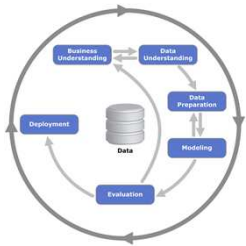


Data Transformation

(ETL and Data Behavior)





Requirements Development Management
(RDM) for

Business Data

Analytics

(The Language of Data)

Requirements Agenda

Business Data Analytics "The Language of Data"

01-FOUNDATION

- **LAB-Introductions (Name, Job Title, Objectives)**
- Dashboards and Robots (Data Mining & Machine Learning)
- Requirements and Testing (Four Quadrants)
- What are Structured Language Requirements? (Structured English and Structured Query Language)
- Why Should You Care? (Primary Source of Project Problems)
- How Do They Work? (Discreet Intellectual Property Inventory)
- Types of Requirements (Product, Project, DATA)
- Natural Language Processing (Morphology, Semantics, Syntax and Linguistics)
- OMG-SBVR (Semantics of Business Vocabulary & Rules)
- IEEE-EARS (Easy Approach to Requirements Syntax)
- INCOSE (Rules for Writing Requirements) & QVscribe
- Waterfall and Agile (Assembly Methods)

02-ELICIT

- **LAB-Vision/Scope (Seek to Understand)**

Elicitation Techniques:

- Document Analysis (Low Hanging Fruit)
- Interface Analysis (Navigation & Functionality)
- Benchmarking (Actual Data)
- Brainstorming (Every Idea is a Good Idea until it becomes a Bad Idea)
- Prototyping (Minimum Viable Product)
- Reverse Engineering (Begin with the End in Mind)
- Interview (Thinking Questions)
- Workshop (Group Interviews)
- Observation (What do you See?)
- Survey Questionnaire (Paper equals proof)

03-ANALYZE

- What are Models? (Pictures of Language)
- **LAB-The Language of Modeling (GIVEN pre WHEN process THEN output-result)**
- Types of Models (Context-Structure, Usage, Data Behavior, Process Flow)
- Context-Structure (Vision, Roadmap, Scope WBS)
- Usage (EPIC, UseCase, UserStory, Feature)
- Data Behavior (ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence)
- Data Behavior (Data Dictionary, DataFlow, Data Structure Instance, Data Element Attribute, Data Store)
- Data Behavior (Process Logic, Business Rules)
- Process Flow (Swimlane)

04-DOCUMENT

- Categorization, Organization, Documentation, Integration, Automation
- Making Documents Easy to Read (Fonts & Navigation)
- Document Types (BRD, TRD)
- **LAB-Business Requirement Document (Concept of Operation)**
- Technical Requirement Document (System Specification)

05-VALIDATE

- Validation thru Triangulation (Prep Drills)
- Traceability (Project Unique Identifier)
- Requirements Baseline (ROM Estimate, Planning Estimate, Definitive Estimate)
- **LAB-Estimating Story Points (Complexity and Risk)**
- Lessons Learned (Course Wrap-Up)

Project Management Agenda

Business Data Analytics “The Language of Data”

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 - INCOSE (Rules for Writing Requirements) & QVscribe
 - Waterfall and Agile (Assembly Methods)
 - About PowerBI (Business Intelligence)

- ENVISION (Initiate)**
- 01-Understand the Business Need**
- **Determine BUSINESS OBJECTIVES**
 - Background
 - Business Objectives
 - Success Criteria
 - **Assess SITUATION**
 - Inventory of Resources
 - Requirements, Assumptions, and Constraints
 - Risks and Contingencies
 - Terminology
 - Costs and Benefits
 - **LAB-Charter Vision**
- PLAN (Increment Zero)**
- 02-Understand the Data**
- **Collect INITIAL DATA**
 - Data Collection Notes
 - **Describe DATA**
 - Data Description Notes
 - **Explore DATA**
 - Data Exploration Notes
 - **Verify DATA QUALITY**
 - Data Quality Notes
 - **LAB-WBS Roadmap**

