



Ministry of Higher Education
Karwan University
Faculty of Computer Science



Database I

Lecture 0: Course Overview

August 21, 2024

Lectures & other related materials are available here: <https://github.com/mujtabaSultani01/Database-I>

Contents

- ▶ Class Policies and Organizational Issues
- ▶ Course Information
- ▶ Organizational Issues
- ▶ Course Contents
- ▶ Course Materials
- ▶ Introduction to Topic
 - ▶ Data, Information & Metadata
 - ▶ File-based Systems



Course Information

- ▶ **Course Name:**
 - ▶ Introduction to Database I
- ▶ **Pre-Requirements for the participation**
 - ▶ *None*
- ▶ **Type of Course:**
 - ▶ Lecture with supporting weekly exercises to repeat and adapt the lecture contents and Projects
- ▶ **Slides and Extra Notes:**
 - ▶ Soft Version

Lecture Issues

- ▶ **Lecture Times per Week**
 - ▶ Wednesday 05:30 – 07:00 AM (Lecture)
 - ▶ Wednesday 07:00 – 08:30 AM (Lab and Exercises)
- ▶ **Office hours**
 - ▶ Sunday 06:00 – 08:00 AM
 - ▶ Monday 04:00 – 07:00 PM
- ▶ **Private appointment**
 - ▶ Contact me through email.

Assignments

- ▶ Weekly basis
- ▶ Rules
 - The Assignments should be handover **Before the deadline...**
 - You will work on the homework in Small groups
 - There should be no copy and paste
 - The copy and paste homework has zero points
 - **Don't Cheat Yourself, Please!!!!...**

Examination and Grading

▶ Exams

- ▶ Mid-term Exam: **20%**
- ▶ Final-term Exam: **60%**

▶ Others

- ▶ Class Activity: **10%**
- ▶ Homework: **10%**

Class Rules

- ▶ Full attendance
- ▶ Please come on time
- ▶ Turn off your mobile.

Don't disturb your classmate !!!!

Problems and Question

- ▶ **Place:**
 - ▶ Computer Science Faculty (Lecturer room)
- ▶ **Internet contact :**
 - ▶ Mujtaba.cs01@gmail.com

Course Contents

The following topics will be covered in this course:

- ✓ Database System Concept & Architecture
- ✓ Introduction to Relational Data Modal
- ✓ Data Modeling Using Entity Relationship Model
- ✓ ER to Relational Mapping
- ✓ Basics of SQL
- ✓ Normalization
- ✓ Database Development Techniques
- ✓ Web based Database

Course Materials

- ▶ **Modern Database Management 10th Edition.**
 - This book has been used as the main reference for compiling this syllabus.
- ▶ **Text Books**
 - ✓ Fundamentals of Database Systems, 6th Edition by Elmasri, Navathe.
 - ✓ Database Systems: A Practical Approach to Design, Implementation, and Management, 4th edition, by Thomas Connolly, Carolyn Begg.
 - ✓ Database Systems: Design, Implementation, & Management 10th Edition by Carlos Coronel, Steven Morris.
 - ✓ Modern Database Management, 10th Edition, by Hoffer, Ramesh, Topi.

