The University of Texas at Austin
McCombs School of Business

MIS 381N – INTRO. TO DATABASE MANAGEMENT

Client-Server Architecture

Data Strategy

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QUESTIONS

Any questions

before we begin …

AGENDA

Lecture	Client-Server Architecture
Discussion	Data Strategy Article
Quiz	5 questions 15 minutes, on Canvas

QUESTION

Why would you like to share data

in an organization?

What is the value?

CLIENT-SERVER MODEL

DATABASE SERVER

- Performs all database management tasks
- Structures, stores and secures your data

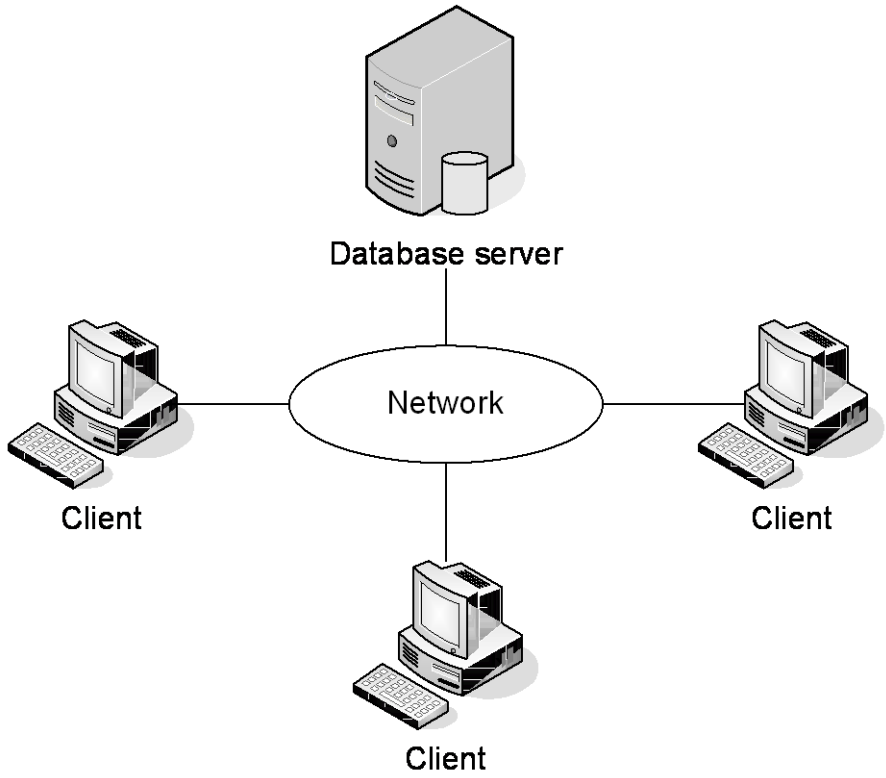
INTERFACE CLIENT

- Allows users to connect and control activities on the server
- Can be text based, graphical, or a custom written application