- DEVELOP (Execute)**
- 03-Prepare the Data**
- **Select DATA**
 - Rationale for Inclusion/Exclusion
 - **Clean DATA**
 - Data Cleaning Notes
 - **Construct DATA**
 - Derived Attributes
 - Generated Records
 - **Integrate DATA**
 - Merged Data
 - **Format DATA**
 - Reformatted Data
 - **LAB-Duration Story Points**
- 04-Model the Data**
- **Select MODELING TECHNIQUES**
 - Modeling Technique
 - Modeling Assumptions
 - **Generate TEST DESIGN**
 - Test Design
 - **Build MODEL**
 - Parameter Settings Model
 - Model Description
 - **Assess MODEL**
 - Model Assessment
 - Revised Parameter Settings
 - **LAB-Risks & Release Schedule**

- STABILIZE (Control)**
- 05-Evaluate the Data**
- **Evaluate RESULTS**
 - Assess the Results against the Business Success Criteria
 - **Review PROCESS**
 - Review of Process
 - **Determine NEXT STEPS**
 - List Possible Actions
 - Decision
 - **LAB-One Page Project Manager (OPPM)**
- DEPLOY (Close)**
- 06-Deploy the Solution**
- **Plan DEPLOYMENT**
 - Deployment Plan
 - **Plan MONITORING & MAINTENANCE**
 - Monitoring & Maintenance Plan
 - **Produce FINAL REPORT**
 - Final Report
 - Final Presentation
 - **Review PROJECT PLAN**
 - Experience Documentation
 - **LAB-Lessons Learned (Train the Trainer)**

Software + Workflow + Huge
Integration + Automation = Profits

Click on a Scriptable Application to learn more.

AppleScript	Extensis Portfolio	MS Excel	Adobe Acrobat	Roxio Toast	Powerfile MediaFinder	Palm	VSE BeFound				
Virtual PC	Internet Explorer	Now Up to Date	MacProject	Graphic Converter	FileMaker	Now Contact	FunnelWeb				
Adobe Photoshop	Userland Frontier	Click on a Scriptable Application to learn more.				Netscape Navigator	Norton DiskDoctor				
Quark Xpress	DeBabelizer					Scripter	FastTrack				
Macromedia FireWorks	LetterRip					Deneba Canvas	Virex				
MS Exchange	Dantz Retrospect	Cleaner Pro	FlightCheck	Script Debugger	MS Project	Stuffit Expander	AccountEdge	CD Finder	Quokeys	Canto Cumulus	Macromedia DreamWeaver
Sherlock	FinalCut Pro	QuickTime	BeMail	FindIt	InDesign	Timbuktu	Finder				

