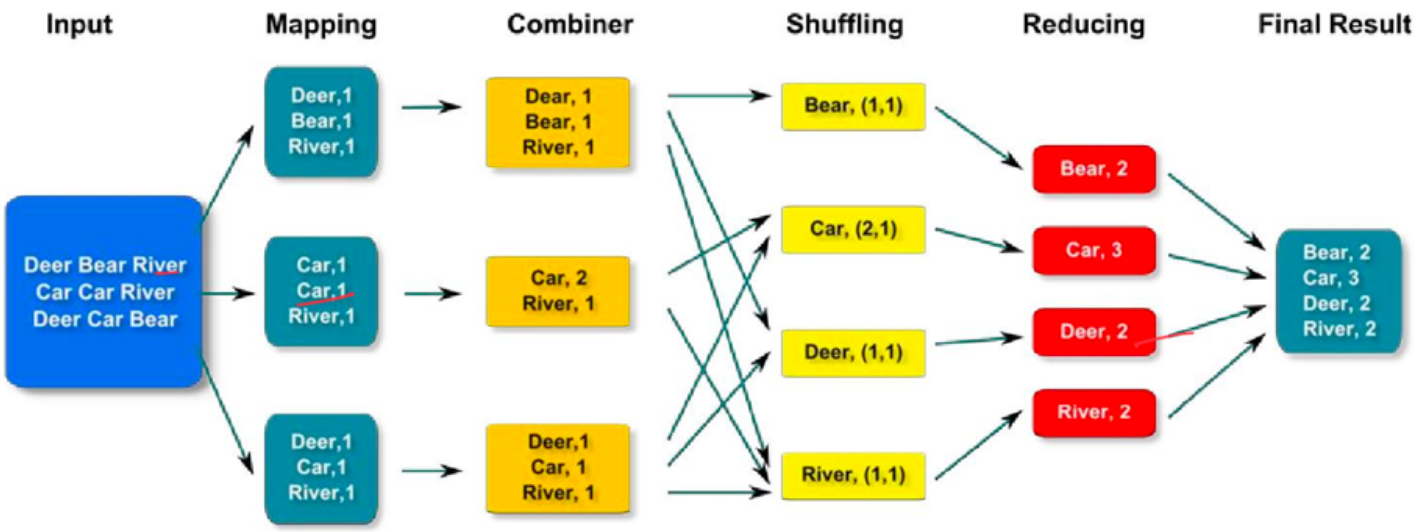
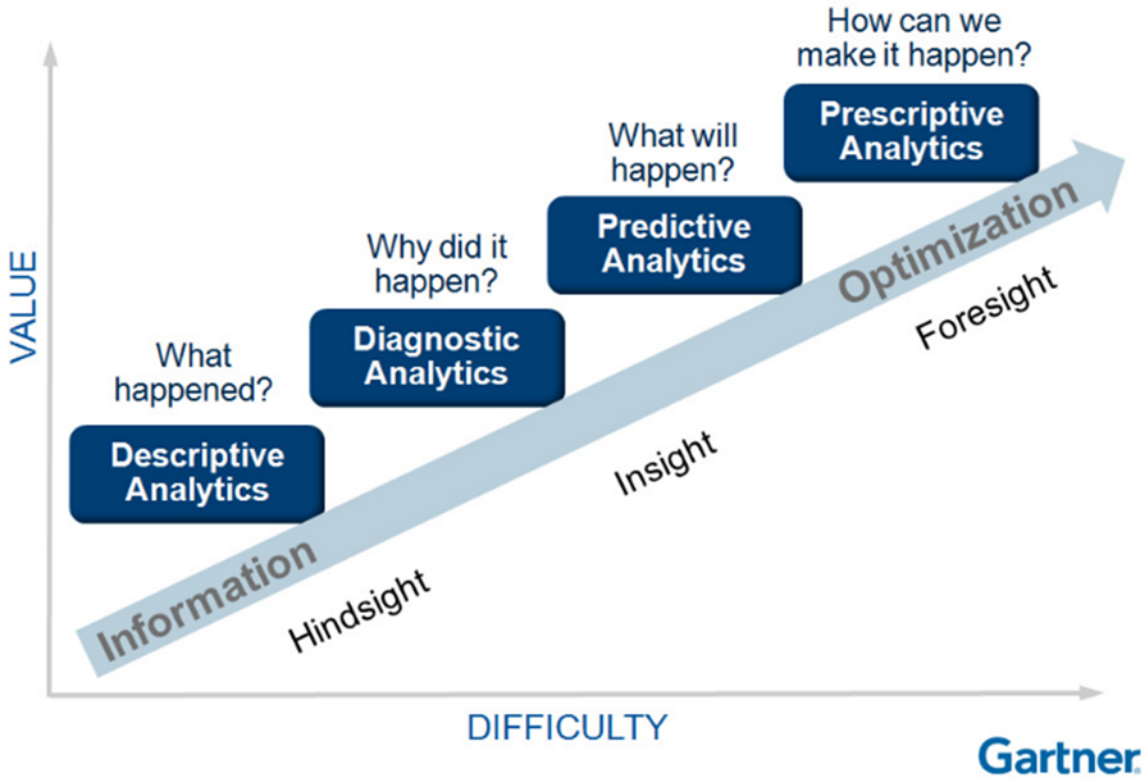
Agenda

