

Case Study for Information Management

資訊管理個案

Foundations of Business Intelligence - Database and Information Management: Lego (Chap. 6)

1011CSIM4B06

TLMXB4B

Thu 8, 9, 10 (15:10-18:00) B508

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課程大綱 (Syllabus)

週次	日期	內容 (Subject/Topics)
1	101/09/13	Introduction to Case Study for Information Management
2	101/09/20	Information Systems in Global Business: 1. UPS, 2. The National Bank of Kuwait (Chap. 1)
3	101/09/27	Global E-Business and Collaboration: NTUC Income (Chap. 2)
4	101/10/04	Information Systems, Organization, and Strategy: Soundbuzz (Chap. 3)
5	101/10/11	IT Infrastructure and Emerging Technologies: Salesforce.com (Chap. 5)
6	101/10/18	Foundations of Business Intelligence: Lego (Chap. 6)

課程大綱 (Syllabus)

週次	日期	內容 (Subject/Topics)
7	101/10/25	Telecommunications, the Internet, and Wireless Technology: Google, Apple, and Microsoft (Chap. 7)
8	101/11/01	Securing Information System: 1. Facebook, 2. European Network and Information Security Agency (ENISA) (Chap. 8)
9	101/11/08	Midterm Report (期中報告)
10	101/11/15	期中考試週
11	101/11/22	Enterprise Application: Border States Industries Inc. (BSE) (Chap. 9)
12	101/11/29	E-commerce: 1. Facebook, 2. Amazon vs. Walmart (Chap. 10)

課程大綱 (Syllabus)

週次	日期	內容 (Subject/Topics)
13	101/12/06	Knowledge Management: Tata Consulting Services (Chap. 11)
14	101/12/13	Enhancing Decision Making: CompStat (Chap. 12)
15	101/12/20	Building Information Systems: Electronic Medical Records (Chap. 13)
16	101/12/27	Managing Projects: JetBlue and WestJet (Chap. 14)
17	102/01/03	Final Report (期末報告)
18	102/01/10	期末考試週

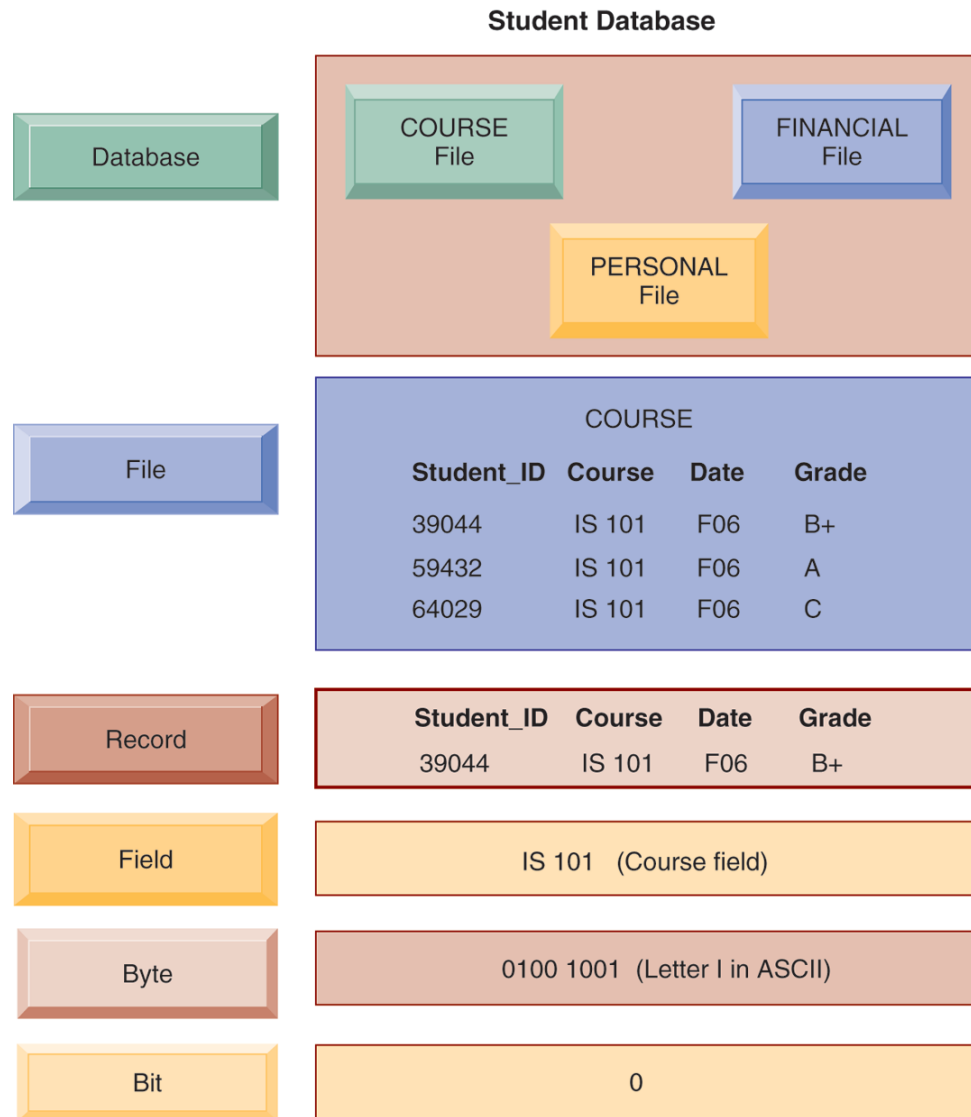
Chap. 6
Foundations of
Business Intelligence –
Database and
Information Management :
Lego