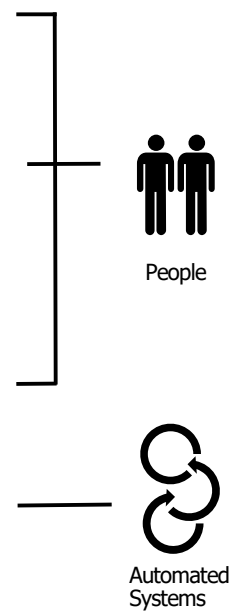
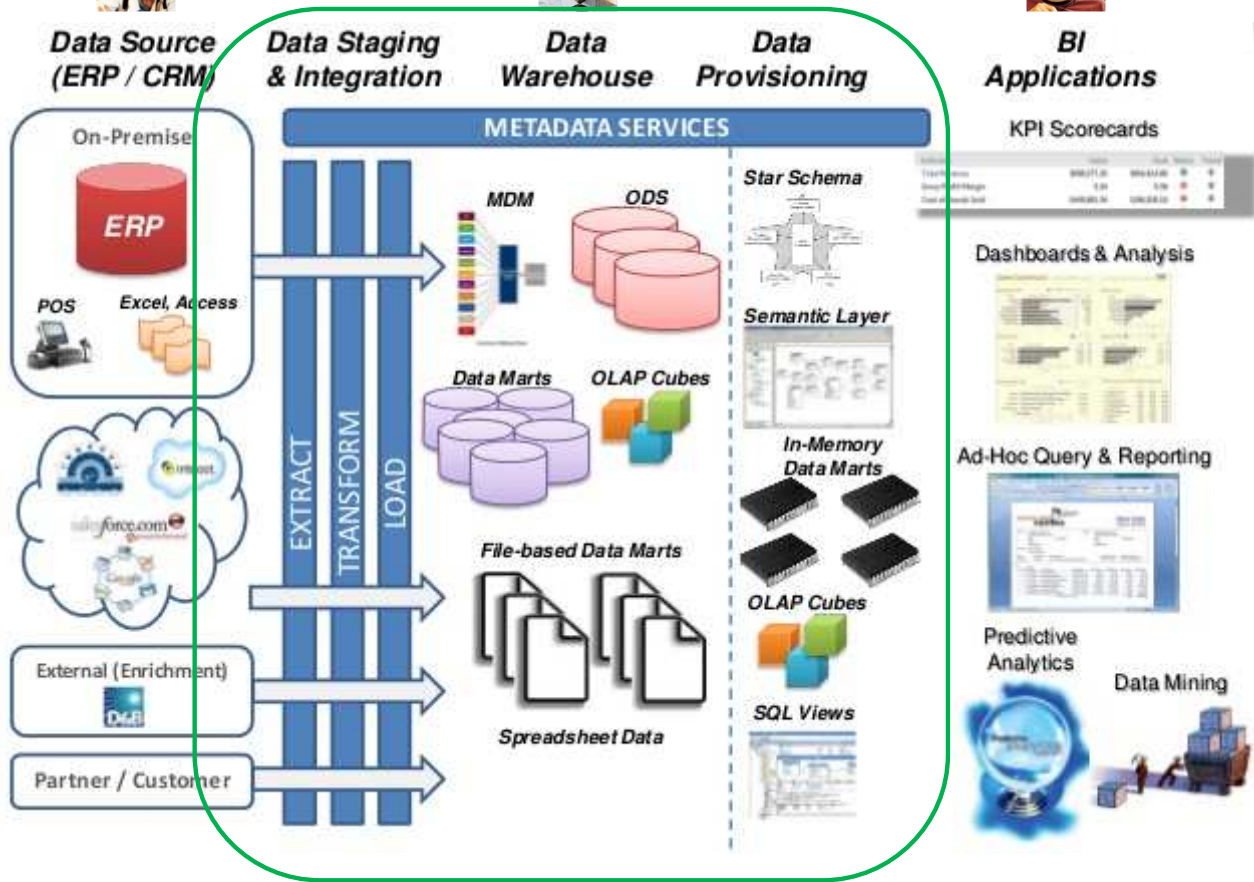
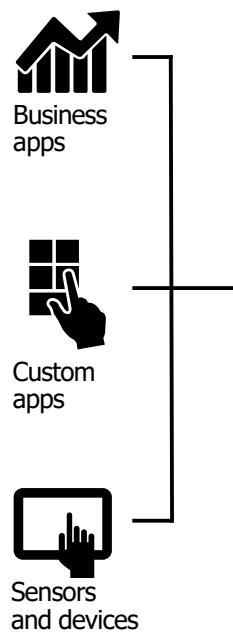
Overview "Seek to Understand"

- Extract, Transform, Load
- Data Behavior
 - ERD (Entity Relationship Diagram)
 - JOIN-Denormalization
 - Star Schema
 - Dimensional OLAP
 - Dashboard & Intelligence