Map reduce optimisations
What is OLTP?
Why it is not suitable for Analytics
Introduction to Data warehousing
Why is data warehouse a better option?
How to design a Data Warehouse
Dimensional Modeling Approach

Combiner - Local Reduce



Analytic Value Escalator



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7146	101	0990	23 August 2022	Bangalore	COD	CT	Bangalore	Chennai	Bangalore	B0963RYQSW	1	Adapter	100	1	100	18	118	0

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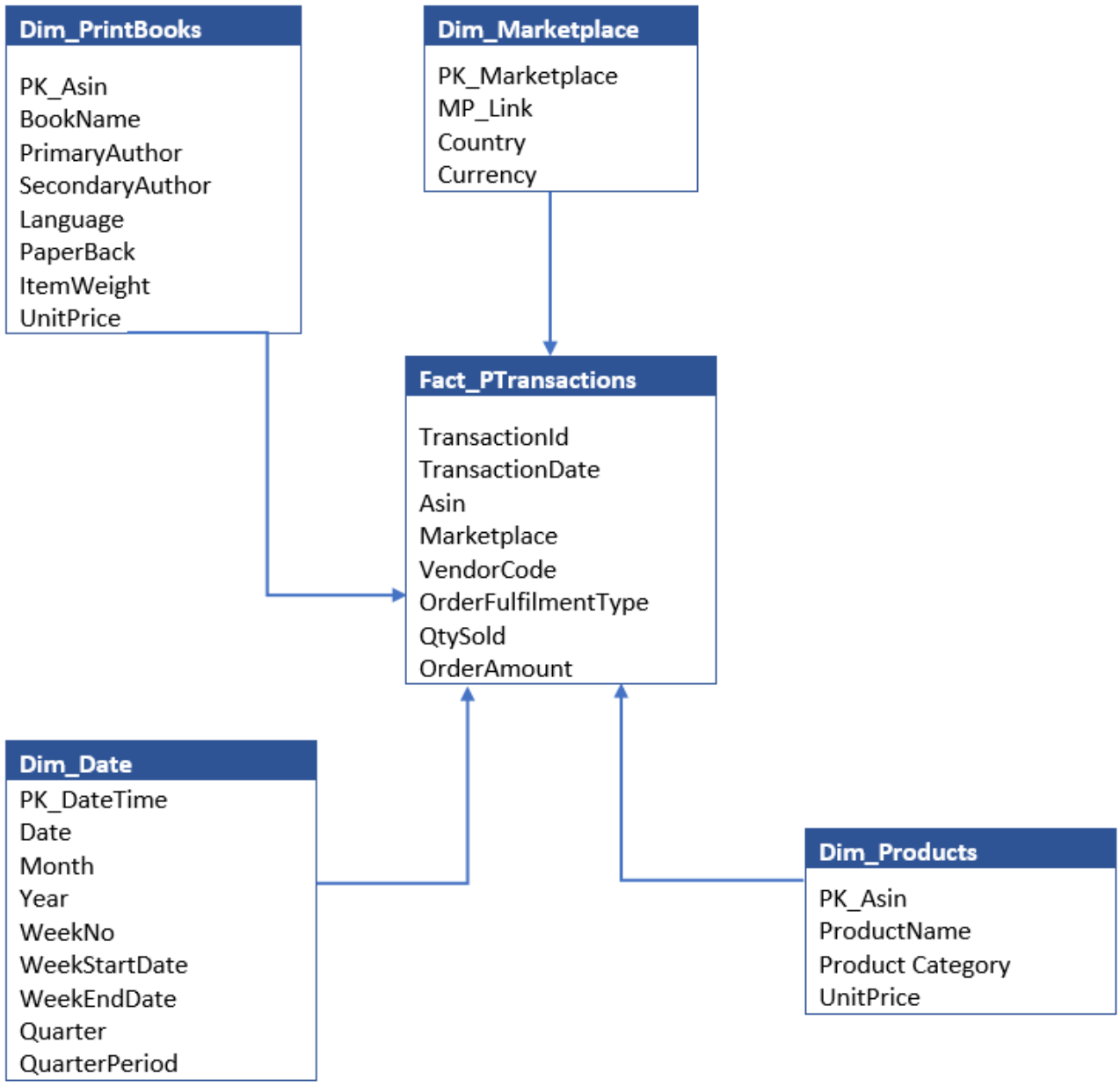

