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When DevOps meets Machine Learning

How DevOps can help Machine Learning

steve.ross-talbot@estafet.com

Estafet

- Founded in 2002
- Specialist integration and data insight consultancy
- Distributed Agile Delivery
- Mix of 80 developers and consultants in UK and Sofia, Bulgaria
- Industry experience includes finance, utilities, retail, manufacturing
- We are known for "Engineering Excellence"

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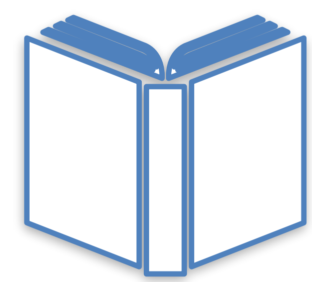
Drivers

Drivers

- Efficiency
- Effectiveness
- £ Costs

Drivers

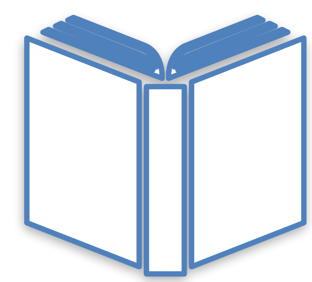
LEARN



- Efficiency
- Effectiveness
- Costs

Drivers

LEARN



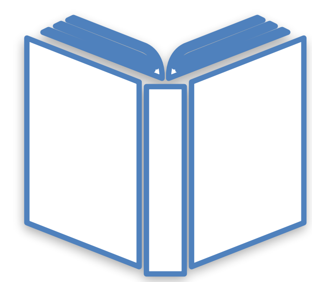
- Efficiency
- Effectiveness
- £ Costs

IDENTIFY WASTE

Drivers

ACT

LEARN



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- Effectiveness
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IDENTIFY WASTE

Integration

- **To deliver stories ready to be deployed into production each and every sprint**

- **To continuously deliver into production (eventually up to several deliveries each day)**

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Integration

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Integration

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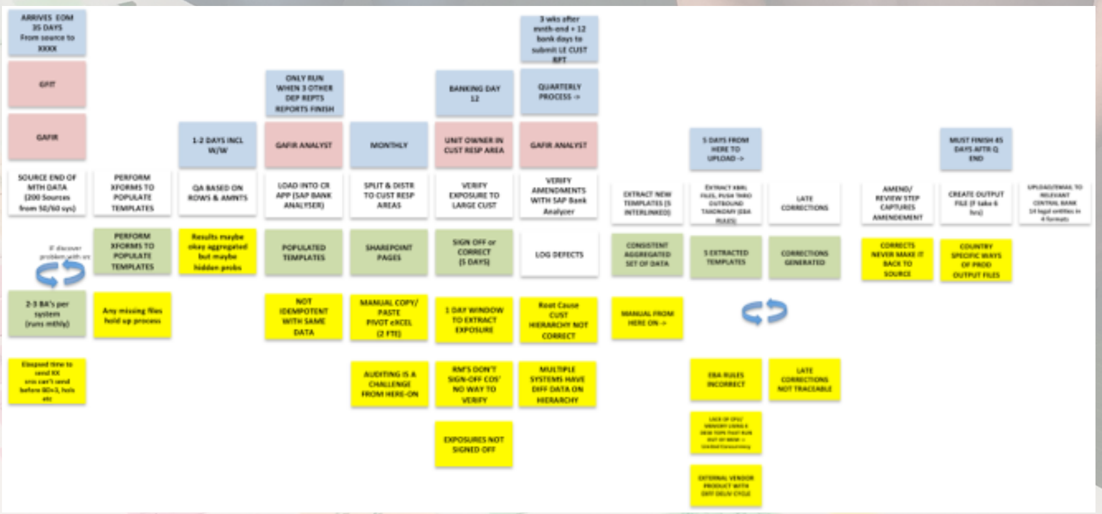

Time scale

Actor

Activity

Artefact

Pain Point

Integration

Time scale

Actor

Activity

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Pain Point

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Pain Point

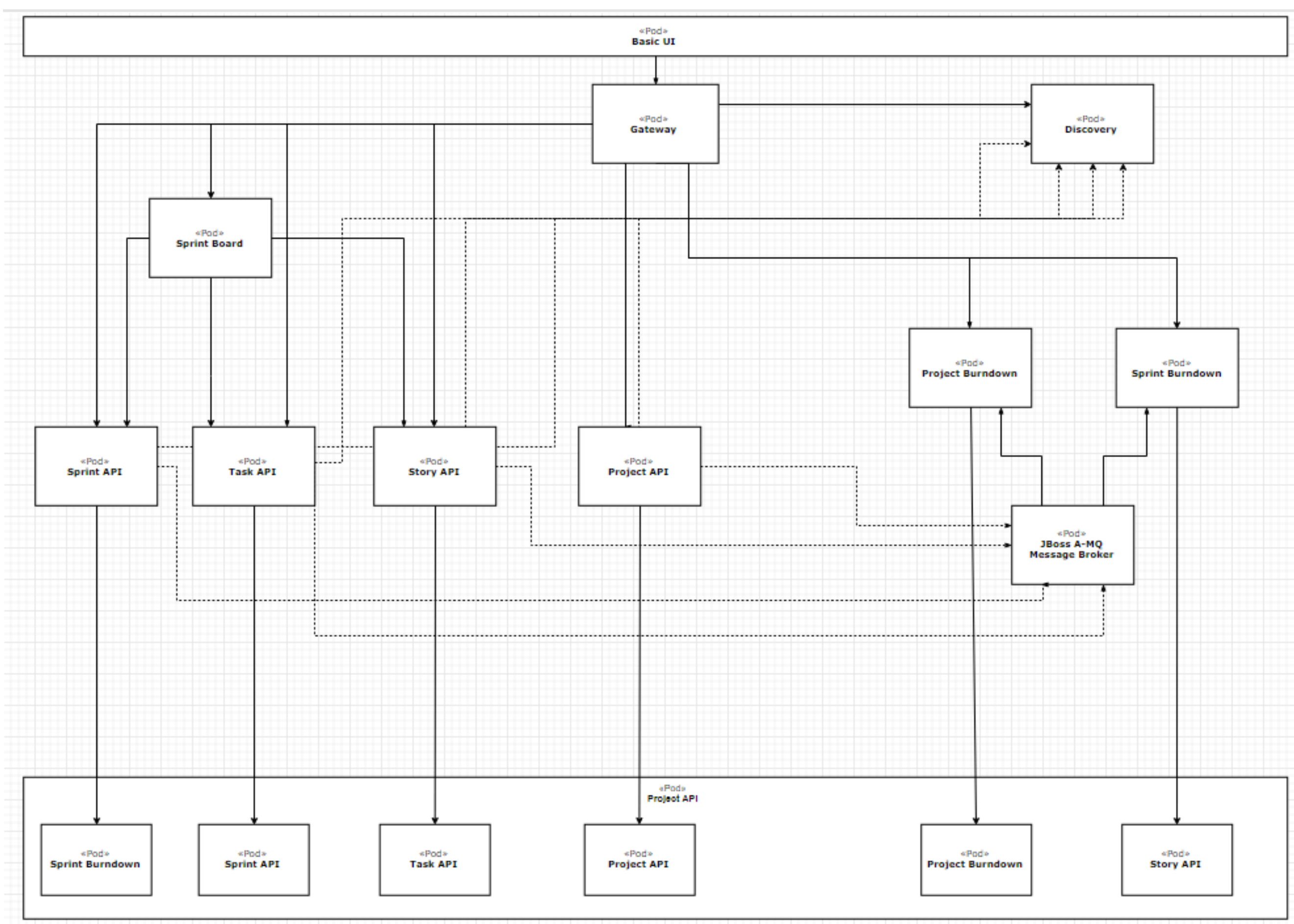
- Remove friction from the delivery process by automating what we can
- Incorporate monitoring and tracing tools into the delivery process
- Reduce rework in the form of defects caused by environmental and configuration drift
- Detect and address issues as soon as they occur

