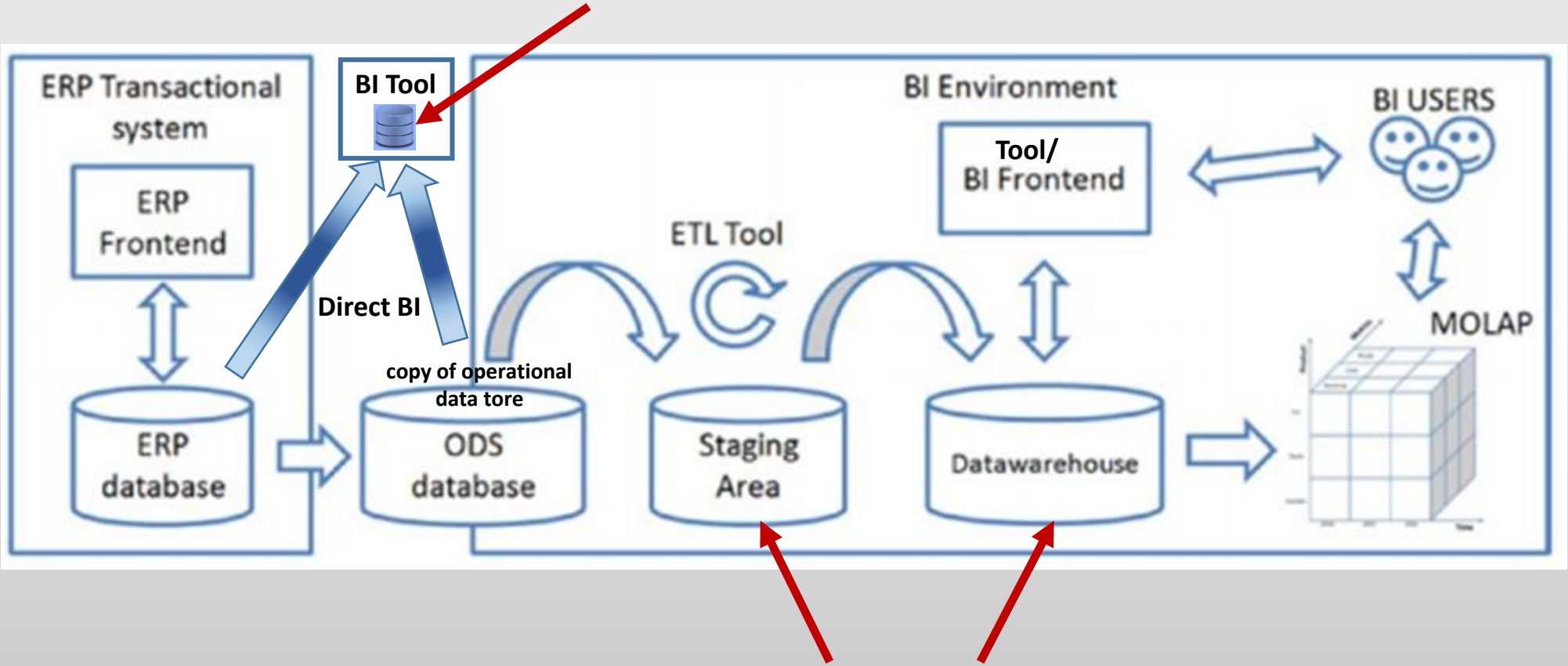
HFBI – WS2 – DATA MODELLING

4.8.2021

Dr. Auvo Finne

TARGET DATABASES

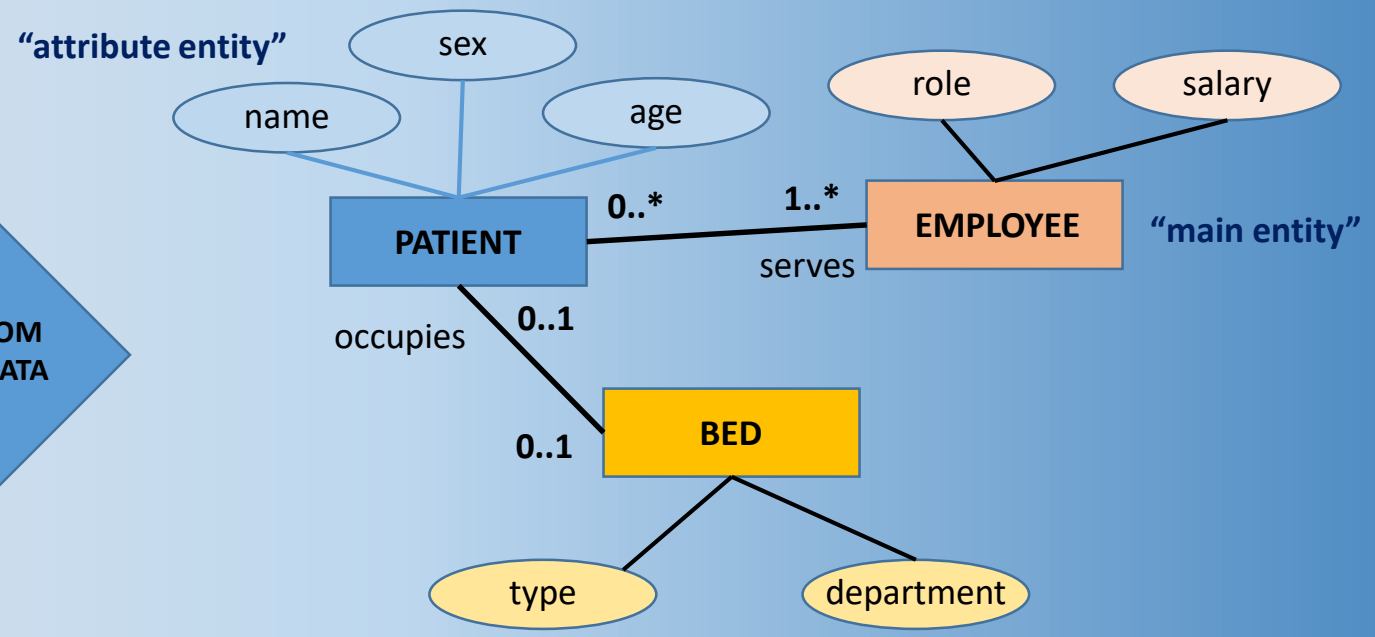


CONCEPTUAL BUSINESS MODEL FOR BI

