InstaCart Data Warehouse

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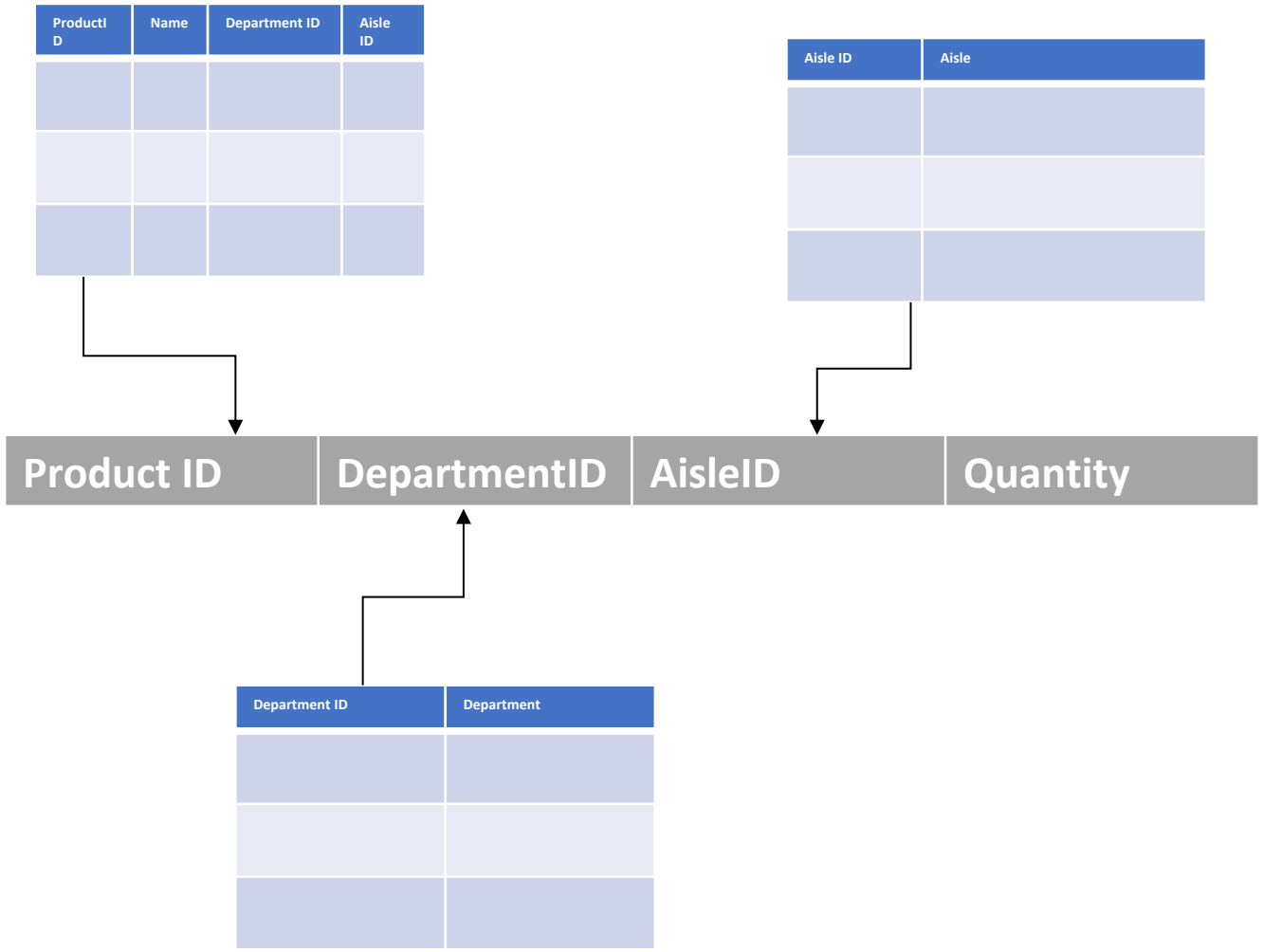
We make use of the instaCart dataset to perform certain analysis on the data. This can help gain useful insight on the working and performance of a business.