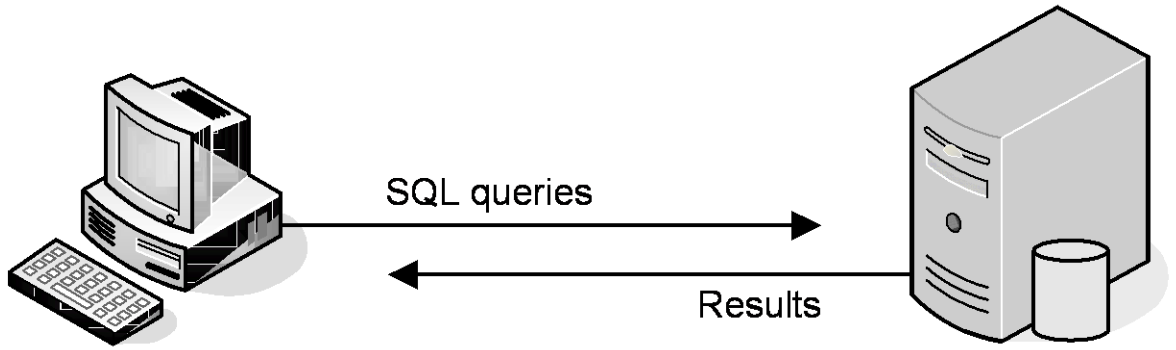
CLIENT-SERVER ARCHITECTURE

- All RDBMS operate on a client-server model

- Components:
  - Client
  - Network
  - Server



CLIENT SOFTWARE, SERVER SOFTWARE, AND THE SQL INTERFACE



Client
Application software
Data access API

Database server
Database management system
Database

CLIENT-SERVER MODEL

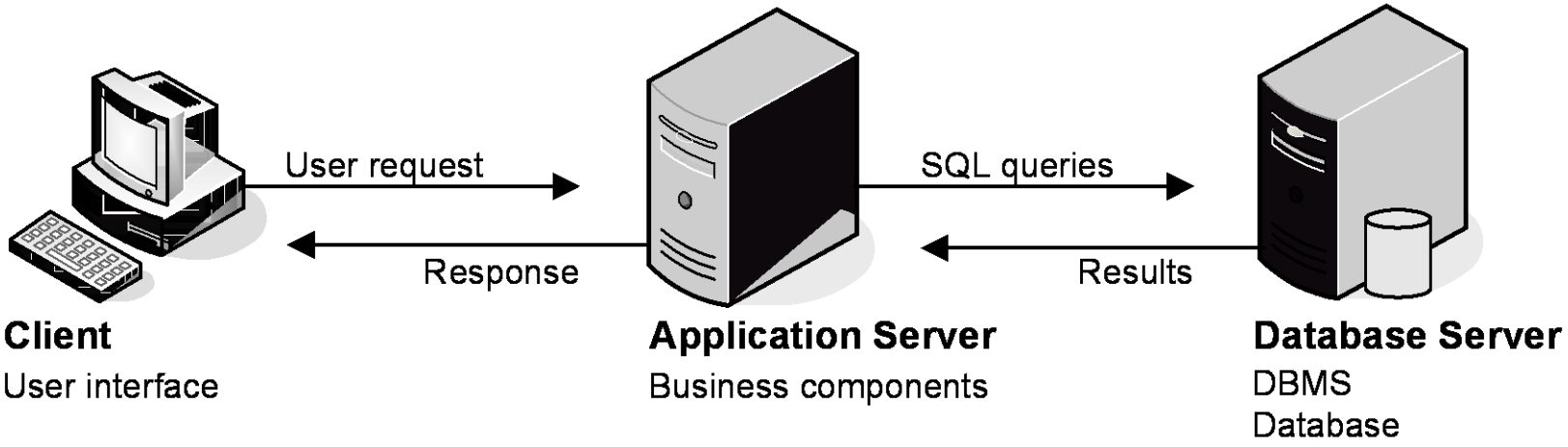
- Server software
  - Database management system (DBMS)
  - The DBMS does the back-end processing
- Client software
  - Application software
  - Data access API (application programming interface)
  - The client software does the front-end processing
- The SQL interface
  - SQL queries (SQL stands for Structured Query Language)

QUESTION

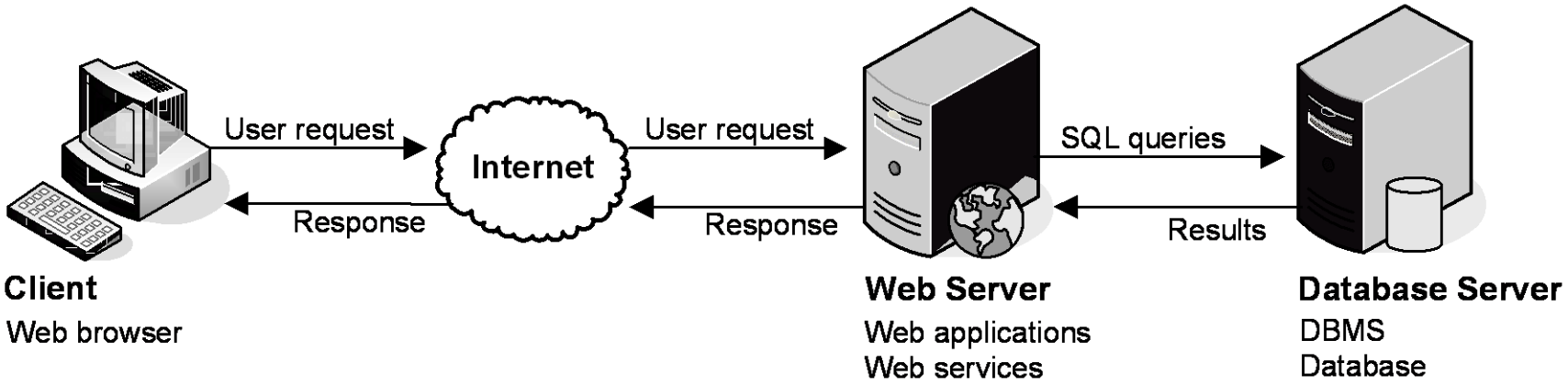
What are some advantages of the client-server model?