Integration

ACT

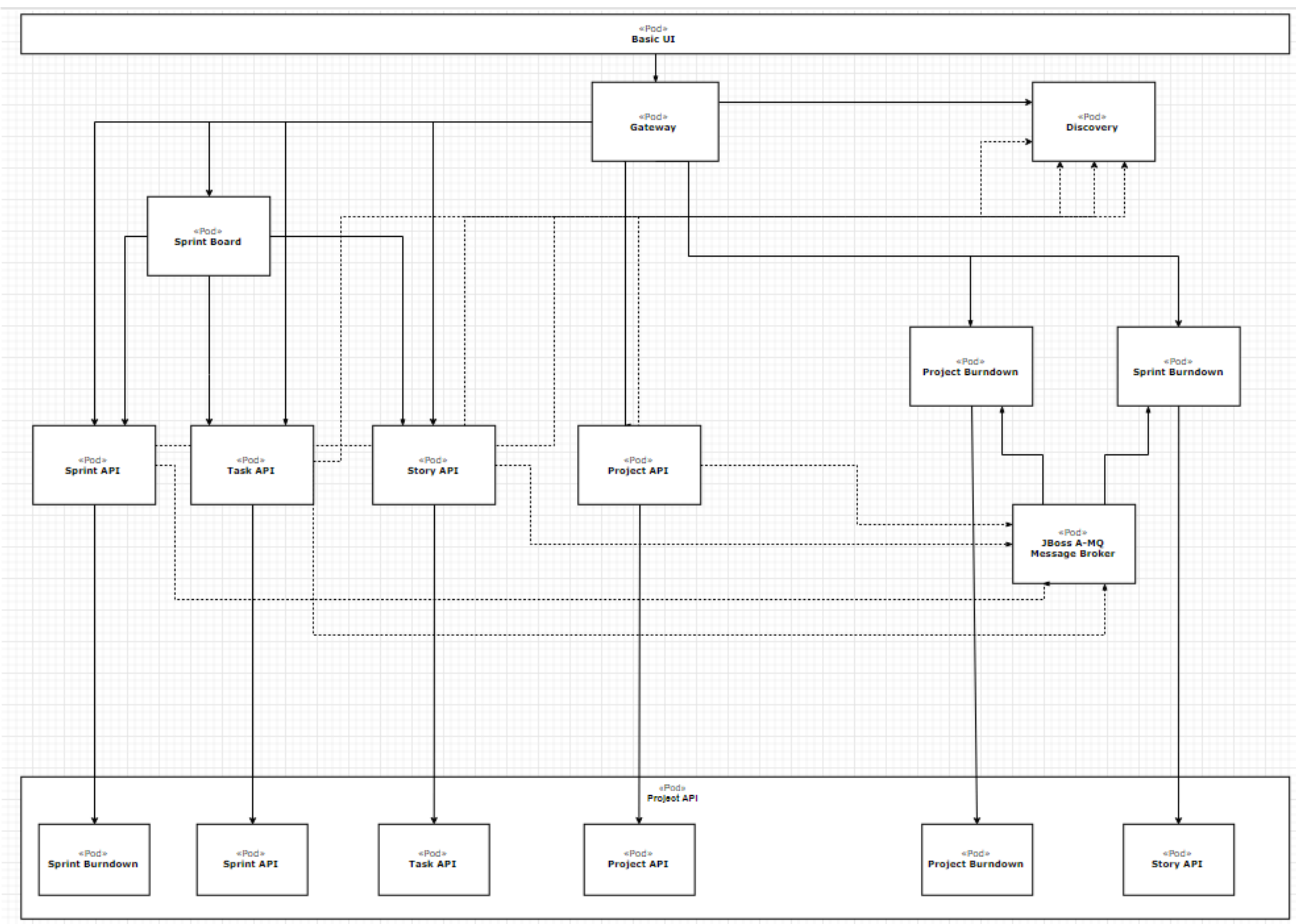
Integration

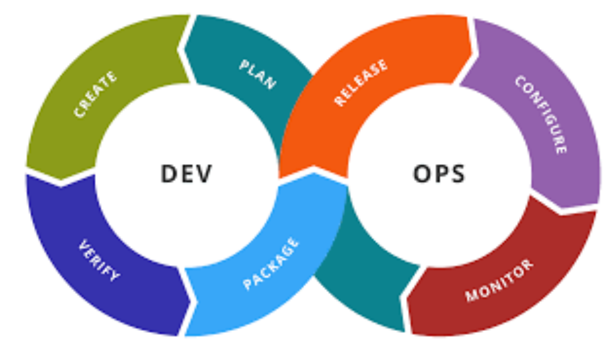
ACT



Integration

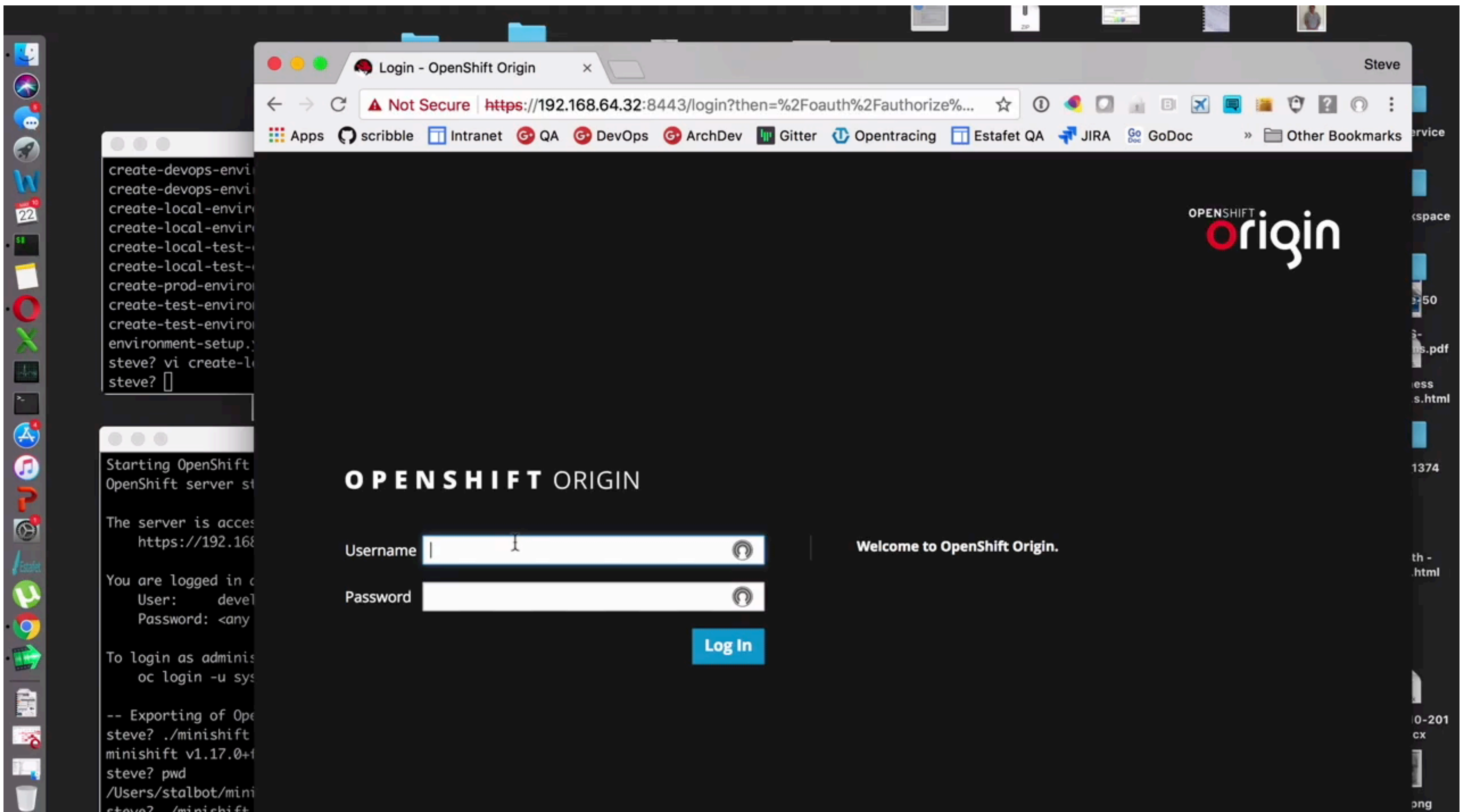
ACT





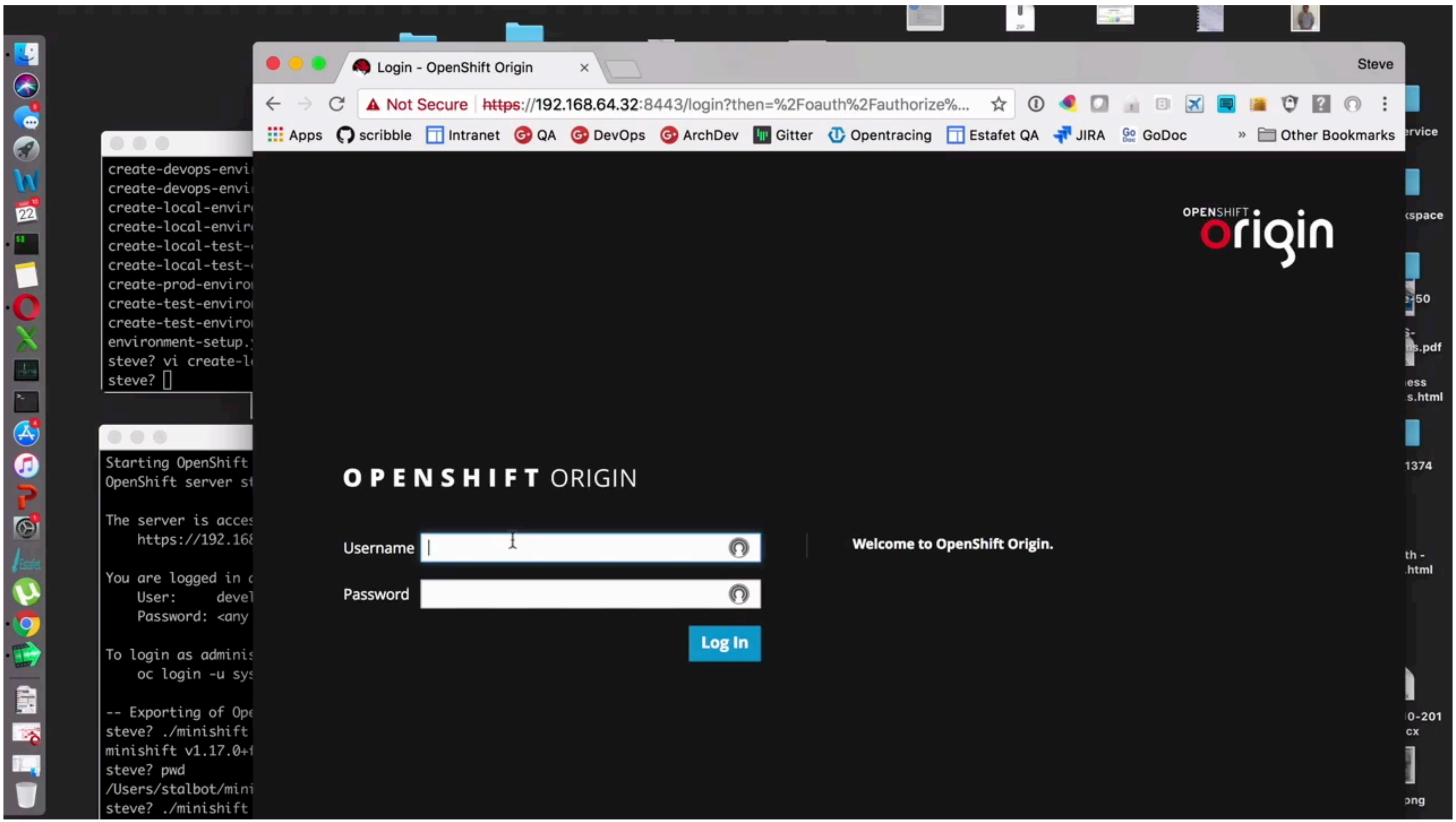
Integration

ACT

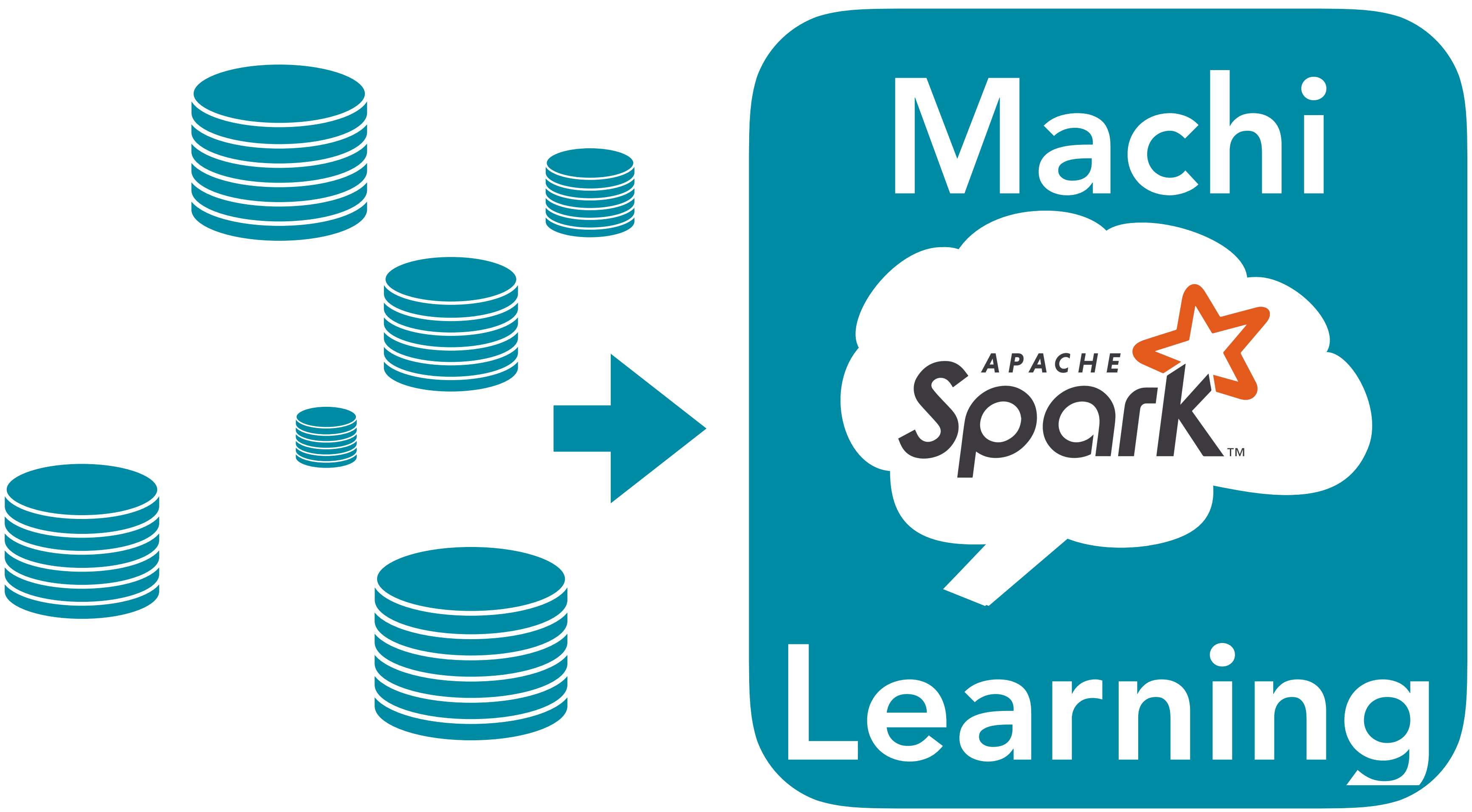


Integration

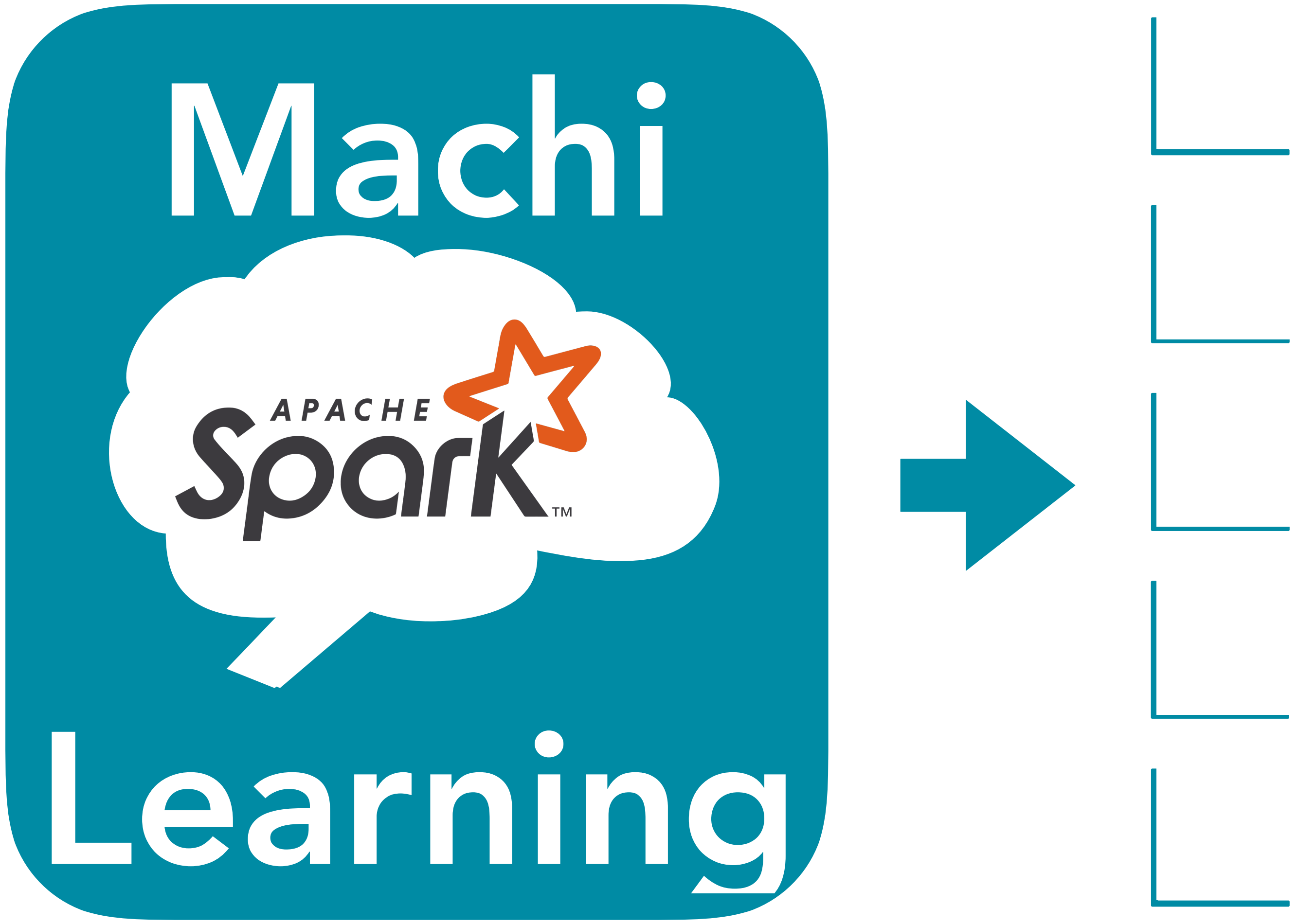
ACT



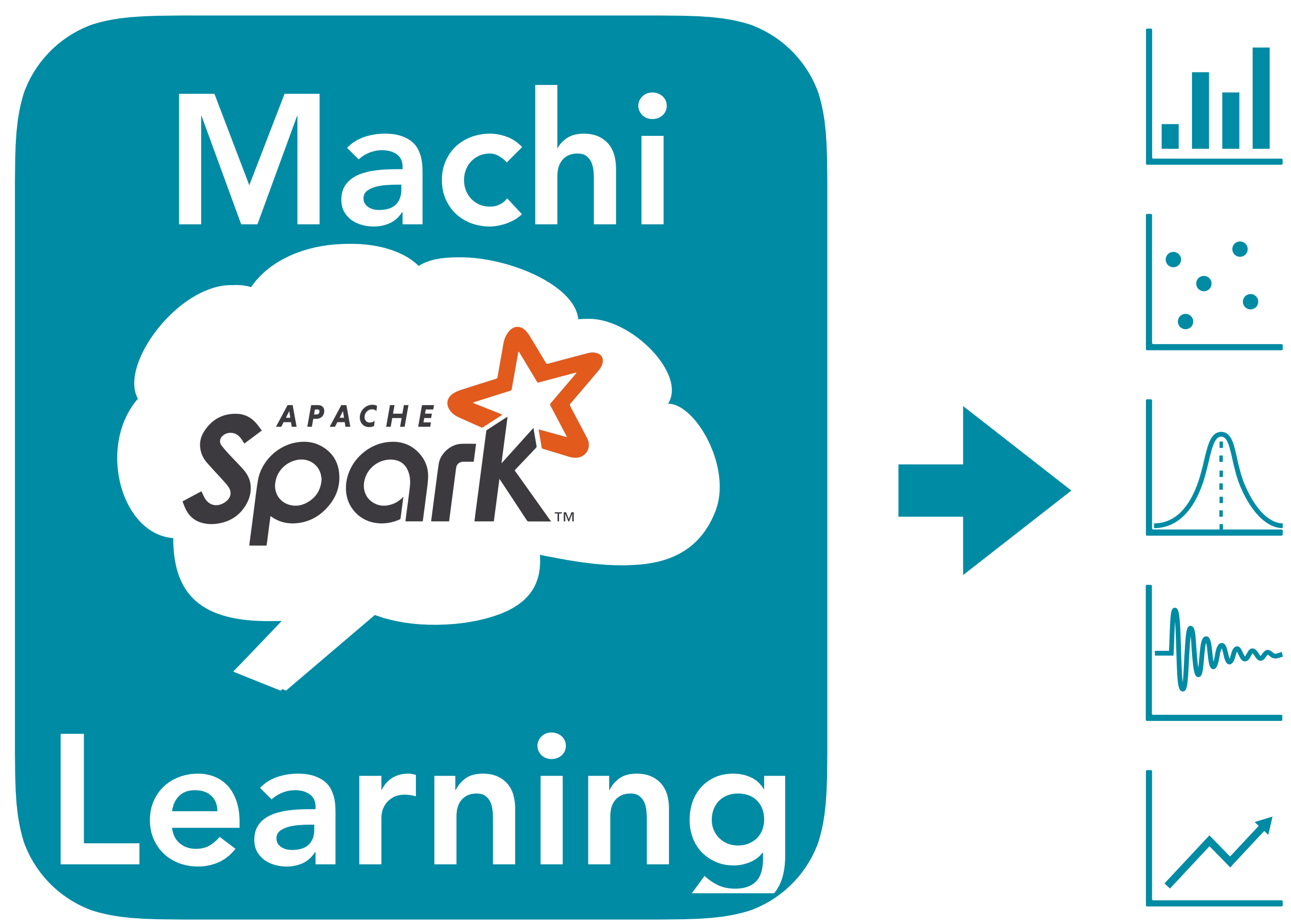
Machine Learning


Machi
APACHE
Spark
Learning

Machine Learning



Machine Learning