(ER-MODEL, KEY ENTITIES, ATTRIBUTES AND RELATIONSHIPS EMBODYING THE GOALS AND KPIs)

BIZ ANALYSIS
***PROCESSES**
***GOALS**
***KPIs**
***DEPENDENCIES**

"ABSTRACT" FROM OPERATIONAL DATA



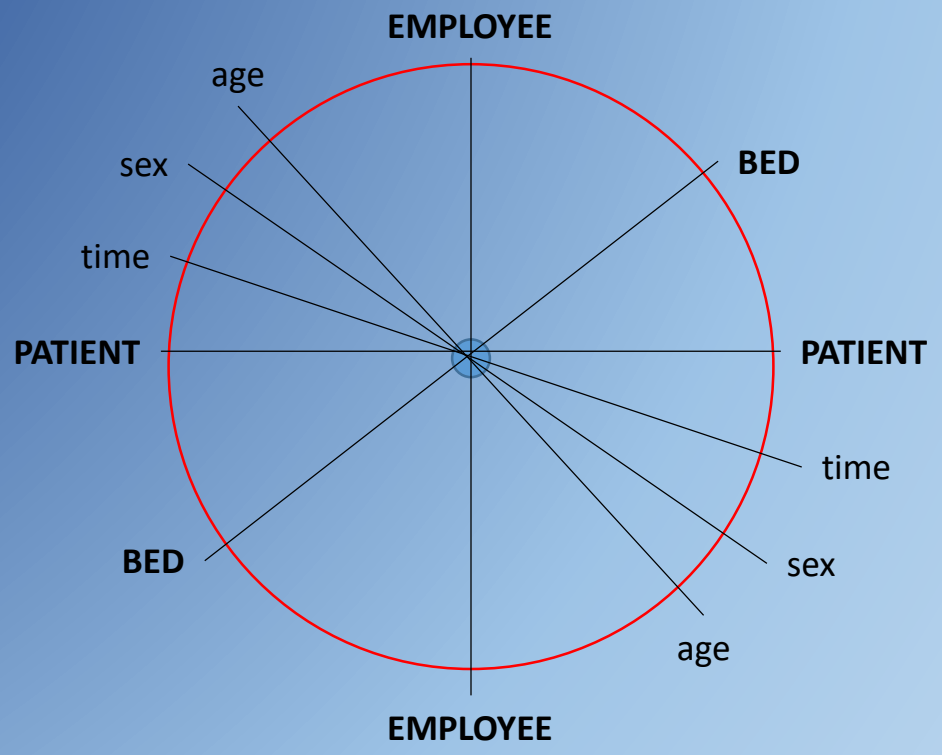
(TECHNOLOGY INDEPENDENT)

