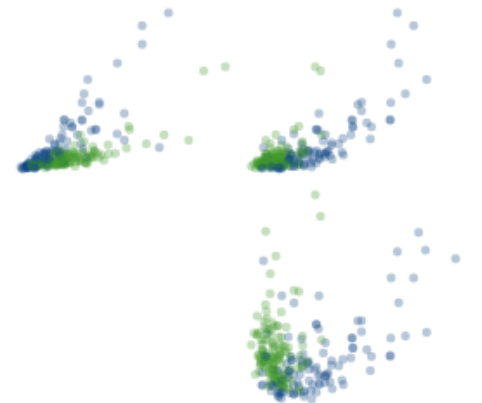
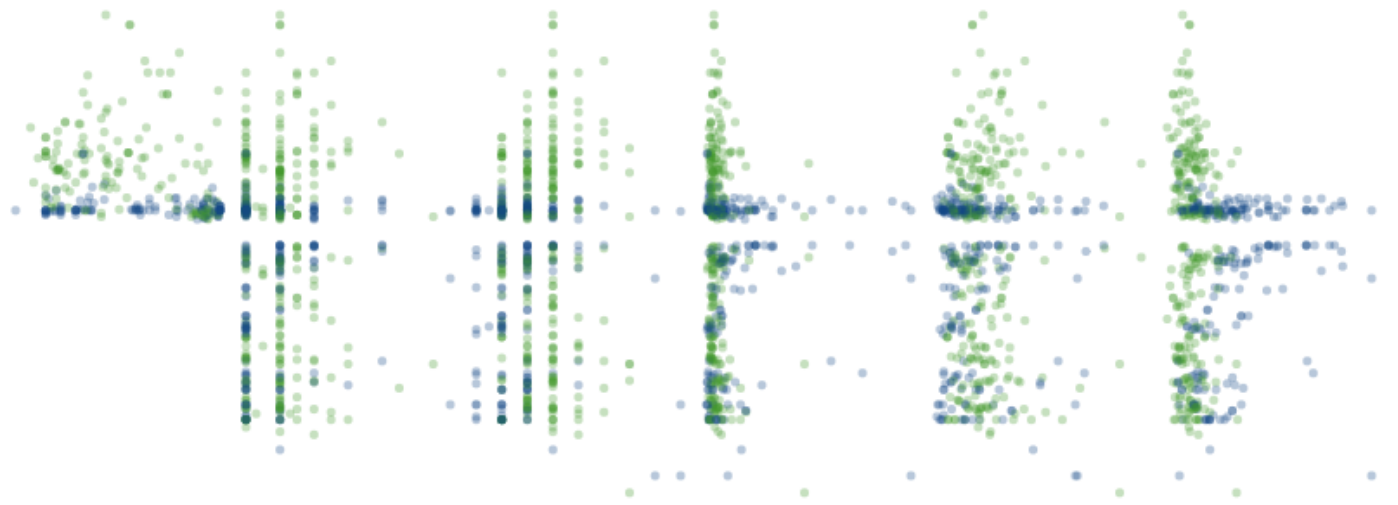


A visual introduction to

<http://www.r2d3.us/visual-intro-to-machine-learning-part-1/>

Keep scrolling. Using a data set about homes, we will create a machine learning model to distinguish homes in New York from homes in San Francisco.

SCROLL



Python: Fundamentals



```
print("Hello, Manchester!")
```



Beautiful is better than ugly
Explicit is better than implicit
Simple is better than complex
Complex is better than complicated
Readability counts

Download Anaconda Distribution

Version 5.2 | Release Date: May 30, 2018

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Anaconda 5.2 For Windows Installer

Python 3.6 version *

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Python 2.7 version *

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Python is...



An interpreted language

It has a base language which is extended with modules

Indents are important! Indents over curly brackets

Supports: variables, lists, dictionaries and tuples

Duck typed

Awesome!!