Case Study: Lego (Chap. 6)

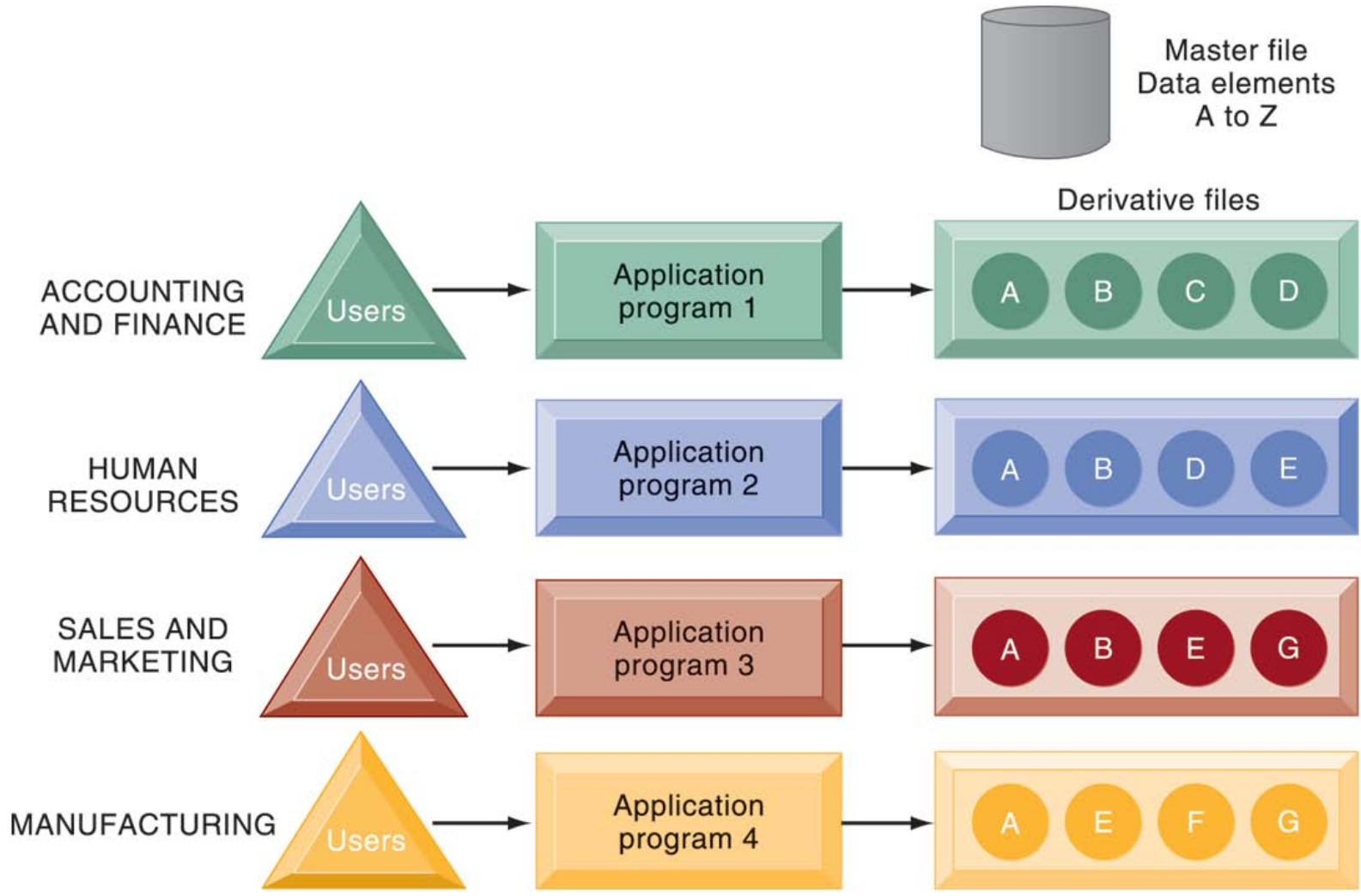
Lego: Embracing Change by Combining BI with a Flexible Information System

