

The Measure Factory

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DIUC 2017

Measure Factory

A new way to manage
business rules,
measures,
and data processing

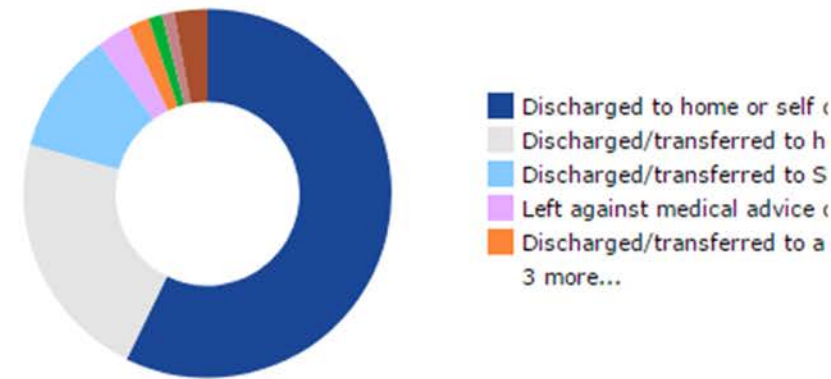
Enables **data governance**
Reduces maintenance cost of ETL



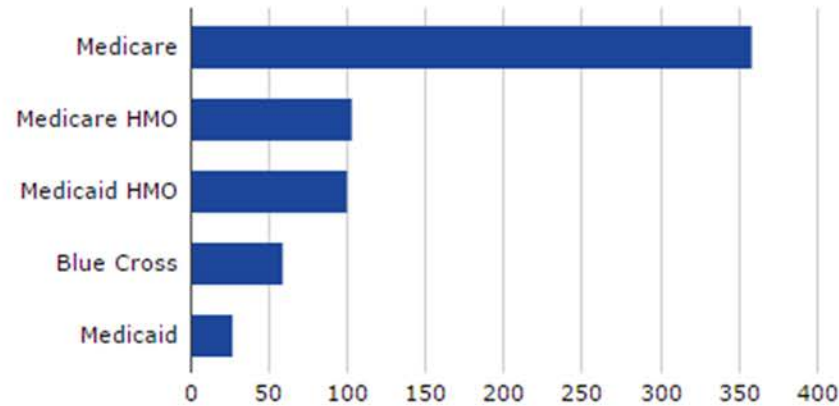
Measure Factory

Readmit Rate	Prev	3.82	Target	15.60	Index w/ Readmit	Prev	803	Index Population	Prev	21,045
3.64	% +/-	-1.47	% +/-	-11.96	753	% +/-	-6.23	20,671	% +/-	-1.78

Index w/ Readmit by Discharges Status

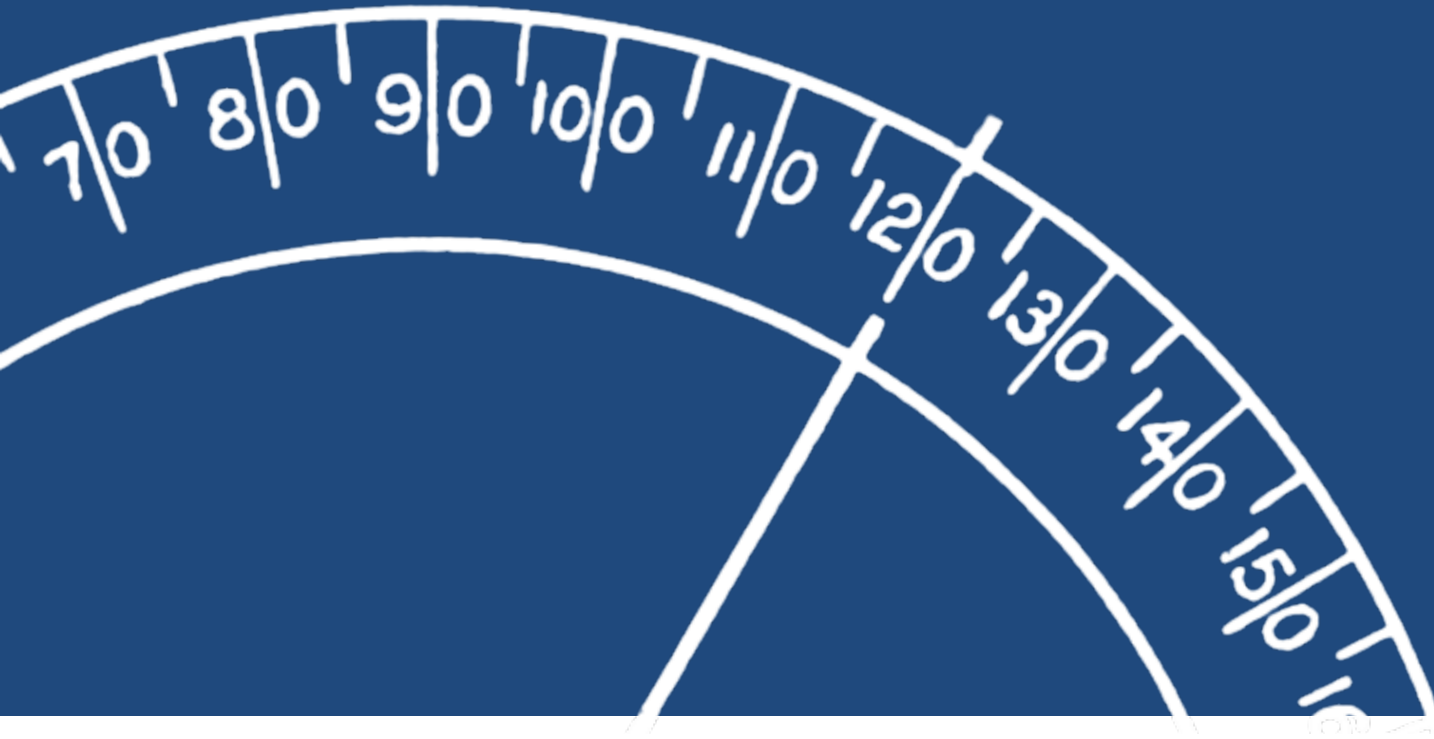


Top 5 Index w/ Readmit by Financial Class



Measure Factory

	MONTH TO DATE			
	Jun-2016	Jun-2015	% +/-	
Volumes				
Total Admissions	1,285	1,406	-6.1%	▼
Acute Admissions	1,145	1,258	-7.4%	▼
Total Newborns	140	148	6.9%	▲
Total Discharges	1,301	1,413	-4.6%	
Acute Discharges	1,156	1,262	-5.9%	▼
ED Admissions	834	857	-11.2%	▼
IP Surgical Cases	426	409	9.5%	▲
Total Discharge Days	5,816	5,789	.8%	
Acute Discharge Days	5,003	5,236	-3.3%	
Normal Newborn Discharge Days	813	553	36.4%	▲
Total Patient Days	5,258	6,081	-9.5%	▼
Acute Patient Days	4,660	5,332	-11.8%	▼
Normal Newborn Patient Days	598	749	14.1%	▲



Rules and Measures

Rules

Facts about business events or assets
(values in a database record)

Derived facts

Terms and definitions



Rules

Rules can be implemented in

- Integrator scripts

- cBase build scripts

- cPlans

- DivePlans

Even in

- Markers

- Portlets

Measures



Assign values to subsets of data records

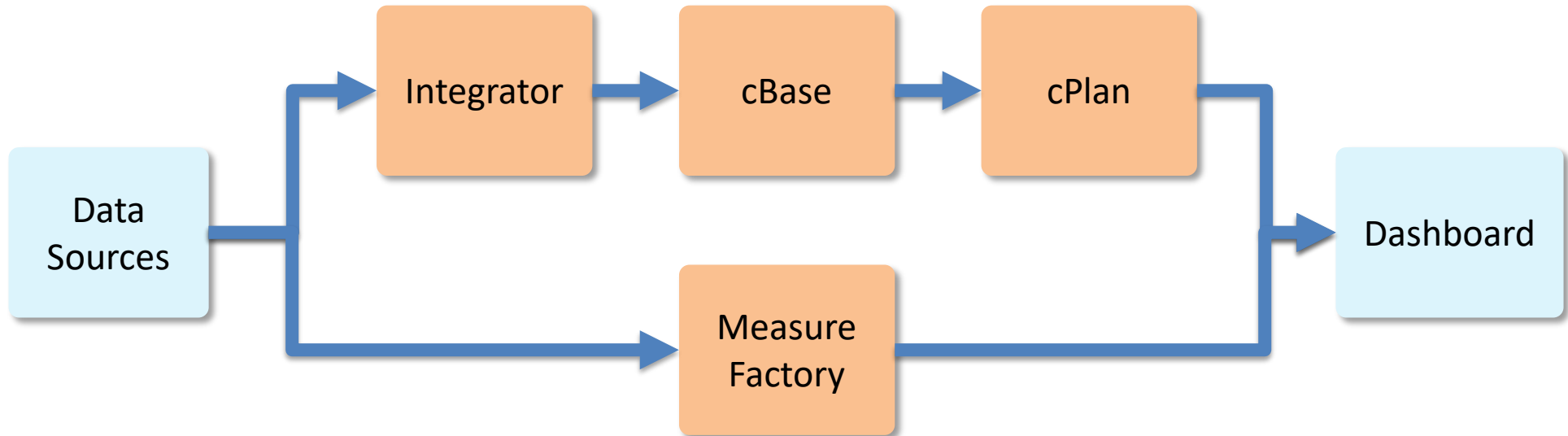
e.g. sum, average, ...

