Organising, Visualising, and Describing Data

Data Types and Data Organisation

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PREP nuggets

Organising, Visualising, and Describing Data

Data Types and Data Organisation

1. Numerical vs Categorical
2. Cross-sectional vs Time Series
3. Structured vs Unstructured

PREP nuggets

Numerical vs Categorical Data

"Quantitative Data"

Numerical Data

values that can be counted or measured

Discrete

Countable

(***finite*** *number of values)*

Continuous

Any fractional value

(***infinite*** *number of possible values)*

*values do **not** have to stretch to infinity*

Numerical vs Categorical Data

"Quantitative Data"

Numerical Data

values that can be counted or measured

Discrete

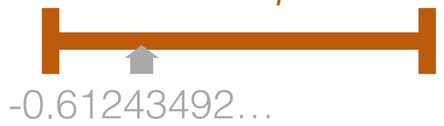
Countable

*(**finite** number of values)*

Continuous

Any fractional value

*(**infinite** number of possible values)*



Range-bound

(e.g. correlation [-1,1])

Numerical vs Categorical Data

Numerical Data

values that can be counted or measured

Discrete

Continuous

"Qualitative Data"

Categorical Data

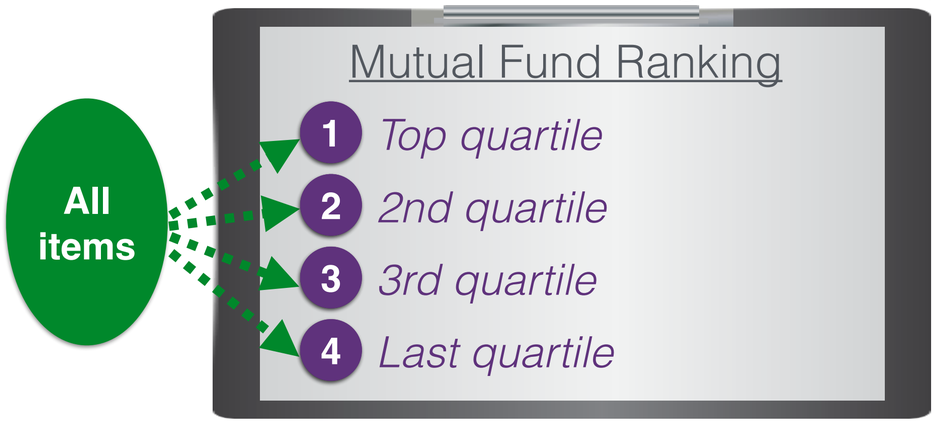
labels used to classify a set of data into groups

Nominal

*(labels have **no logical order**)*

Ordinal

*(can be **ranked in logical order**)*



PREP nuggets

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Numerical vs Categorical Data

Numerical Data

values that can be counted or measured

Discrete

Return of Mutual Fund — **Continuous**

Difference is measurable

Fund B: 6% — **Fund A: 10%**

"Fund A outperforms Fund B by 4% pts"

Categorical Data

labels used to classify a set of data into groups

Nominal

*(labels have **no logical order**)*

Industry Classification

- *Manufacturing*
- *Retail*
- *Food & Beverage*

Ordinal

*(can be **ranked in logical order**)*

Mutual Fund Ranking

1. *Top quartile* — **Fund A:Q1**
2. *2nd quartile* — **Fund B:Q2**
3. *3rd quartile*
4. *Last quartile*

Difference is NOT measurable

"Fund A performed better than Fund B"

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Cross-sectional vs Time Series Data

Cross-Sectional Data

*comparable observations all taken at **specific time***

e.g. Sales data of 4 companies in 2011

Company	2011
A	$24,000
B	$122,500
C	$34,000
D	$72,800

Cross-sectional vs Time Series Data

Cross-Sectional Data

*comparable observations all taken at **specific time***

Time Series Data

*set of observations taken periodically over a **period of time***

Company	2011	2012	2013	2014	2015
A	$24,000	$27,000	$31,000	$38,500	$45,900
B	$122,500				
C	$34,000				
D	$72,800				