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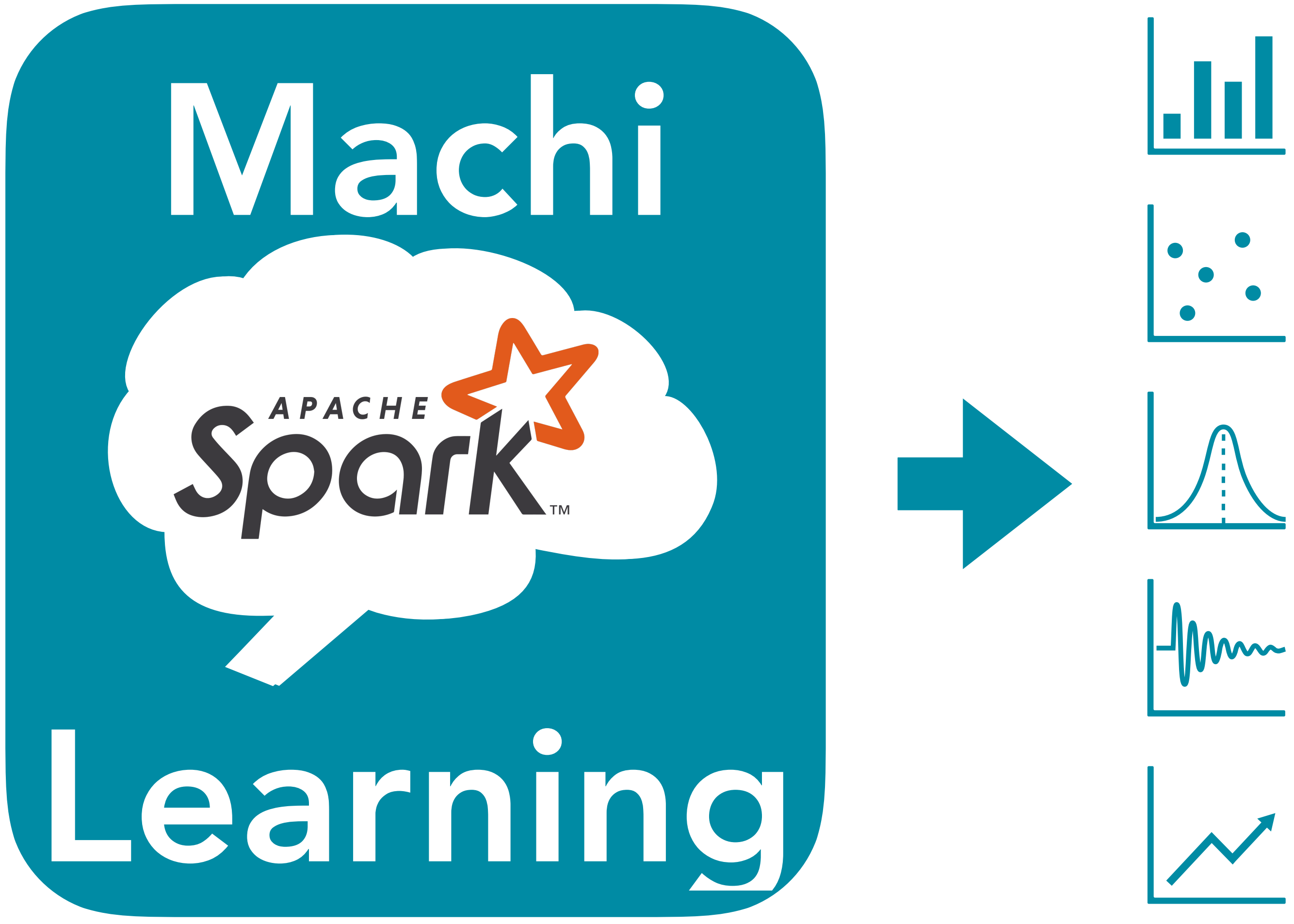

1. Understand your data
2. It requires preprocessing
3. There's a lot of experimentation

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2. It requires preprocessing

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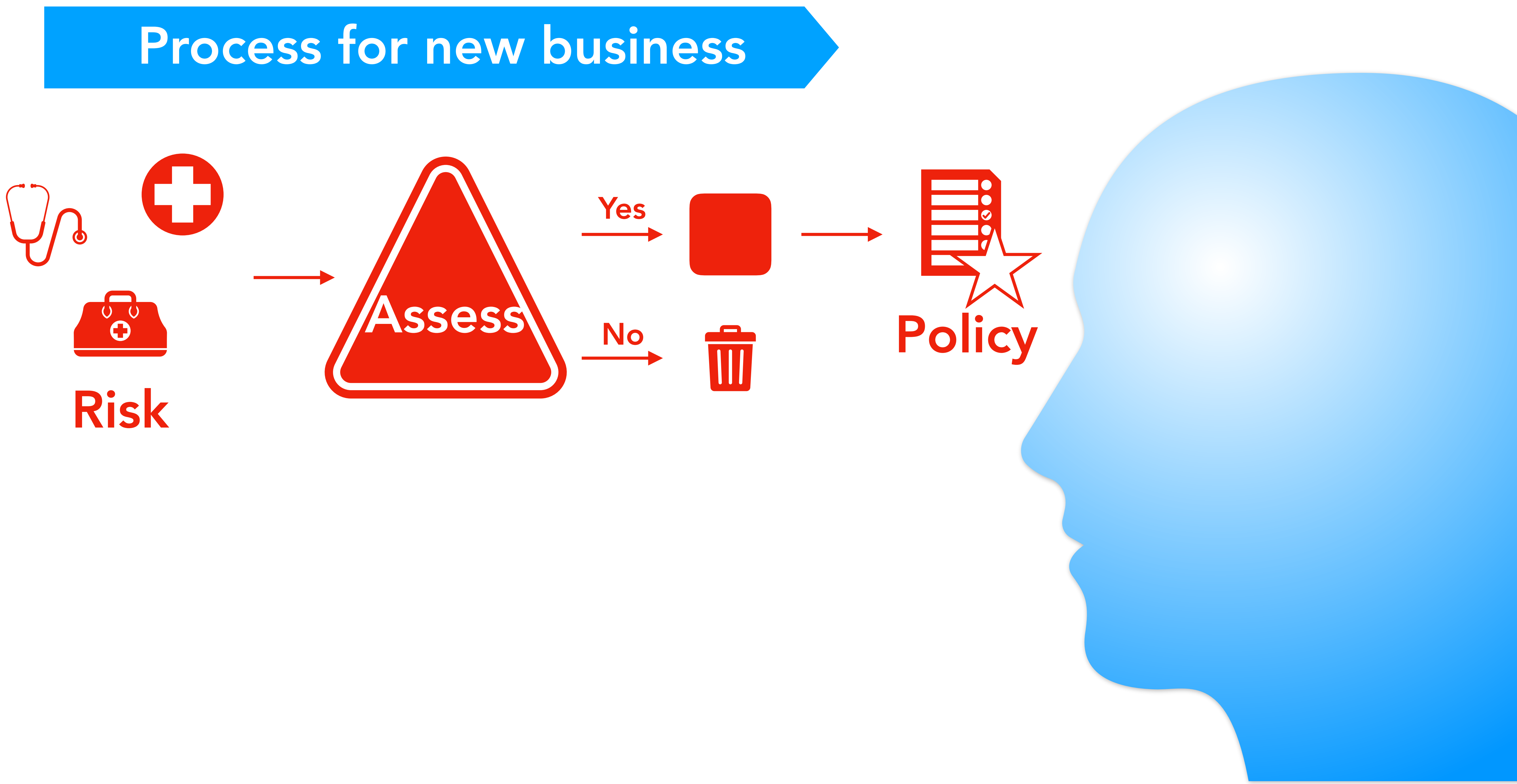
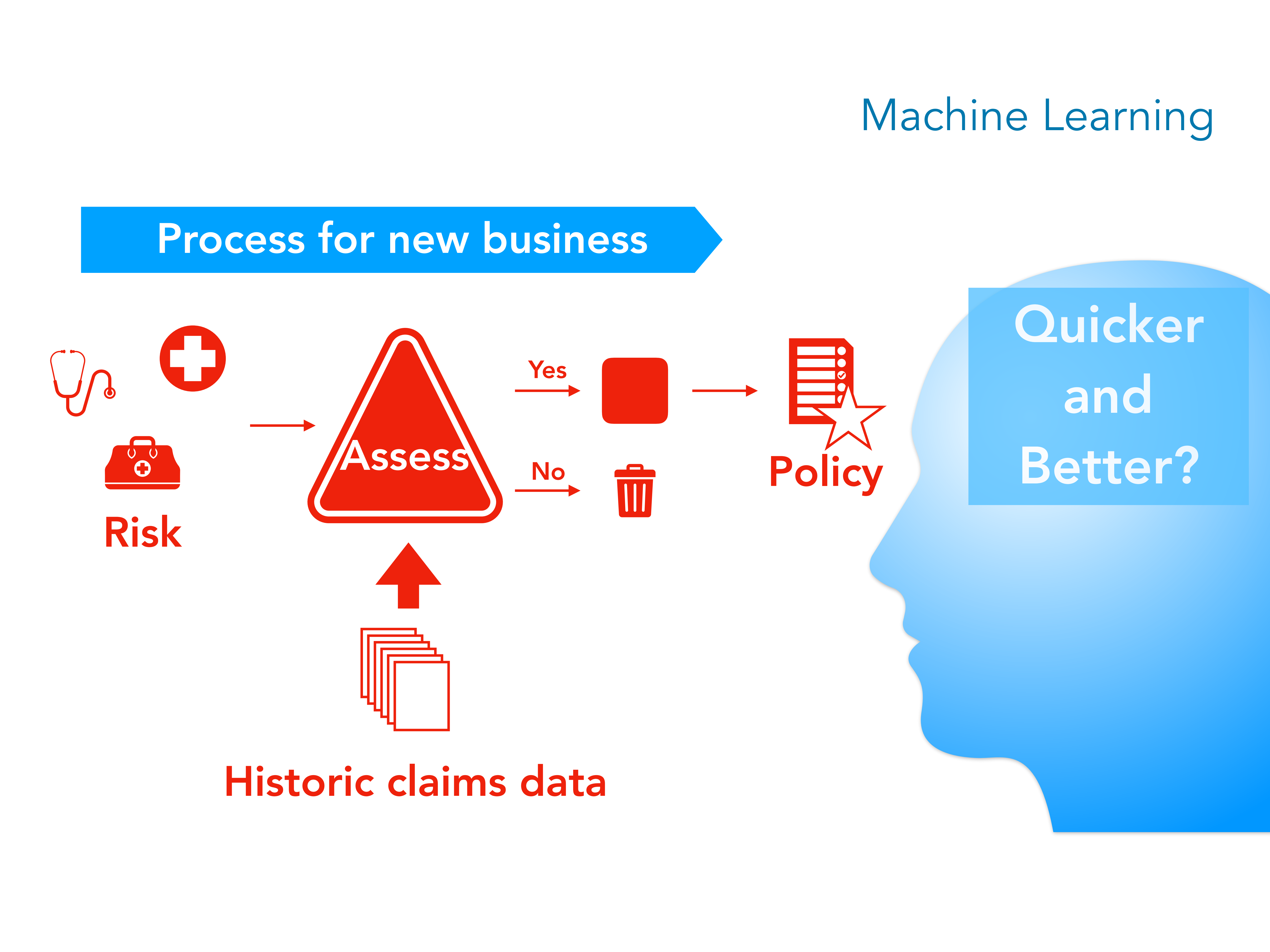
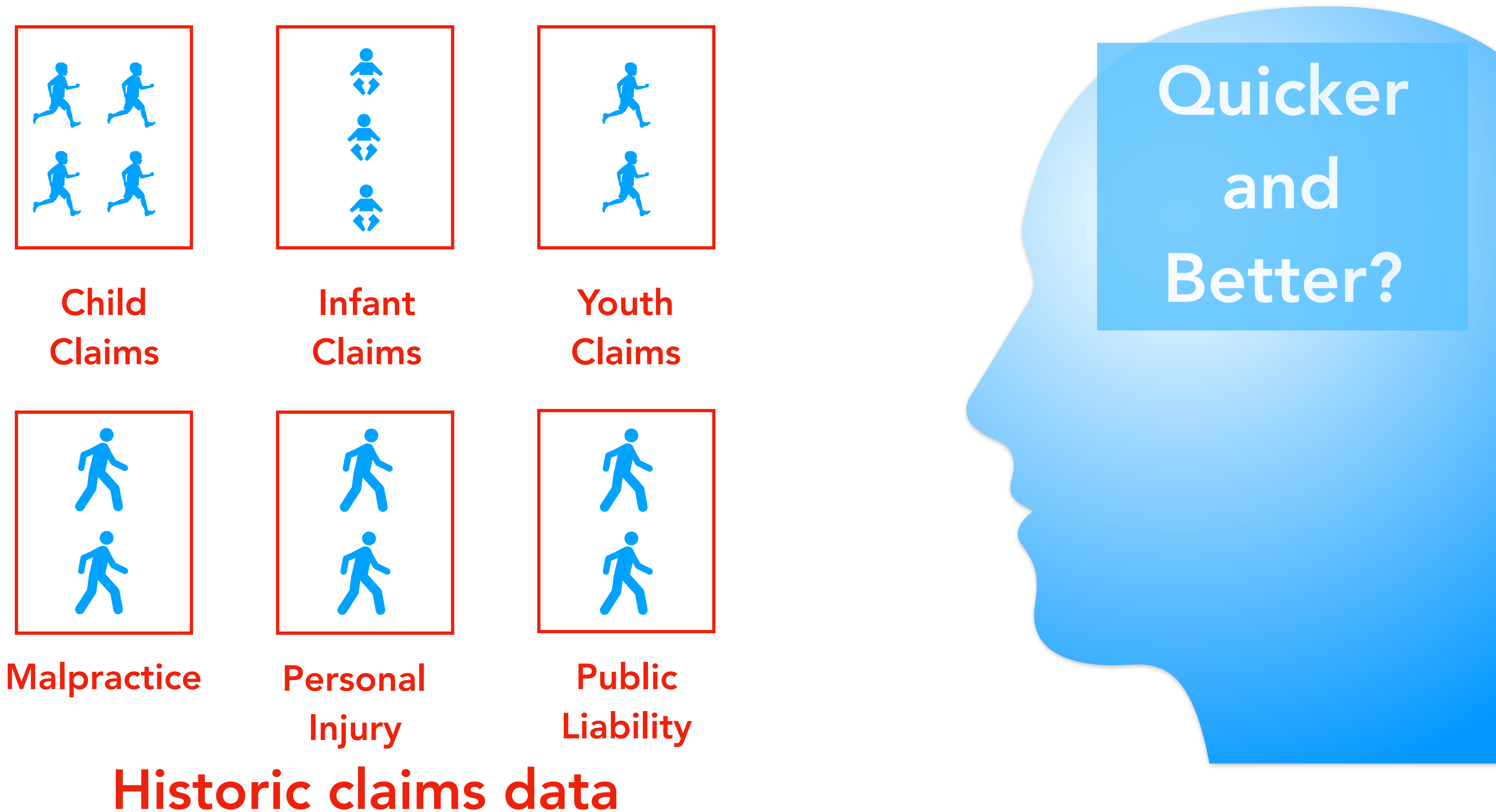
Machine Learning