More than just a summary function or calc

To understand a value you need to understand the measure

Bringing it all Together

The Measure Factory consolidates rules and measures into one place





Machinery

Data Sets

The Measure Factory starts with any number of data sources,
usually with different levels of detail
a “data set” is created for each

Some ETL tasks may be needed

Rules

Data sets start out with a rule for each of the source columns
“source rules”

Other rule types are processed during the Factory build
adding new calculated fields
bringing in lookup data
moving data from one data set to another
and more

Measures

Measures are not evaluated during the build,
but are still defined as part of the factory
to keep everything together



Rules vs Measures

Rules are always
detail-level
associated with a single data set

Measures are always summary level
and may span multiple data sets

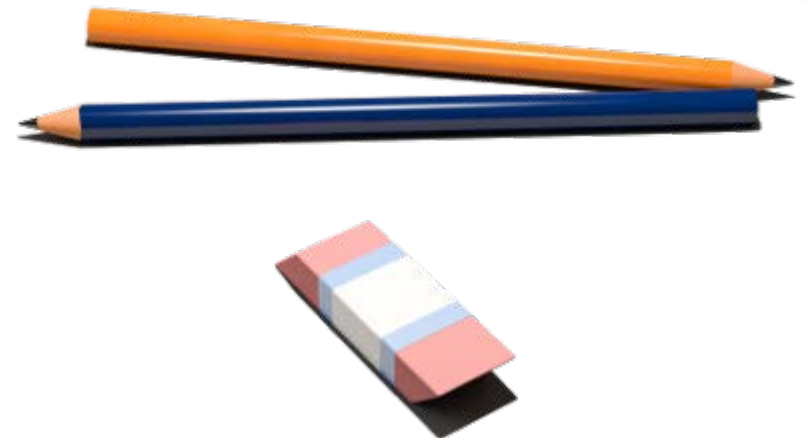
Date Abstraction

Measures may differ in their concept of "Date"

Total Admissions uses Admit Date

Total Discharges uses Discharge Date

How would you do that in ProDiver?



Date Abstraction

How would you do that in ProDiver?

Multilevel merge a Model with itself,
renaming Admit Date to Date in one,
and Discharge Date to Date in the other,
make sure Total Admissions and Total Discharges
use the record count from the correct Model

That's what Measure Factory does – so you don't have to

Metadata

Rules and measures can have extra information added to assist in data governance and user understanding

Definition – readable version of the calculation

Description – longer text filling out the details

Reference – pointer to external authority

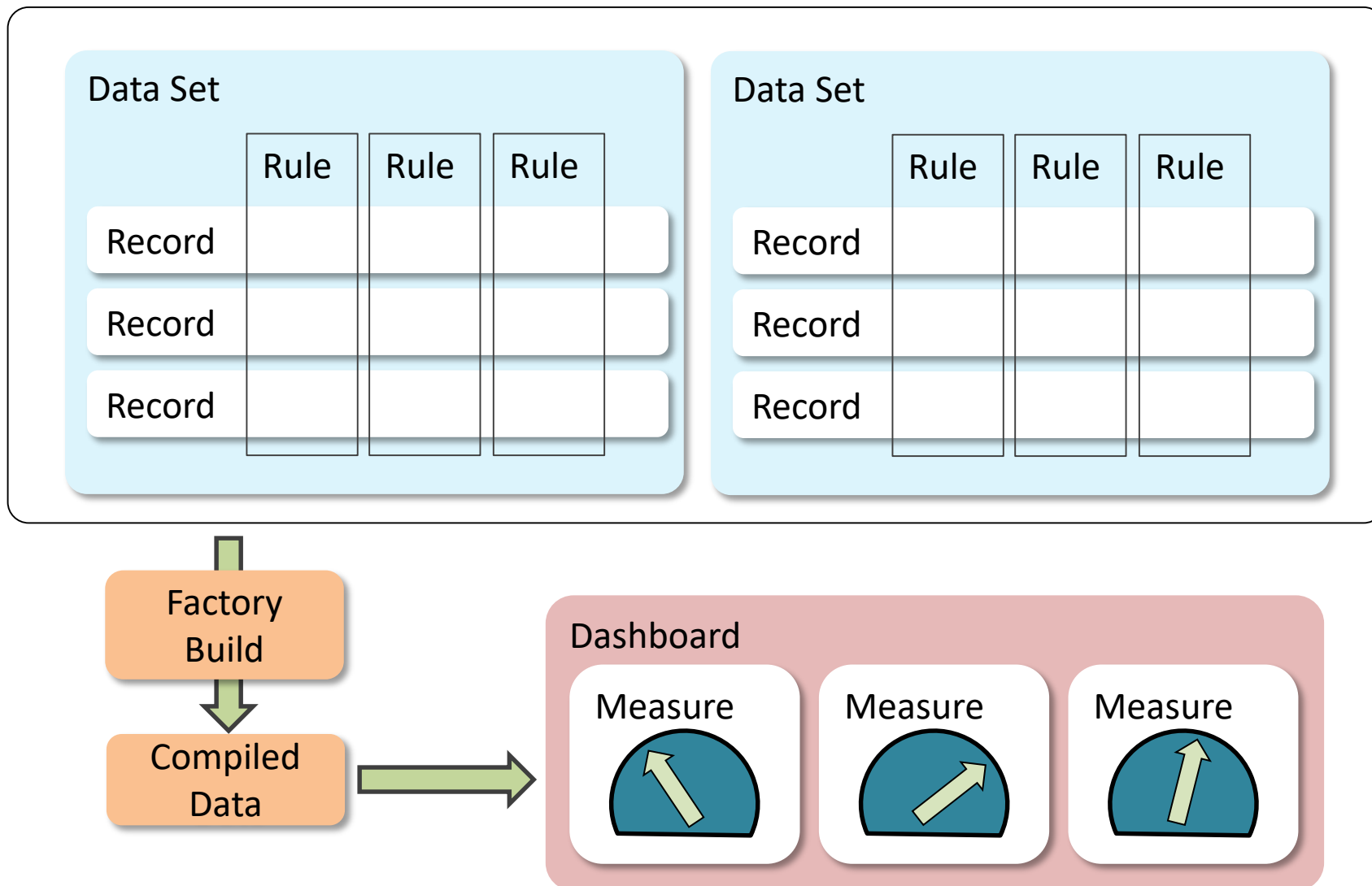
Good Direction – helps with indicator coloring

...