1. Explain the role of the database in SAP's three-tier system.
2. Explain why distributed architectures are flexible.
3. Identify some of the business intelligence features included in SAP's business software suite.
4. What are the main advantages and disadvantages of having multiple databases in a distributed architecture? Explain.

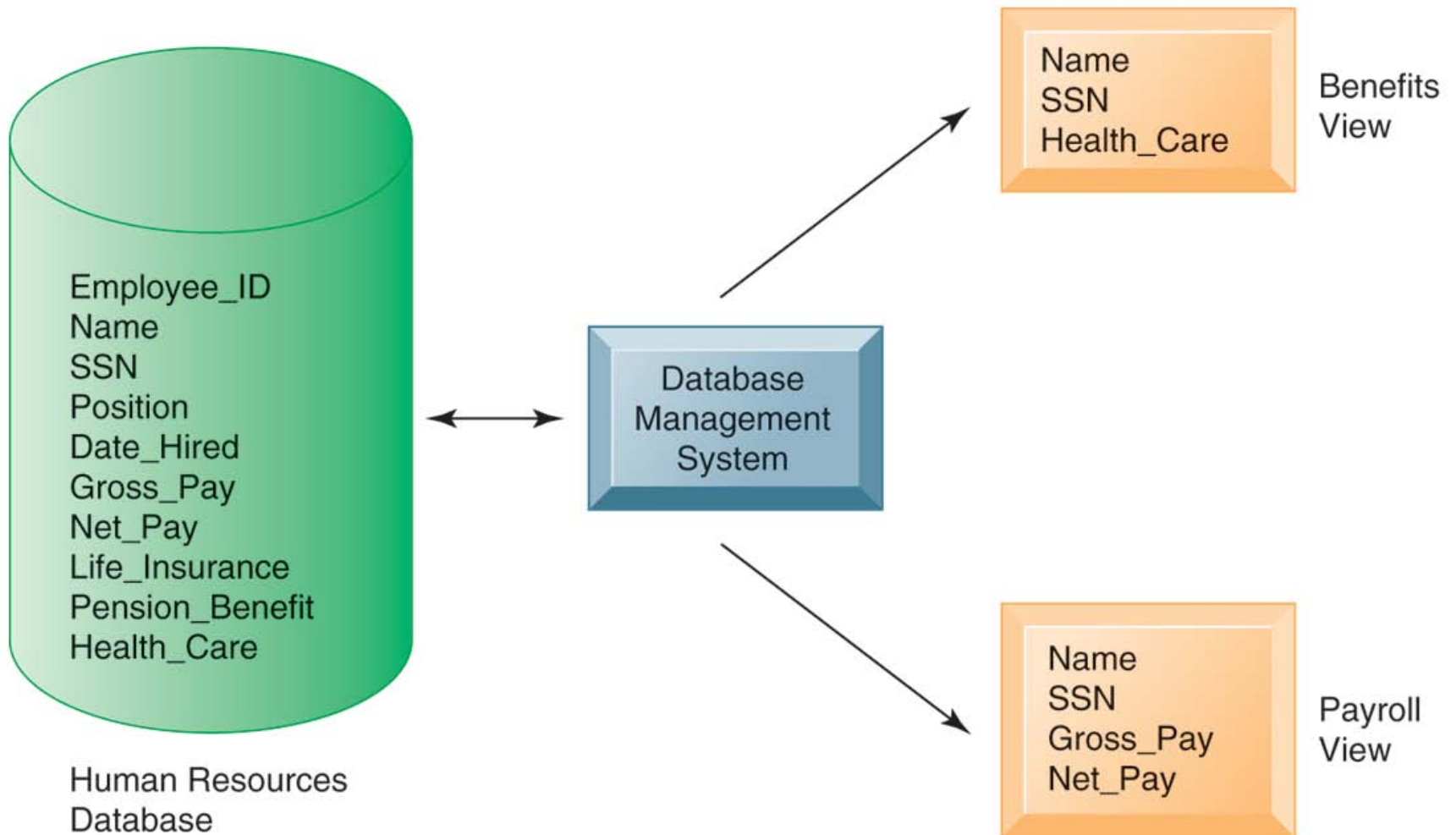
THE DATA HIERARCHY



TRADITIONAL FILE PROCESSING



HUMAN RESOURCES DATABASE WITH MULTIPLE VIEWS



RELATIONAL DATABASE TABLES

SUPPLIER

Columns (Attributes, Fields)

Supplier_Number	Supplier_Name	Supplier_Street	Supplier_City	Supplier_State	Supplier_Zip
8259	CBM Inc.	74 5 th Avenue	Dayton	OH	45220
8261	B. R. Molds	1277 Gandolly Street	Cleveland	OH	49345
8263	Jackson Composites	8233 Micklin Street	Lexington	KY	56723
8444	Bryant Corporation	4315 Mill Drive	Rochester	NY	11344

Rows
(Records,
Tuples)

Key Field
(Primary Key)

RELATIONAL DATABASE TABLES

(cont.)

PART

Part_Number	Part_Name	Unit_Price	Supplier_Number
137	Door latch	22.00	8259
145	Side mirror	12.00	8444
150	Door molding	6.00	8263
152	Door lock	31.00	8259
155	Compressor	54.00	8261
178	Door handle	10.00	8259

Primary Key

Foreign Key

THE THREE BASIC OPERATIONS OF A RELATIONAL DBMS

PART

Part_Number	Part_Name	Unit_Price	Supplier_Number
137	Door latch	22.00	8259
145	Side mirror	12.00	8444
150	Door molding	6.00	8263
152	Door lock	31.00	8259
155	Compressor	54.00	8261
178	Door handle	10.00	8259

Select Part_Number = 137 or 150

SUPPLIER

Supplier_Number	Supplier_Name	Supplier_Street	Supplier_City	Supplier_State	Supplier_Zip
8259	CBM Inc.	74 5 th Avenue	Dayton	OH	45220
8261	B. R. Molds	1277 Gandolly Street	Cleveland	OH	49345
8263	Jackson Components	8233 Micklin Street	Lexington	KY	56723
8444	Bryant Corporation	4315 Mill Drive	Rochester	NY	11344

Join by Supplier_Number

Part_Number	Part_Name	Supplier_Number	Supplier_Name
137	Door latch	8259	CBM Inc.
150	Door molding	8263	Jackson Components

