Executing Analytical Queries Through Aggregations

Overview

Learn how Elasticsearch can be used beyond search as an analytical engine

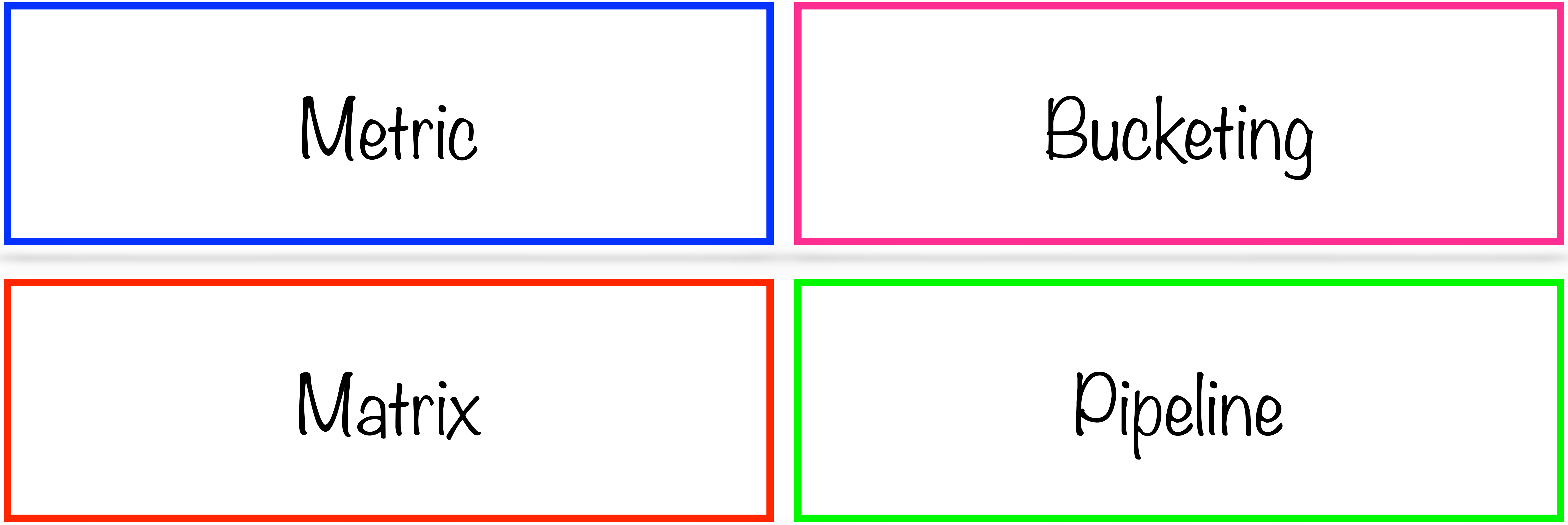
Know the different kinds of aggregations that can be performed