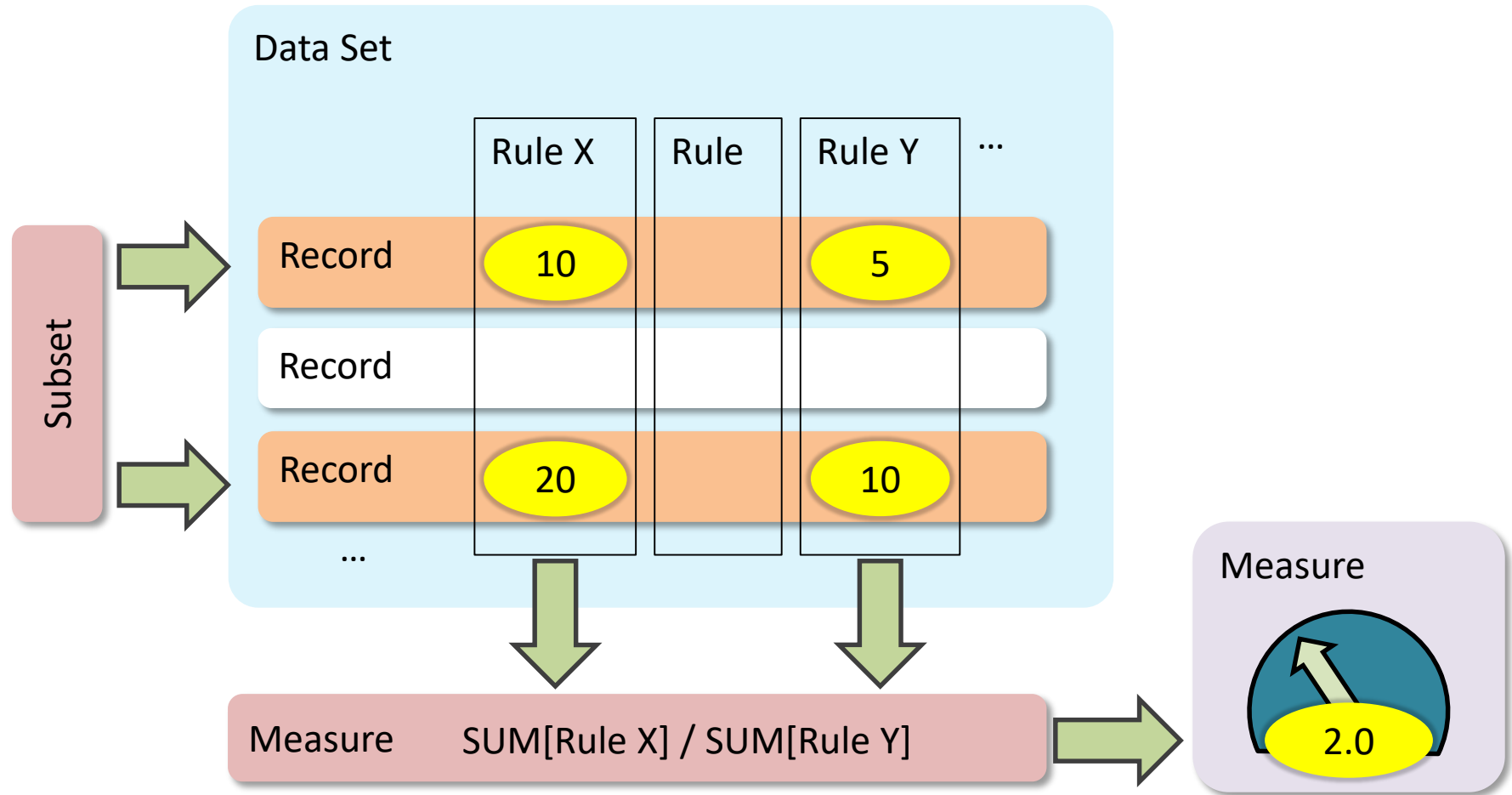


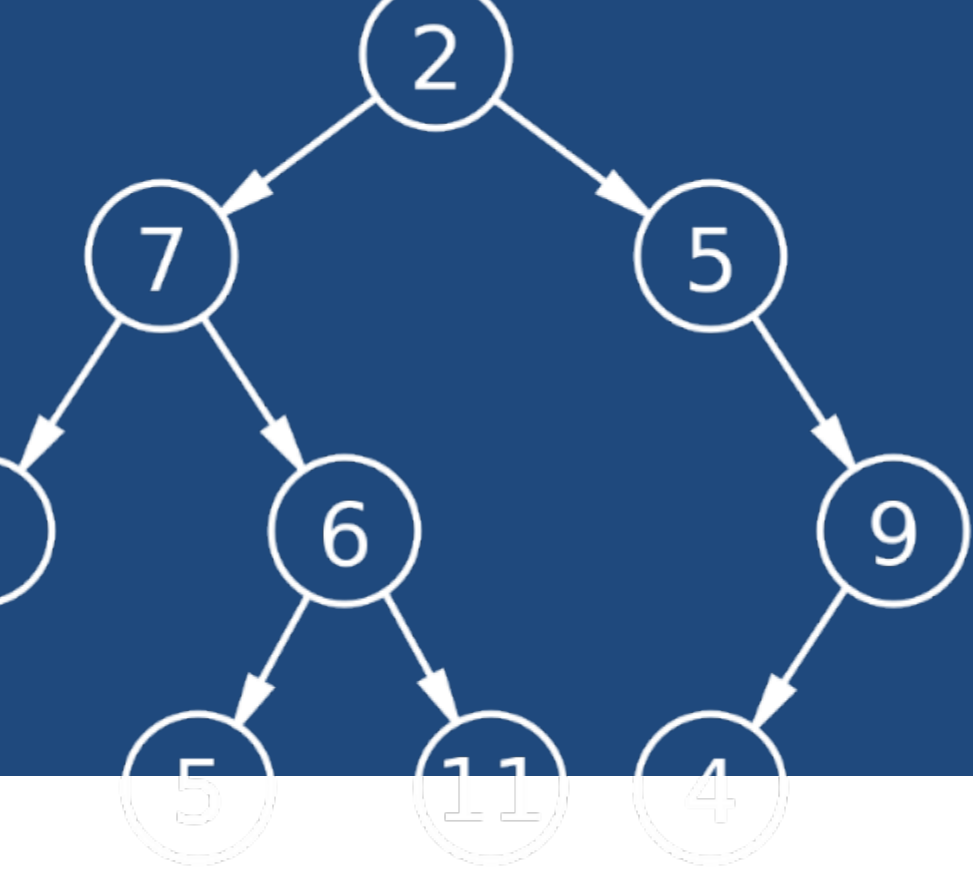
Build Overview

Build Overview



Build Overview





Rule Types

Source Rules

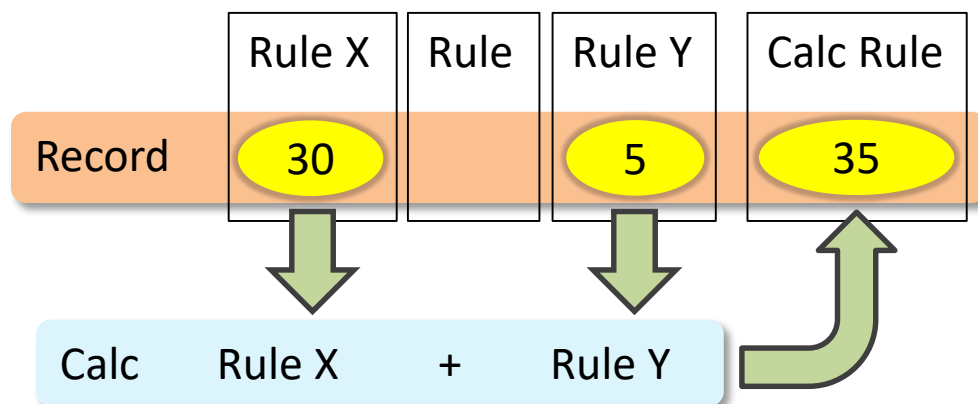
Source rules are just fields found in the original data sources

Calc Rules

Calc Rules are produced by evaluating an expression on each record

e.g. Admission:

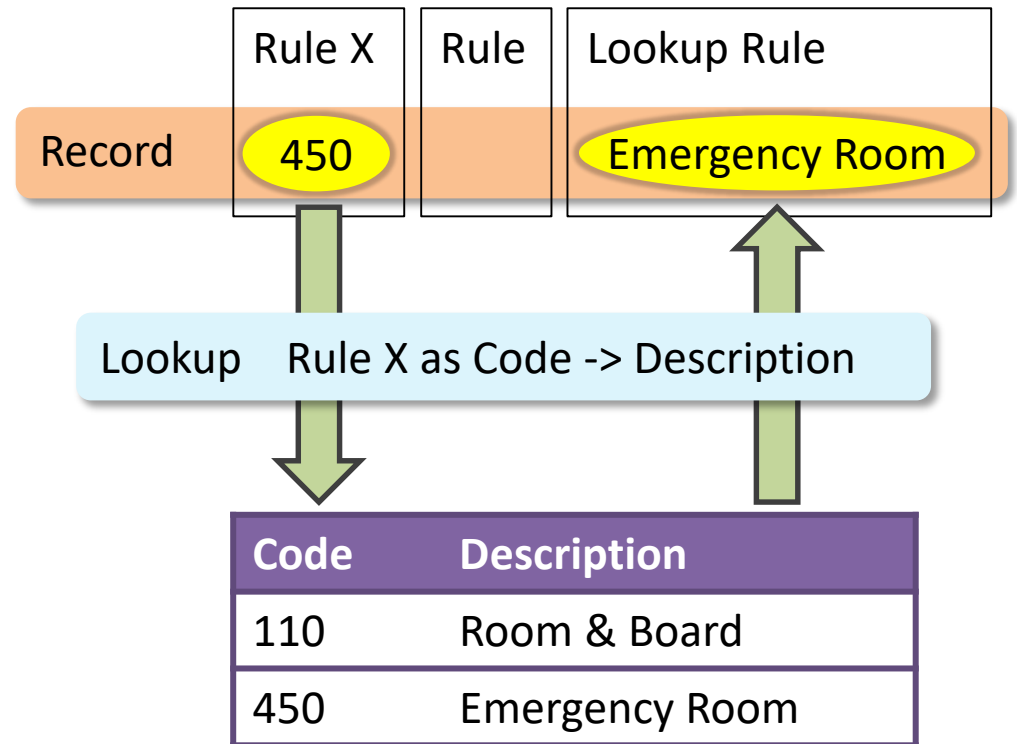
"Patient Type" is "Inpatient" and "Admit Date") is not null



