1. **Data Marts**

* It is a small part of a data warehouse.
* For example a data warehouse may store about a company’s data about sales, employees and marketing. In this scenario a data mart will hold information about only sales dept.
* While data warehouse deals with whole data of an organization, a data mart is a subset of a data warehouse.
* Data mart makes it easier and quicker to access and search data.
* It has a lower user implementation cost.
* There are 2 kinds of data marts:
  + Independent Data mart:
    - They don’t depend upon data warehouse for gathering their data.
  + Dependent Data mart:
    - They depend upon a data warehouse for fetching their data.

1. **Data Lakehouse**

* A data lakehouse is a hybrid approach between a data lake and a data warehouse.
* A data lakehouse the structured and schema like rules used in a data warehouse and apply those to the unstructured data stored in a Data Lake.
* A data lakehouse makes use to intelligent metadata layers, that act as a sort of middlemen between unstructured data and the data user.
* The role of the metadate layers may be using AI/CV algorithms to classify and understand the contents dumped in the data lakehouse.
* It enables businesses to use unstructured data in their decision making processes.
* Unlike data warehouses, data lakehouses are cheaper to scale.
* The use of data lakehouses is becoming increasingly popular as more companies use AI and ML in their decision making.

1. **Data Mesh**

* In a data mesh we don’t host our data in a central platform, instead we divide it in to domain datasets.
* Some data may be duplicated because of common domains.
* It is based on a “serving and pull model”.
* Data meshes are decentralized unlike other solutions and the ownership of the data lie with >1 entities.

1. **DWH vs Data Lake**

* A data warehouse is used to store structured data.
* Data is loaded in a data warehouse via ETL pipelines from a source of a data
* Maintaining a datawarehouse is expensive.
* A datawaerhouse can’t deal with unstructured data.
* A Data lake Is used to store unstructured data.
* A data lake can store all kinds of data such as videos, audios, pictures unlike data warehouse.
* Maintaining a data lake requires a specialized skillset otherwise it may turn into a data swamp.

1. **OLTP vs OLAP**

* OLTP (Online transaction processing) is a general process that’s used to record transactions.
* OLTP is used to general users to record day to day transactions.
* OLTP is used to store current data in a database, with read and write access.
* OLTP enables to access 100s of records at a time, it is more focused on the data being entered in a database.
* OLAP (Online Analytical processing) is a specialized process used for analyzing existing data.
* OLAP is aimed at specialized users whose job is to find specific data trends.
* OLAP focuses on historical data in a database.
* OLAP is focused on the information that is pushed out of the system, the emphasis is more on the access of data (millions of data records in some scenarios)