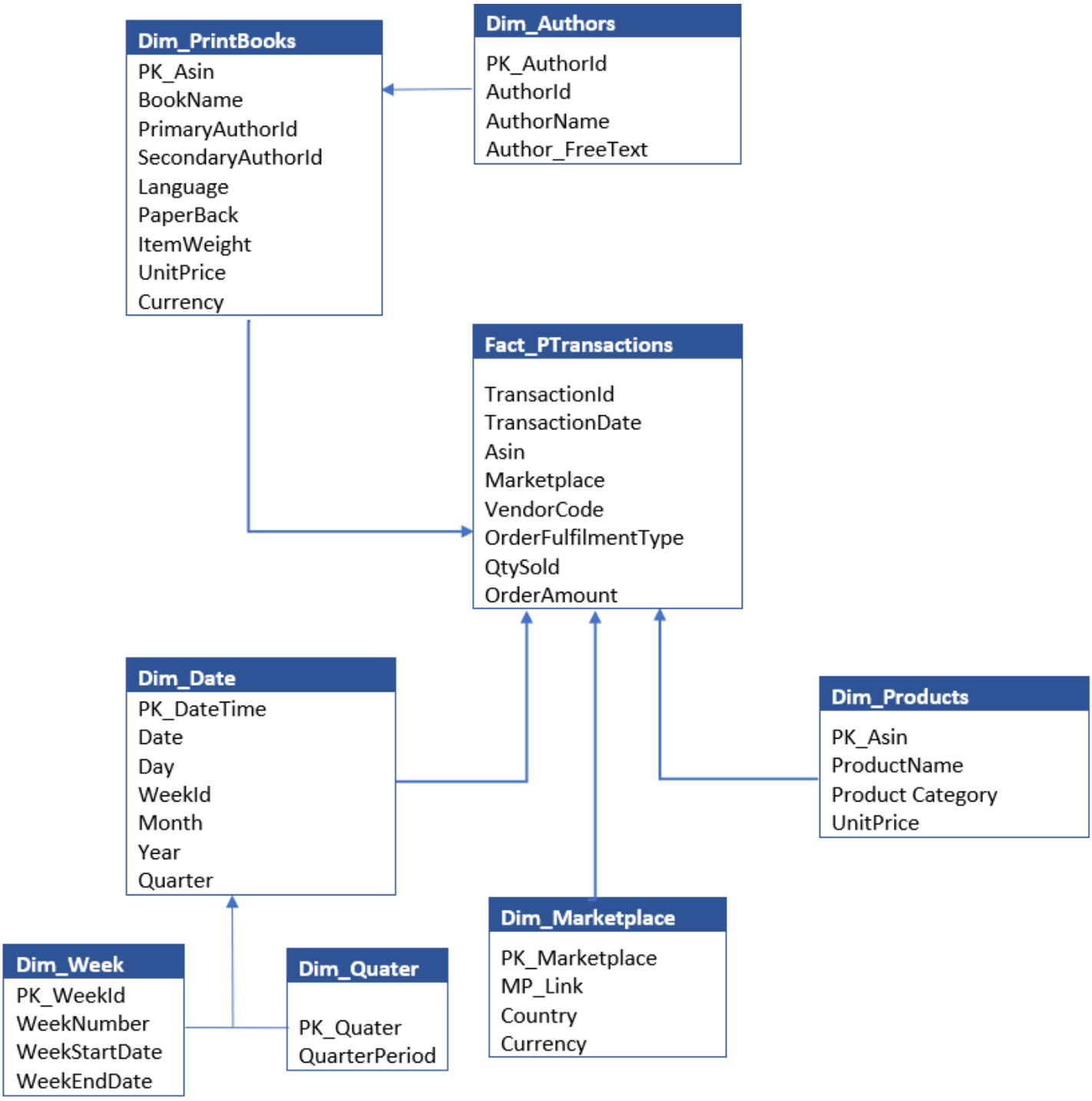
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