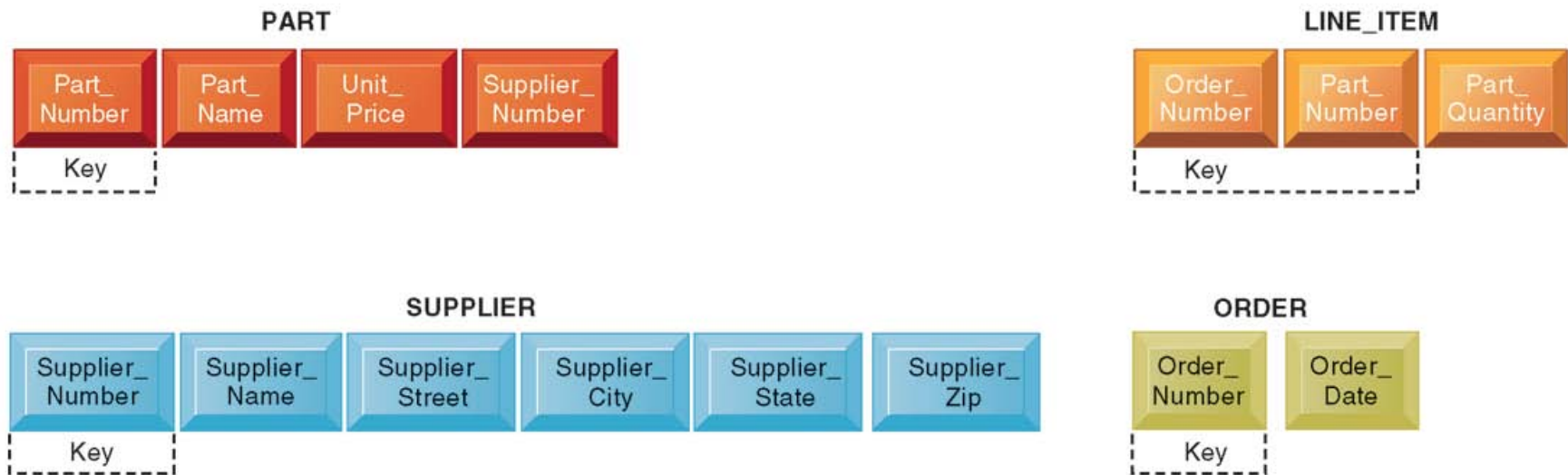
Project selected columns

AN UNNORMALIZED RELATION FOR ORDER

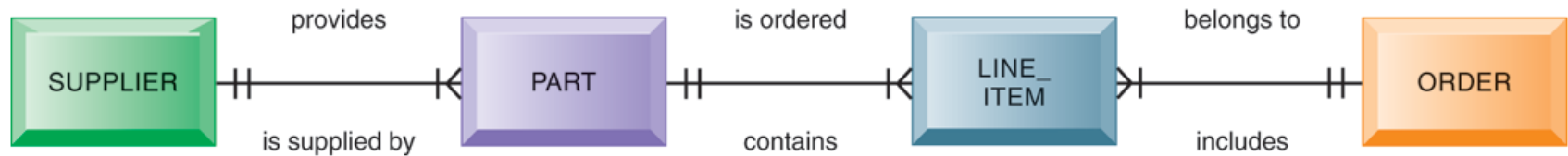
ORDER (Before Normalization)

Order_ Number	Order_ Date	Part_ Number	Part_ Name	Unit_ Price	Part_ Quantity	Supplier_ Number	Supplier_ Name	Supplier_ Street	Supplier_ City	Supplier_ State	Supplier_ Zip
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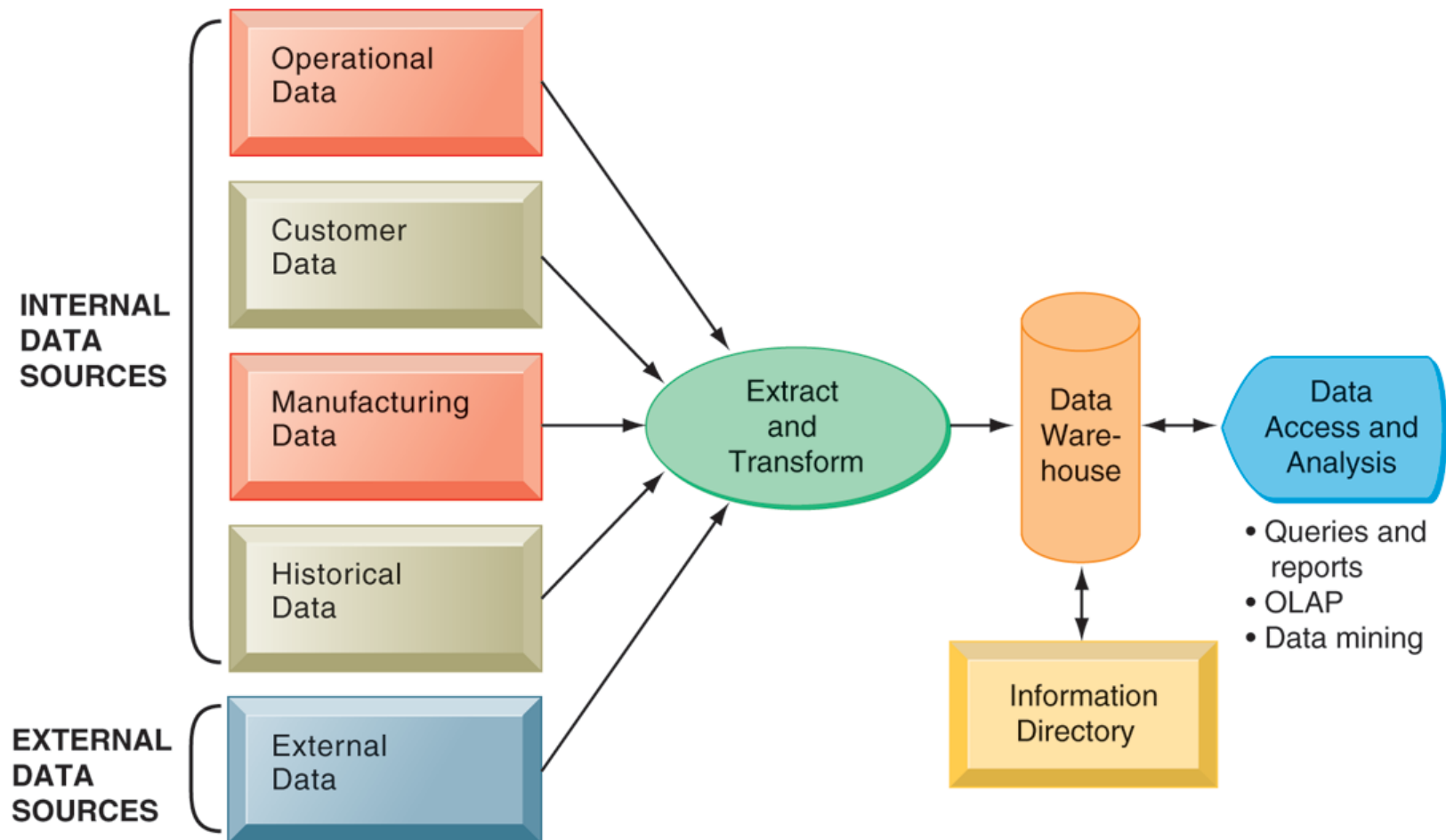
NORMALIZED TABLES CREATED FROM ORDER