Machine Learning
Process for new business
Risk
Assess
Yes
No
Policy
Historic claims data
Quicker
and
Better?

Machine Learning



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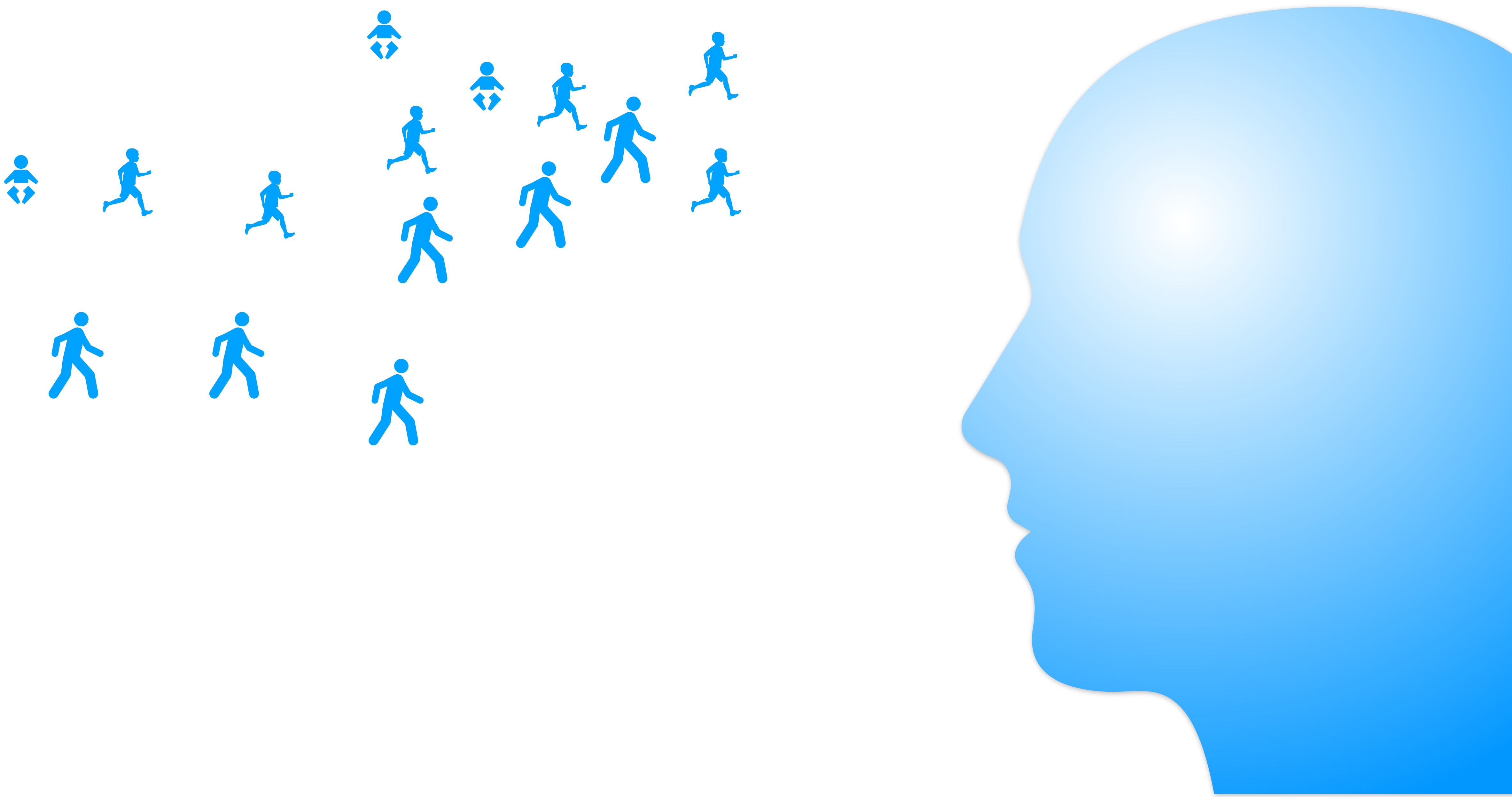

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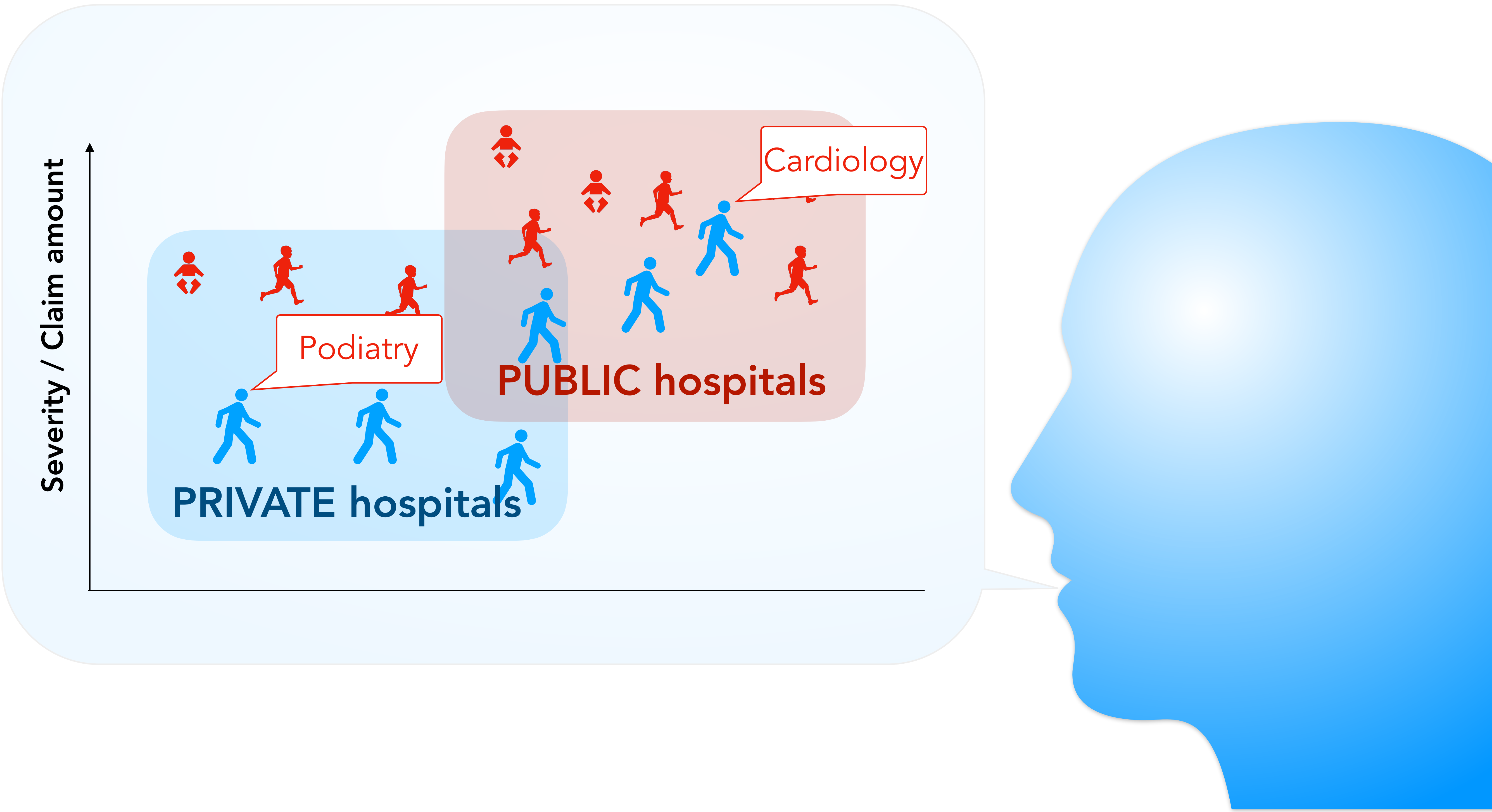