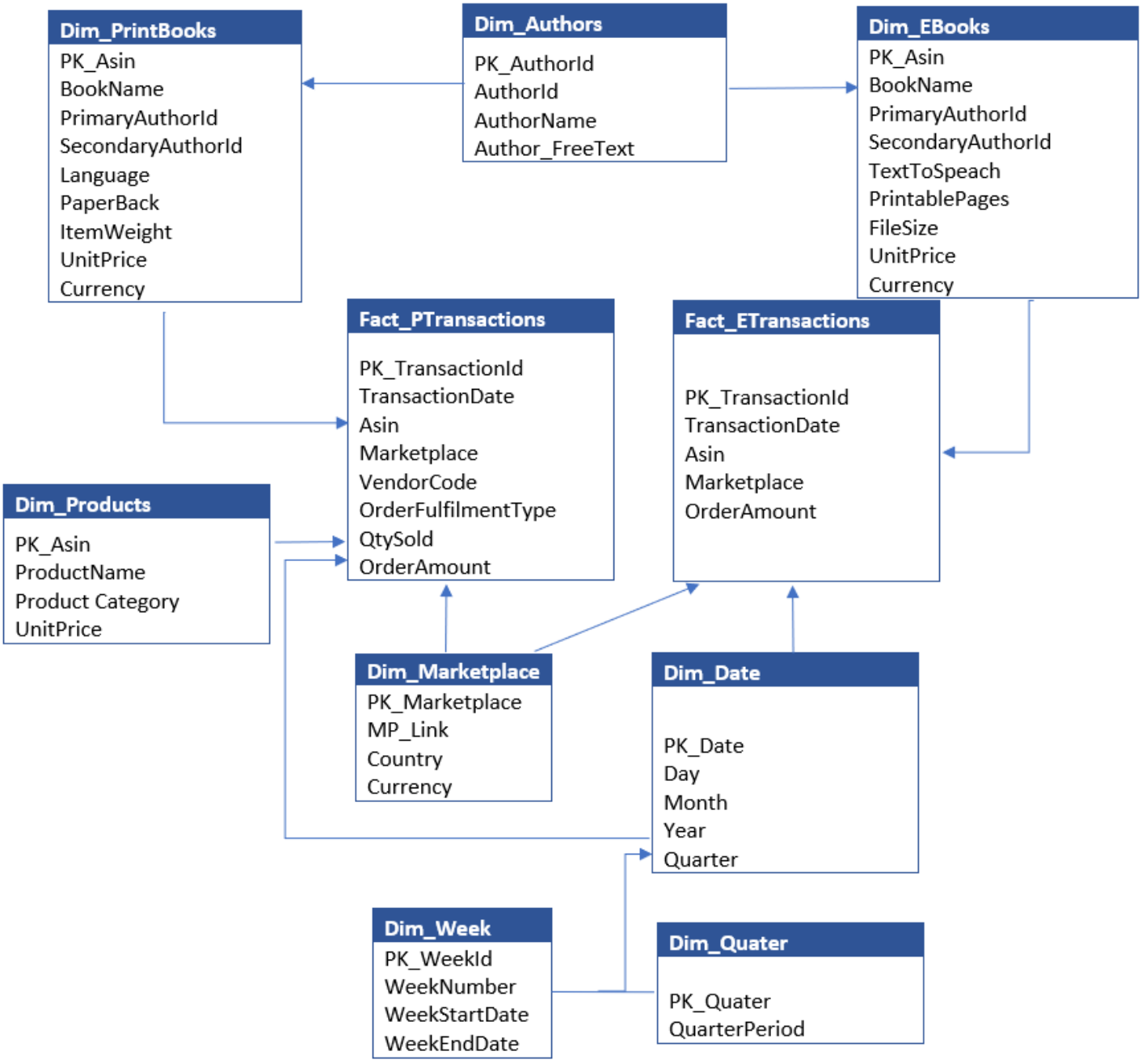
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