As required by the project, the analysis is done using three different databases, relational DB, MongoDB and Neo4j.

Since the data is available in terms of tables/relations, the relational database would be an ideal choice.

We make use of 5 dimensional table such as Orders, Products, Aisle, Departments and Order Details to create the Fact Tables.

Product Fact Table




```
CREATE TABLE [dbo].[ProductStarFact](
    [ProductId] [int] NOT NULL,
    [DepartmentId] [int] NOT NULL,
    [AisleId] [int] NOT NULL,
    [Quantity] [int] NOT NULL,
CONSTRAINT [PK_ProductStarFact] PRIMARY KEY
CLUSTERED ([ProductId] ASC)
```

MongoDb Structure

Products Collection

product_id	product_name	department [department_name]	aisle [aisle_name]

Order-Product Collection

order_id	product_id	re-ordered	add_to_cart

Orders Collection

order_id	user_id	order_dow	order_hour_of_day

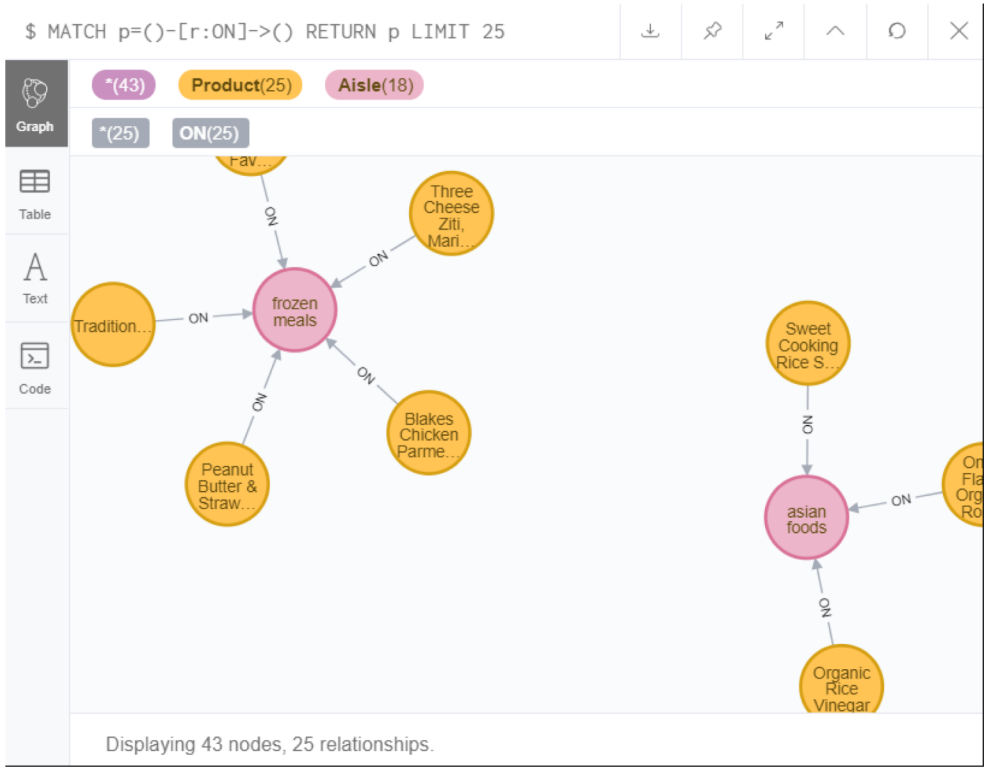
Neo4J (Graph Database)

- For the right use case, relational databases are powerful tools. But today's users are asking for *more* than an RDBMS can handle. More features, more data, more speed and – most importantly – *more connections.*
- Property graph model and Cypher query language makes it easy to understand a database.
- Neo4j delivers the lightning-fast read and write performance you need, while still protecting your **data integrity**. It is the only **enterprise-strength graph database** that combines **native graph** storage, **scalable** architecture optimized for speed, and **ACID** compliance to ensure predictability of relationship-based queries.

