

Module 10 – Client Server & Internet database Blockchain Databases



Course Outcome

At the end of this course, students will:

- Understand basic database concepts, including the structure and operation of the relational and non-relational data model, design principles, E-R diagrams, E-R modeling, data warehousing, client/server, and internet database environments
- Apply the concept of a database transaction and related database facilities, including concurrency control, journaling, backup and recovery, and data object locking and protocols.
- Analyze advanced database topics such as distributed database systems, data modeling techniques and the data warehouse.
- Evaluate administration and security issues, and three enterprise database management systems widely used by organizations.
- Create a database management and security plan for a database project.

Core Concepts

- Database Connectivity
- Explain ODBC, DAO, and RDO

- Database Internet Connectivity
- Web-to-Database Middleware: Server-Side Extensions
- Web Server Interfaces
- Client-Side Extensions
- Web Application Servers
- Blockchain Databases

Activities

- The Muddiest Point
- Concept Test
- Discussion Board
- Knowledge Check
- Team Project Final Report Submission
- Team Project Final Presentation Submission

Required Reading

Negi, M. (2019). Fundamental of Database Management System. BPB Publications. (ISBN: 9789388176620)

- Chapter 1: Fundamentals of Data and Database Management System

Additional

Manning, A. (2015). Databases for small business: essentials of database management, data analysis, and staff training for entrepreneurs and professionals. Apress. (ISBN: 9781484202784)

Coronel, C., & Morris, S. (2019). Database Systems: Design, Implementation, & Management. Cengage Learning. (ISBN: 9780357687536)

- Chapter 14 & 15 (Database Systems Design)

Silberschatz, A., Korth, H. F., & Sudarshan, S. (2019). Database System Concepts (7th Ed.). McGraw-Hill. (ISBN: 9780078022159)

DB10: Discussion Board

Part 1 (Due Wednesday)

Explain the functionality and features of various database connectivity technologies such as ODBC, OLE, ADO.NET, and JDBC.

Please share your idea with the group with a minimum of 250 words.

Part 2 (Due Sunday)

To extend the discussion, first review the posts of your classmates. Then choose at least two of your classmates' posts and respond with thoughtful and substantive contributions. Answer any questions from your instructor.

Rubrics

CT10: Concept Test

Part 1 (Due Wednesday)

Which of the following does describe the ADODB. Connection object?
Justify your answer.

- a) It is set to create an ad-hoc connection to the MS Access database
- b) It uses the Jet.OLEDB data provider to connect to the MS Access database
- c) It outputs data to the HTML page
- d) It is used to extract data from ADOBE website to install on the host machine

Part 2 (Due Sunday)

Respond to **one** of your classmates by critiquing his or her choice and justification. You are not allowed to select the same classmate if you chose the peer last week. You can convince your peer with your answer if the peer's answer is different from yours. If both have the same answer, you can discuss your justification with your peer to reinforce your answer.

How a Discussion Forum works: To post on the Discussion Forum, click the name of the forum then click on **Create Thread**. Type a subject "CT10- Your first name and last name" and a message. Then **Submit** your post.

Rubrics

MP10: The Muddiest Point

Q1

After reading the required reading, select only one key topic that you could not clearly understand or found confusing. If you understood everything and nothing needs further clarification, find one topic/concept that you found interesting. Briefly describe the muddiest point or the most interesting point. Your instructor will visit the collected topics and explain the muddiest topic(s) in class.

Q2: Which one of the following does add functionality to the web browser?

1. Server-side extension
2. Web-to-Database Middleware
3. Client-side extension
4. Common Gateway Interface

KC10: Knowledge Check

Q1: Which one of the following is known as database middleware?

1. Database connectivity software
2. Data Access Objects (DAO)
3. Universal data Access (UDA)
4. Call Level Interface (CLI)
5. Remote Data Objects (RDO)

Q2: What is definition of the "Application Programming Interface (API)"?

1. It is Microsoft's implementation of a superset of the SQL Access Group
2. a set of routines, protocols, and tools for building software applications
3. It is an object-oriented API used to access desktop databases, such as MS Access and FileMaker Pro
4. It is a higher-level, object-oriented application interface used to access remote database servers

Q3: What is Java Database Connectivity (JDBC)?

1. It is a program that interacts directly with the web server to handle specific types of requests.
2. It uses script files that perform specific functions based on the client's parameters that are passed to the web server.
3. It is an application programming interface that allows a Java program to interact with a wide range of data sources.
4. It provides a high-level, application-oriented interface to interact with OLE-DB, DAO, and RDO.

Q4: What is the role of "Common Gateway Interface (CGI)" in Web Server Interface?

1. It is a specification for writing programs that run inside the Microsoft client browser, Internet Explorer.
2. It is an external application that is automatically invoked by the browser when needed.
3. It is a program that interacts directly with the web server to handle specific types of requests.
4. It uses script files that perform specific functions based on the client's parameters that are passed to the web server.

Q5: In DynamoDB there are two types of primary key, which of the following is NOT correct?

1. A simple key gives you additional flexibility when querying data.
2. Partition key – A simple primary key, composed of one attribute known as the partition key.