DIMENSIONS

KEY HFBI ENTITIES AND ATTRIBUTES CAN BE VIEWED AS MULTIPLE INTERSECTING DIMENSIONS

6-DIMENSIONAL ENTITY-ATTRIBUTE SPACE

(difficult to represent graphically)



(TECHNOLOGY INDEPENDENT)

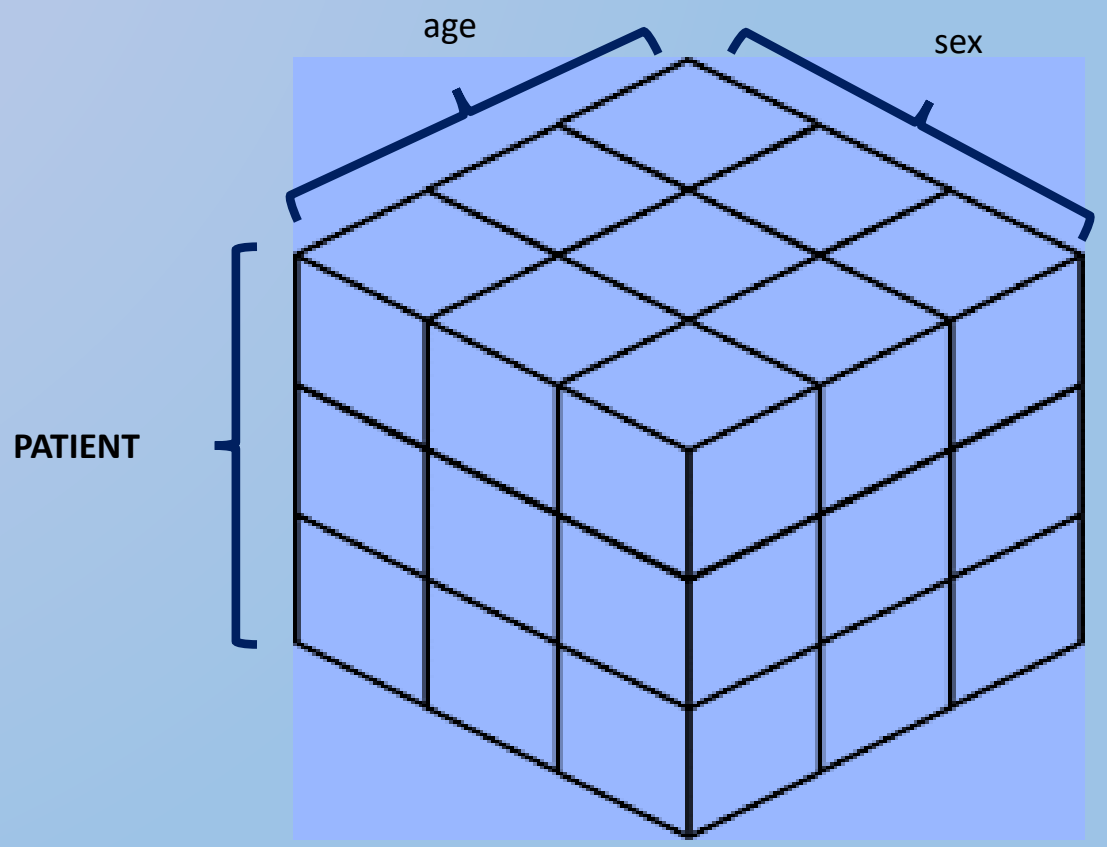
IF YOU TRAVEL ALONG ONE OF THE DIMENSIONS, YOU ENCOUNTER OTHER INTERSECTING DIMENSIONS WITH A VALUE

IN THE EXAMPLE DIAGRAM, IF THERE IS AN INPATIENT WHO IS AS WELL AN EMPLOYEE, ALL SIX DIMENSIONS INTERSECT

CUBE-VIEW

3-DIMENSIONAL SPACE IS TRADITIONALLY REPRESENTED AS AN OLAP CUBE

OLAP = ONLINE ANALYTICAL PROCESSING



MORE THAN 3-DIMENSIONAL CUBE IS CALLED HYBERCUBE

(TECHNOLOGY INDEPENDENT)