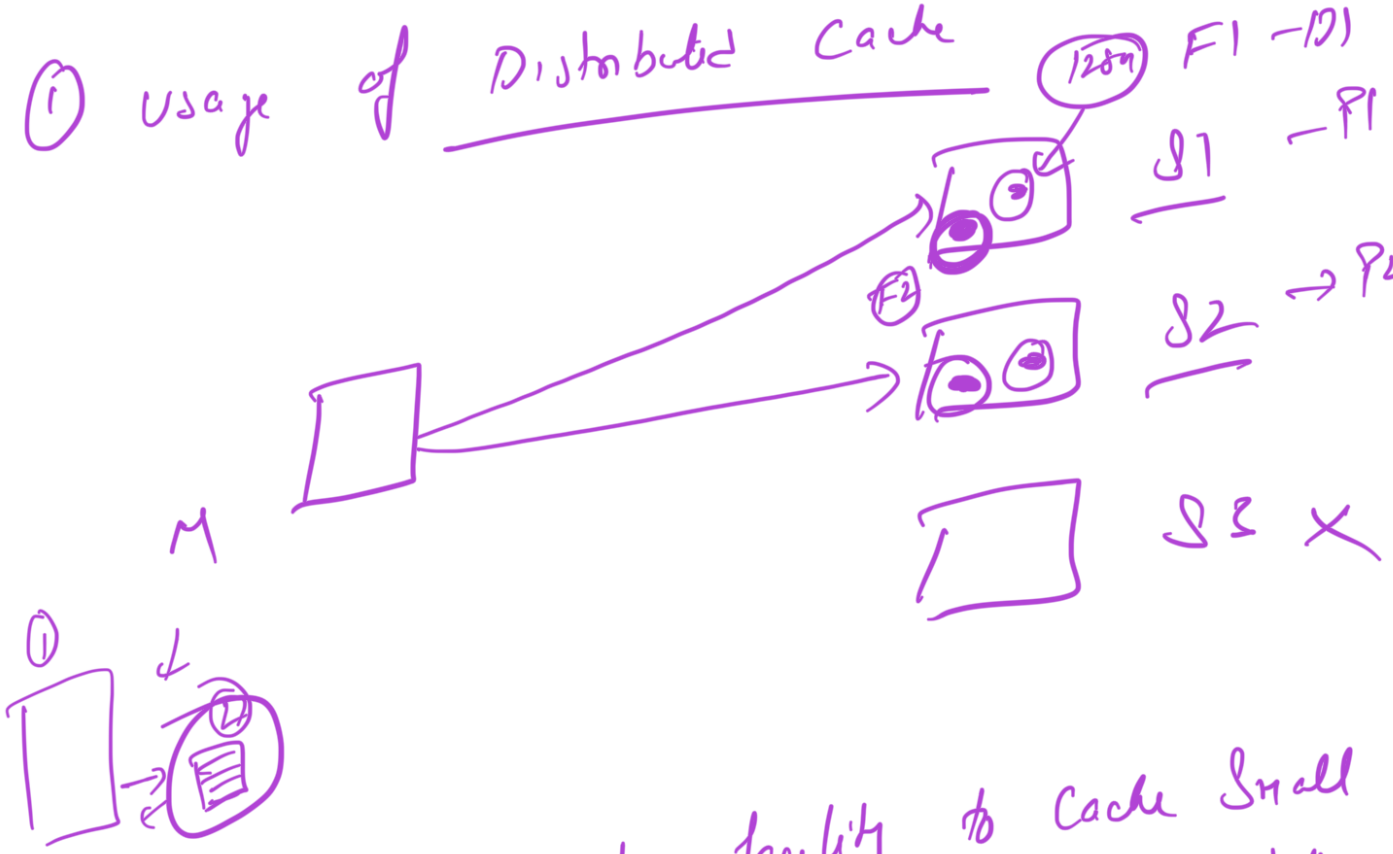
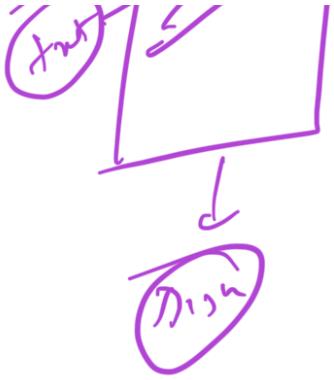
Map Reduce optimizations