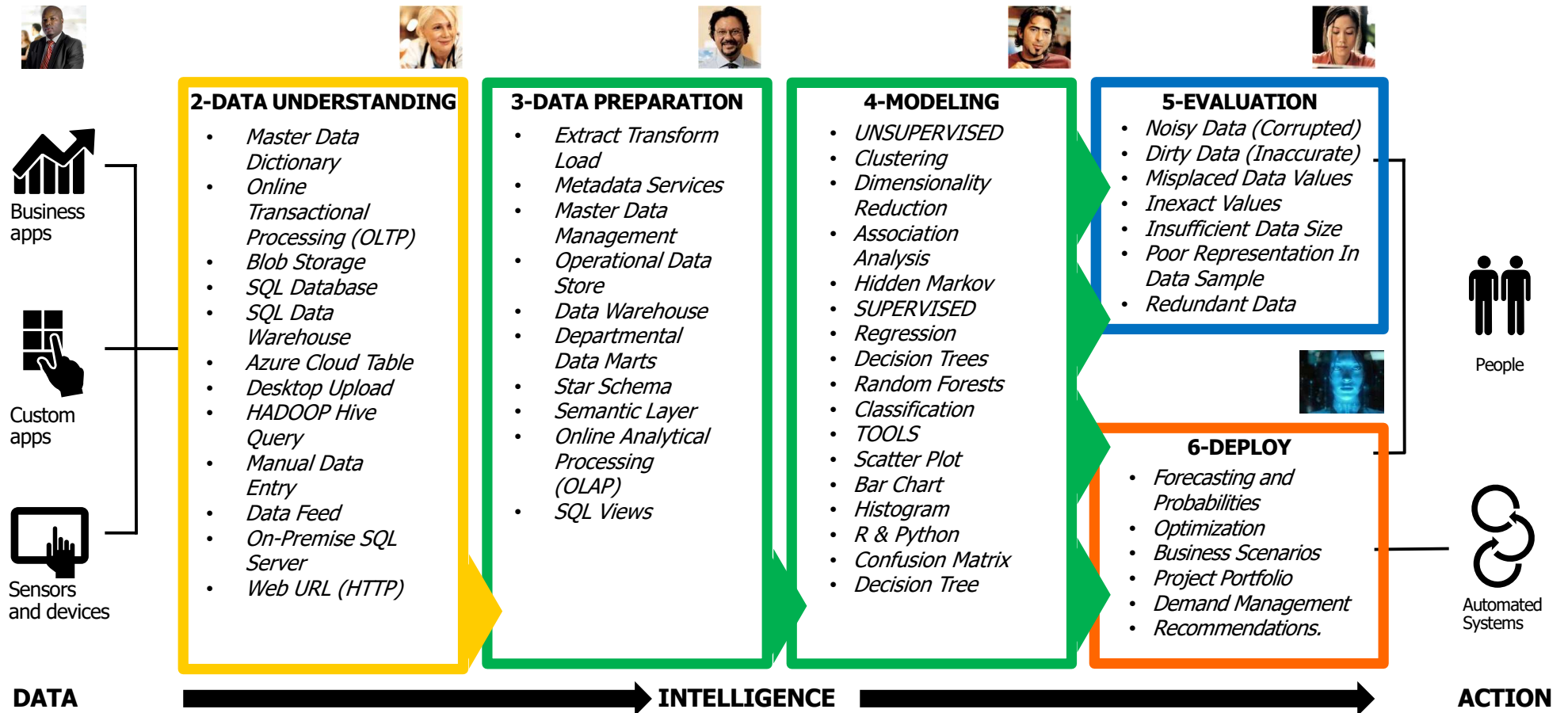
Extract, Transform, Load (ETL)

Extract, Transform, Load (ETL)



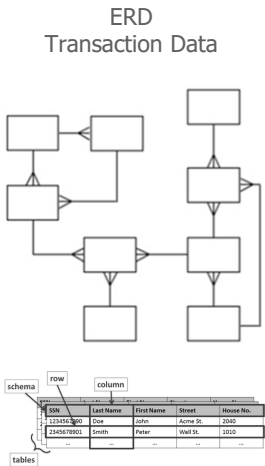
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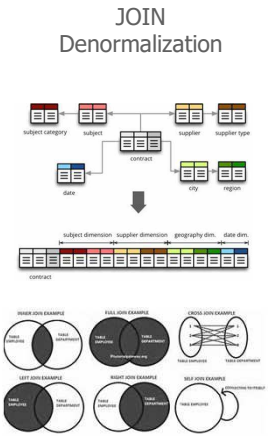


Data Behavior

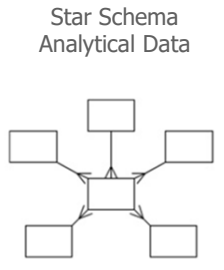
ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence



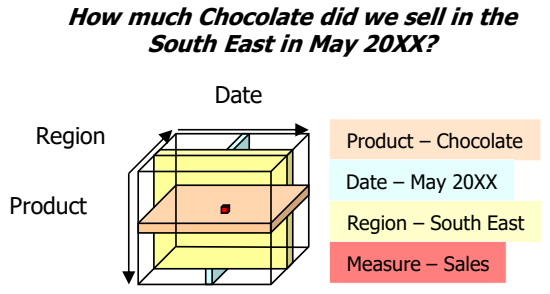
ERD
Entity Relationship
Data Structures
Instances
Transactional Data
CREATE TABLE
INSERT INTO
UPDATE
DELETE
COMMIT
ROLLBACK