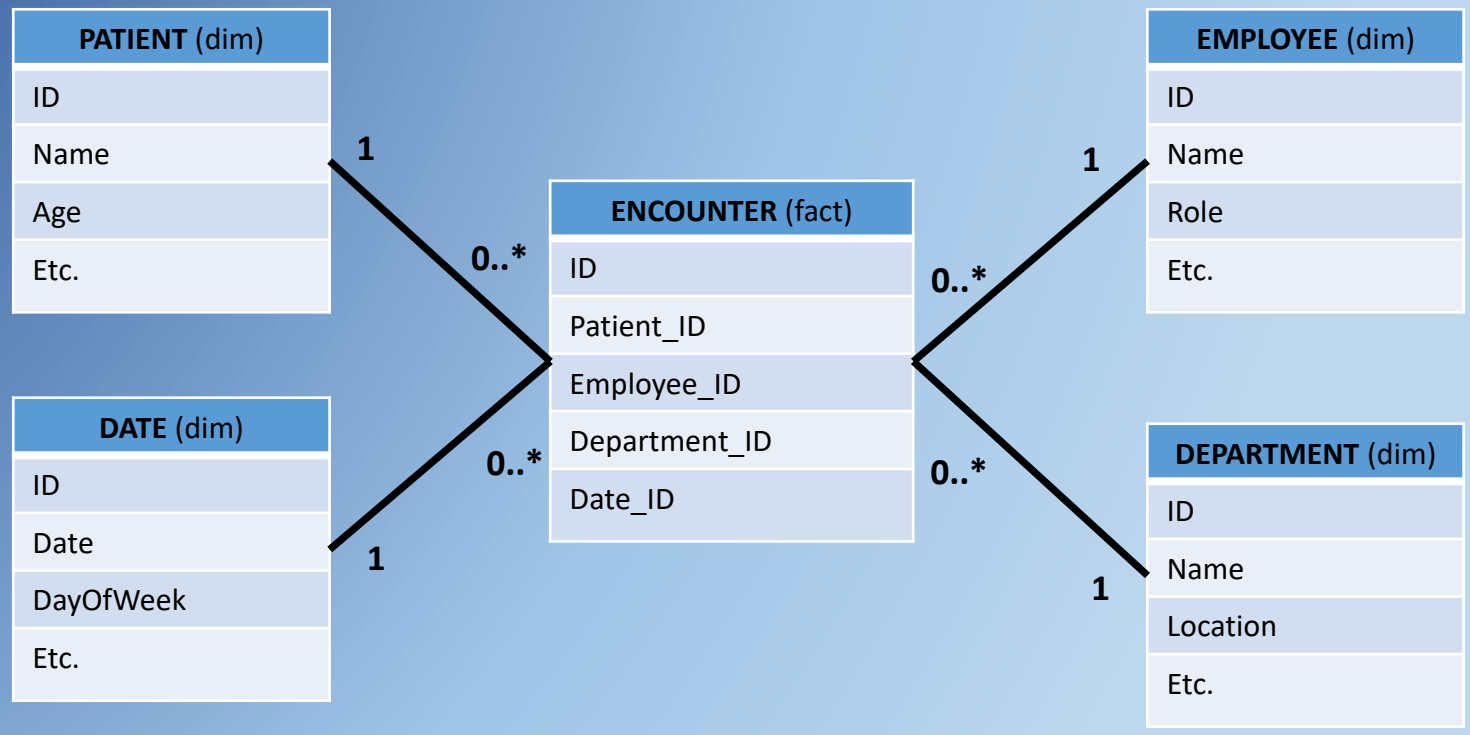
“STARS” AND …

CONCEPTUAL ANALYSIS NEEDS TO BE TURNED INTO A DATA MODEL (SCHEMA) FOR BI

FOLLOW SOME NAMING CONVENTION! (Nogues p.117)