DS/ML Modules

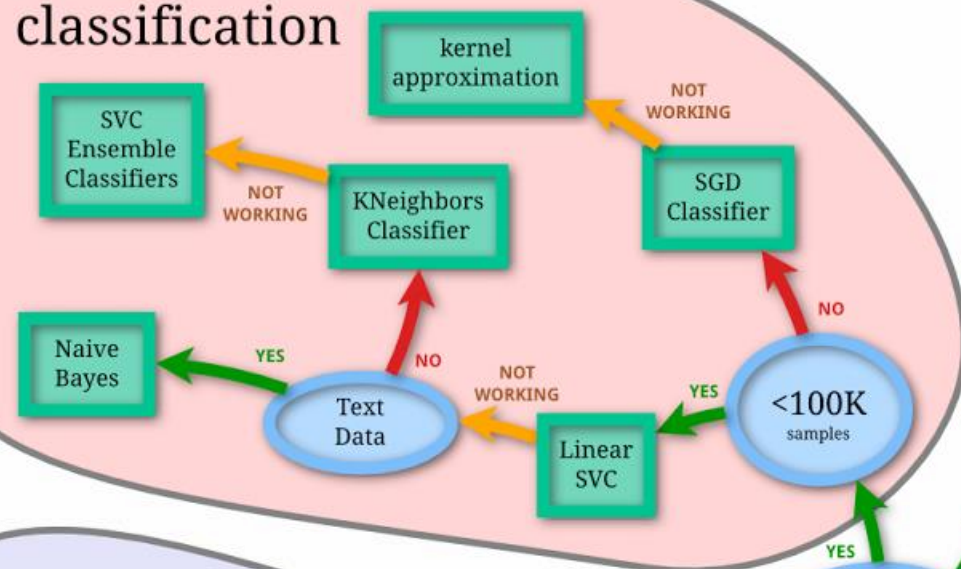


Numpy	– Numerical Python
SciPy	– Scientific Python
Pandas	- Data wrangling
Matplotlib	- Data Visualisation
Scikit-learn	- Machine Learning (shallow)
....	
TensorFlow	- Machine Learning (deep)
Keras	- High level DL
NLTK	- Natural Language processing