Lookup Rules

Lookup rules bring data from external tables

e.g. Revenue Description:
Lookup "Revenue Code"
in revenue_codes.txt



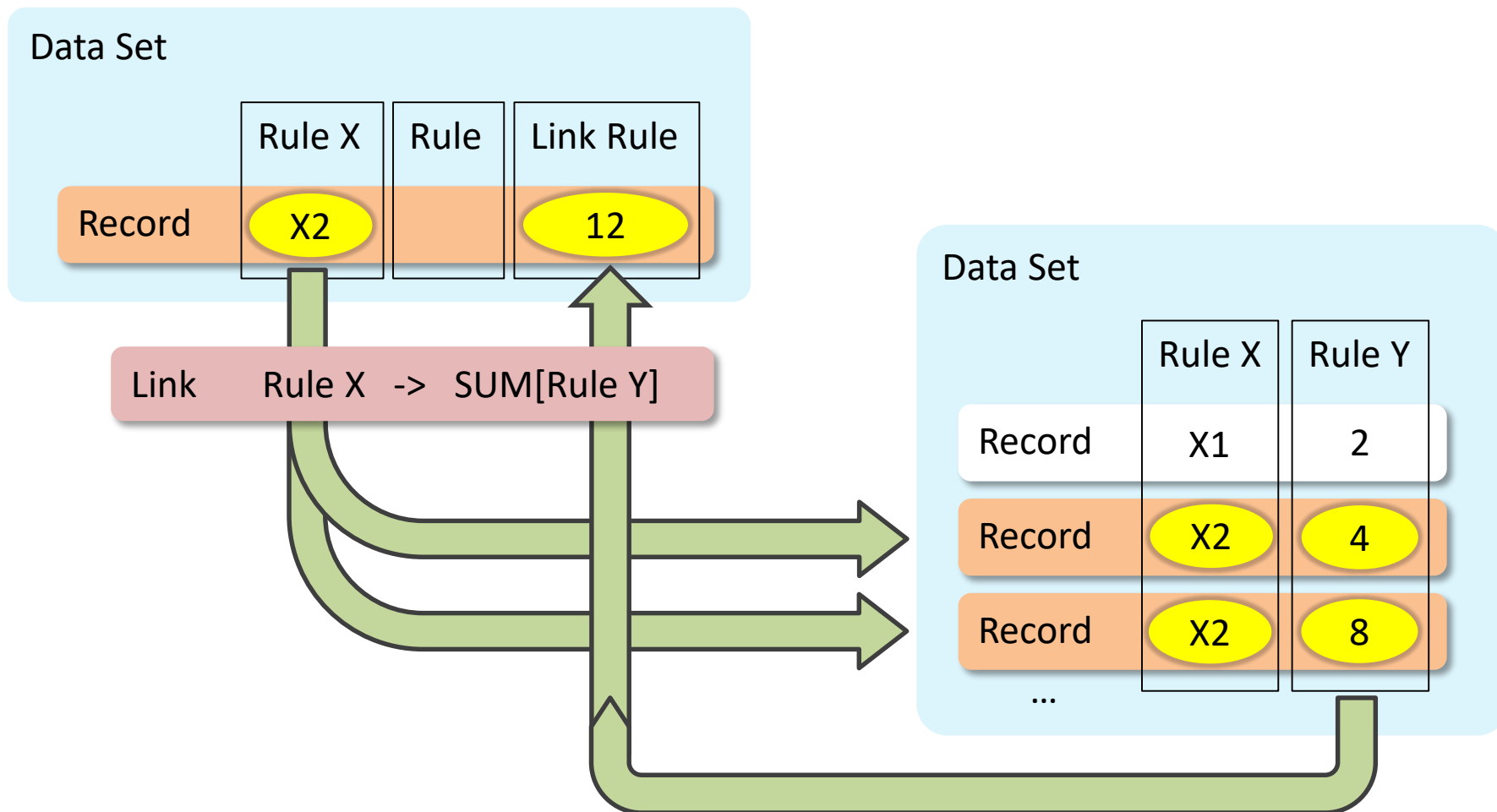
Link Rules

Link rules move data from one data set to another
this requires some common “key” on both sides

e.g. Has ICU Charge:

There is at least one record in the Charges data set
for this “Account ID”
where “ICU Charge Flag” is true

Link Rules



Plugin Rule

Some rules are too complicated
to be expressed with calcs, lookups, and links

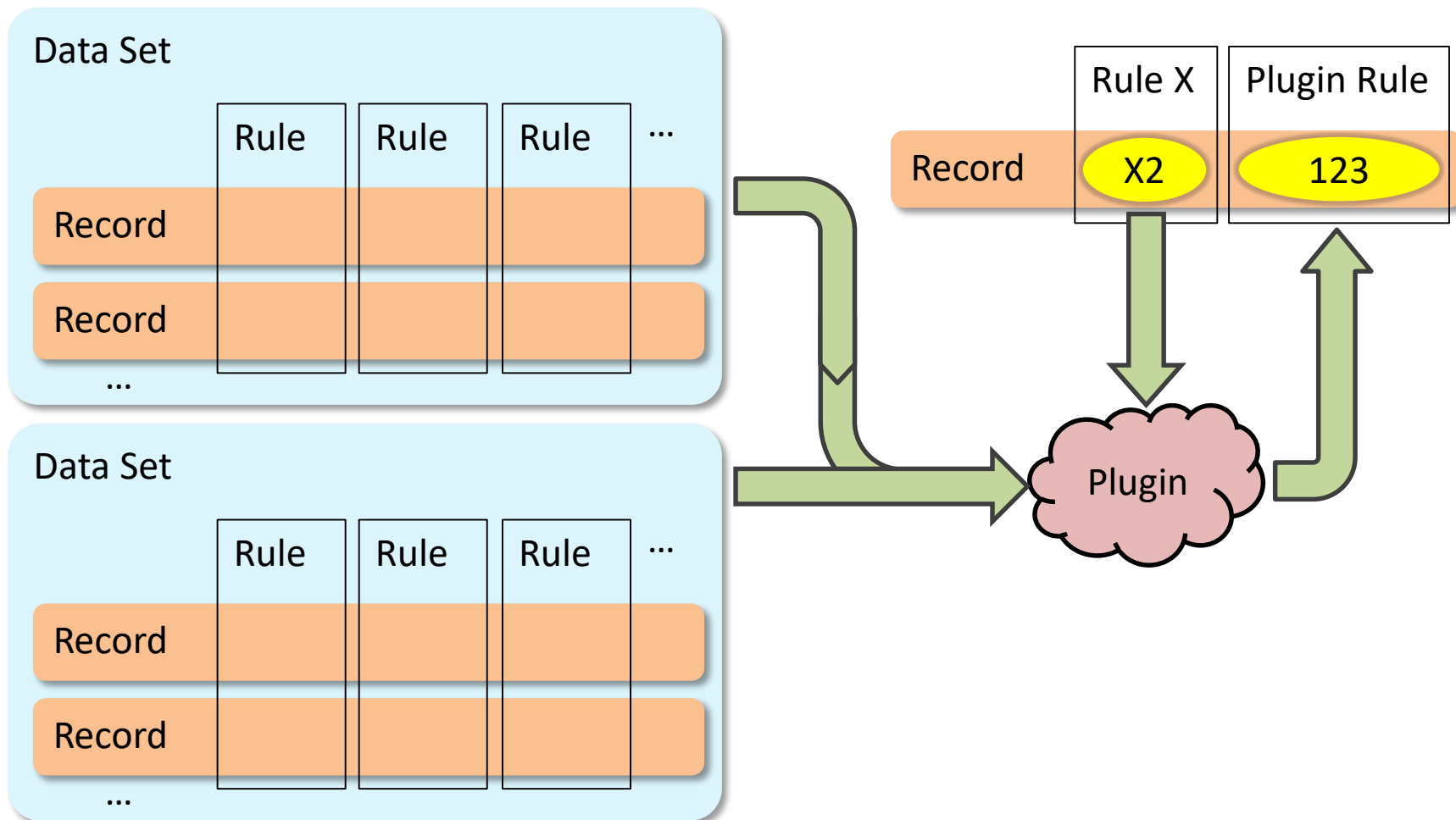
Plugin rules run Integrator scripts to compute their values

