Lecture Summary

Keywords:

- Databases
- DBMS
- Database
- System

Summary:

Lecture 1: Introduction to Database

Introduction to Databases

CT042-3-1-IDB

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- Data vs Information
- Database vs DBMS

• Types of database

Topic & Structure of The Lesson

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• At the end of this topic, You should be able to

– Explain the difference between data and information

– Describe the difference between database and DBMS

– State different types of database

Learning Outcomes

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Key Terms You Must Be Able To Use

• If you have mastered this topic, you should be able to use the following terms

correctly in

your assignments and exams:

– Data

– Information

– Database

– Database Management System

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In this chapter, you will learn:

• The difference between data and information

• What a database is, what the different types of databases are, and why they

are

valuable assets for decision making

• The importance of database design

• How modern databases evolved from file systems

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In this chapter, you will learn (continued):

• About flaws in file system data management

• What the database system’s main components are and how a database system

differs from a file system

• The main functions of a database management system (DBMS)

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Data vs

Information

• Data:

– Raw facts; building blocks of information

– Unprocessed information

• Information:

– Data processed to reveal meaning

• Accurate, relevant, and timely information is key to good decision making

• Good decision making is the key to survival in a global environment

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Transforming Raw Data into Information

SLIDE 9Module Code & Module Title Slide Title

Transforming Raw Data into Information

(continued)

SLIDE 10Module Code & Module Title Slide Title

Transforming Raw Data into Information

(continued)

SLIDE 11Module Code & Module Title Slide Title

Transforming Raw Data into Information

(continued)

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Introducing the Database

and the DBMS

• Database—shared, integrated computer structure that stores:

– End user data (raw facts)

– Metadata (data about data)

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Introducing the Database and the DBMS

(continued)

• DBMS (database management system):

– Collection of programs that manages database structure and controls access

to data

– Possible to share data among multiple applications or users

– Makes data management more efficient and effective

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Role and Advantages of the DBMS (continued)

• End users have better access to more and better-managed data

– Promotes integrated view of organization’s operations

– Probability of data inconsistency is greatly reduced

– Possible to produce quick answers to ad hoc queries

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Role and Advantages of the DBMS

(continued)

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Types of Databases

• Single-user:

– Supports only one user at a time

• Desktop:

– Single-user database running on a personal computer

• Multi-user:

– Supports multiple users at the same time

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Types of Databases (continued)

• Workgroup:

– Multi-user database that supports a small group of users or a single

department

• Enterprise:

– Multi-user database that supports a large group of users or an entire

organization

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Types of Databases (continued)

Can be classified by location:

• Centralized:

– Supports data located at a single site

• Distributed:

– Supports data distributed across several sites

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Types of Databases (continued)

Can be classified by use:

• Transactional (or production):

– Supports a company’s day-to-day operations

• Data warehouse:

– Stores data used to generate information

required to make tactical or strategic decisions

– Often used to store historical data

– Structure is quite different

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• What is the difference between data and information

• Describe the difference between database and DBMS

• Briefly explain 3 types of database

Quick Review Question

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• Data are raw facts, information is processed data to reveal meaning

• Database store shared, integrated data

• DBMS is a collection of programs that manages database structure and controls

access to data

• Database can be classified by usage or location

Summary of Main Teaching Points

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Question and Answer Session

Q & A

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• File System and its problems

• DBMS functions

What we will cover next

Resources:

• https://en.wikipedia.org/wiki/Databases

• https://en.wikipedia.org/wiki/DBMS

• https://en.wikipedia.org/wiki/Database

• https://en.wikipedia.org/wiki/System