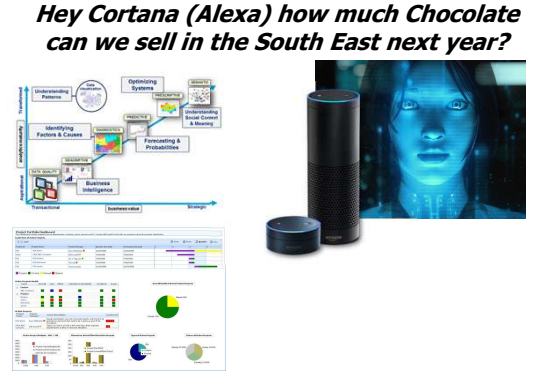
JOIN Denormalization
Data Process
SELECT
FROM
INNER JOIN
LEFT JOIN
RIGHT JOIN
FULL OUTER JOIN
CROSS JOIN



Star Schema
Data Structure
Instances
Analytical Data
WHERE
HAVING
GROUP BY
ORDER BY



Dimensional OLAP
Aggregation
Summarization
Analytical Data
Measures (Pivot Tables)
COUNT
SUM
AVG
MIN
MAX



Dashboard
Historical Status
Data Visualization
Descriptive Dashboard
Diagnostic Dashboard
Predictive
Prescriptive
Semantic

Intelligence
Future Forecast
Cognitive Services
Vision
Speech
Language
Knowledge
Search

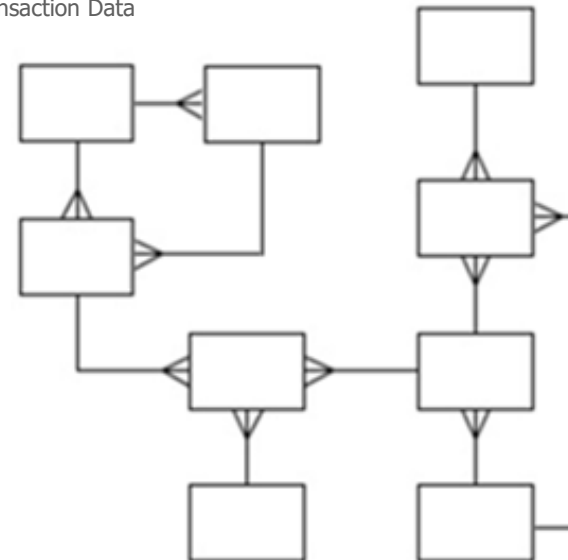
Data Behavior

ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence

ERD

Entity Relationship
Data Structures
Instances
Transactional Data
CREATE TABLE
INSERT INTO
UPDATE
DELETE
COMMIT
ROLLBACK

ERD
Transaction Data



schema

row

column

SSN	Last Name	First Name	Street	House No.
1234567890	Doe	John	Acme St.	2040
2345678901	Smith	Peter	Wall St.	1010
...

tables



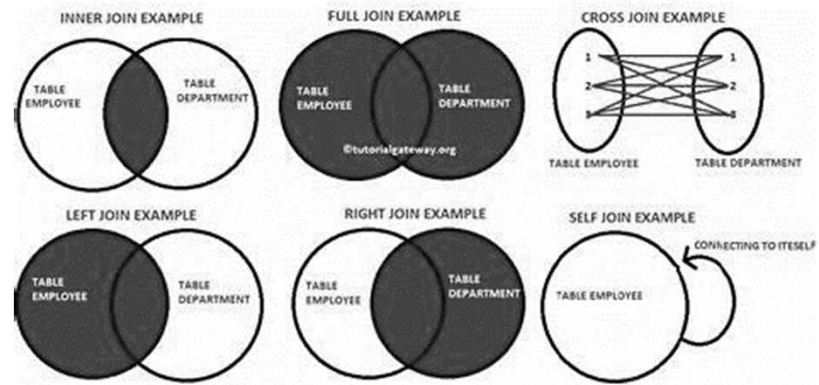
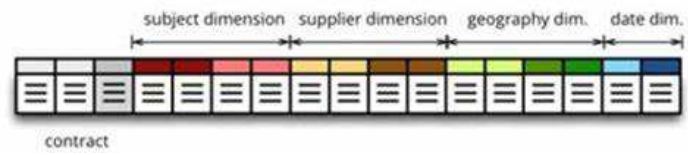
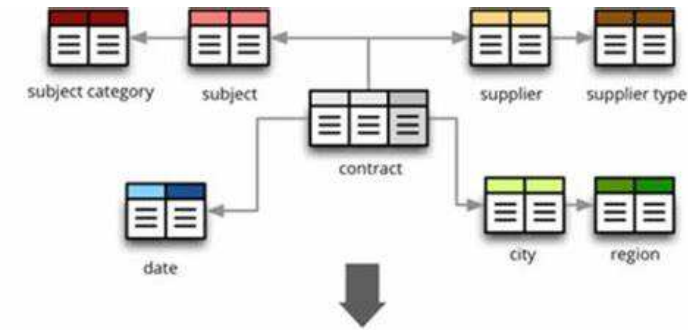
Data Behavior

ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence

JOIN Denormalization

Data Process
SELECT
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CROSS JOIN

JOIN Denormalization



Data Behavior

ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence

Star Schema

Data Structure

Instances

Analytical Data

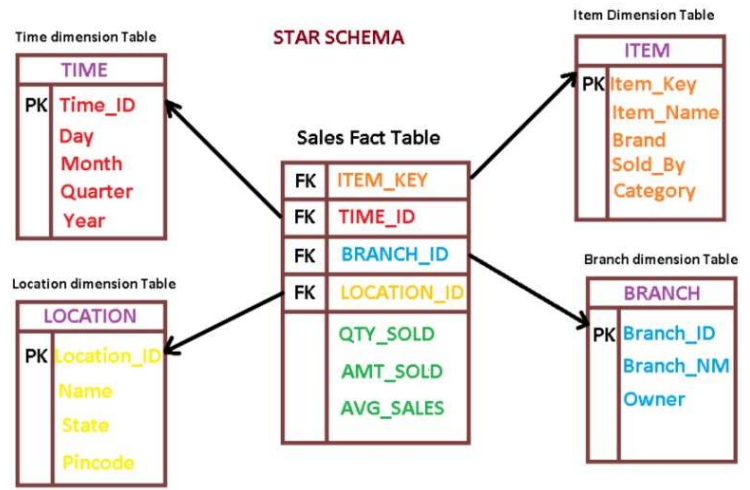
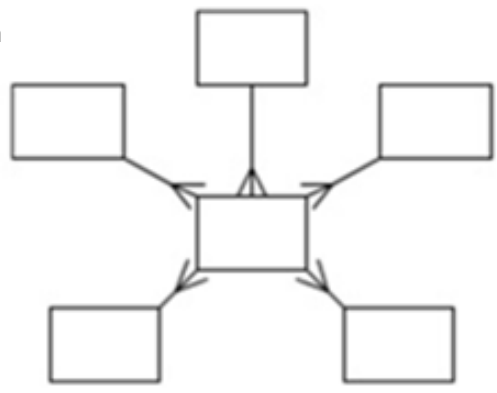
WHERE

HAVING

GROUP BY

ORDER BY

Star Schema
Analytical Data



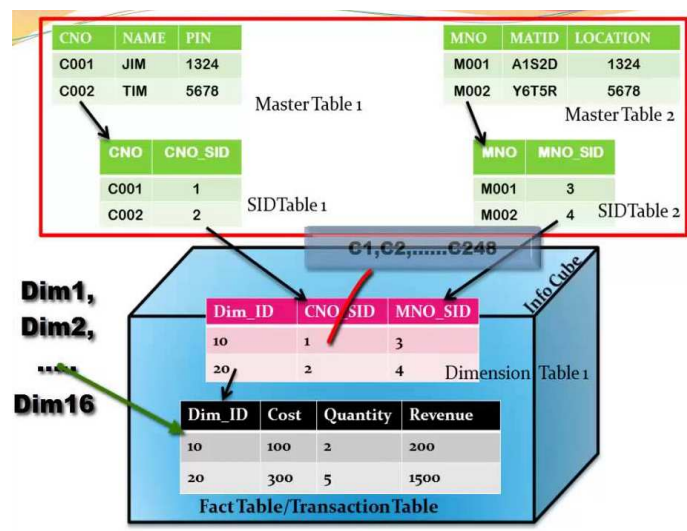
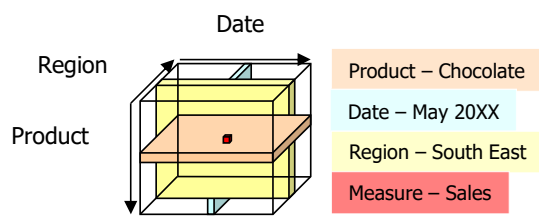
Data Behavior

ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence

Dimensional OLAP

- Aggregation
- Summarization
- Analytical Data
- Measures (Pivot Tables)
- COUNT
- SUM
- AVG
- MIN
- MAX

Historical Status Question:
How much Chocolate did we sell in the South East in May 20XX?