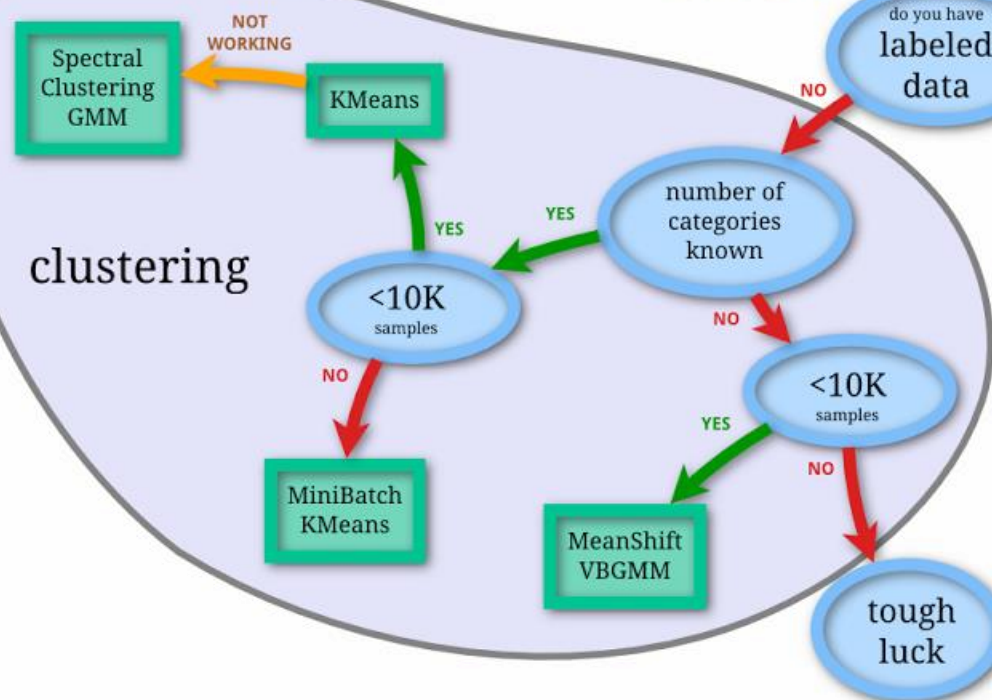
How to add modules? PIP

scikit-learn algorithm cheat-sheet

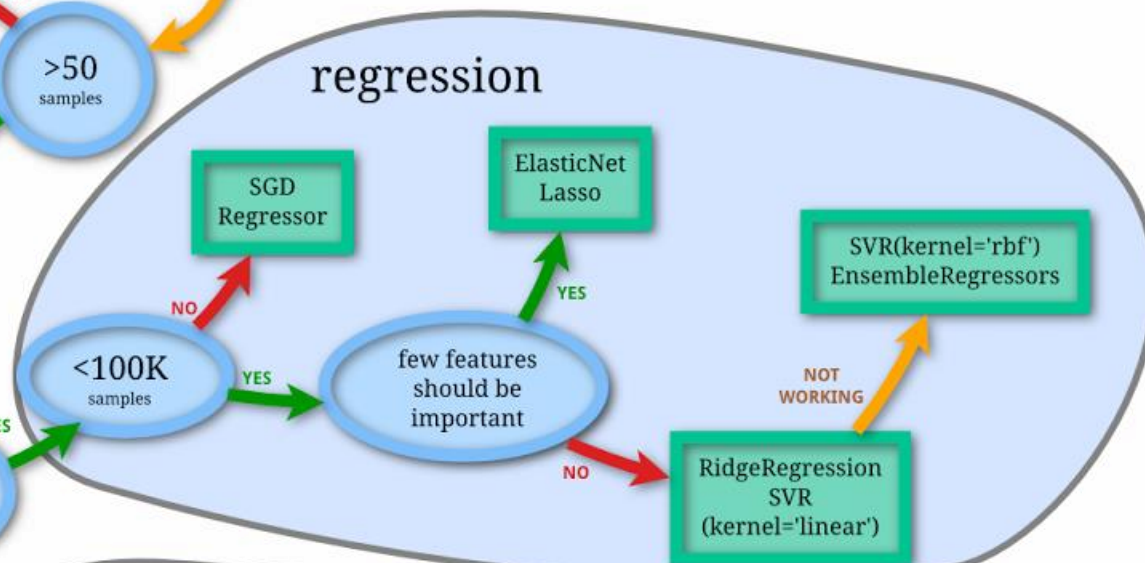
classification



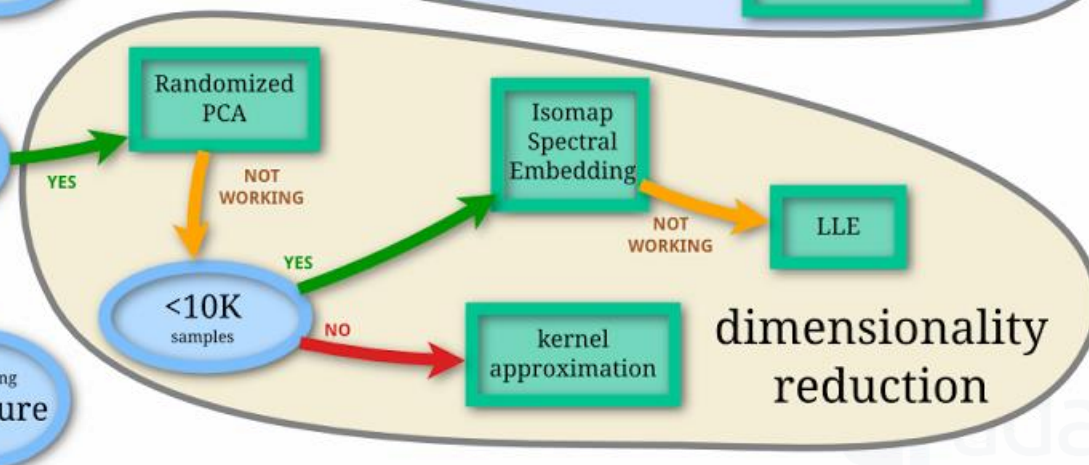
clustering



regression



dimensionality reduction

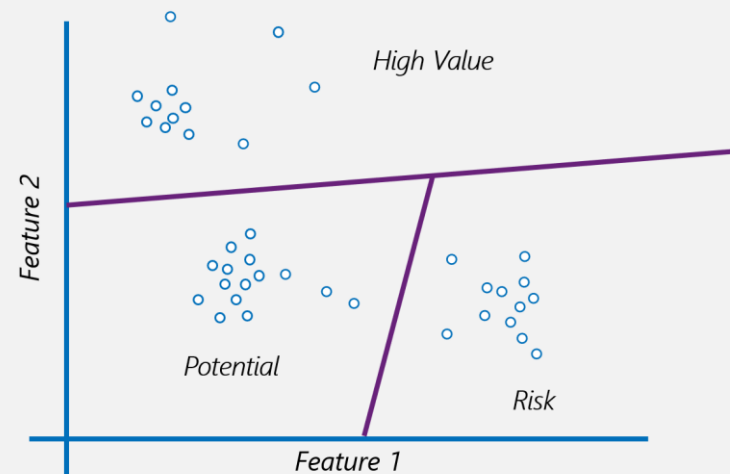


Python: Demos

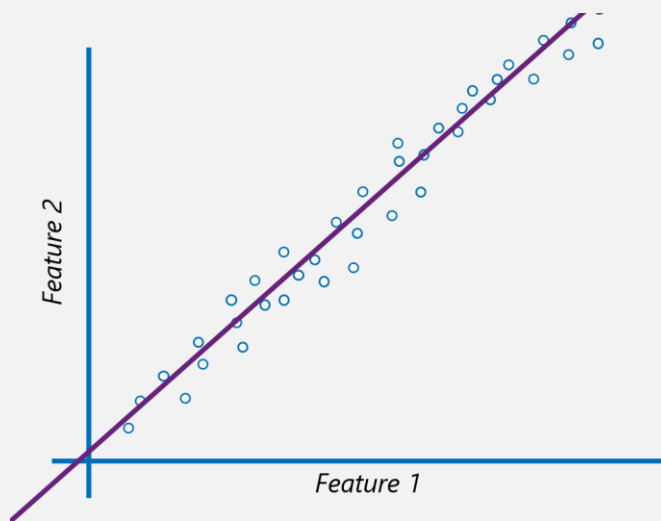




Python Fundamentals



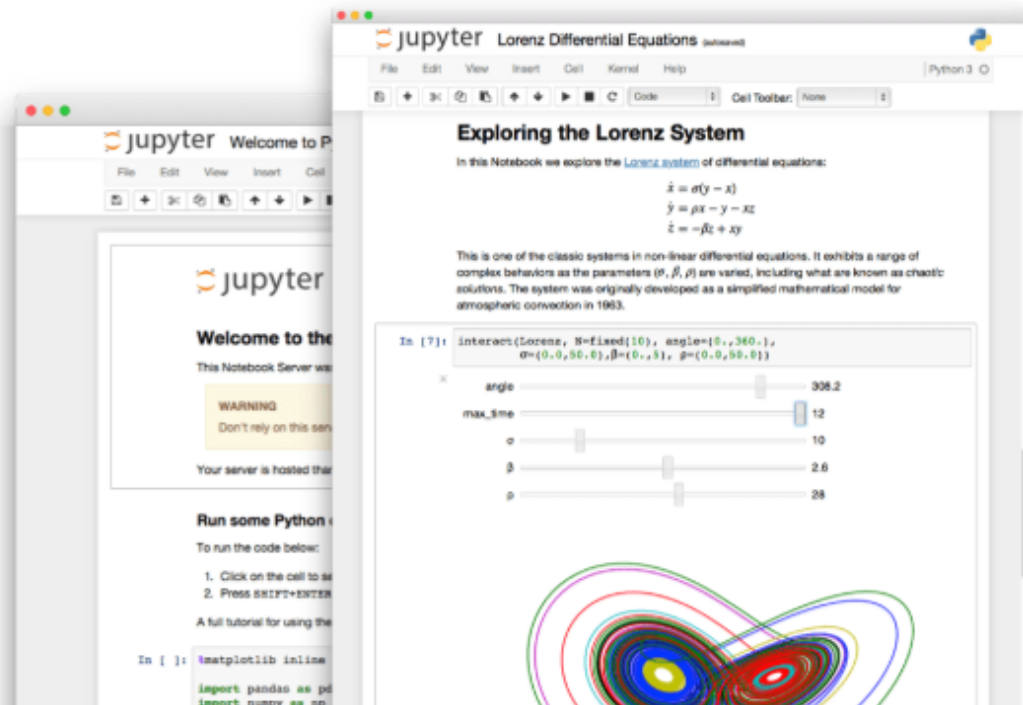
Clustering



Regression

<i>Fraud</i>	<i>Not Fraud</i>																																																
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Classification



The Jupyter Notebook

The Jupyter Notebook is an open-source web application that allows you to create and share documents that contain live code, equations, visualizations and narrative text. Uses include: data cleaning and transformation, numerical simulation, statistical modeling, data visualization, machine learning, and much more.