① Usage of Distributed Cache



⇒ MR provides facility to cache small to moderate read only files like text, zip, jar.

⇒ Each Datanode gets a copy of the file which is sent through DC. When Jobs gets finished, files are deleted from DN.



5. Take the help from Combiners

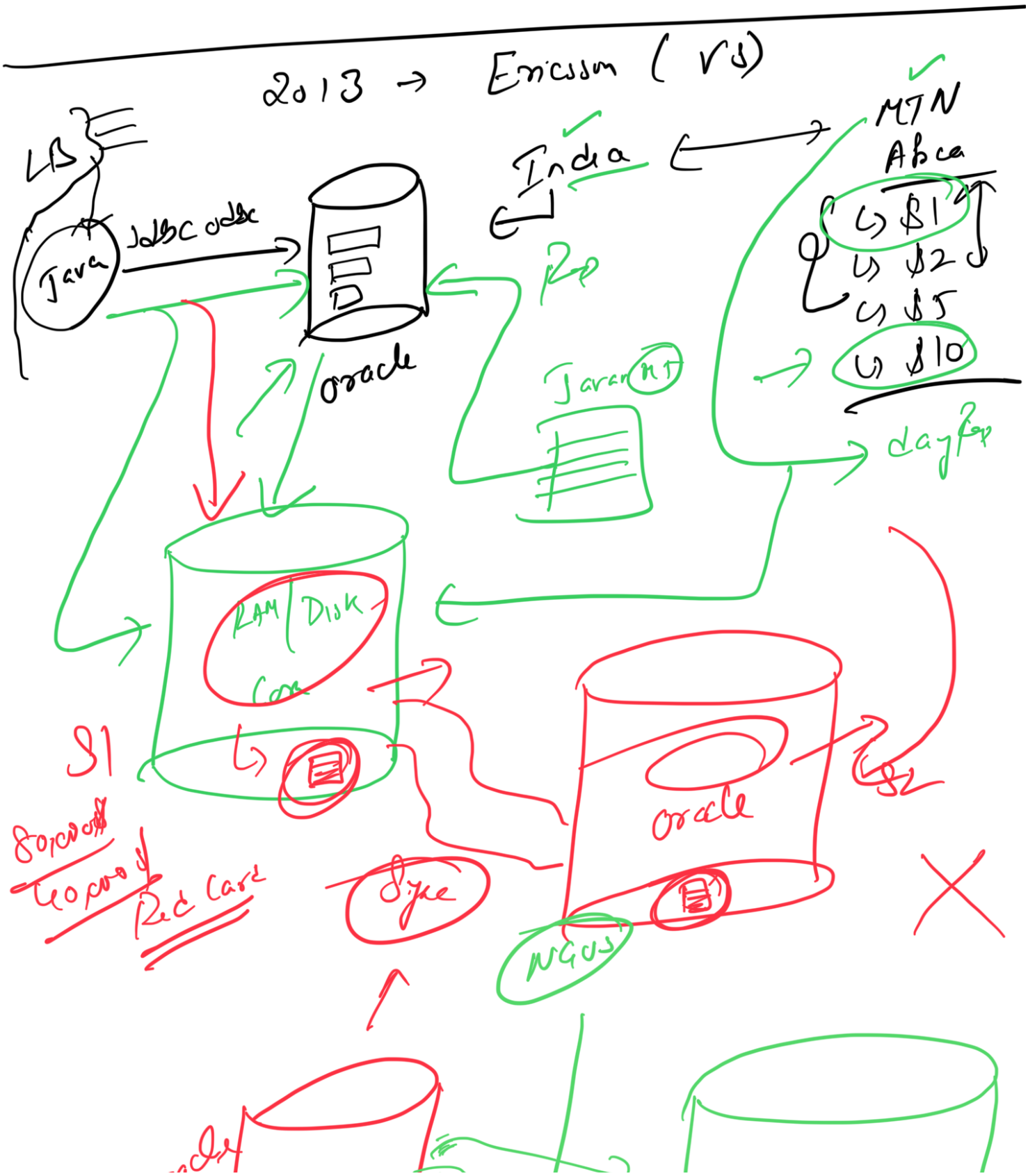
6. mapred.child.java.opts ← Tune
↳ try to avoid swapping
OS → Page Swap