AN ENTITY-RELATIONSHIP DIAGRAM



COMPONENTS OF A DATA WAREHOUSE



Data Warehouse vs. Data Marts

- Data warehouse:
 - Stores current and historical data from many core operational transaction systems
 - Consolidates and standardizes information for use across enterprise, but data cannot be altered
 - Data warehouse system will provide query, analysis, and reporting tools
- Data marts:
 - Subset of data warehouse
 - Summarized or highly focused portion of firm's data for use by specific population of users
 - Typically focuses on single subject or line of business

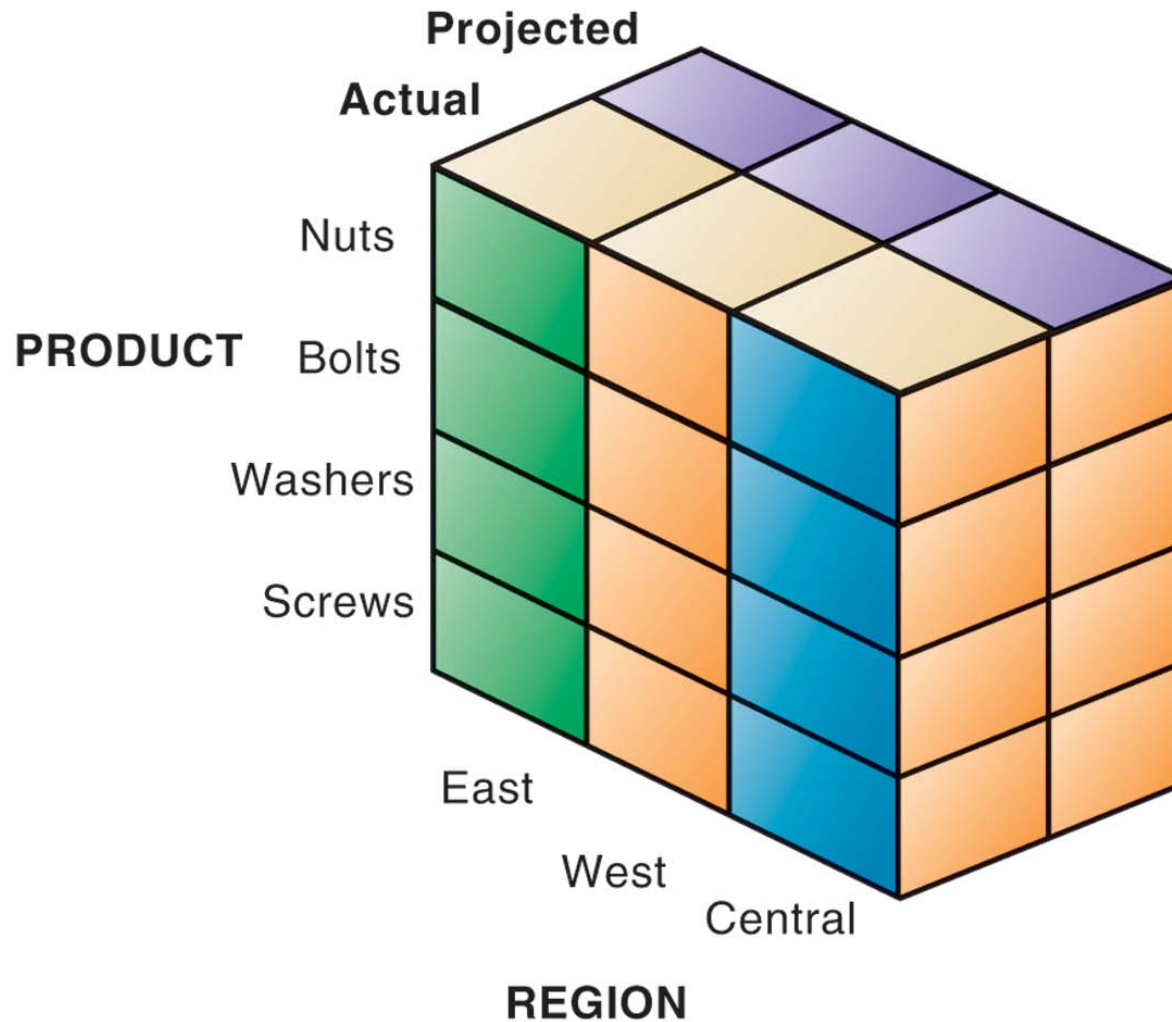
Business Intelligence (BI)

