

Internal Exam Revision: (Topics)

i) Types of dataware house architecture:

> It consists of 3 types.

1. Single-Tier,
2. Two - "
3. Three - "

i) Single-Tier :

> It combines the data storage and processing layer into a single system.

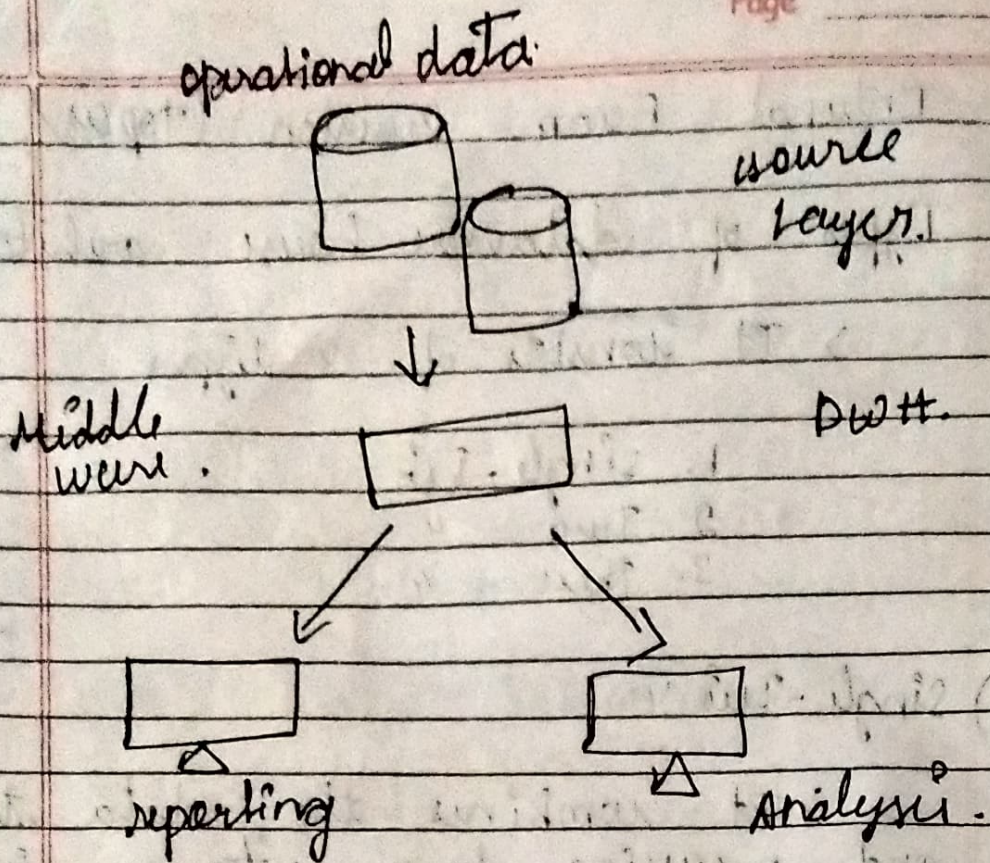
> This architecture is not used for practice.

It purpors

> ~~kind~~ is to minimize the amount of data stored. To reach this goal, it removes data redundancies.

> The only layer physically available is source layer.

> Here the data cube is virtual. It means the DWH is implemented as a multidimensional view of operational data. made by specific middleware.



> This architecture is a failure because it does not separate OLAP & OLTP.

> Analysis queries taken from o/p data where middleware interprets them, so these queries affect transaction workload.

2) Two - Tier :

> It separates the database from the application. The first tier is the client and the second tier is the server.

> Client UI → user interaction

> Server UI → data stored and managed

Layers:

- * Source Layer

- * Data staging

- * DWH Layer

- * Analysis

Source Layer:

> A DWH system uses a heterogeneous source of data.

> Sources can include transactional DB, external data, flat files, etc...

Data staging:

> It is a temporary storage area where data is cleaned, transformed and integrated before being loaded into the data warehouse.

✓ ETL process is done

Data warehouse:

> It is called as central repository for all the data collected from various sources.