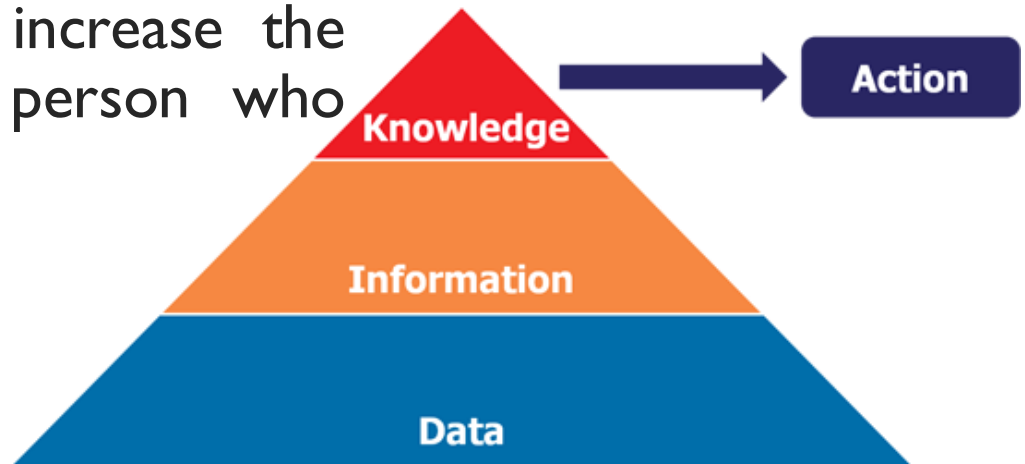
Data & Information

□ Data

- The term ***data*** referred to facts concerning objects and events that could be recorded and stored on computer media.

□ Information

- Data that have been processed in such a way as to increase the knowledge of the person who uses the data.



Data & Information

► Data, Information & Knowledge

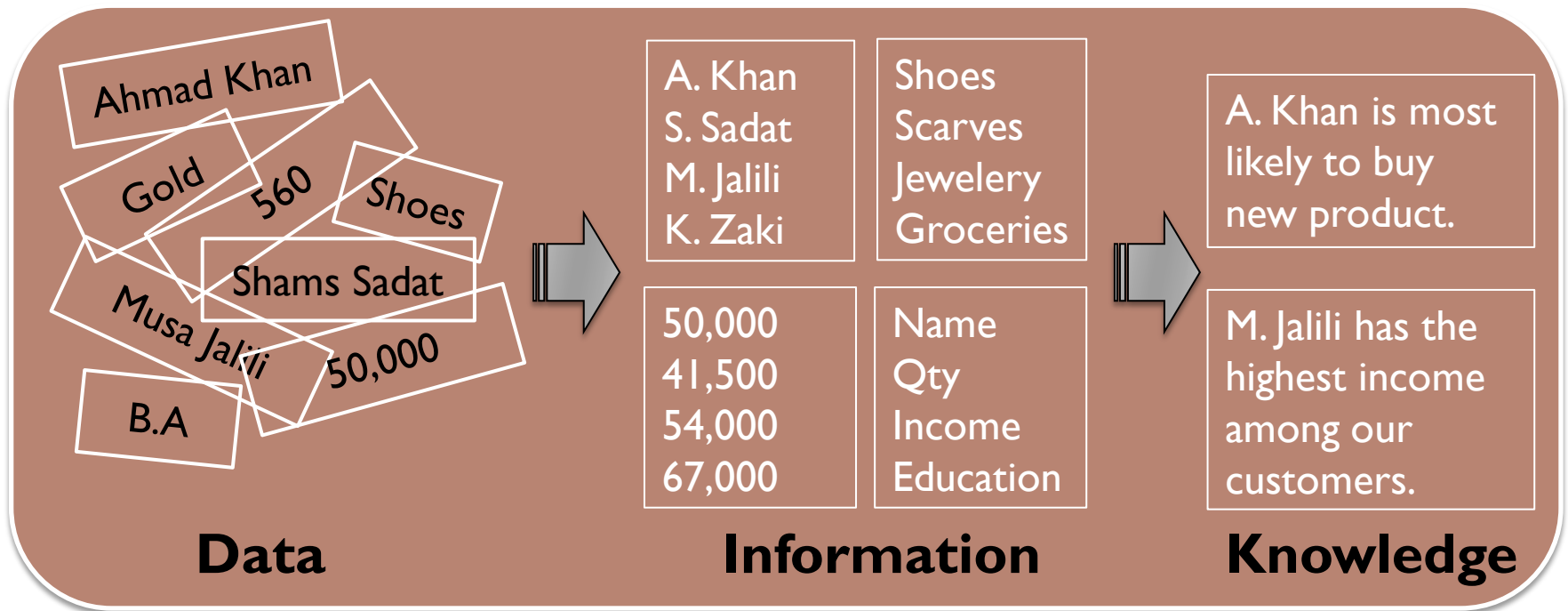


FIGURE 1.1 Transforming raw data into information

a) Data entry screen

DO NOT repeat School ID (MTSU) Member ID

Member ID * (4-7 alphanumeric) (Password will be initially set to be the same as Member ID)