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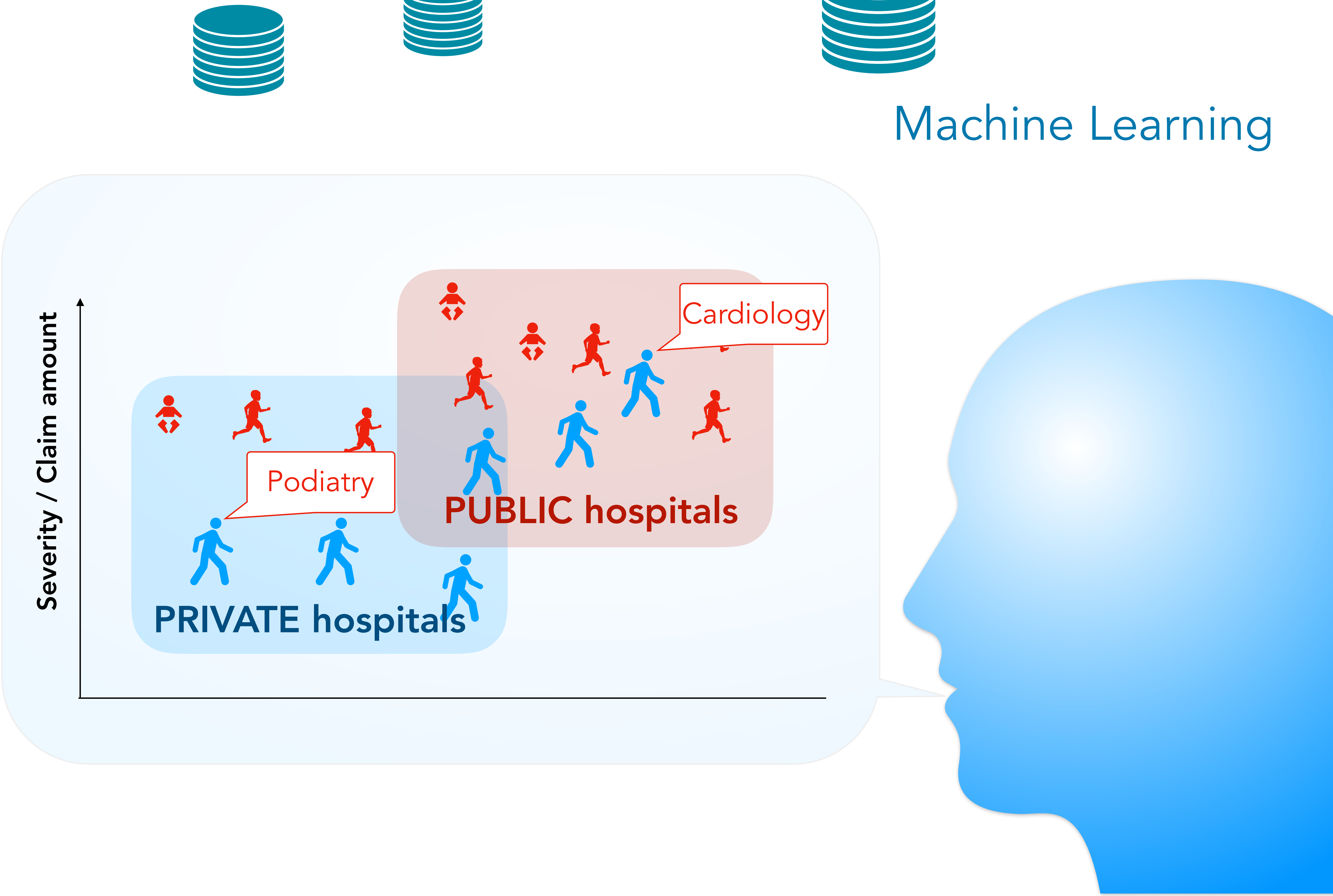
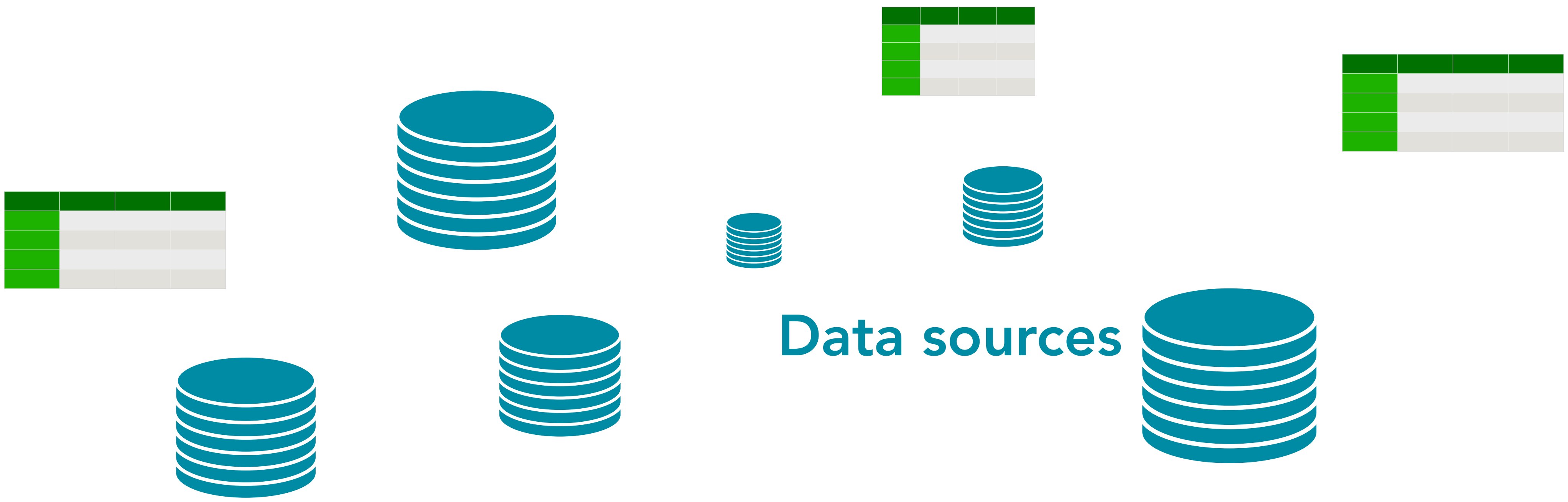


Machine Learning

Machine Learning



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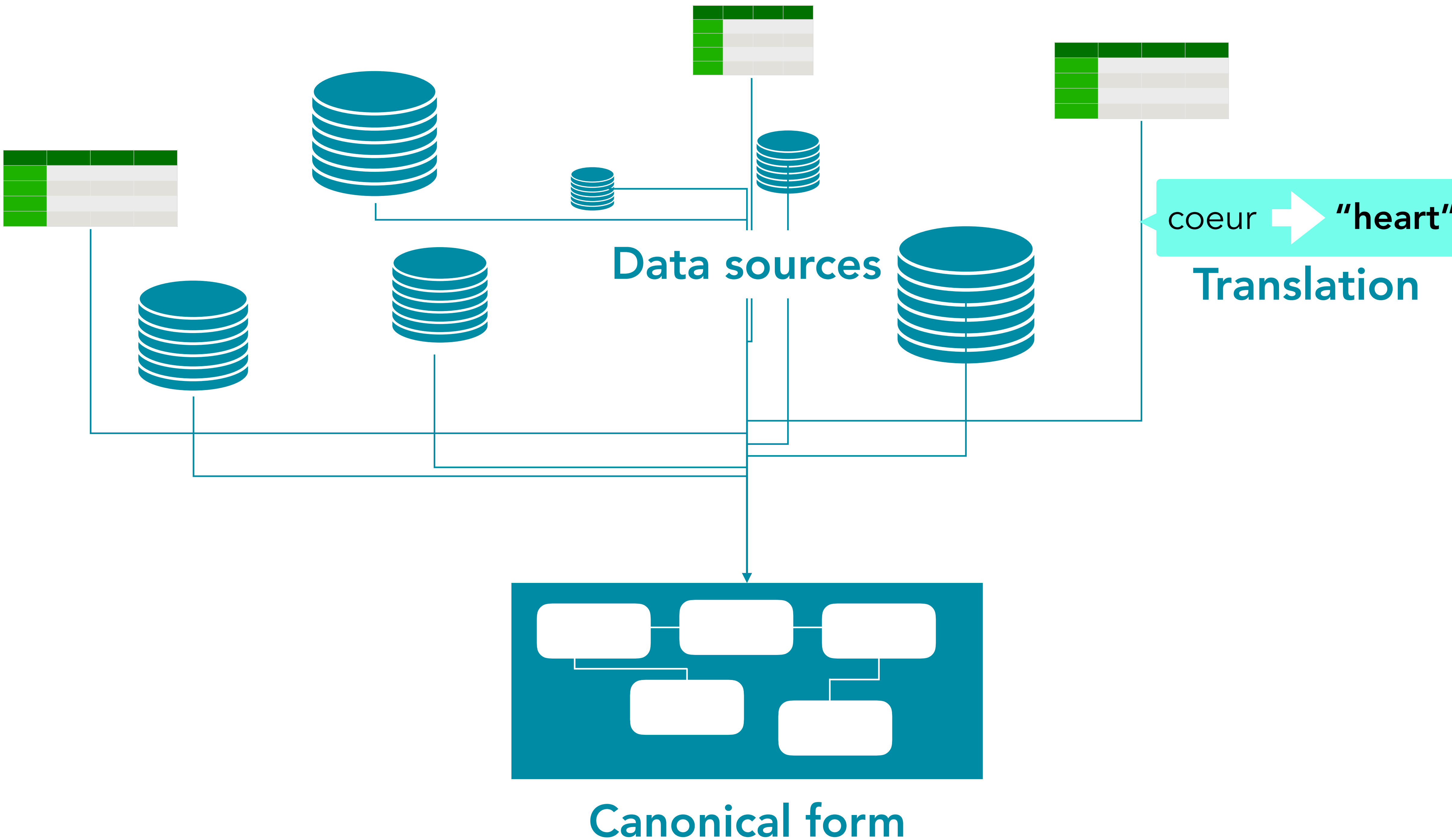

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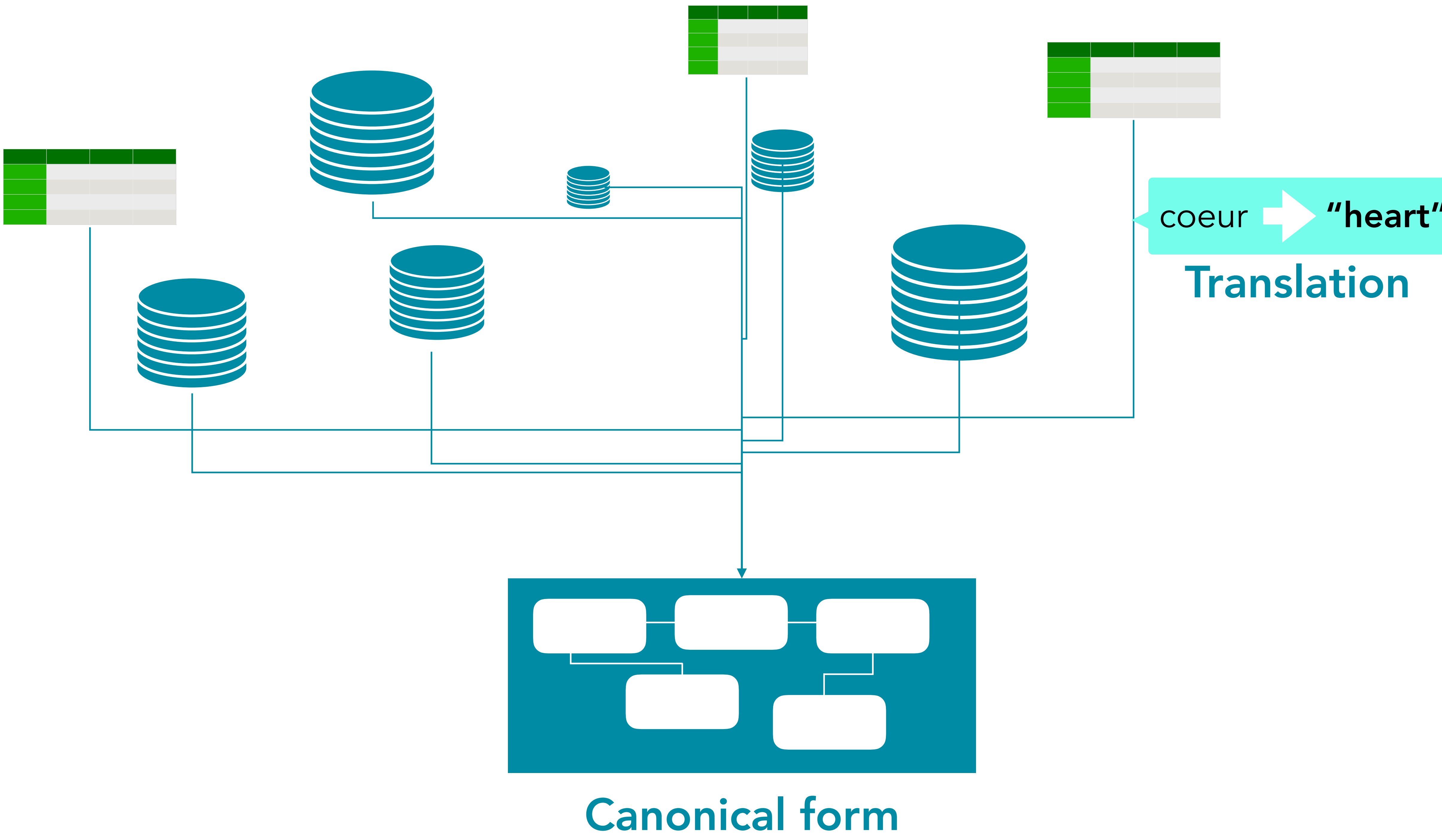

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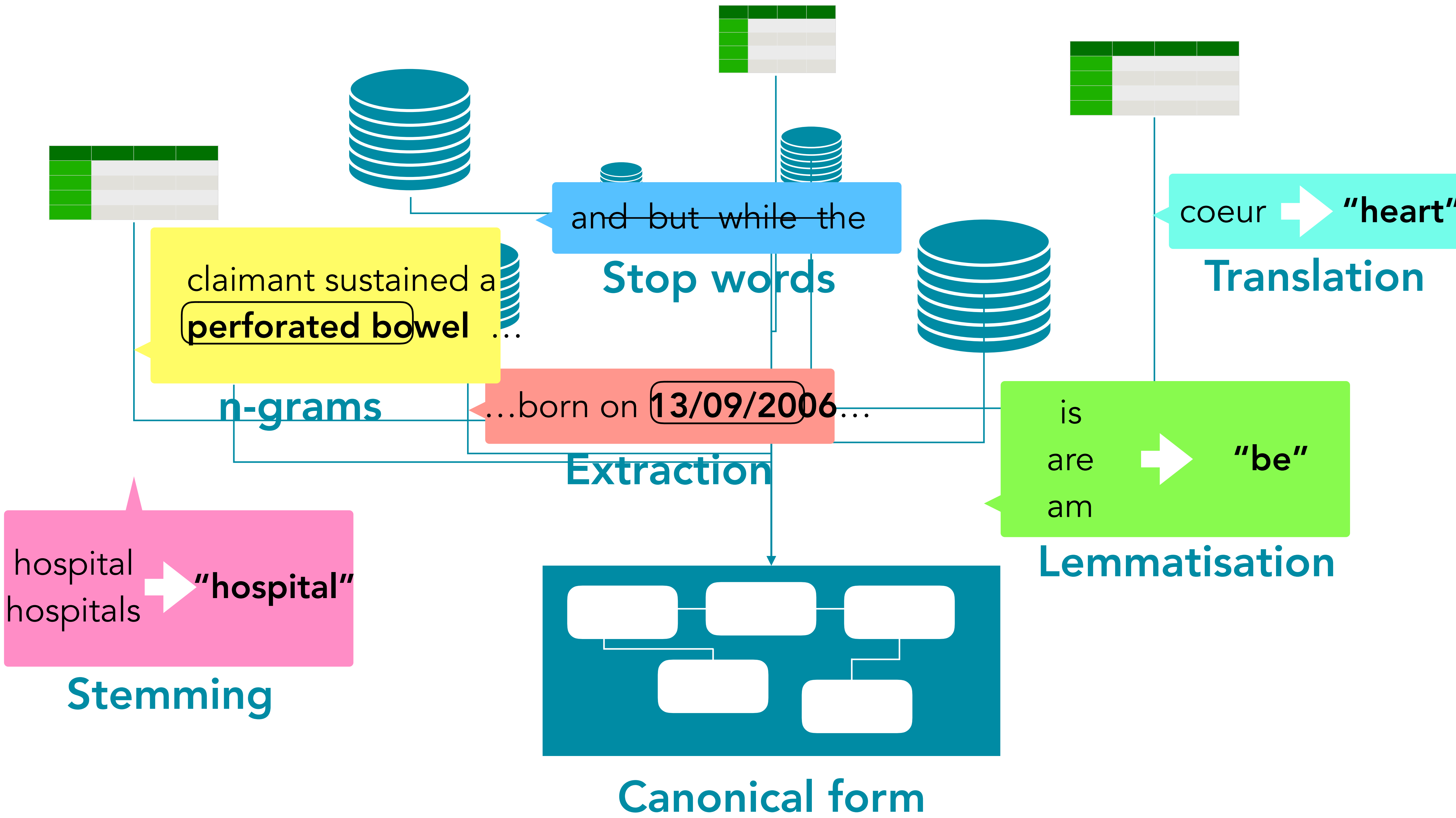