- Tools for consolidating, analyzing, and providing access to vast amounts of data to help users make better business decisions
 - E.g., Harrah's Entertainment analyzes customers to develop gambling profiles and identify most profitable customers
- Principle tools include:
 - Software for database query and reporting
 - Online analytical processing (OLAP)
 - Data mining

Online analytical processing (OLAP)

- Supports multidimensional data analysis
 - Viewing data using multiple dimensions
 - Each aspect of information (product, pricing, cost, region, time period) is different dimension
 - E.g., how many washers sold in the East in June compared with other regions?
- OLAP enables rapid, online answers to ad hoc queries

MULTIDIMENSIONAL DATA MODEL



Data Mining

- More discovery driven than OLAP
- Finds hidden patterns, relationships in large databases and infers rules to predict future behavior
 - E.g., Finding patterns in customer data for one-to-one marketing campaigns or to identify profitable customers.
- Types of information obtainable from data mining
 - Associations
 - Sequences
 - Classification
 - Clustering
 - Forecasting

Predictive analysis

- Uses data mining techniques, historical data, and assumptions about future conditions to predict outcomes of events
- E.g., Probability a customer will respond to an offer

Text Mining

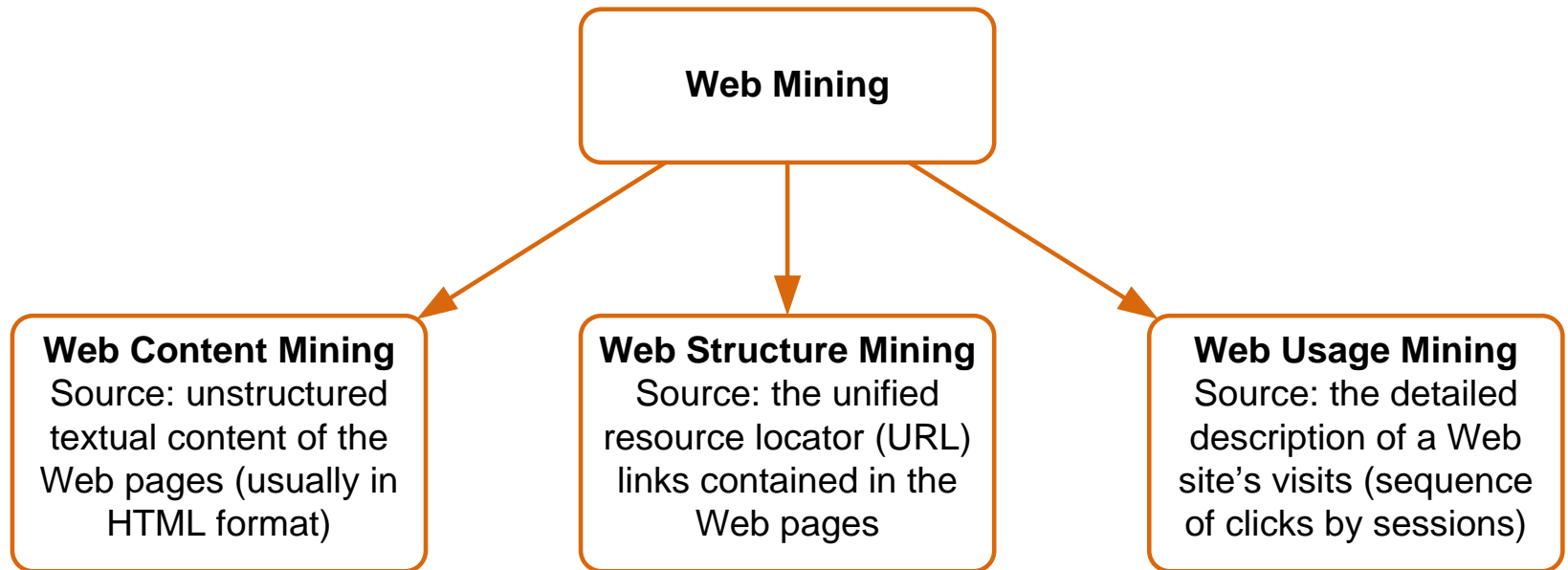
- Text mining (text data mining)
 - the process of deriving high-quality information from text
 - Extracts key elements from large unstructured data sets (e.g., stored e-mails)
- Typical text mining tasks
 - text categorization
 - text clustering
 - concept/entity extraction
 - production of granular taxonomies
 - sentiment analysis
 - document summarization
 - entity relation modeling