First name or initial *

Middle name/initial

Last name *

Department *

Area *

Email *

Hire Year *

☐ Chair/Chair * ☐ Inactive ☐ Systems chair for evaluation

☐ Participates in the governance of the school

☐ Considered to be a long-term member

High Degree *

Year Awarded *

Rank *

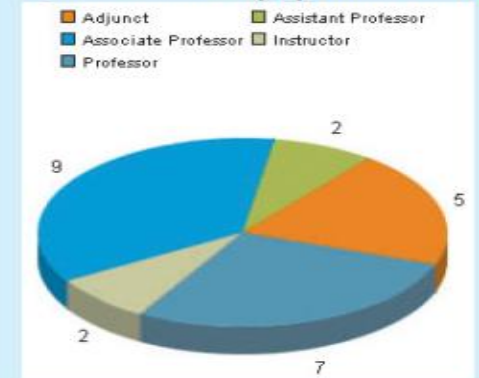
b) Raw data

ID	LastName	MidName	FirstName	DeptCode/Office	Email	Rank	HireYear	Degree
1	Washington	A.	George	MGMT N135	gswashington@mtsu.edu	Professor	2001	Ph.D.
2	Adams	J.	John	FIN N313	jadams@mtsu.edu	Professor	1994	Ph.D.
3	Jefferson	L.	Thomas	ECON	tjefferson@mtsu.edu	Instructor	2002	M.B.A.
4	Madison	D.	James	FIN N236	jmadison@mtsu.edu	Associate Professor	1994	Ph.D.
5	Monroe	N.	James	ACCT N401	jmonroe@mtsu.edu	Assistant Professor	1995	Ph.D.
6	Adams	Q.	John	ACCT N409	jadams@mtsu.edu	Associate Professor	1989	Ph.D.
7	Jackson	C.	Andrew	ECON N303	ajackson@mtsu.edu	Associate Professor	1999	Ph.D.
8	Van Buren	T.	Marin	FIN N306	mvburen@mtsu.edu	Professor	1988	Ph.D.
9	Harrison	R.	William	MTG N118	wharrison@mtsu.edu	Professor	1994	Ph.D.
10	Tyler	M.	John	MGMT	jtyler@mtsu.edu	Associate Professor	2000	Ed.D.
11	Park	Cheryl	Cheryl	MTG N143	cpark@mtsu.edu	Associate Professor	2002	Ph.D.
12	Taylor	G.	Zachary	ACCT N405	ztaylor@mtsu.edu	Associate Professor	1998	Ph.D.
13	Filmore	M.	Mildred	JOB N219	mfilmore@mtsu.edu	Professor	1992	Ph.D.
14	Pierce	A.	Franklin	MTG N359	fpierce@mtsu.edu	Instructor	2005	M.B.A.
15	Buchanan	T.	James	MGMT N146	tbuchanan@mtsu.edu	Associate Professor	1996	D.B.A.
17	Lincoln	W.	Larry	MGMT N150	llincoln@mtsu.edu	Associate Professor	1996	Ph.D.
18	Johnson	A.	Andrew	IEYS N360	ajohnson@mtsu.edu	Professor	1987	Ph.D.
19	Grier	K.	Hayes	ACCT N120	kgrier@mtsu.edu	Assistant Professor	1989	D.B.A.
20	Purthorpe	T.	Danise	ACCT N401	tpurthorpe@mtsu.edu	Associate Professor	1992	Ph.D.
21	Adair	G.	Emily	ACCT N401	eadair@mtsu.edu	Associate Professor	2003	J.D.
23	Cleveland	G.	Robert	ACCT N401	rcleveland@mtsu.edu	Associate Professor	1997	Ph.D.
24	Harrison	X.	Patrice	BULA N406	pharrison@mtsu.edu	Associate Professor	2001	J.D.
25	McKinley	B.	Patrice	IEYS N363	bmckinley@mtsu.edu	Adjunct	1994	M.S.
26	Prosser	F.	Henry	MGMT N104	fprosser@mtsu.edu	Associate Professor	2002	Ph.D.
27	Wilson	L.	Leann	BOEN N448	lwilson@mtsu.edu	Professor	1982	Ph.D.
28	Harding	W.	Warren	MTG N114	wharding@mtsu.edu	Professor	1984	Ed.D.
29	Cookidge	C.	Colin	ECON N316	ccookidge@mtsu.edu	Professor	1975	Ph.D.
30	Hoober	L.	Lisa	MGMT	lhoober@mtsu.edu	Adjunct	1978	M.B.A.
31	Thomas	B.	Betty	ACCT N416	bthomas@mtsu.edu	Professor	1971	Ed.D.
32	Johnson	R.	Robert	BOEN N248	rjohnson@mtsu.edu	Professor	2001	Ph.D.