What are disadvantages?

AN APPLICATION THAT USES AN APPLICATION SERVER



A SIMPLE WEB-BASED SYSTEM



QUESTION / SYNOPSIS

Did you read the Davenport article "What's Your Data Strategy?"

Can you give me a synopsis?

QUESTION

What are some types of data strategies mentioned in the article?

TYPES OF DATA STRATEGY

Defensive

- Minimize downside risk
- Ensure compliance with regulations (rules governing data privacy & integrity of financial reports)
- Use analytics to detect & limit fraud
- Build systems to prevent theft
- Ensure integrity of data—identify, standardize, and govern authoritative data sources (fundamental customer and supplier information or sales data) in a “single source of truth.”

Offensive

- Focus on supporting revenue growth, profitability, and customer satisfaction
- Generate customer insights (data analysis and modeling)
- Integrate disparate customer and market data to support managerial decision making

QUESTION

What is the main conflict/dichotomy in the article?

FUNDAMENTAL DICHOTOMY

Standardize Data

OR

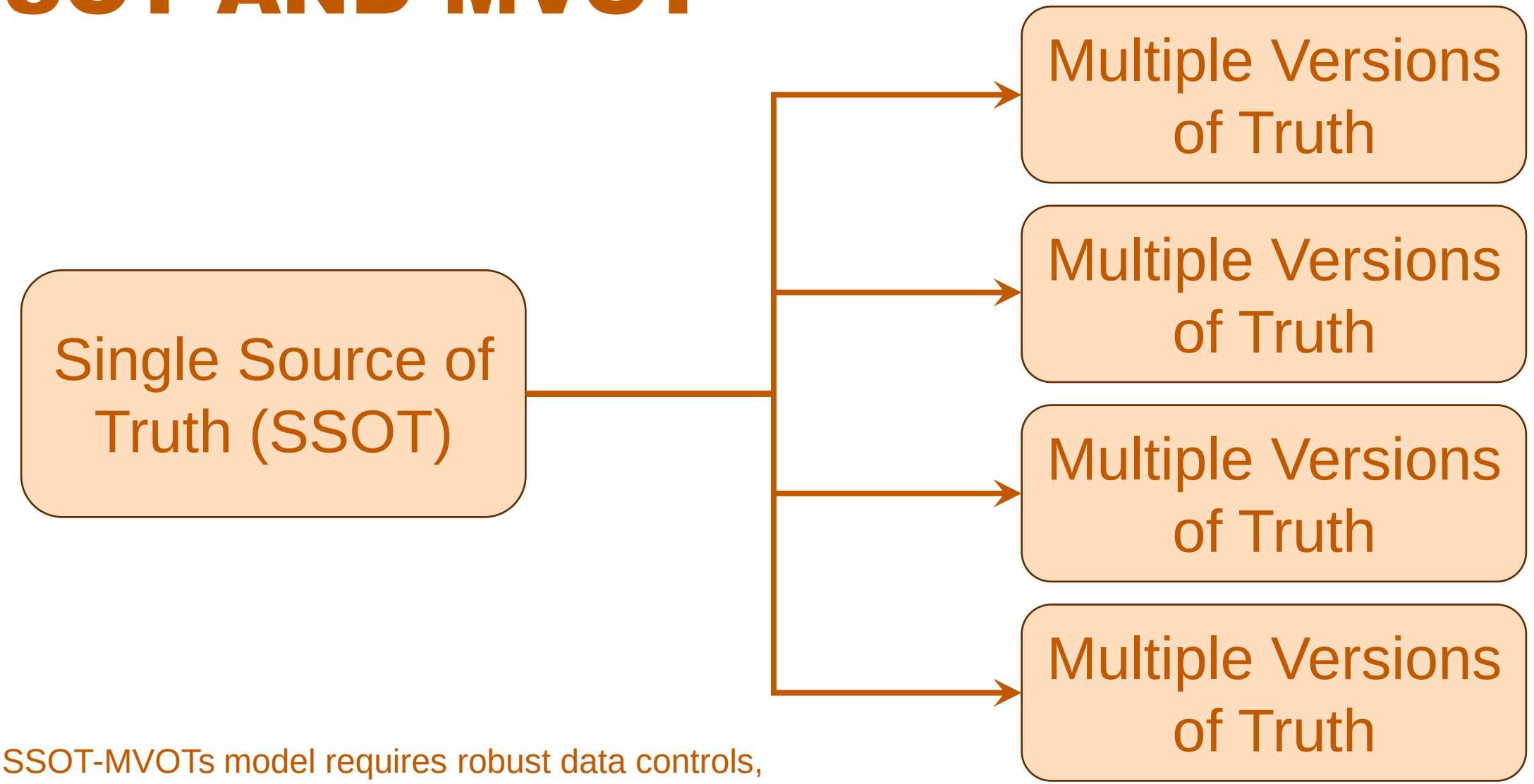
Flexible Data

QUESTION

What is Single Source of Truth (SSOT)?

What are Multiple Versions of Truth (MVOT)?

SSOT AND MVOT



The SSOT-MVOTs model requires robust data controls, standards, governance, and technology.

FUNDAMENTAL DICHOTOMY RESOLUTION

Standardize Data

AND

Flexible Data

QUESTION

What are the key objectives in defensive strategy?

What are the key objectives in offensive strategy?

ELEMENTS OF DATA STRATEGY

	DEFENSE	OFFENSE
KEY OBJECTIVES	Ensure data security, privacy, integrity, quality, regulatory compliance, and governance	Improve competitive position and profitability
CORE ACTIVITIES	Optimize data extraction, standardization, storage, and access	Optimize data analytics, modeling, visualization, transformation, and enrichment
DATA-MANAGEMENT ORIENTATION	Control	Flexibility
ENABLING ARCHITECTURE	SSOT (Single source of truth)	MVOTs (Multiple versions of the truth)

NOT HAVING AN SSOT CAN LEAD TO CHAOS