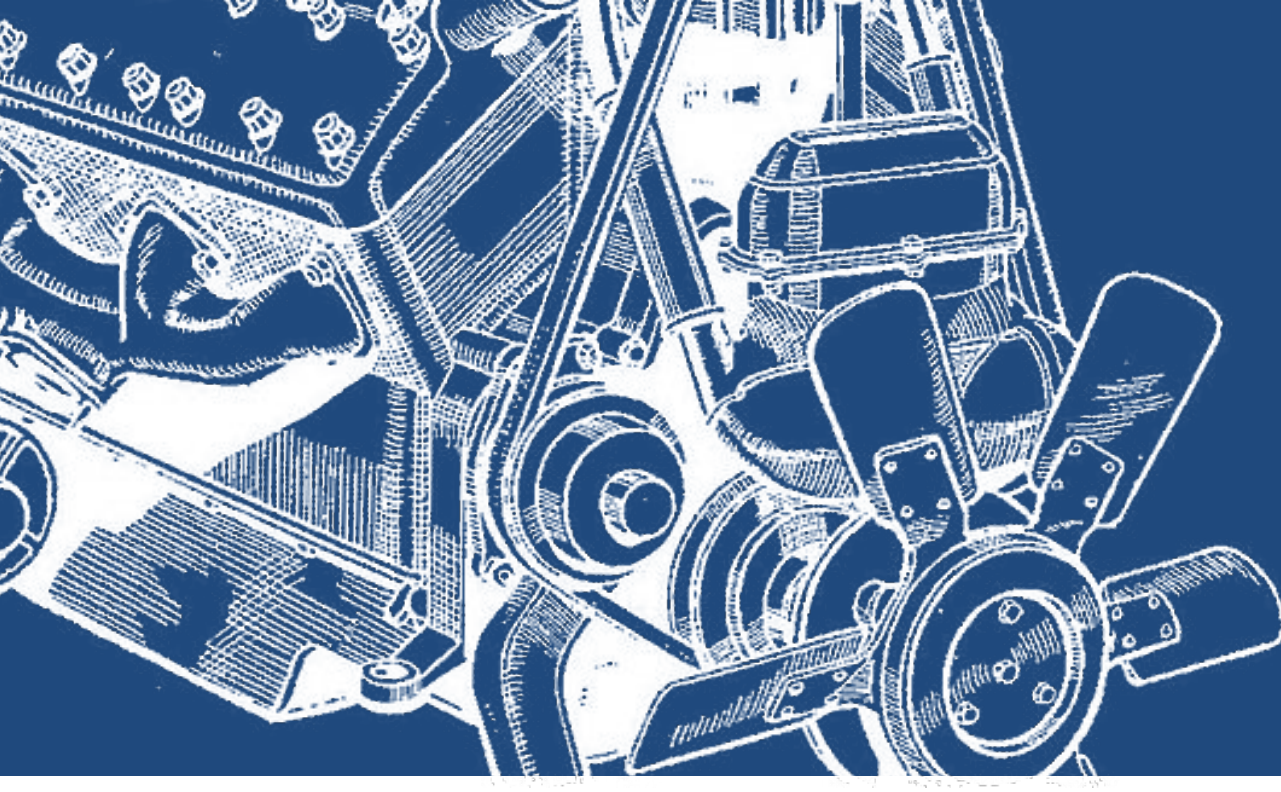
Plugins are reusable

for some industry-specific rules DI can provide plugins

e.g. Readmission

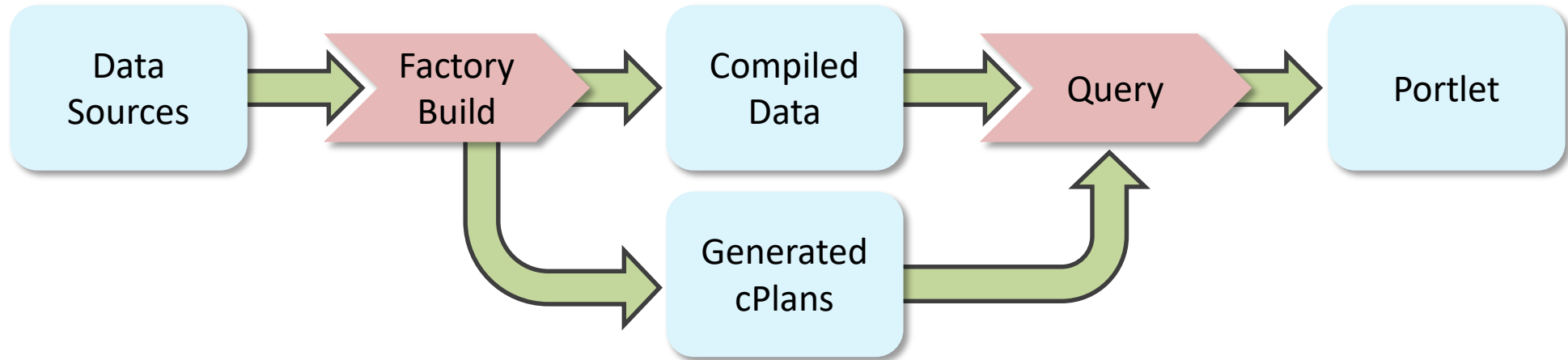
Plugin Rule





How it Works

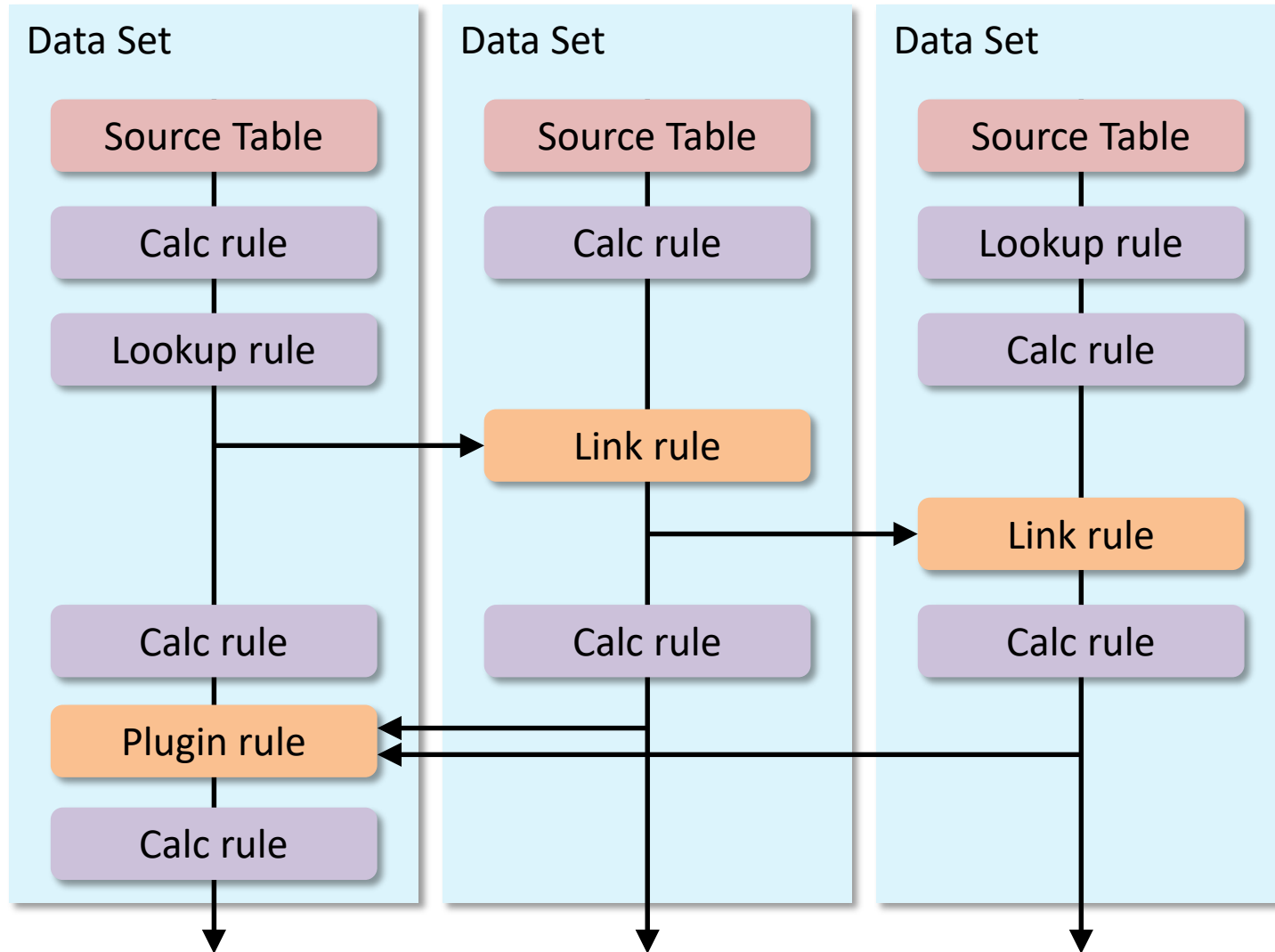
High-level Overview



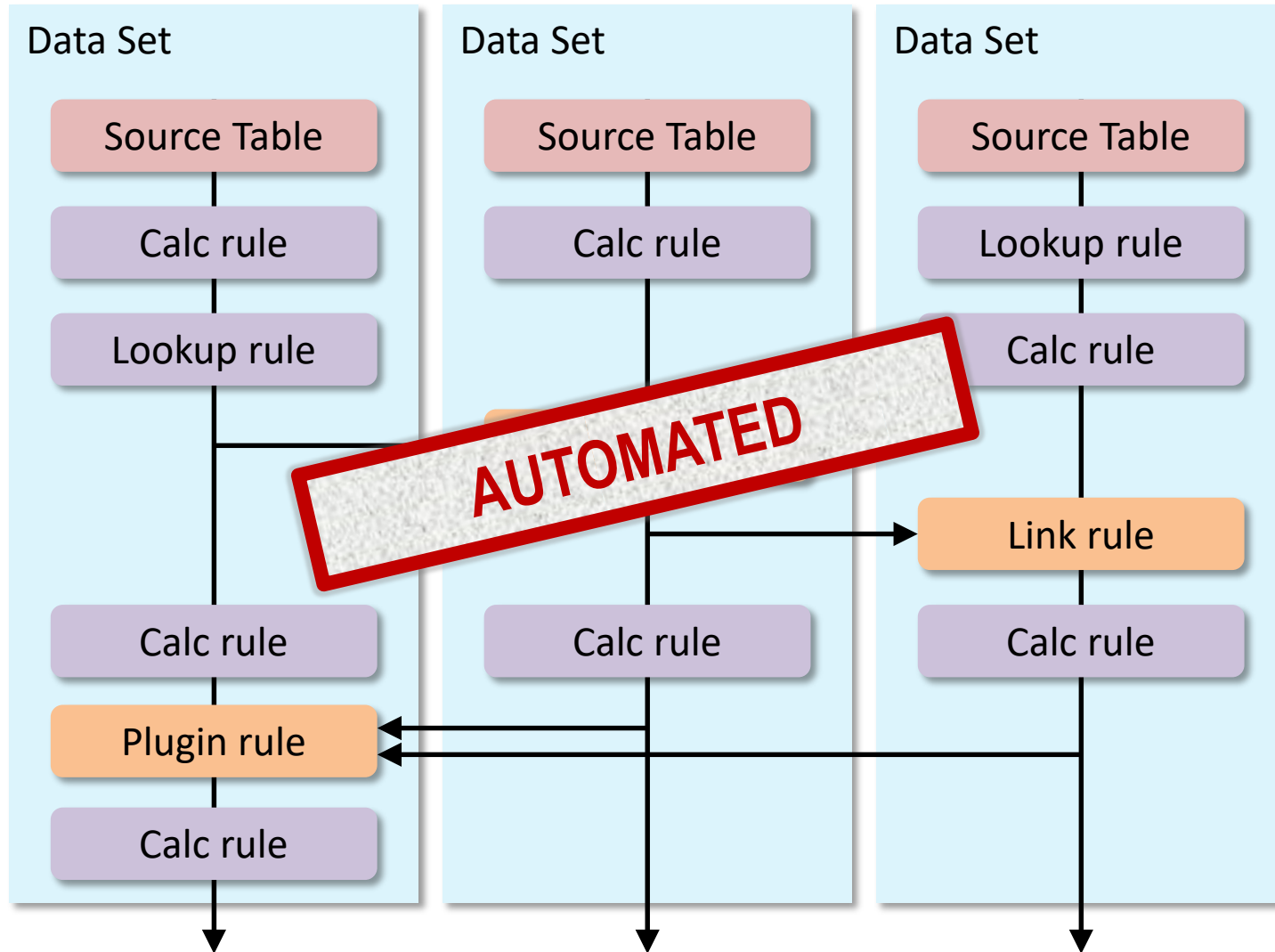
Factory produces enriched data sets and automatic cPlans
"Factory-aware" portlets use those along with Factory metadata