c) Information in summary format

Rank	COUNT	%/NFS	TOT/COL	%/COL. TOT.	%/COL. FAC.
Adjunct	5	20.00%	23	21.74%	3.27%
Assistant Professor	2	8.00%	28	7.14%	1.31%
Associate Professor	9	36.00%	37	24.32%	5.88%
Instructor	2	8.00%	18	11.11%	1.31%
Professor	7	28.00%	47	14.89%	4.58%

d) Information in graphical format



SOURCE: Course Technology/Cengage Learning
Data entry screen courtesy of Sedona Systems, 2011.
Information screens courtesy of JCBDashboard, 2011.

Data Vs Information

Data	Information
Data consist of unprocessed raw facts.	Information the processed form of data.
Data is used as input in the computer.	Information the output of the computer.
Data is not meaningful.	Information meaningful.
Data is normally huge in its volume.	Information normally short in its volume.
Data difficult to reproduce.	Information easier to reproduced if lost.
Data is un independent entity.	Information is depending on data.
Data is not used in decision-making.	It's very important for decision-making.

Data & Information

Metadata

- Data about the data.
- The metadata describe the data characteristics and the set of relationships that links the data found within the database.

Data & Metadata Examples

Roll No	Name	Address	Email	Phone
1	Ahmad	Karte-Chahar	ahmad.afghan@example.com	+93490004999
2	Husain	Karte-Naw	sayed.husain@example.com	+93917897958

Field Name	Data type	Length	Description	Constraint
Roll No	Integer	3	Roll No of the student	Value from 1 to 100
Name	Alphabetic	50	Name of the student	
Address	Alphanumeric	100	Address of the student	
Email	Alphanumeric	25	Email of the student	Must contain @ and .
Phone	Alphanumeric	25	Phone of the student	
Field Name	Data type	Length	Description	Constraint

File Based System

- A collection of application programs that perform services for the end-users such as the production of reports. Each program defines and manages its own data.
- In a typical file processing system, each department in an organization has its own set of files.
- The files are designed specially for their own application. The records in one file not related to the records in any other file.

File Based System

❑ Problems with File Based System

- Inconsistent Data
- Difficulty of getting quick answers
- Duplication of data
- Data dependence
- Lengthy development times
- Lack of Security
- Excessive program maintenance

File Based System

- Example:

Sales Department

Client Details

Name _____
Address _____
Tel.No. _____
Preferred type _____
Max. Rent _____

DreamHome Property for Rent

Address _____
City _____ Postcode _____
Type _____ Rent _____

Owner Details

Name _____
Address _____
Tel.No. _____

Home Work

- ▶ Create groups until next week. (Maximum of two students)

References

- ▶ Modern Database Management 10th Edition.

Questions...?