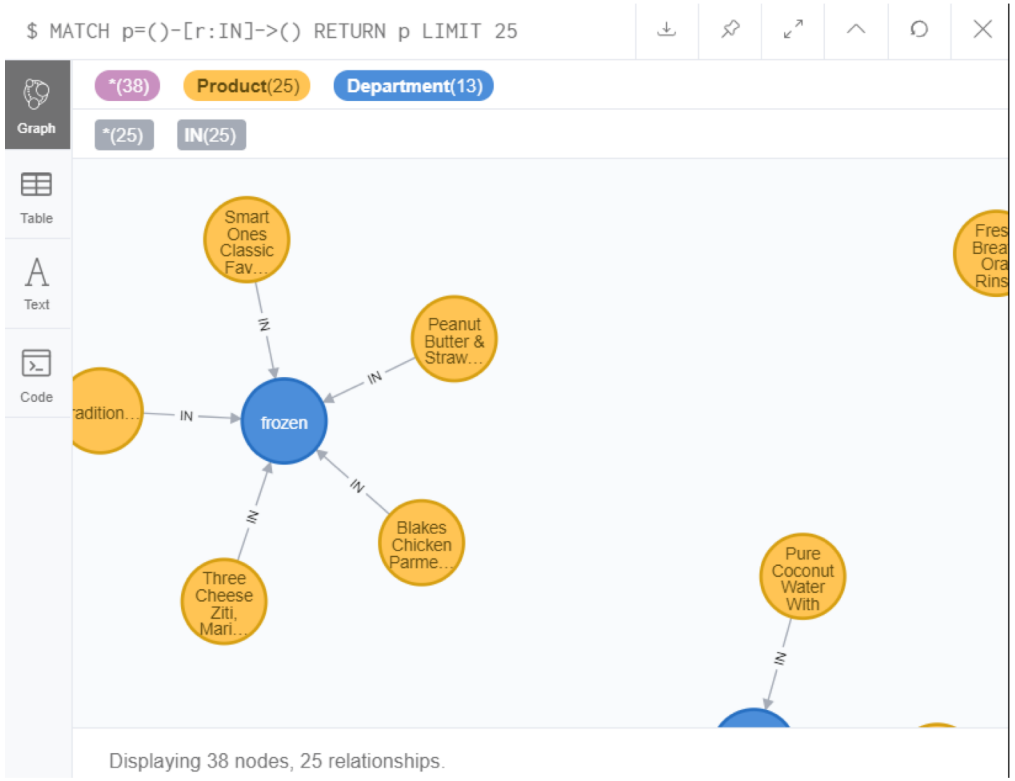
- Competitive advantage in business using Neo4j like ebay's competitive advantage in same-day delivery.