v1

Machine Learning

v1

v1

v1

v1

v1

Multinominal Naive Bayes classifier

Multinomial Logistic Regression

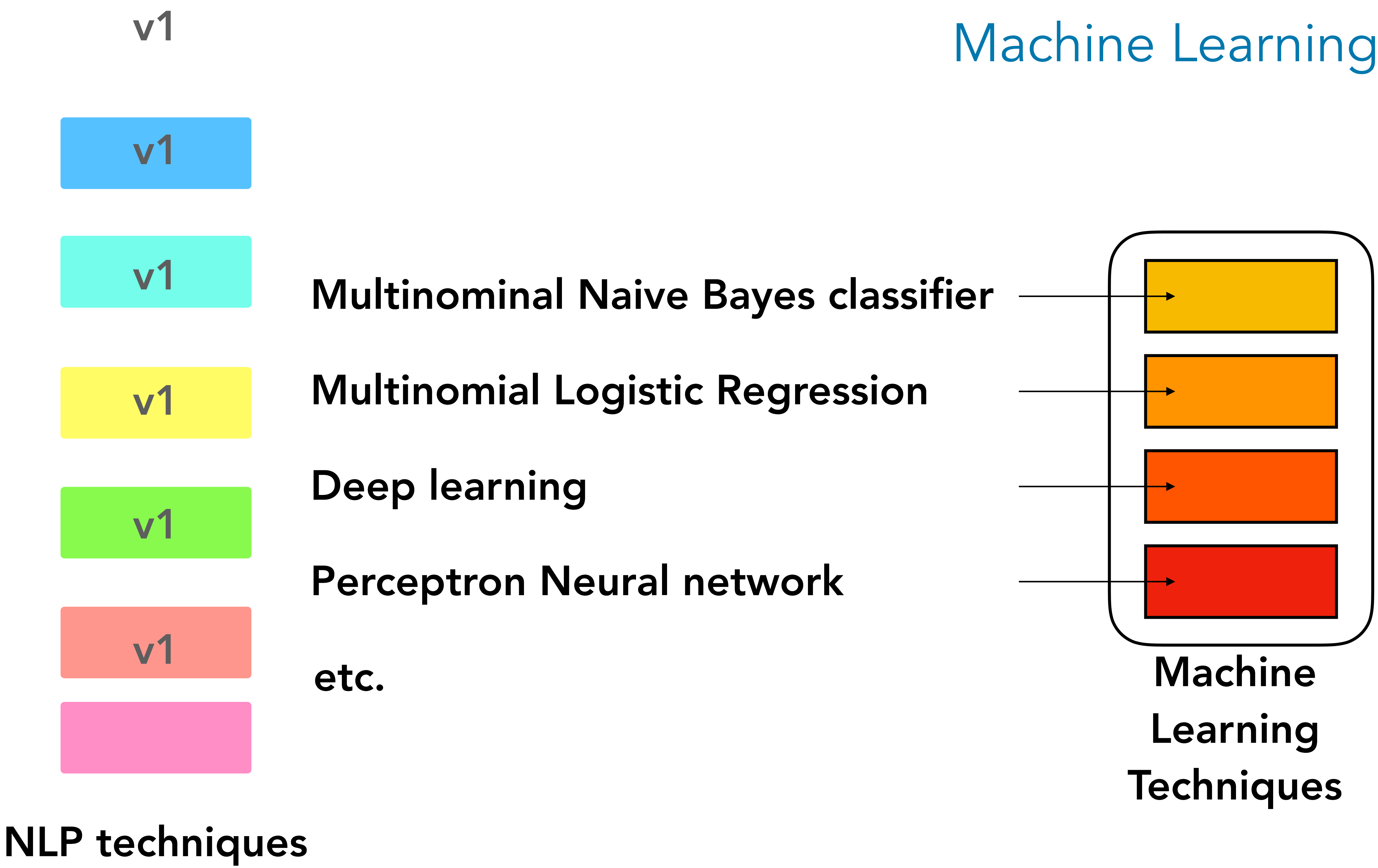
Deep learning

Perceptron Neural network

etc.

Machine Learning Techniques

Machine Learning



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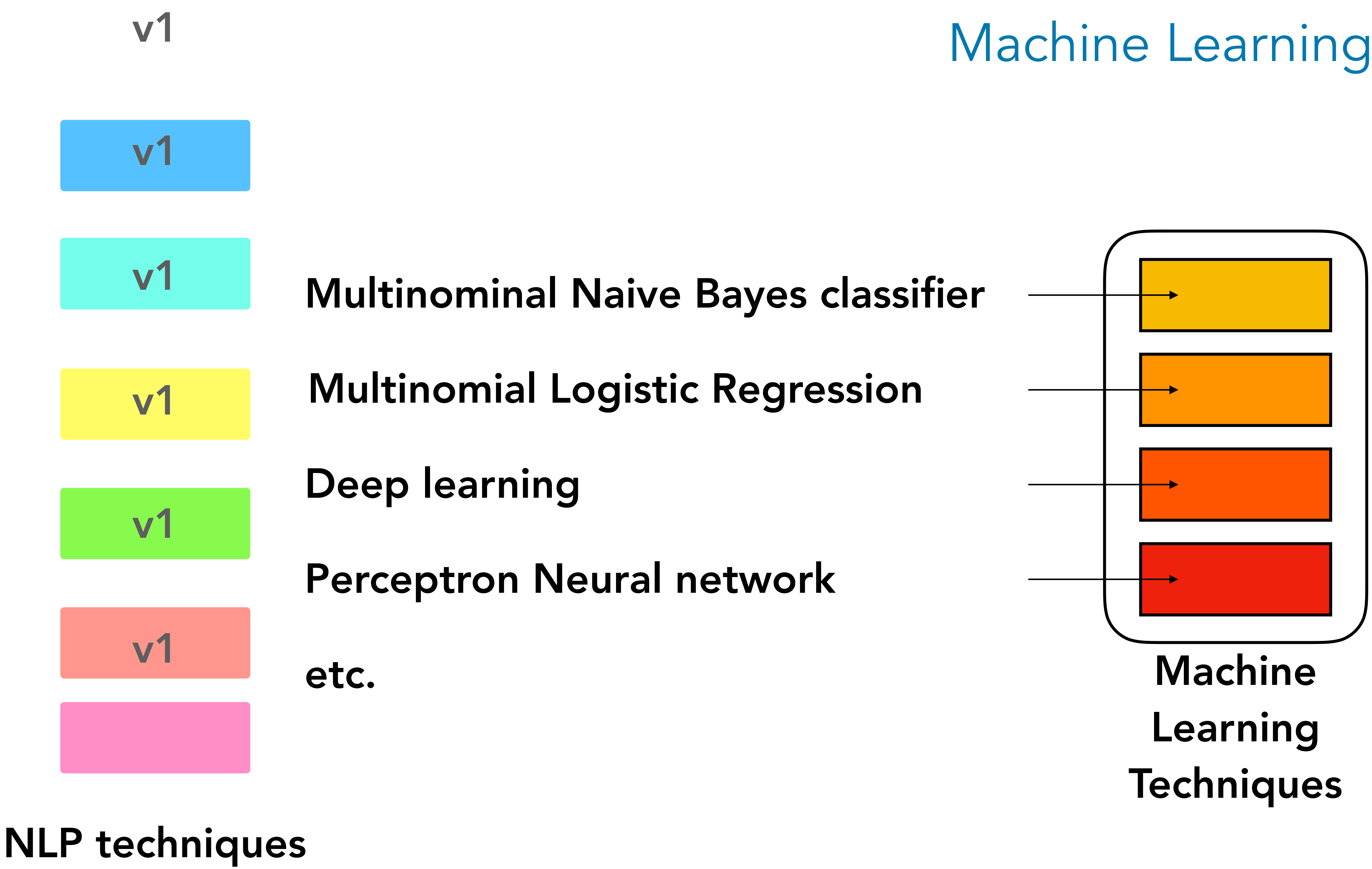

Machine Learning

Machine Learning

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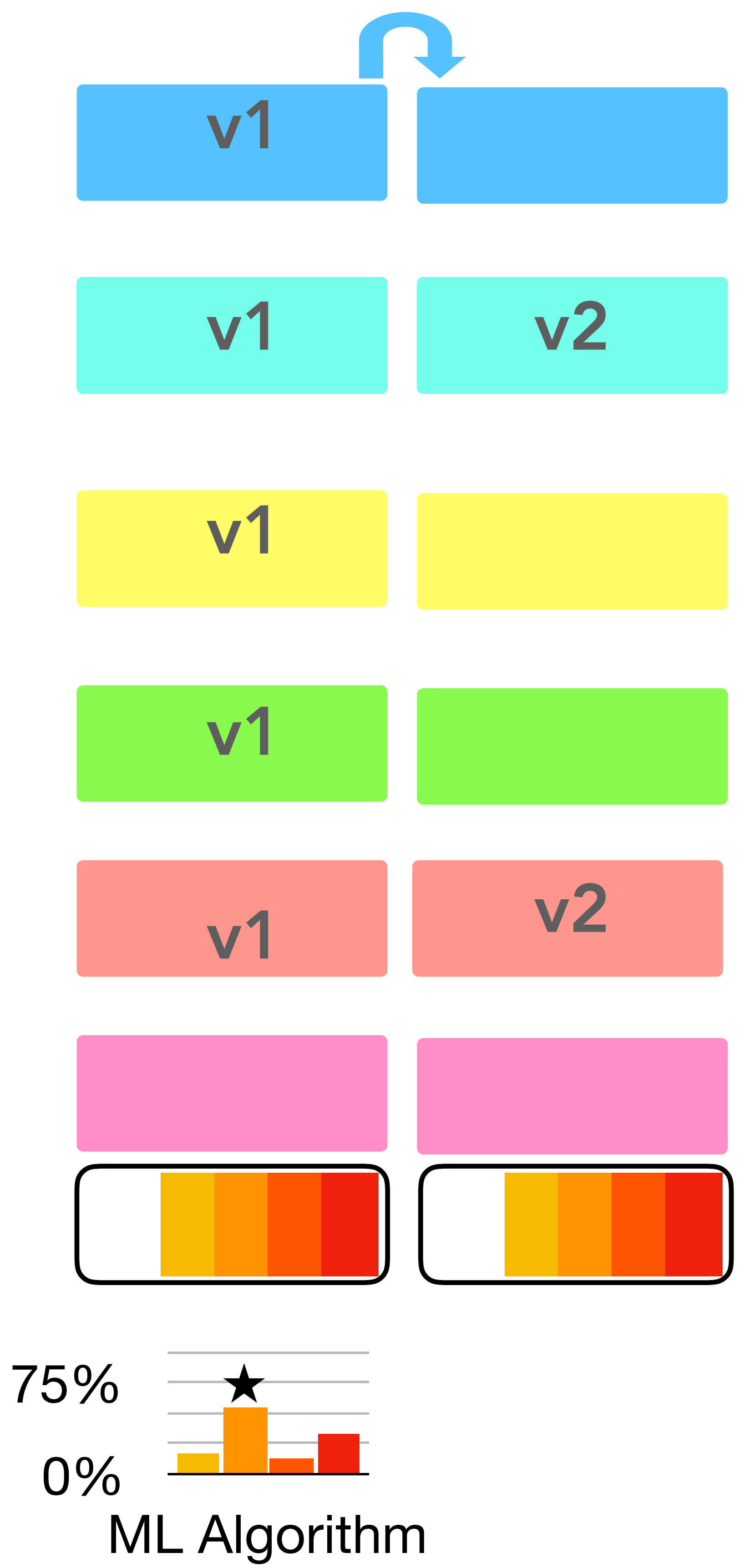

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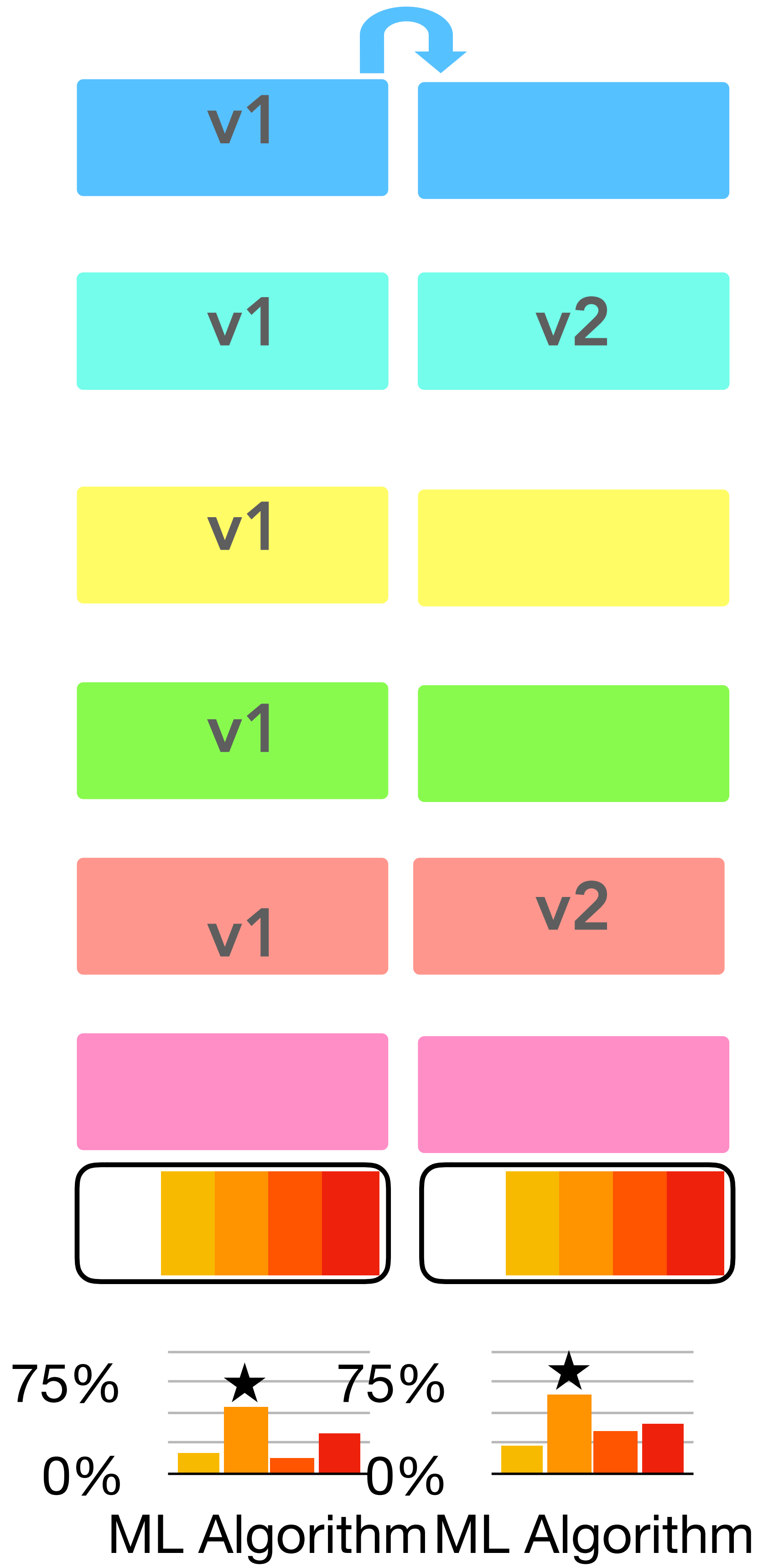