Web Mining

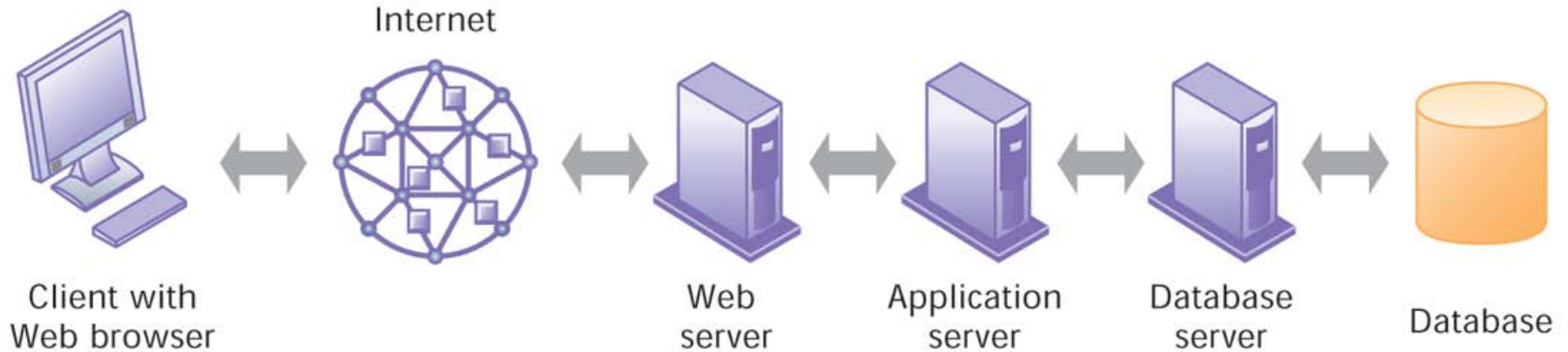
- Discovery and analysis of useful patterns and information from WWW
 - E.g., to understand customer behavior, evaluate effectiveness of Web site, etc.
- 3 Tasks of Web Mining
 - Web content mining
 - Knowledge extracted from content of Web pages
 - Web structure mining
 - E.g., links to and from Web page
 - Web usage mining
 - User interaction data recorded by Web server

Web Mining

- Web mining (or Web data mining) is the process of discovering intrinsic relationships from Web data (textual, linkage, or usage)



LINKING INTERNAL DATABASES TO THE WEB



資訊管理個案

(Case Study for Information Management)

1. 請同學於資訊管理個案討論前
應詳細研讀個案，並思考個案研究問題。
2. 請同學於上課前複習相關資訊管理相關
理論，以作為個案分析及擬定管理對策的
依據。
3. 請同學於上課前
先繳交個案研究問題書面報告。

References

- Kenneth C. Laudon & Jane P. Laudon (2012),
Management Information Systems: Managing the
Digital Firm, Twelfth Edition, Pearson.
- 周宣光 譯 (2011) ,
資訊管理系統－管理數位化公司 ,
第12版 , 東華書局