Business Intelligence

- Traditional Analytics
- Data Warehousing
- Data Visualisation
- Report development
- SSAS / Power BI

Data Science

- Mathematics
- Advanced Statistics
- Machine Learning
- Natural Language Processing
- Optimisation
- AI

Data Engineering

- Model deployment
- Model management
- Model monitoring
- Automated retraining
- DataOps

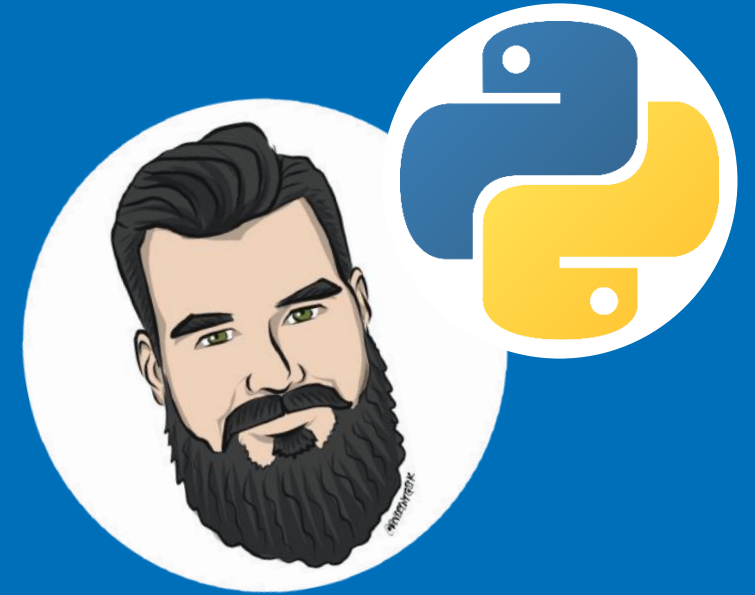
Python!

Python is amazing, so versatile.

If you are serious about Machine Learning then learn Python. Learn R too, but Python for production.

Start basic and build from there.

Thank you



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In this full-day session we will build a series of basic models and promote them into production. This will be an interactive session, make sure you have your laptop with you. This is an Early Bird ticket for the 1 day workshop, 'Machine Learning - From model to production using the cloud, Containers and DevOps' on Oct 17 only.

OVERVIEW



Competitions

Documentation

InClass

General

InClass

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Search competitions



1 Entered Competition



House Prices: Advanced Regression Techniques

Predict sales prices and practice feature engineering, RFs, and gradient boosting

Getting Started · Ongoing · 🏠 tabular data, regression

Knowledge
5,021 teams

16 Active Competitions



Home Credit Default Risk

Can you predict how capable each applicant is of repaying a loan?

Featured · 2 months to go · 🏠 home, banking, tabular data

\$70,000
4,488 teams

Santander Value Prediction Challenge

Predict the value of transactions for potential customers.

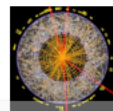
Featured · a month to go · 💰 finance, banking

\$60,000
3,010 teams

Google AI Open Images - Object Detection Track

Detect objects in varied and complex images.

Featured · 2 months to go

\$30,000
205 teams

TrackML Particle Tracking Challenge

High Energy Physics particle tracking in CERN detectors

Featured · a month to go · 🏠 physics, tabular data

\$25,000
521 teams

Rachael from Kaggle

Hi TerryMcCann, Data cleaning can be one of the most frustrating parts of being a data scientist....



Anna from Kaggle

Hi @terrymccann, Our revised Privacy Policy and Terms of Use are now in effect. We're making...



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First We Feast

3



Siraj Raval

3



CaseyNeistat

2



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SORT



HOT



813



Posted by u/MTGTraner [HD Hlynsson](#) 1 month ago

Discussion [D] If you had to show one paper to someone to show that machine learning is beautiful, what would you choose? (assuming they're equipped to understand it)

133 Comments Share



25



Posted by u/ML_WAYR_bot 4 days ago

Discussion [D] Machine Learning - WAYR (What Are You Reading) - Week 46

This is a place to share machine learning research papers, journals, and articles that you're reading this week. If it relates to what you're researching, by all means elaborate and give us your insight, otherwise it could just be an interesting paper you've read.

Please try to provide some insight from your understanding and please don't post things which are present in wiki.

Preferably you should link the arxiv page (not the PDF, you can easily access the PDF from the summary page but not the other way around) or any other pertinent links.

Previous weeks :

[1-10](#)

[11-20](#)

[21-30](#)

[31-40](#)

[41-50](#)

5 Comments Share



287



Posted by u/beltsazar 11 hours ago

Project [P] Foundations of Machine Learning (A course by Bloomberg)

bloomberg.github.io/foml/



53 Comments Share

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2. Make your post clear and comprehensive
3. Posts without appropriate tag will be removed
4. Media posts without further context are forbidden.
5. Beginner or career related questions go elsewhere