- The SSOT is a logical, often virtual and cloud-based repository that contains one authoritative copy of all crucial data, such as customer, supplier, and product details.
- It must have robust data provenance and governance controls to ensure that the data can be relied on in defensive and offensive activities, and it must use a common language—not one that is specific to a particular business unit or function.
- An SSOT is the source from which multiple versions of the truth are developed.

MVOT – DATA IMBUED WITH RELEVANCE AND PURPOSE

- MVOTs result from the business-specific transformation of data into information—data imbued with “relevance and purpose”
- As various groups within units or functions transform, label, and report data, they create distinct, controlled versions of the truth that, when queried, yield consistent, customized responses according to the groups’ predetermined requirements.

GOOD GOVERNANCE, GOOD DATA

- Data definitions may be ambiguous and mutable
- Data rules are vague or inconsistently applied
- Feedback loops for improving data transformation are absent
- It’s critical is that single sources of the truth remain unique and valid, and that multiple versions of the truth diverge from the original source only in carefully controlled ways—with provenance.

STRIKING A BALANCE

- To determine a company's current and desired positions on the offense-defense spectrum, chief data officers (CDOs) must bear in mind, among other things:
  - The company's overall strategy
  - Its regulatory environment
  - The data capabilities of its competitors
  - The maturity of its data-management practice
  - The size of its data budget

QUESTION

Which strategy is the best?

THE DATA STRATEGY SPECTRUM

A company's industry, competitive and regulatory environment, and overall strategy will inform its data strategy.

FROM "WHAT'S YOUR DATA STRATEGY?," BY LEANDRO DALLEMULE AND THOMAS H. DAVENPORT, MAY–JUNE 2017 © HBR.ORG

LOOKING FORWARD

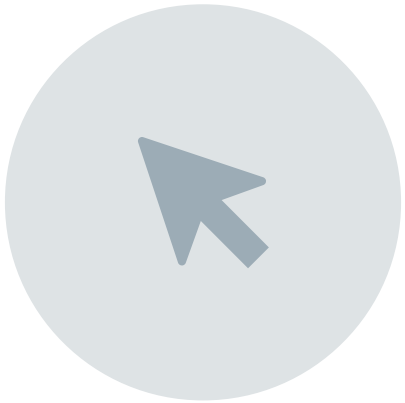
Check Canvas… regularly

Don’t forget to form teams

Entity-relationship modeling

QUIZ

GO TO CANVAS



CLICK ON QUIZZES

PASSWORD: firstquiz

THANK YOU