Relations

ON relation

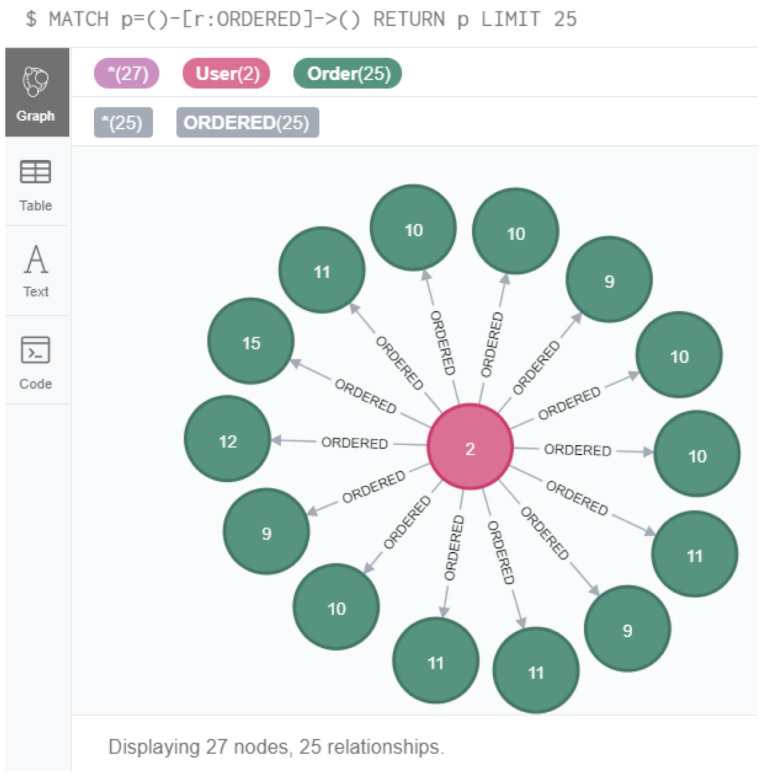


IN relation

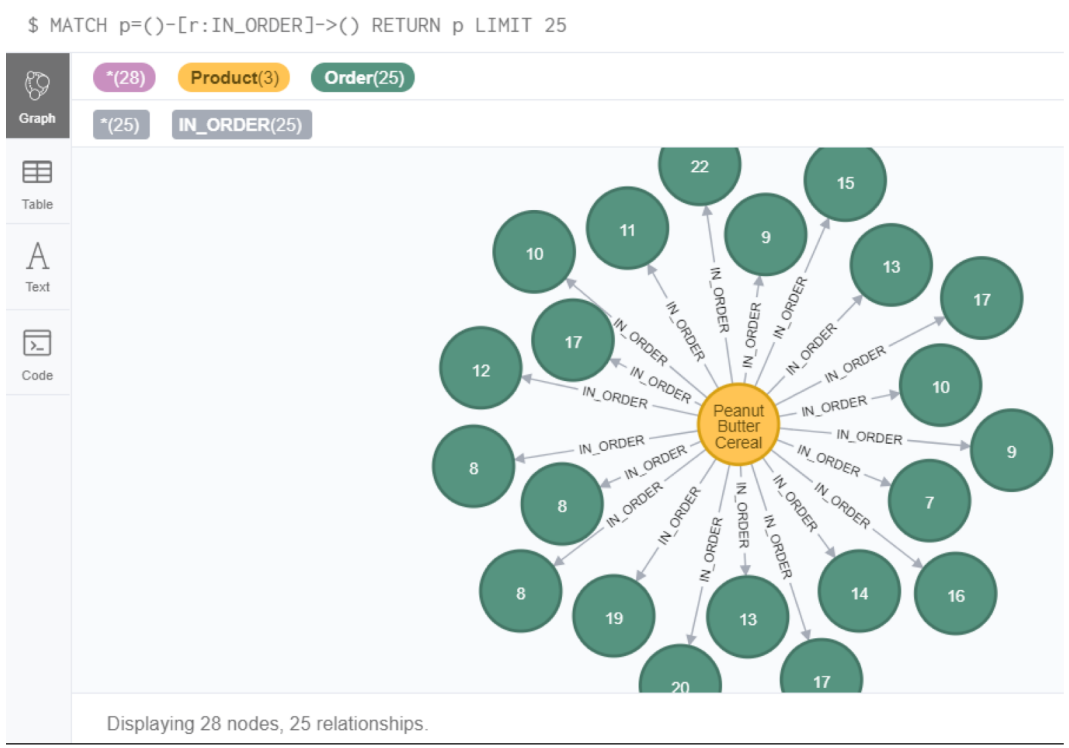


Relations -contd.