Automated

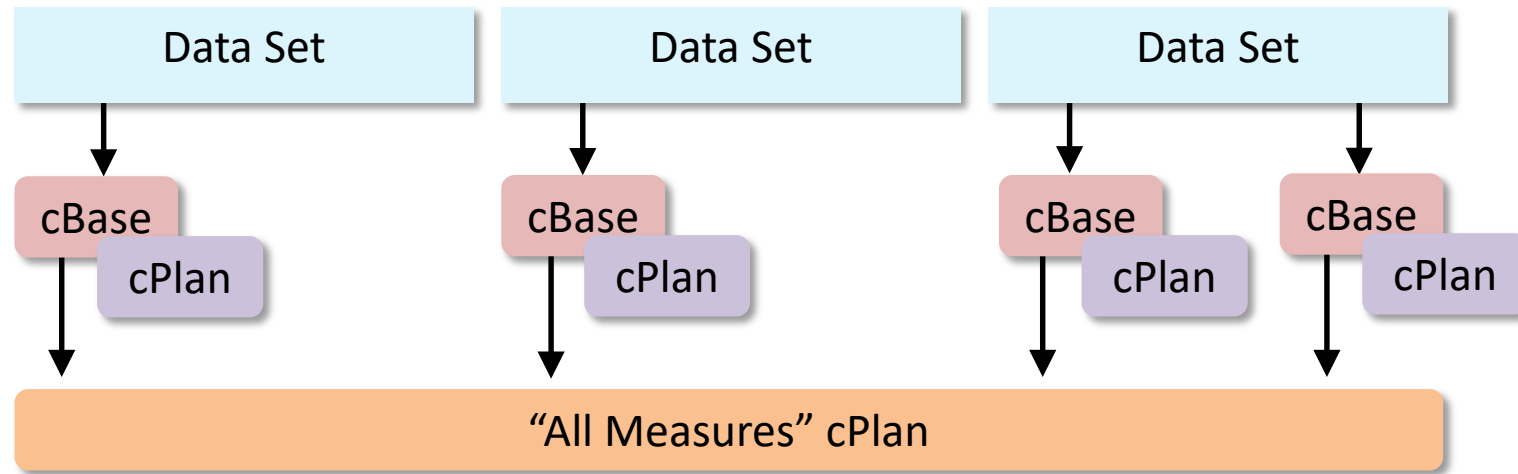
Swim Lanes



Swim Lanes



Factory Output

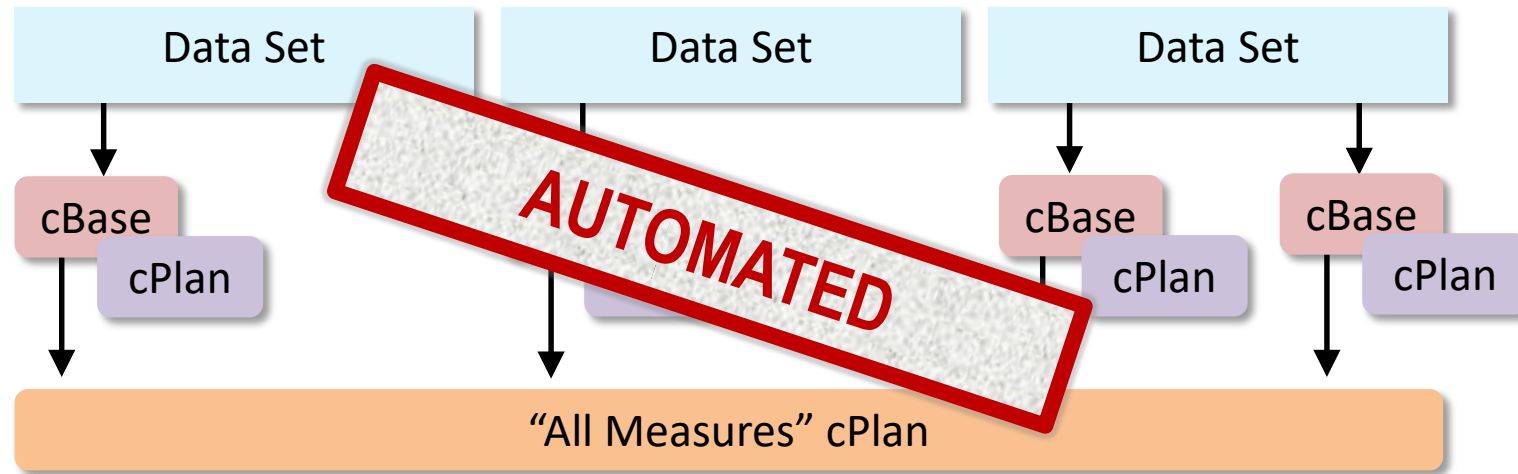


A data set may produce more than one cBase
due to date abstraction

One validation cPlan for each cBase, for deep diving

A single "All Measures" cPlan for most end-user usage

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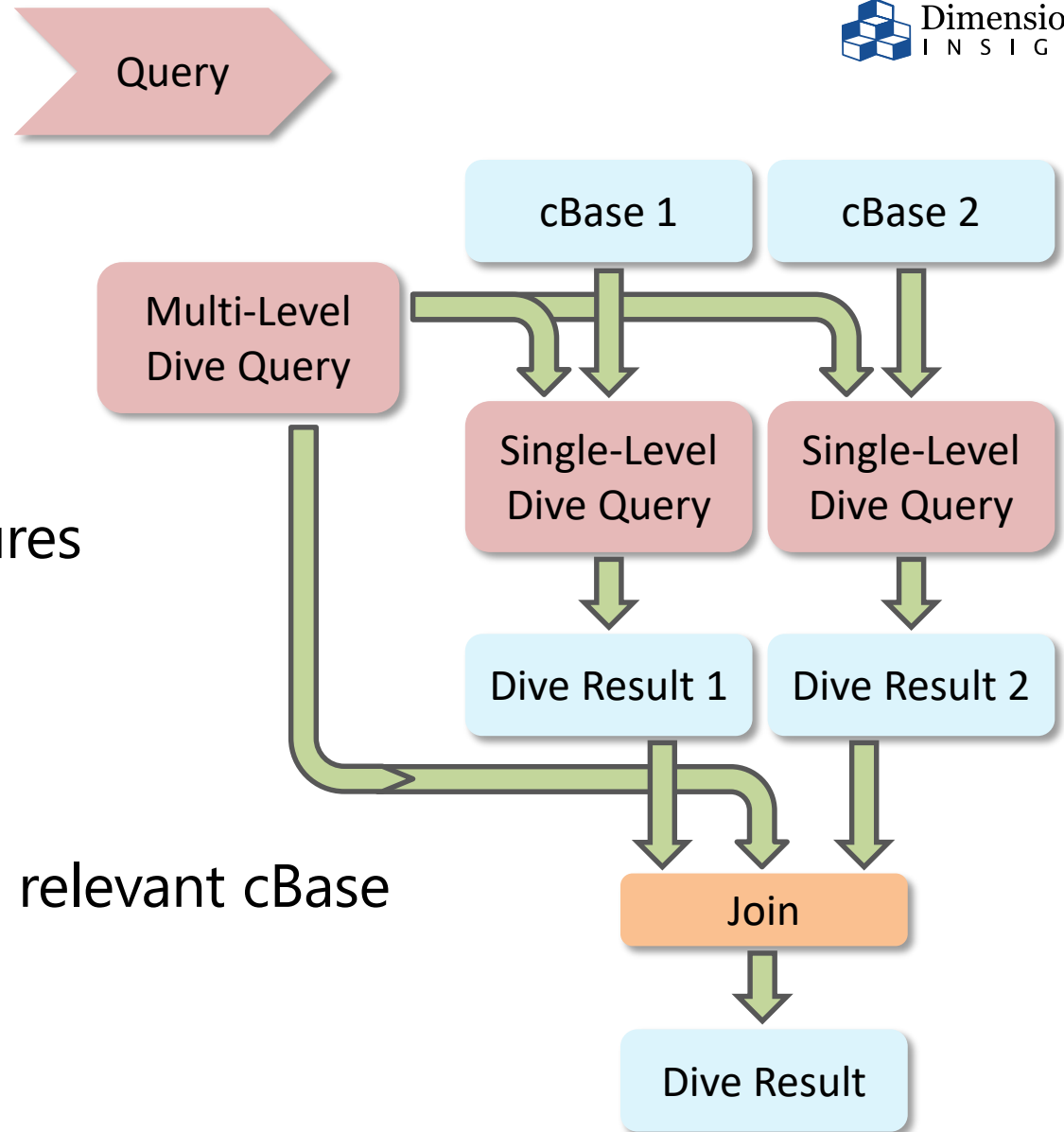
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Running Queries