OS
OOM
12GB
↳ 4GB
↳ 8GB → OS

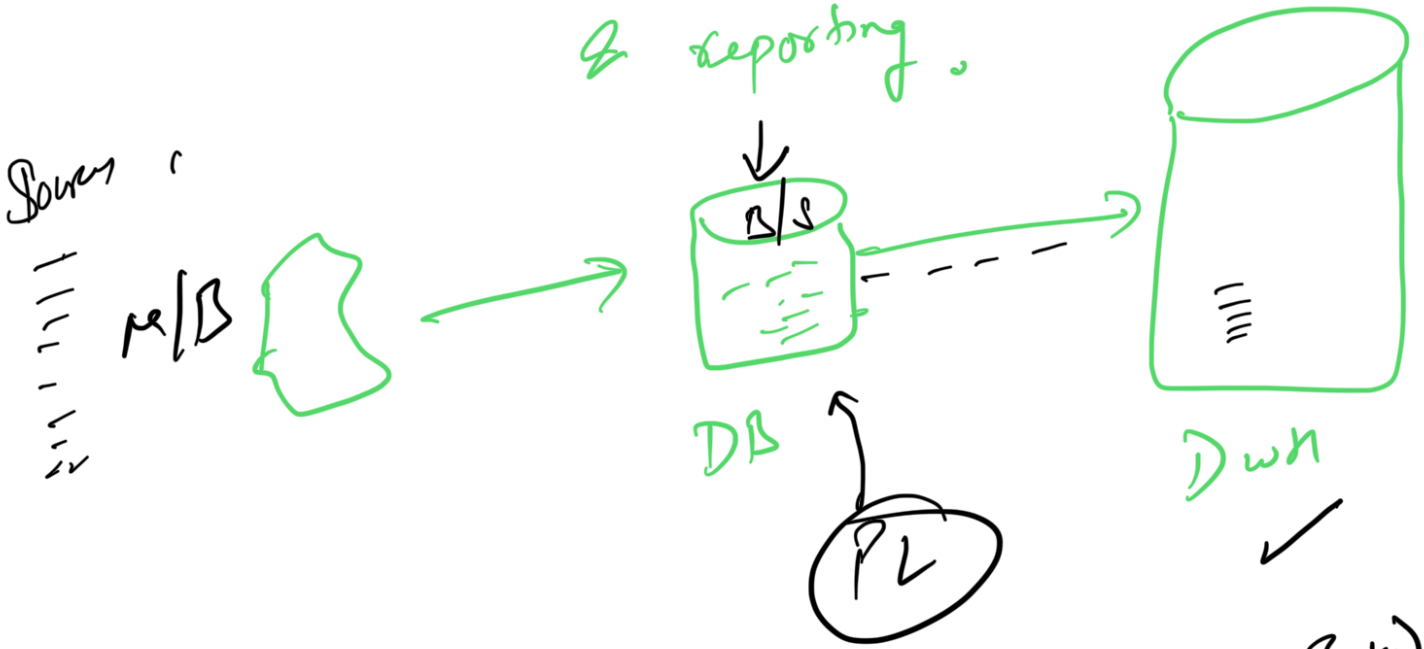
Data Modelling
↳ SQL
↳ Datawarehousing

Amazon Books
↳ physical
↳ e-books

→ what top 10 books sold
→ what other products were frequently bought with books?
→ who are the top authors based on book sales?



DWH :- is a storage unit environment to support BA activities like analysis & reporting.



Design a DWH (Amazon Books)

↳ Books/Books related → Author
↳ Sales → Marketplace
↳ Corporate

↳ Vendor

Dimensional Modeling

↳ is a technique which include a set of methods, practices and concepts to design and store data in a DWH for storage optimization & boost performance.

→ Fact and Dimension

Fact

↳ Facts are measurements / Metrics

Numbers

Books → qty sold
orderAmount
Price
Discount
total stock

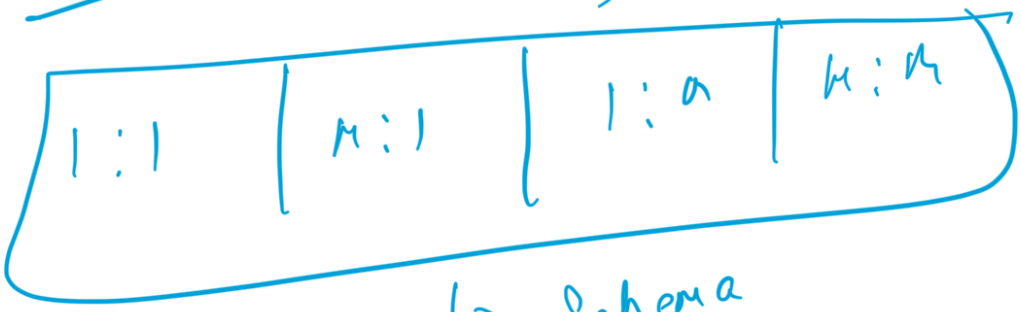
Dimension → provides the context surrounding a business process event, in very simple terms :- when

Who
What
Where
Fact

→ Who – Author, Publishers, Customer
→ Where – location
→ What – Book name

✓ Fact table :- quantitative info

✓ Dimension table :- descriptive info



Sql

↳ Schema

(Sql) (1) Star Schema
(Sql) (2) Snowflake schema
(Sql) (3) Galaxy schema

→ Star Schema :- type of schema that utilizes facts & Dimensions to create a simple yet efficient dimensional

Model.