Implement queries for metrics and bucketing aggregations

Work with multi-level nesting of aggregations

Aggregations

Four Types of Aggregations



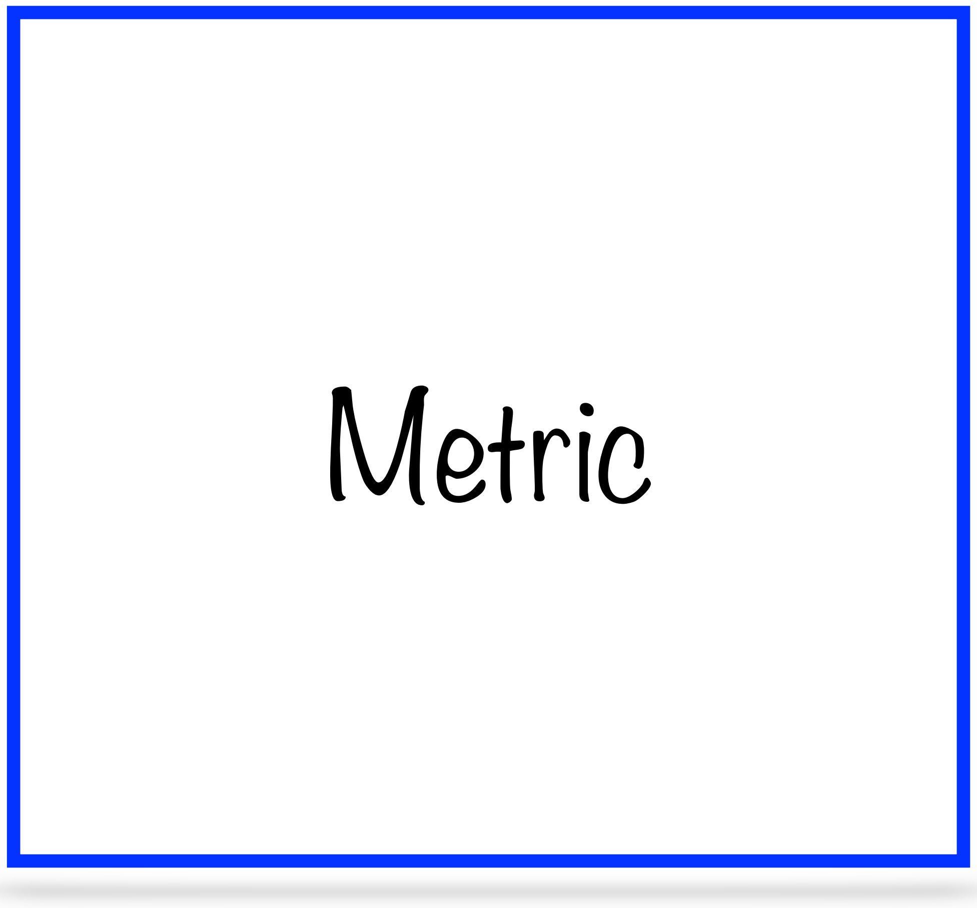
Metric

Bucketing

Matrix

Pipeline

Metric



Aggregations over a set of documents

- All documents in a search result
- Documents within a logical group

Bucketing

Bucketing

Logically group documents based on search query

A document falls into a bucket if the criteria matches

Each bucket associated with a key

Matrix

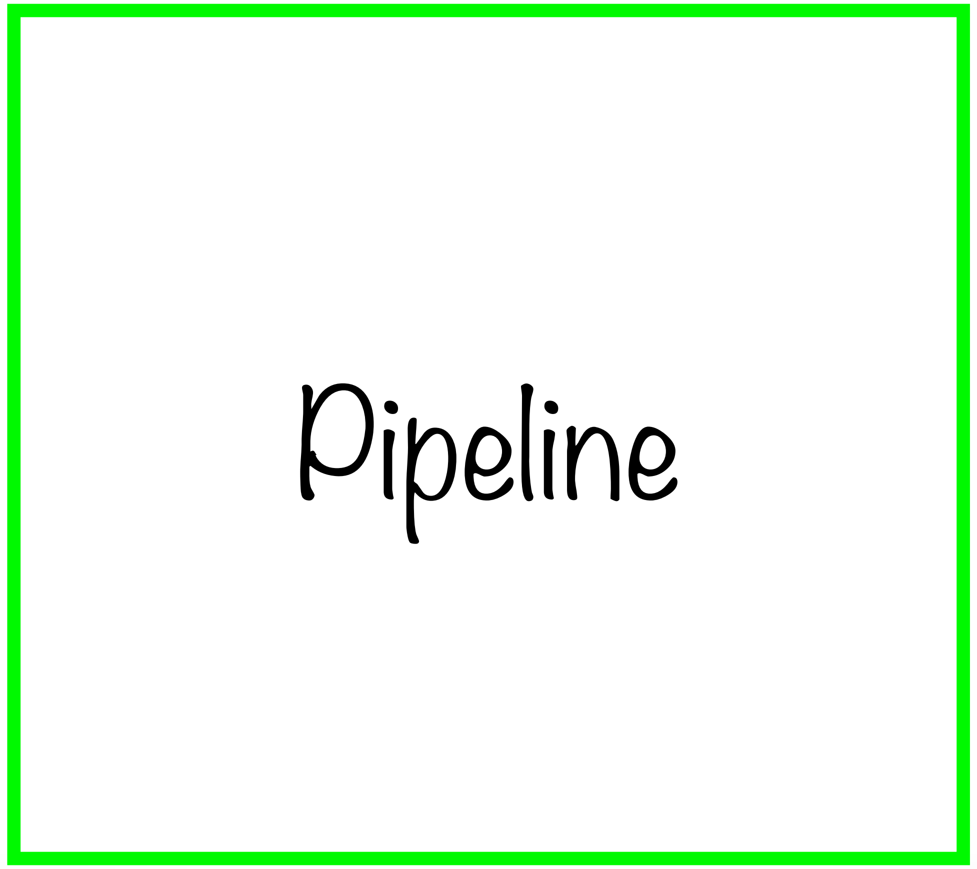
Matrix

Operates on multiple fields and produces a matrix result

Experimental and may change in future releases

Not covered in this course

Pipeline



Pipeline

Aggregations that work on the output of other aggregations

Experimental and may change in future releases

Not covered in this course

Four Types of Aggregations

Metric

Bucketing

Matrix

Pipeline

Four Types of Aggregations

Metric	Bucketing
Matrix	Pipeline

Demo

Metric aggregations such as avg, and the multi-value stats aggregation

Demo

Cardinality, the number of unique values in a field

Enable fielddata for text fields via mappings

Search vs. Aggregations

Search	Aggregation
Inverted index of the terms present in documents	Actual value of fields present in documents
The terms themselves can be hashed and stored in the index	Actual values of the terms are needed, hash values do not suffice
“Which documents contain this term?”	“What is the value of this field for this document?”