Query asks for many measures
Requires a multilevel dive

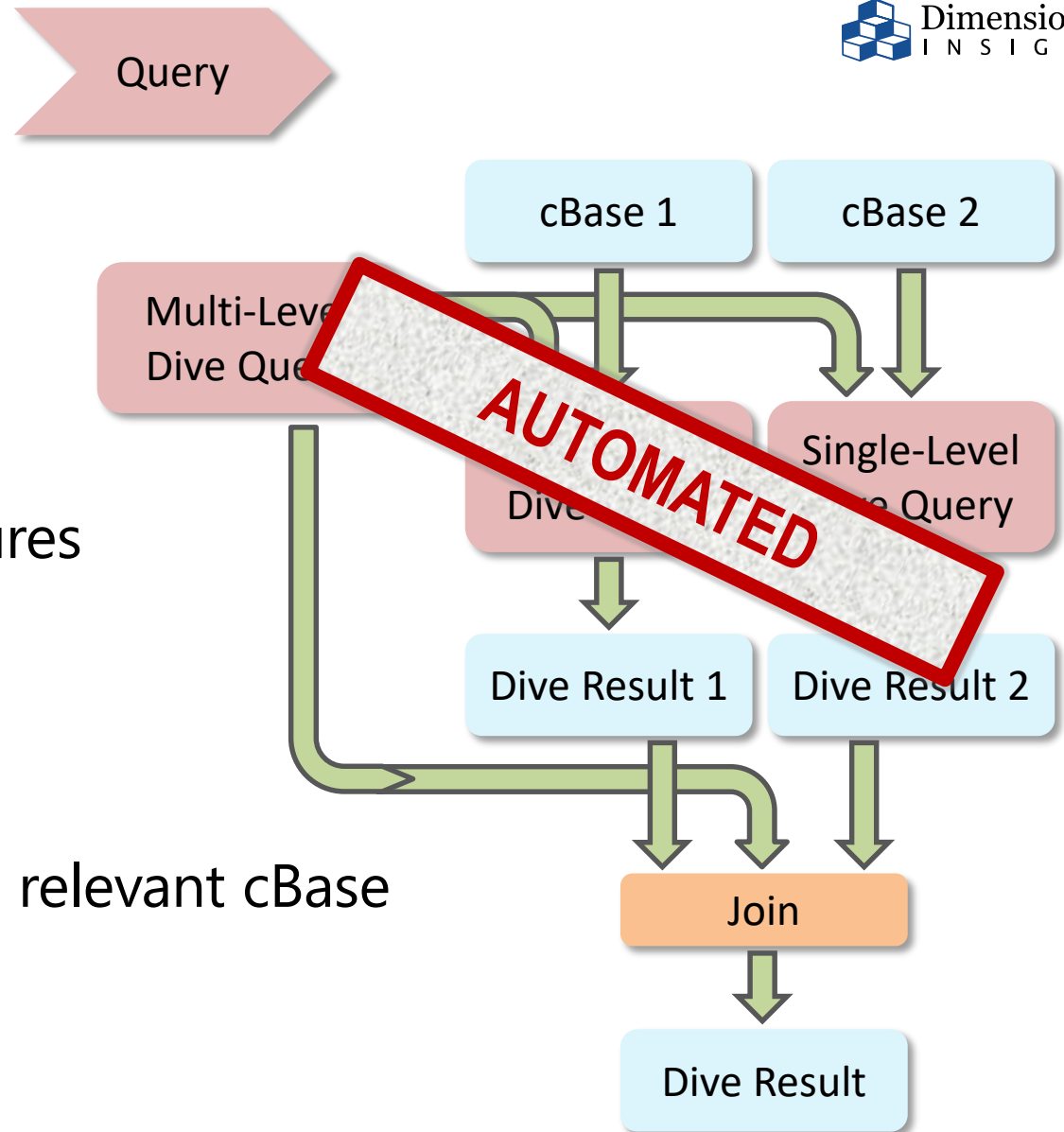
Separate dives against each relevant cBase
Joined together



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Downloaded from <https://www.pearsoncmg.com/api/v1/print/healthcare/9780130816130>

Portal Content

Matrix Portlet

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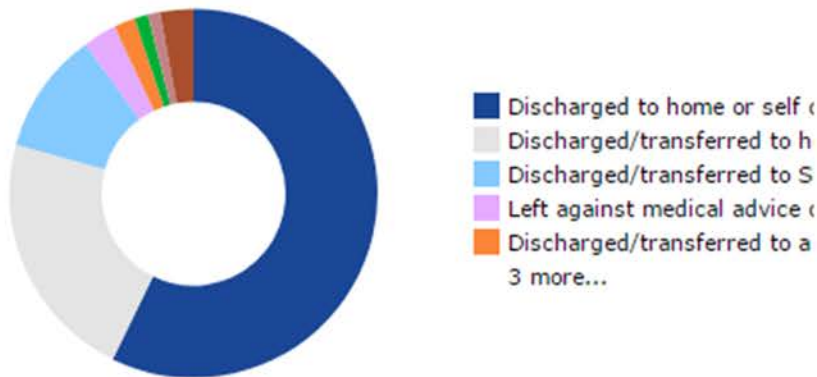
Charts and Indicators