Machine Learning

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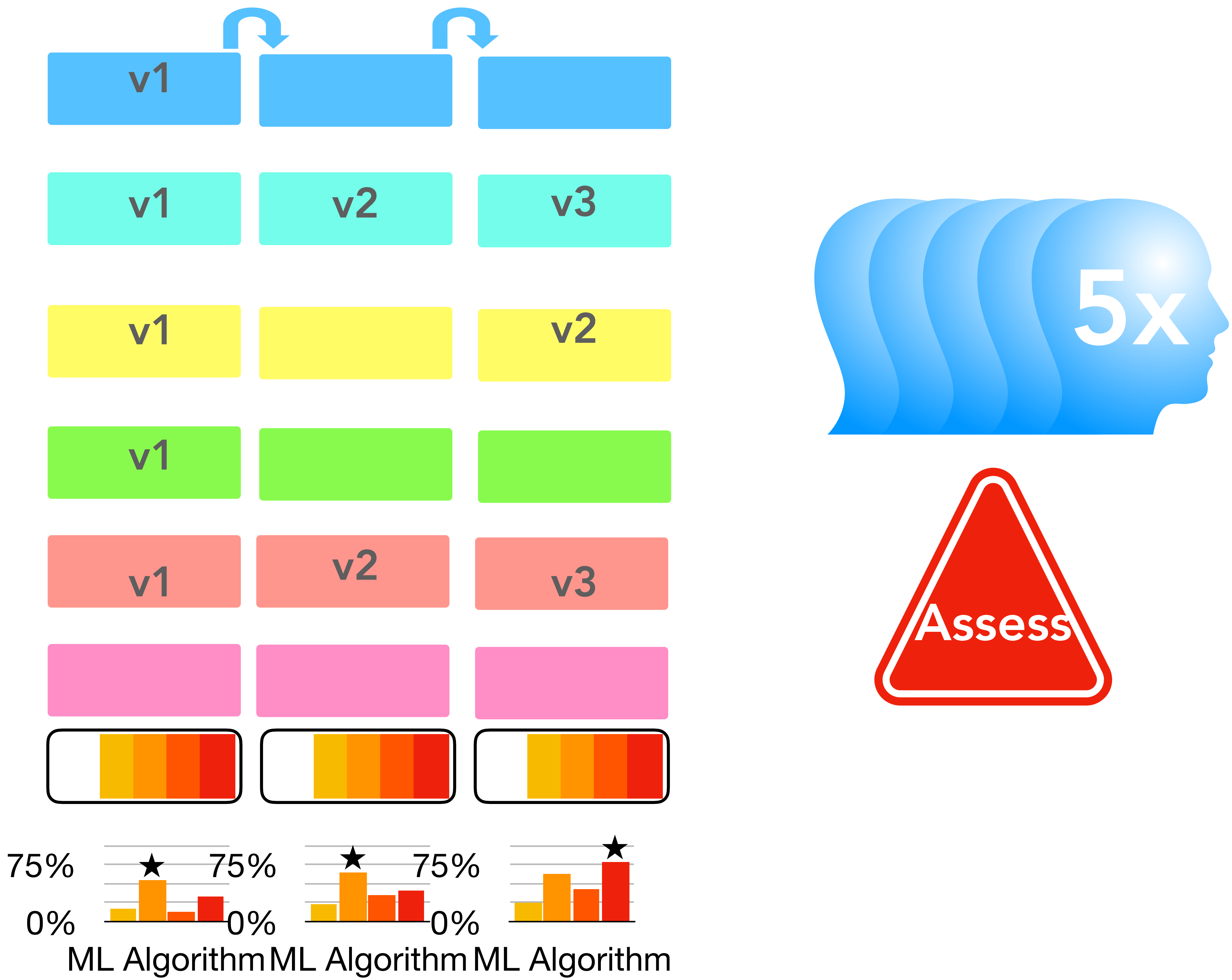

Machine Learning

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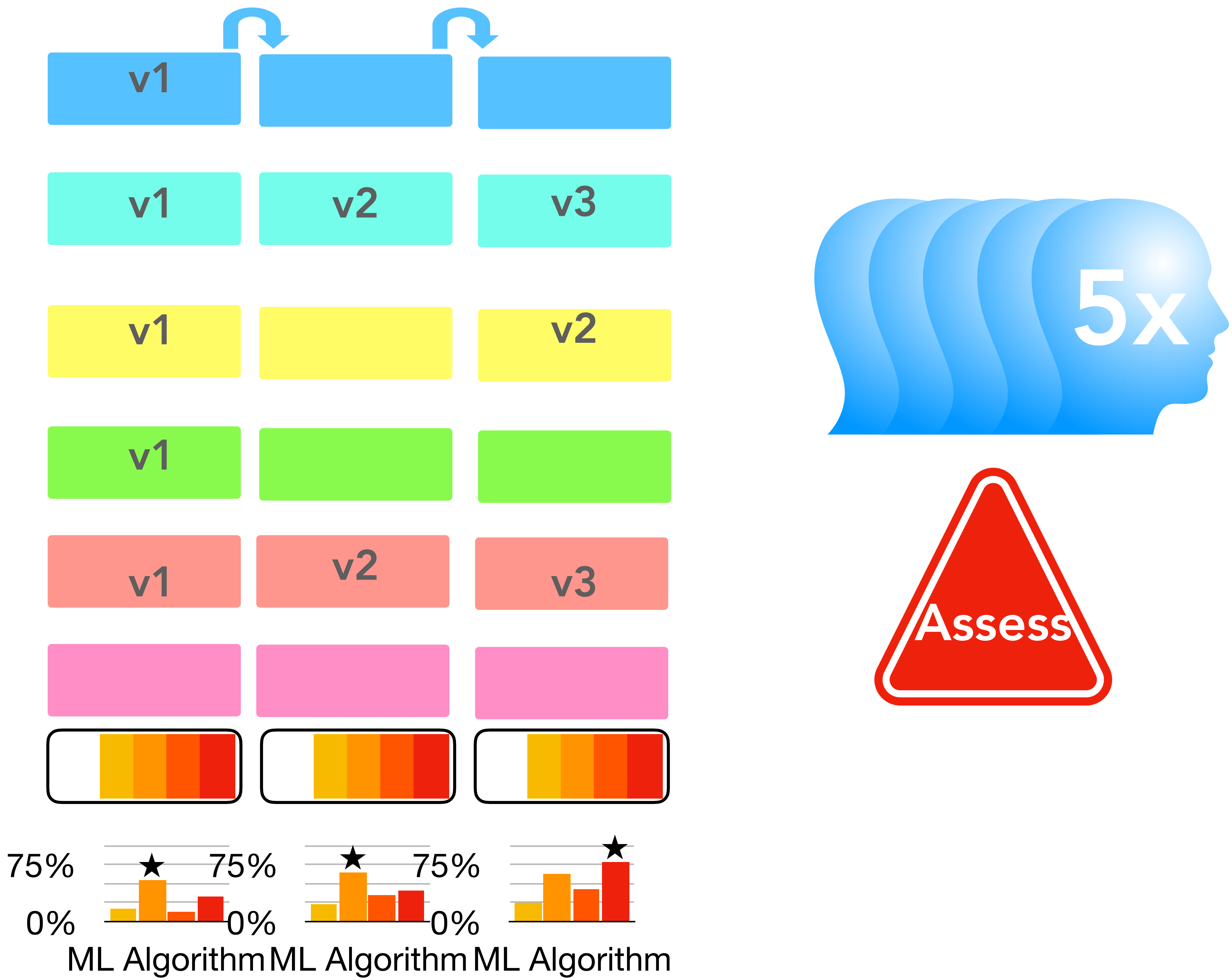

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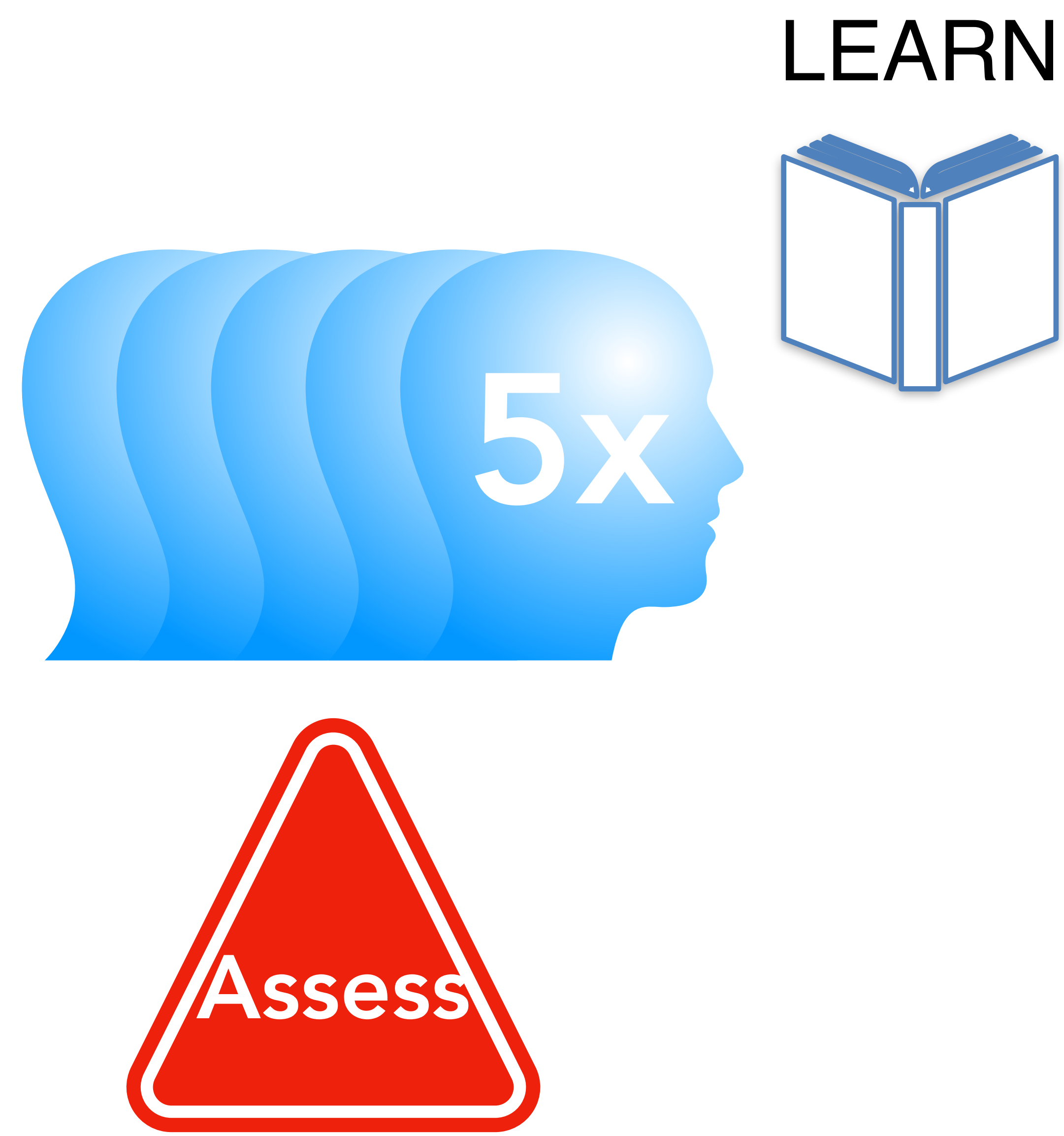