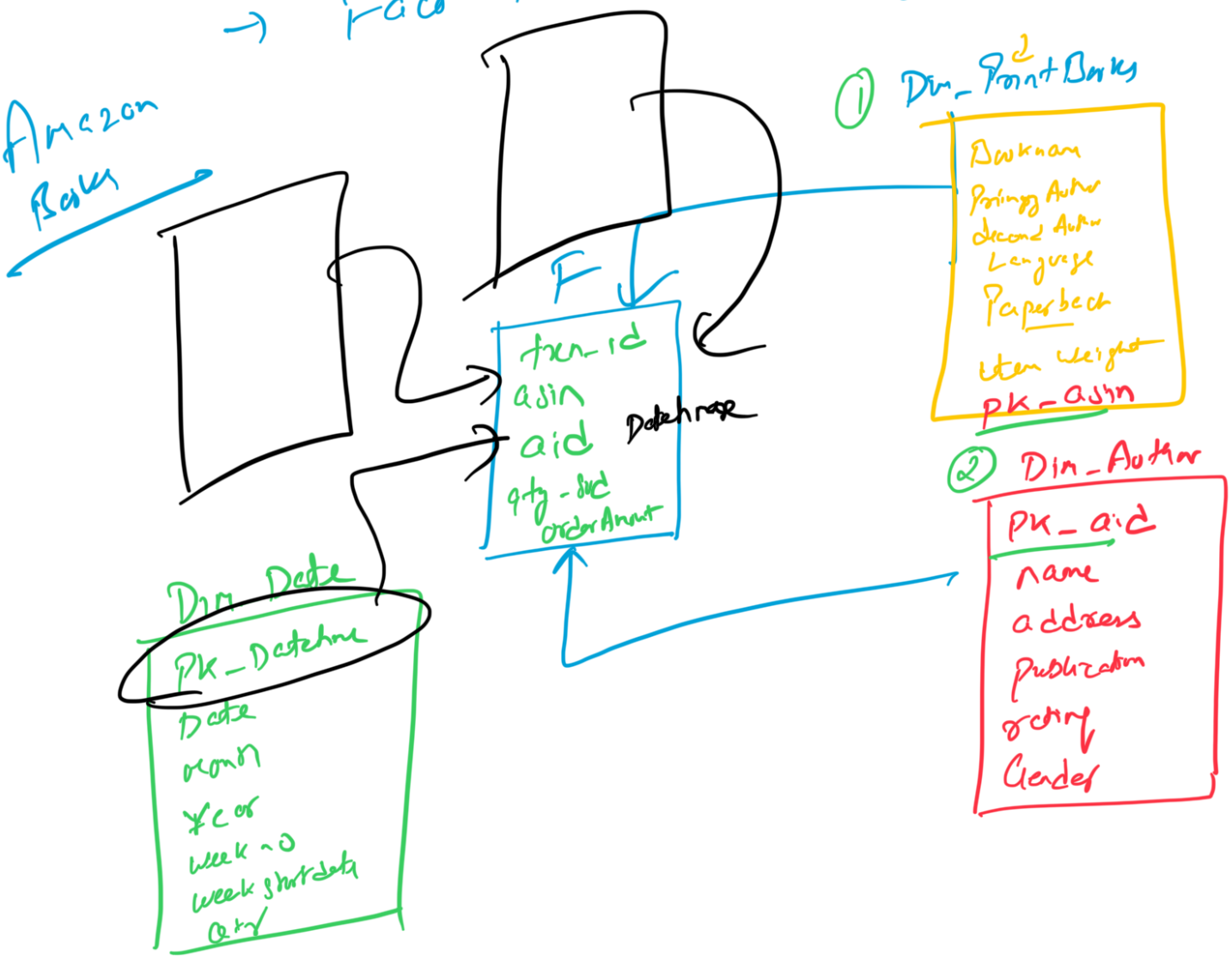
→ Every dimension in a star Schema is represented with only 1 dimension table.

→ Dim. table should contain the set of attributes

→ Dim table is joined to fact table using a FK.

→ Dim table are not joined to each other.

→ Fact table Contain key & measure.



DC	DWH	VDWH
	→ Physical Disk → on-prem	→ Virtual Disk → cloud