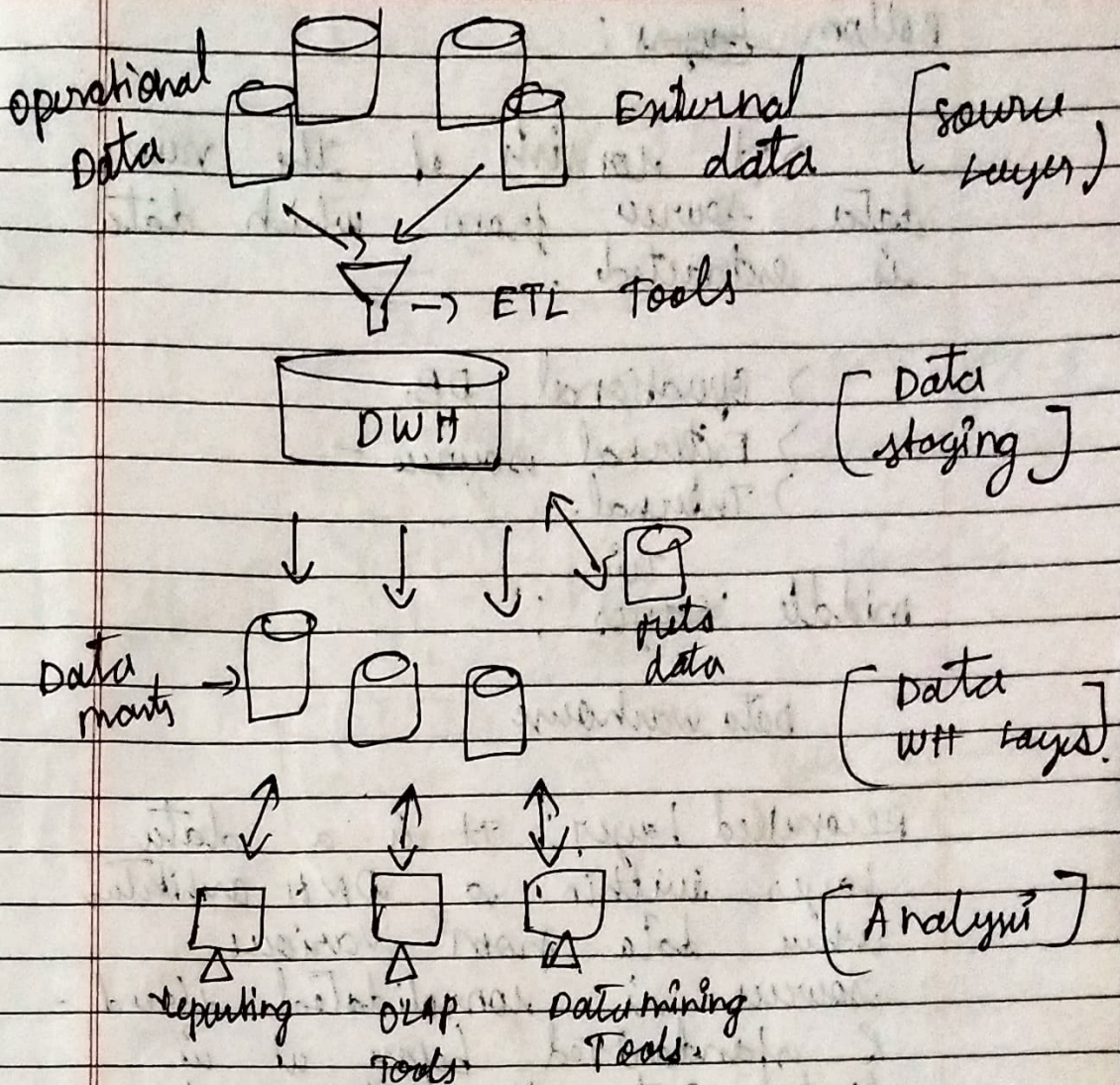
> It can directly accessed and it acts as a source for data marts.

> Meta-Data repository stores information on sources.

Analysis:

> In this layer, the integrated data is efficiently. It should aggregate information.

> Also called as presentation layer.



3) Third - Tier :

> It consists an additional layer b/w the client and the data base.

> Layers :-

* source data

* Recorried "

* DWH Layer.

* Analysis.

Tier:

Bottom ~~layer~~:

> It consists of the raw data source from which data is extracted.

> Operational DB.

> External sources -
Internal.

Tier

Middle ~~layer~~:

Data Warehouse

Reconciled Layer: It is a data layer within a DWH architecture where data from various sources is consolidated, cleaned & standardized before it is loaded into the data warehouse.

Top Tier:

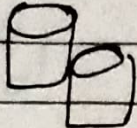
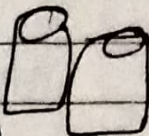
Analysis:


BI Tools → create reports, dashboards & visualizations.

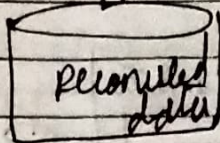
Eg: Power BI, Tableau,

Query Tools → To run ad-hoc queries.

Eg: SQL, OLAP Tools.

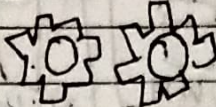
OD  Ed.  Source Layer.

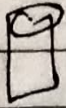
 ETL Tools

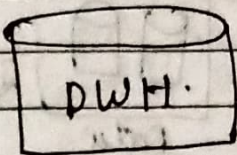
 Reconciled data

Data staying
reconciled layer.

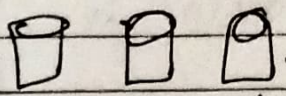
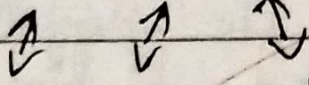
Loading.

ETL Tools. 


ETL Tools

 DWH.

Data warehouse
Layer.

Data
Market 


Analysis.

Report
Tools OLAP
Tools DM
Tools.