1D Array

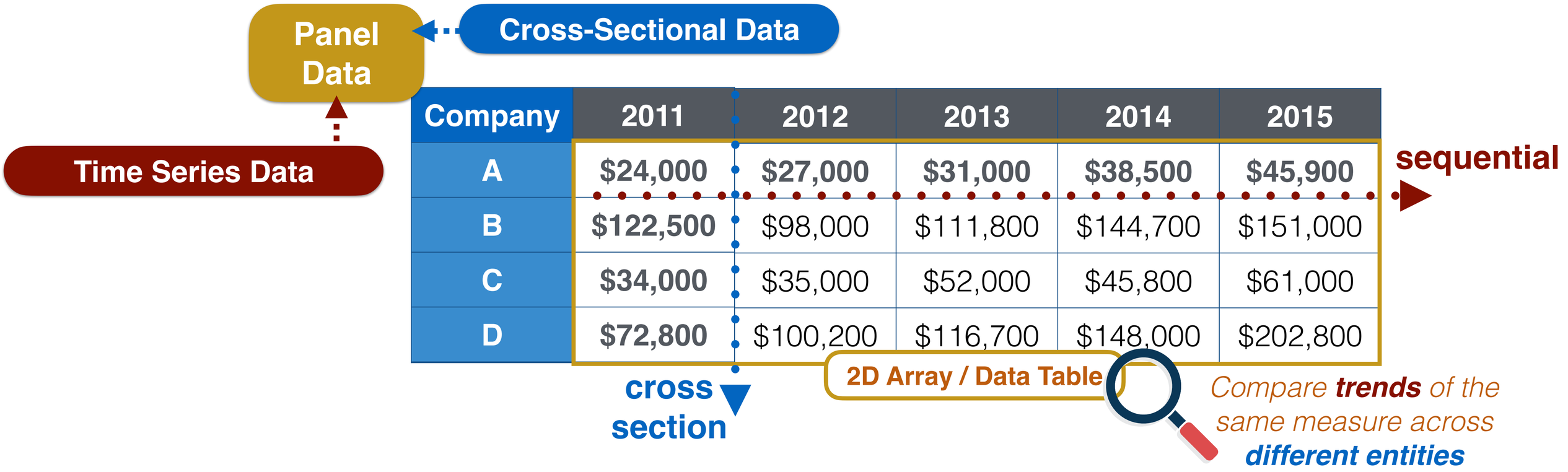
Represent single variable

e.g. annual sales for Company A

Forecasts

Identify trends, cycles, patterns

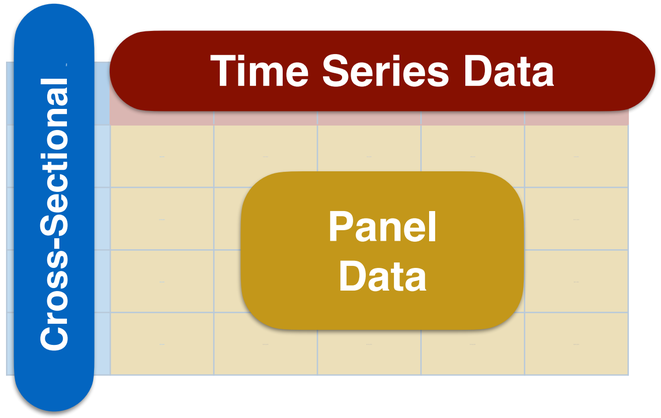
Cross-sectional vs Time Series Data



Structured vs Unstructured Data

Structured Data

*organised in a **defined** way*



Market data
e.g. security prices

Analytical data
e.g. earnings forecasts

Fundamental data
e.g. accounting values

Unstructured Data

*information in a form with **no defined structure***

Generated by:

Investor sentiment

Business sentiment

Business activity

Challenge to process and analyse large amount of data

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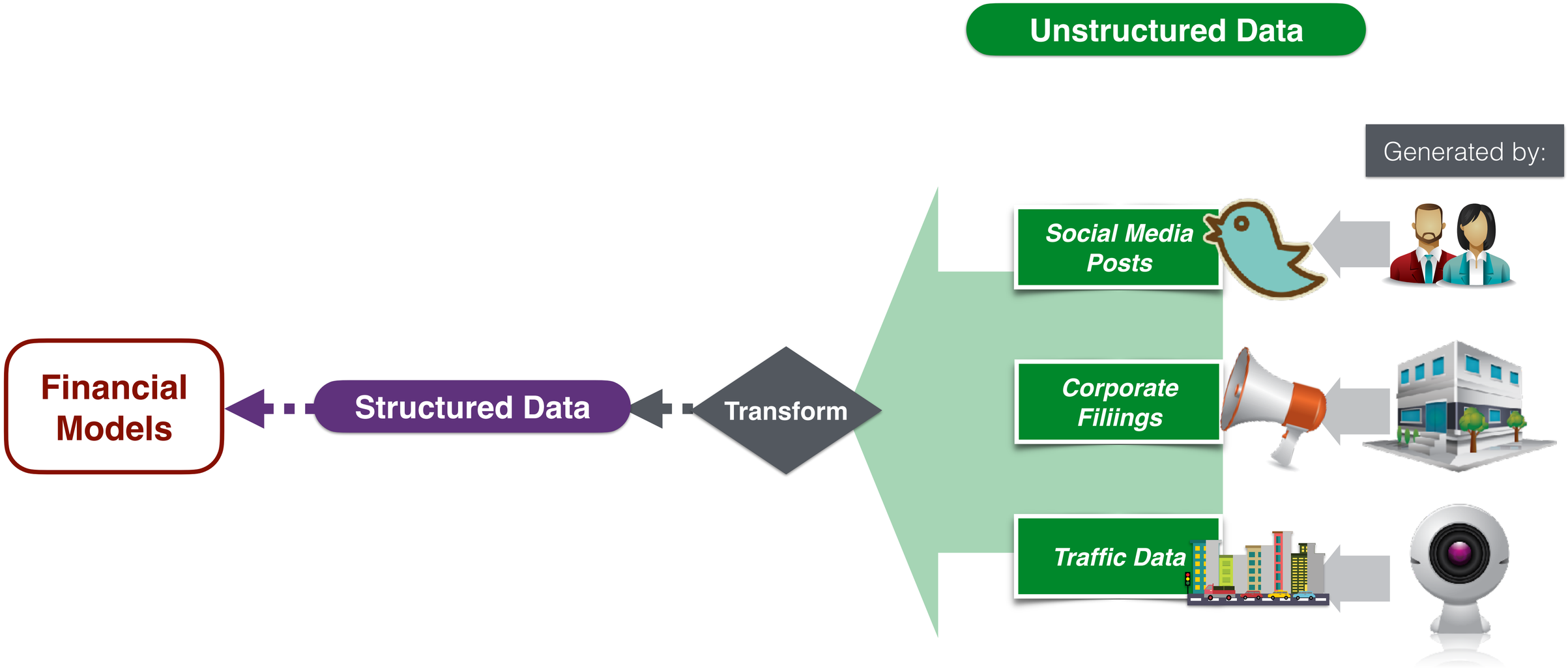
Structured vs Unstructured Data



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