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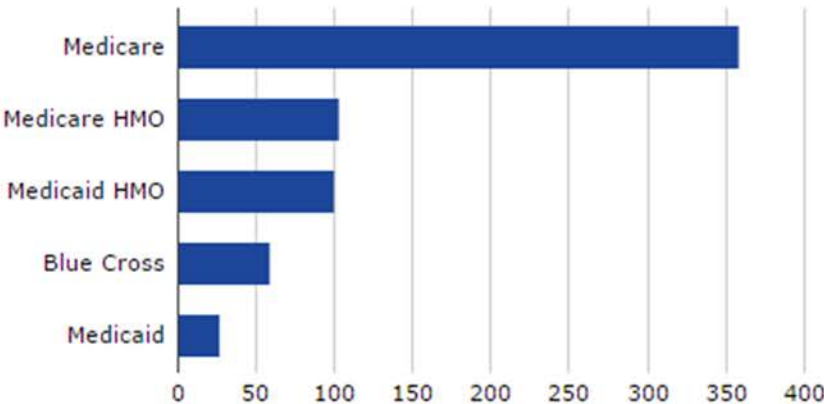
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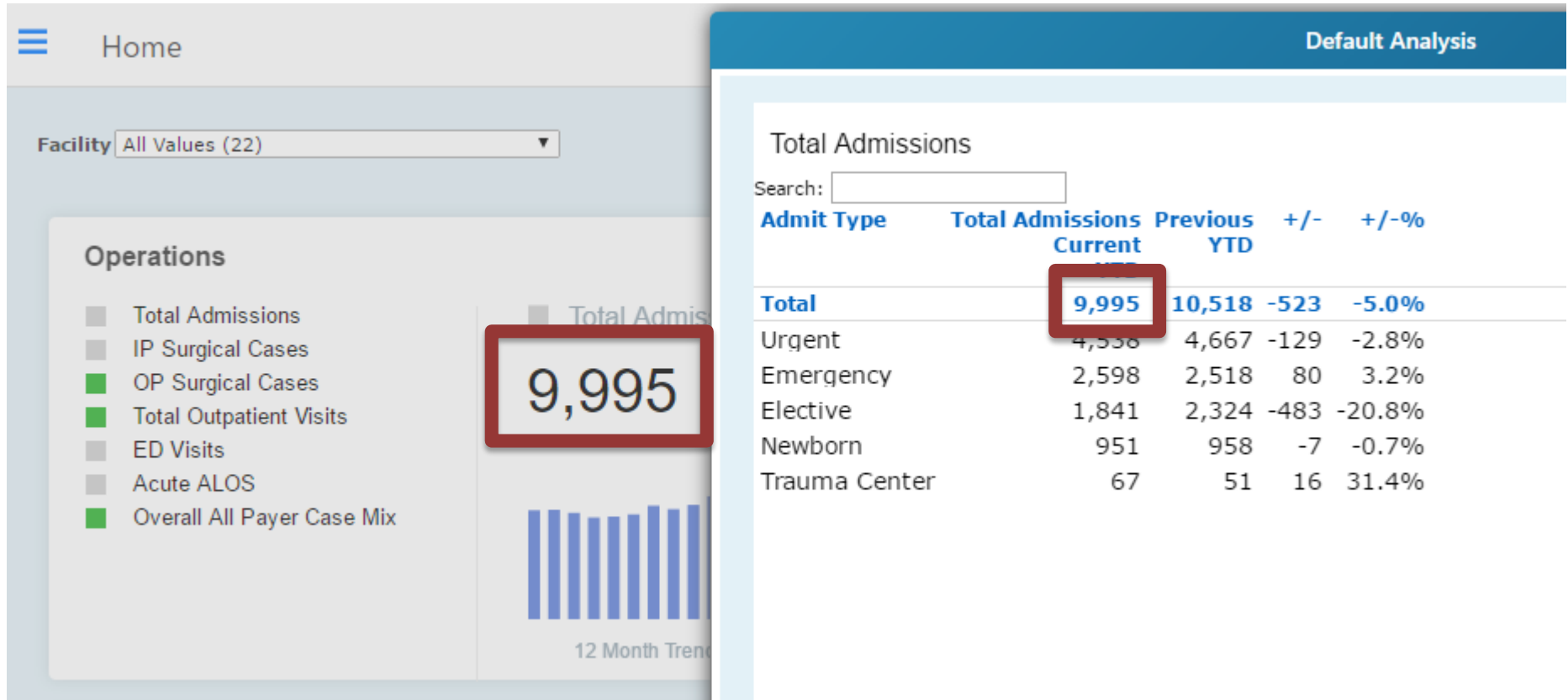


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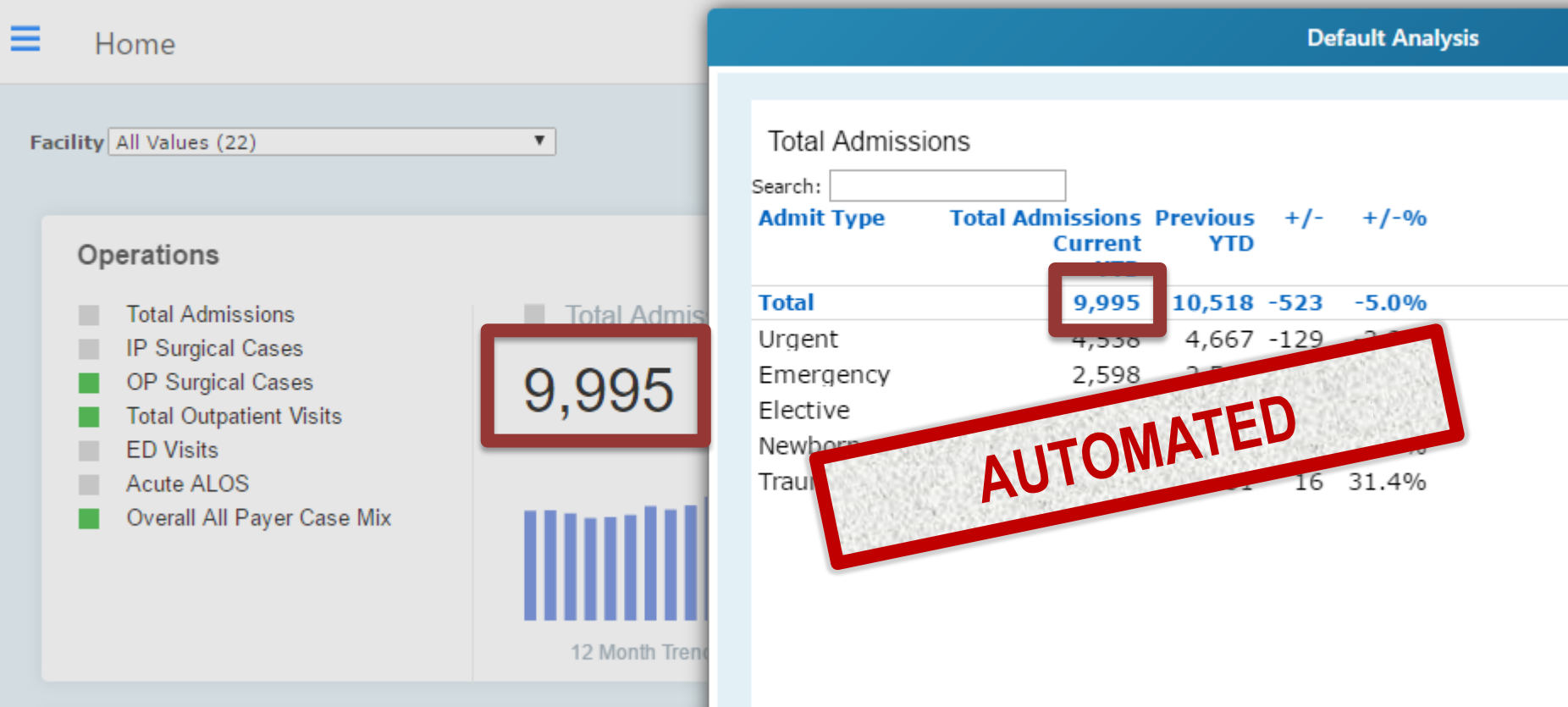
Analysis

Click on any number to start diving



Analysis

Click on any number to start diving



Measure Factory



Simplify

Organize

Automate