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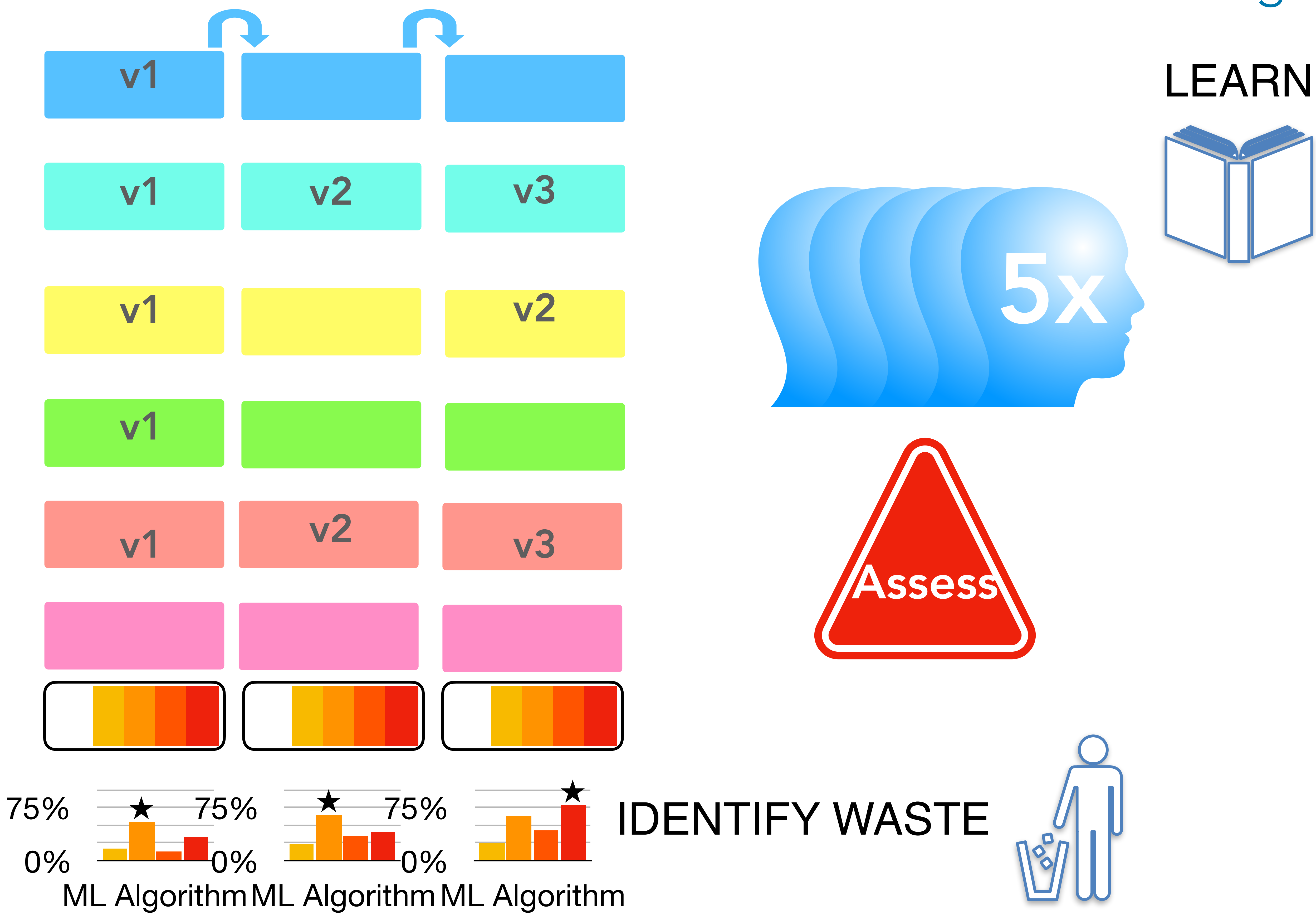

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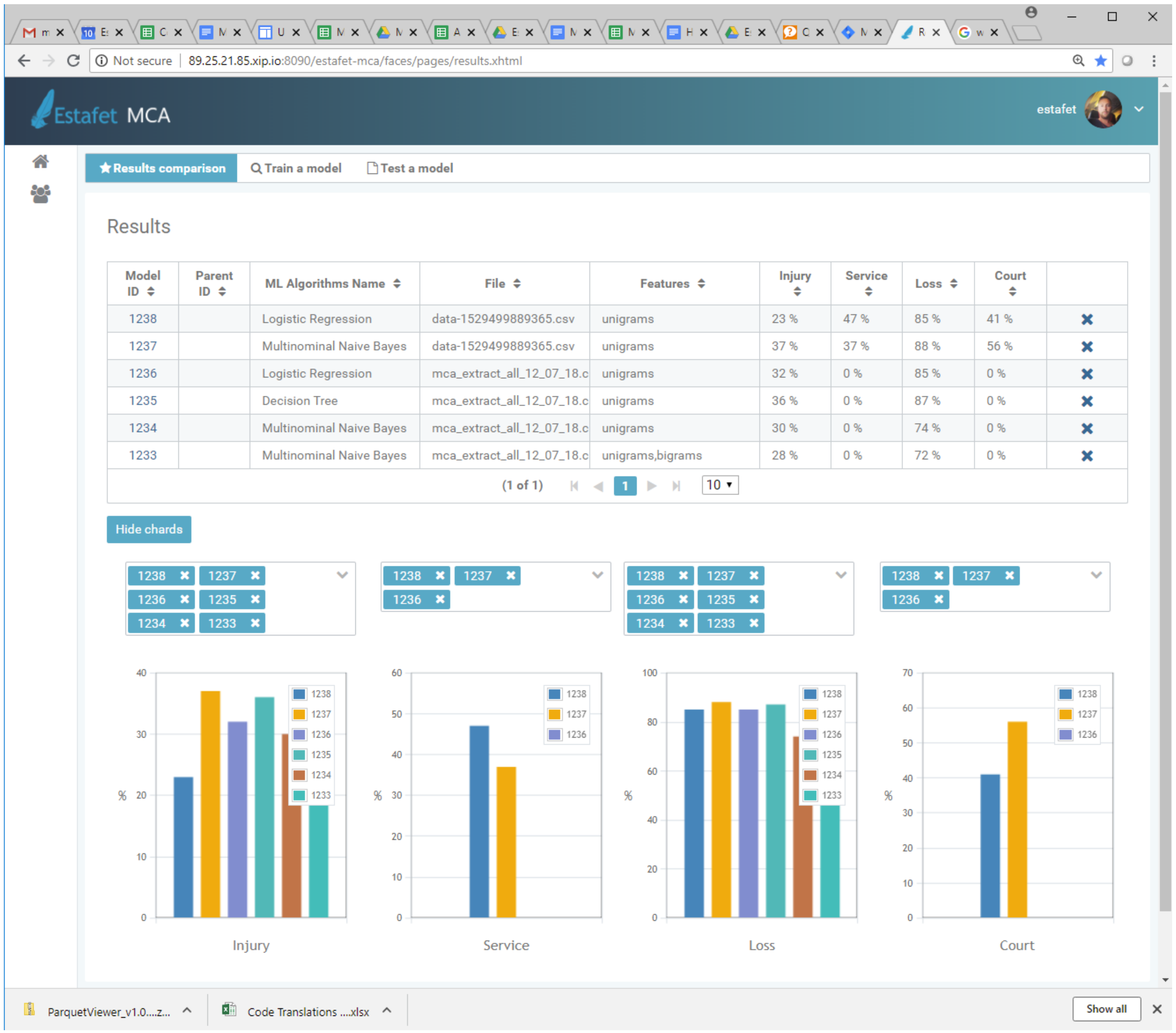

Results

Model ID	Parent ID	ML Algorithms Name	File	Features	Injury	Service	Loss	Court	
1238		Logistic Regression	data-1529499889365.csv	unigrams	23 %	47 %	85 %	41 %	✖
1237		Multinominal Naive Bayes	data-1529499889365.csv	unigrams	37 %	37 %	88 %	56 %	✖
1236		Logistic Regression	mca_extract_all_12_07_18.c	unigrams	32 %	0 %	85 %	0 %	✖
1235		Decision Tree	mca_extract_all_12_07_18.c	unigrams	36 %	0 %	87 %	0 %	✖
1234		Multinominal Naive Bayes	mca_extract_all_12_07_18.c	unigrams	30 %	0 %	74 %	0 %	✖
1233		Multinominal Naive Bayes	mca_extract_all_12_07_18.c	unigrams,bigrams	28 %	0 %	72 %	0 %	✖

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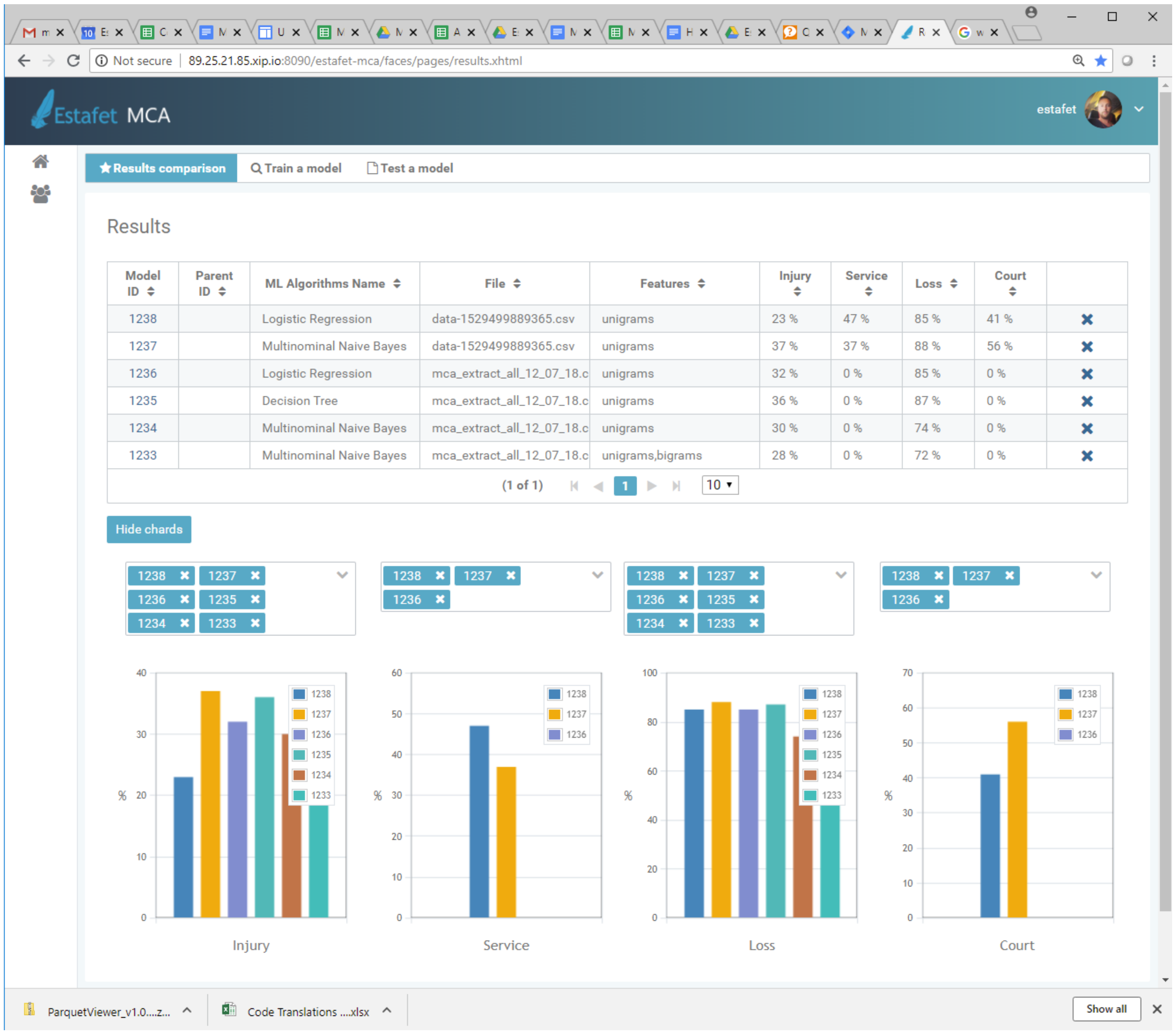

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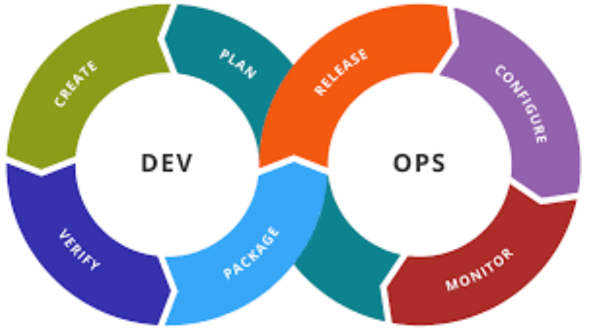
ACT

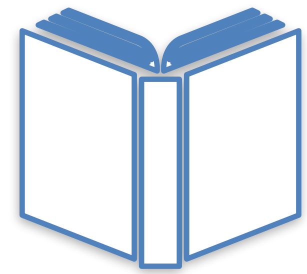
Lessons

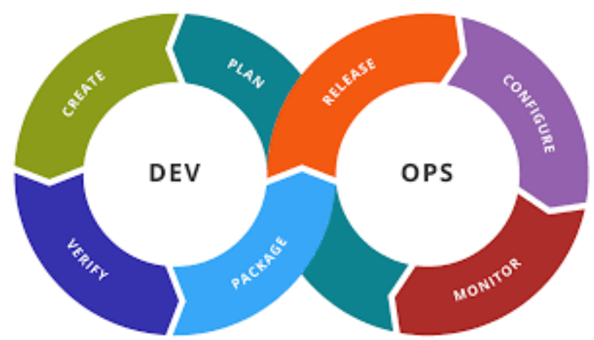
Lessons


CREATE
PLAN
RELEASE
CONFIGURE
DEV
OPS
VERIFY
PACKAGE
MONITOR

Lessons

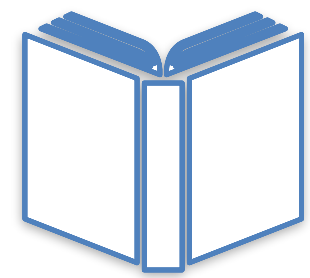
LEARN

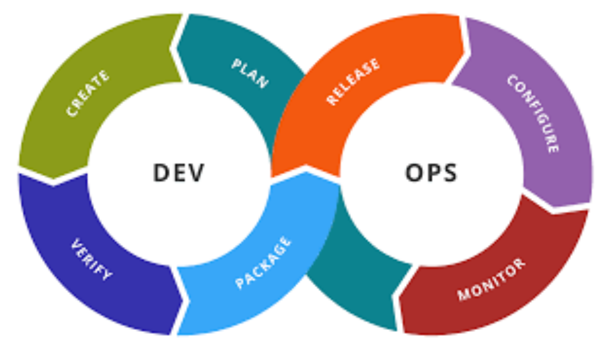




Lessons

LEARN

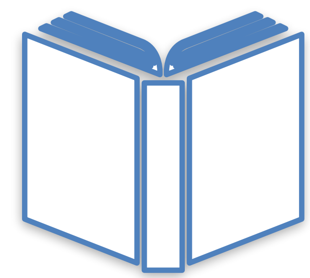




IDENTIFY WASTE

Lessons

LEARN



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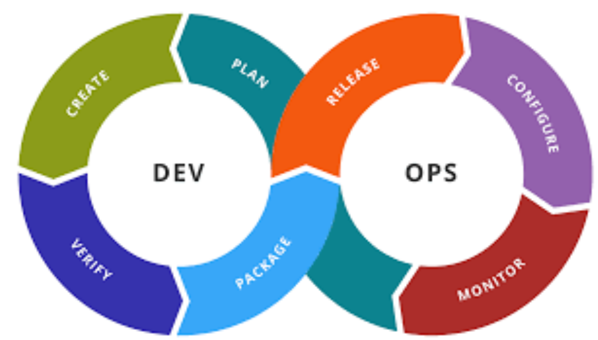

IDENTIFY WASTE

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Say hello to us at stand #12

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