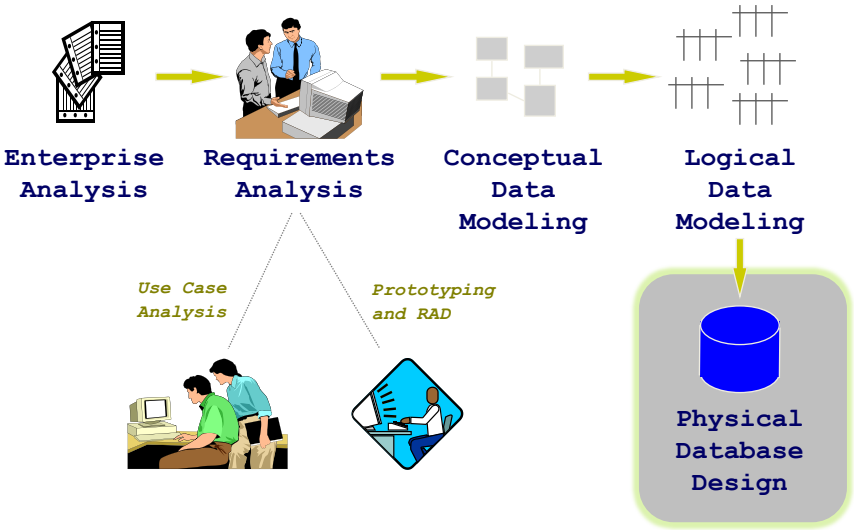
Systems Analysis Lifecycle



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Multi-Tier Data Architectures

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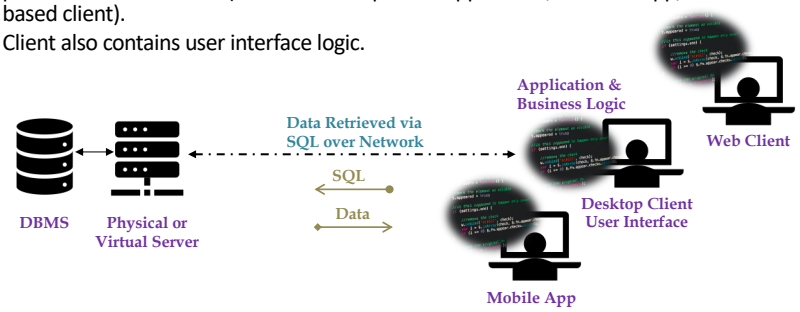
Two-Tier Architecture with Business Logic on the Client

- Data and business logic is distributed two tiers. The data is within a DBMS housed on a server while the user interacts through a client interface.
- This client/server architecture is often called a "fat client" architecture.
- Business logic, including constraint and integrity checking and calculations, are performed on the client (either a desktop client application, a mobile app, or a browser-based client).
- Client also contains user interface logic.



4

Two-Tier Architecture with Business Logic on the Server

- Data and business logic is distributed two tiers. The data is within a DBMS housed on a server while the user interacts through a client interface.
- This client/server architecture is often called a "thin client" architecture.
- Business logic, including constraint and integrity checking and calculations, are performed on the database within the server using triggers and stored procedures.
- Client hosts user interface logic only.

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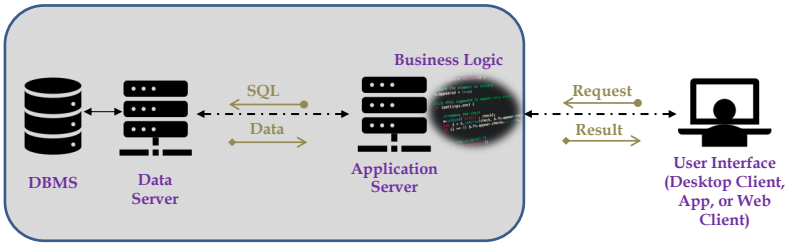
Three-Tier Architecture with Application Server

- Data is on data server and all business logic resides on an application server.
- Communication between the "thin client" is done through remote procedure invocation technology such as WebRPC, SOAP, or custom communication protocols.



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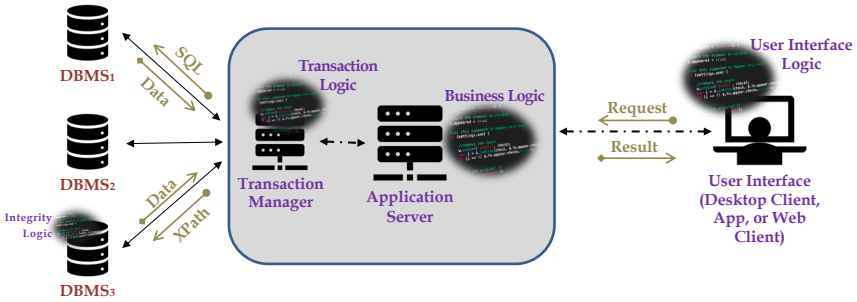
n-Tier Distributed Architecture

- Data and business logic is distributed across tiers using combinations of triggers, stored procedures, and business logic on an application server.
- This is the preferred architectural model if the data is distributed across several (possibly disparate) databases.
- A transaction manager often handles distributed transaction logic, although this logic is often co-located on the application server (logical tiers).



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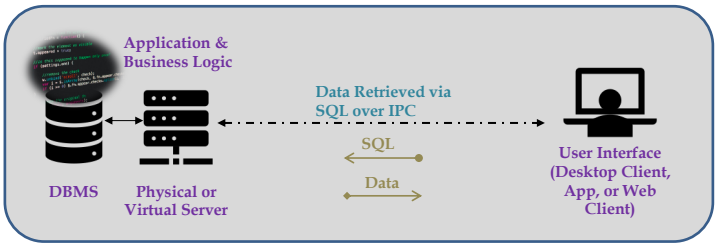
Physical vs Logical Tiers

- The tiers do not have to be physical tiers, i.e., the server does not have to be a separate computer or virtual machine.
- A single computer or virtual machine can host all the tiers leading to a logical two-tier or multi-tier architecture.



Logical Two-Tier Client/Server Architecture with a Thin Client

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Summary, Review, & Questions…

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