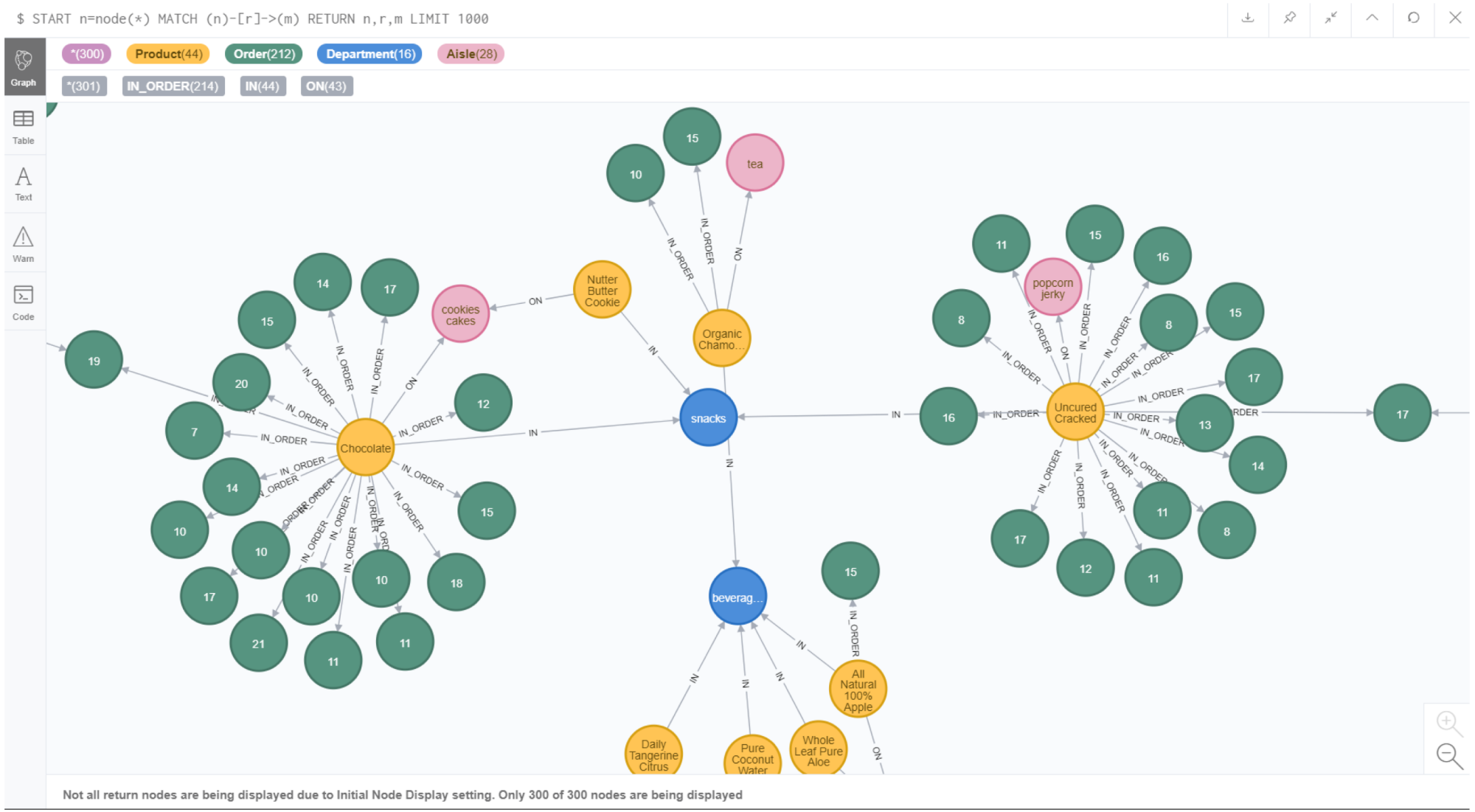
ORDERED



IN-ORDER



Graph Model


$ START n=node(*) MATCH (n)-[r]->(m) RETURN n,r,m LIMIT 1000
Graph
*(300)
Product(44)
Order(212)
Department(16)
Aisle(28)
*(301)
IN_ORDER(214)
IN(44)
ON(43)
Table
Text
Warn
Code
Chocolate
snacks
Uncured Cracked
Organic Chamo...
Nutter Butter Cookie
cookies cakes
tea
popcorn jerky
beverag...
All Natural 100% Apple
Daily Tangerine Citrus
Pure Coconut Water
Whole Leaf Pure Aloe
IN_ORDER
IN
ON
Not all return nodes are being displayed due to Initial Node Display setting. Only 300 of 300 nodes are being displayed