IN A STAR SCHEMA THE CONCEPTUAL MODEL IS DIVIDED INTO FACT AND DIMENSION TABLES

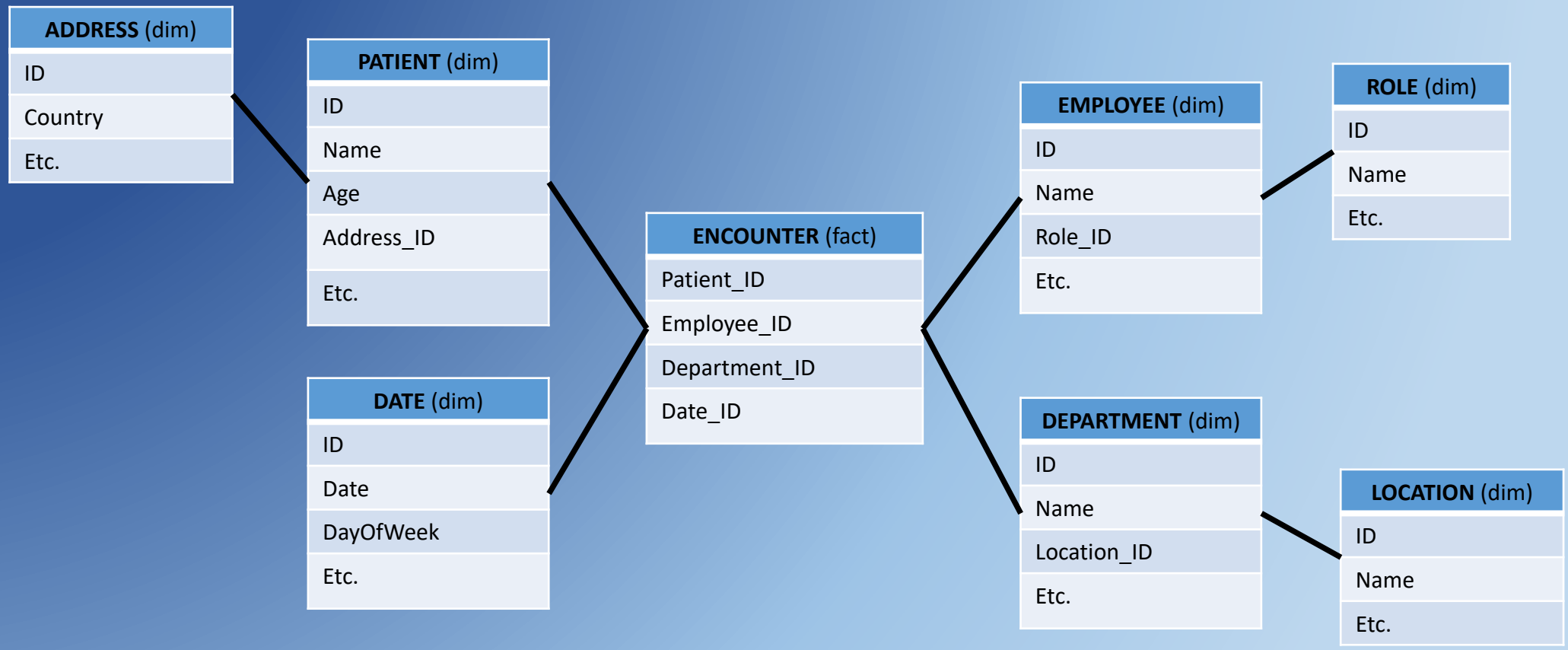
FACT TABLES TYPICALLY RECORD TRANSACTIONS AND DIMENSION TABLES THE ATTRIBUTES OR COMPONENTS



STAR AND SNOWFLAKE SCHEMAS IMPROVE SPEED AND SIMPLICITY REGARDING DATA ANALYSIS

…"SNOWFLAKES"

STAR-SCHEMA CAN BE EXPANDED INTO A SLOWFLAKE-SCHEMA



STAR AND SNOWFLAKE SCHEMAS IMPROVE SPEED AND SIMPLICITY REGARDING DATA ANALYSIS

BY EXPERIMENTING WITH DIFFERENT DATA MODEL OPTIONS ONE CAN FIND THE BEST PERFORMING ALTERNATIVE FOR THE BI CASE AT HAND

USE INDEXING, VIEWS AND DENORMALIZATION

Views store query specifications for reuse.
A view is like a virtual table.

Denormalization means bringing back some redundancy.
in the name of performance. In practice it is often done
by combining some data from multiple tables into one.

Indexes are a way of helping to find
particular rows in db-tables quickly.