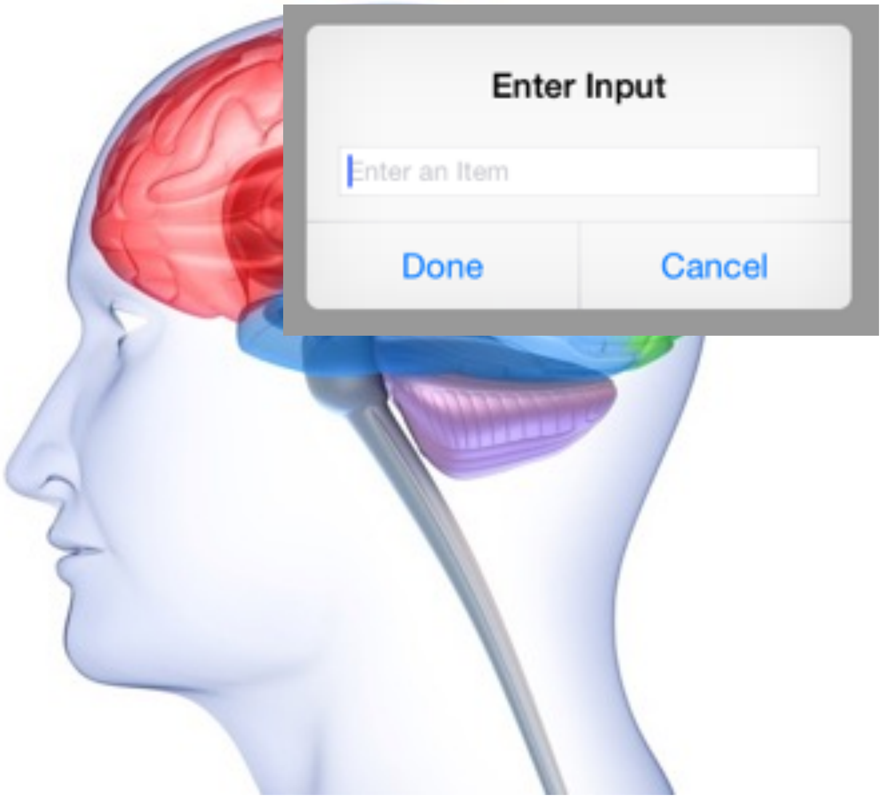
Getting the Value of a Text Field

Text field values are stored in an in-memory data structure called fielddata

Getting the Value of a Text Field

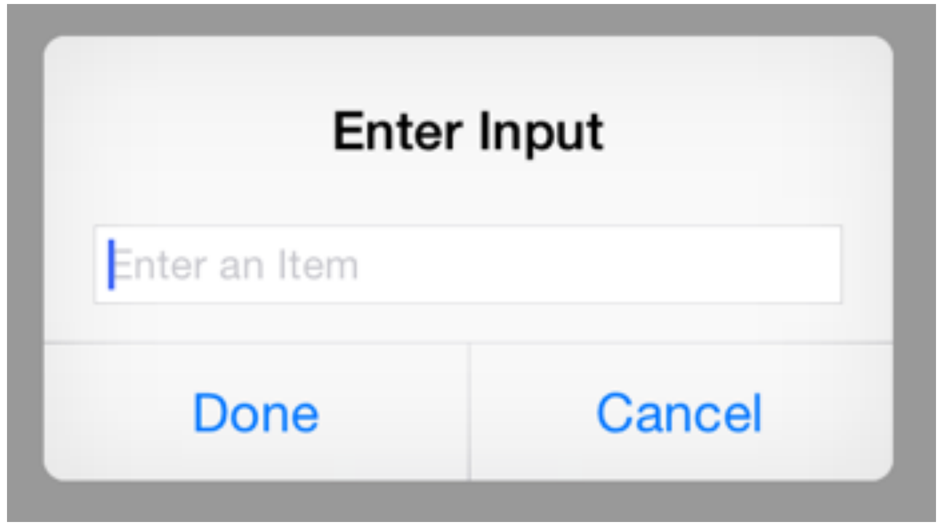
fielddata is built on demand when a field is used for aggregations, sorting etc

Getting the Value of a Text Field



fielddata on text fields take up lots of heap space

Getting the Value of a Text Field



Enter Input

Enter an Item

fielddata is disabled by default on text fields

Four Types of Aggregations

Metric

Bucketing

Matrix

Pipeline

Indexed Documents

Logically group these documents into buckets

Types

Each bucket satisfies some criterion

Demo

Bucket aggregations by field values

Demo

Multi-level nested aggregations

Demo

The “filter” aggregation to filter results

The “filters” aggregation to specify multiple filter matches

Summary

Perform analytics queries on Elasticsearch

Metric, bucketing, matrix and pipeline aggregations

Implemented queries for metrics and bucketing aggregations

Worked with multi-level nesting of aggregations