Extract > TRANSFORM > Load

Data Behavior

ERD, JOIN-Denormalization, Star Schema, Dimensional OLAP, Dashboard, Intelligence

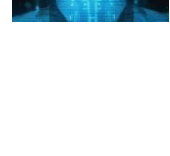
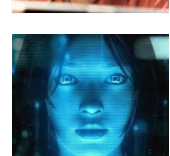
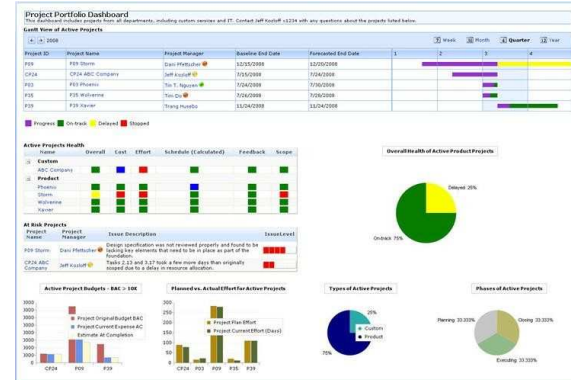
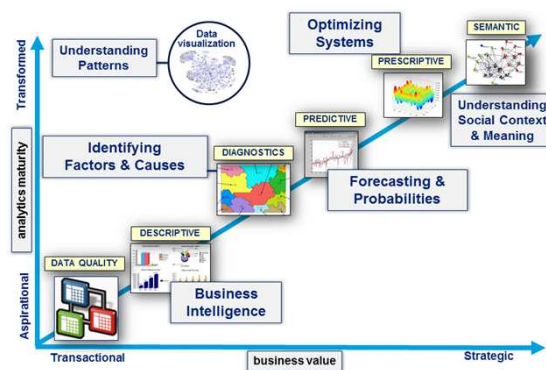
Dashboard

- Historical Status
- Data Visualization
- Descriptive Dashboard
- Diagnostic Dashboard
- Predictive
- Prescriptive
- Semantic

Intelligence

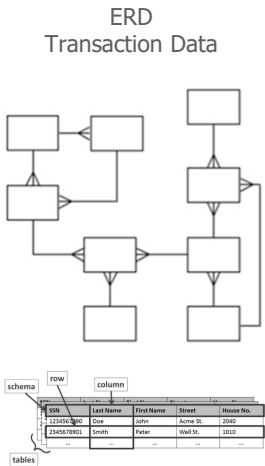
- Future Forecast
- Cognitive Services
- Vision
- Speech
- Language
- Knowledge
- Search

Future Predictive Forecast:
Hey Cortana (Alexa) how much Chocolate can we sell in the South East next year?

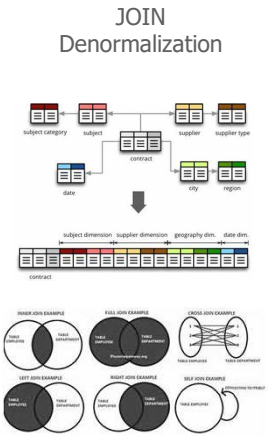


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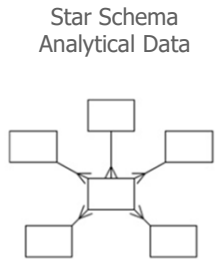
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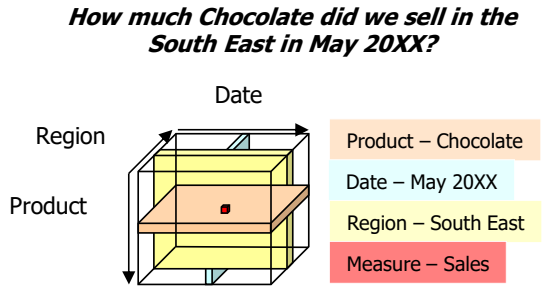
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Hey Cortana (Alexa) how much Chocolate can we sell in the South East next year?

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Summary "Train the Trainer"

- Extract, Transform, Load
- Data Behavior
 - ERD (Entity Relationship Diagram)
 - JOIN-Denormalization
 - Star Schema
 - Dimensional OLAP
 - Dashboard & Intelligence



Let's stay in contact with each other...

Let's stay in contact:

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