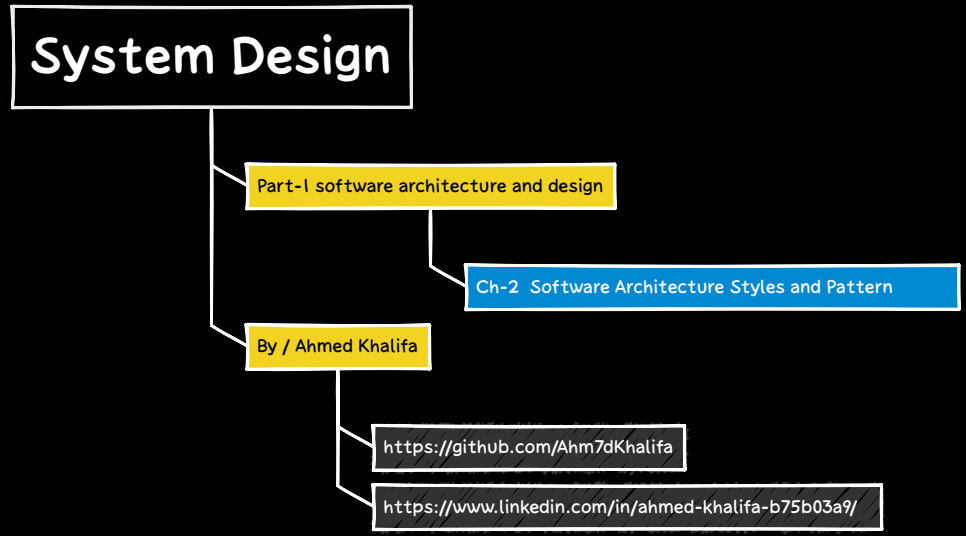
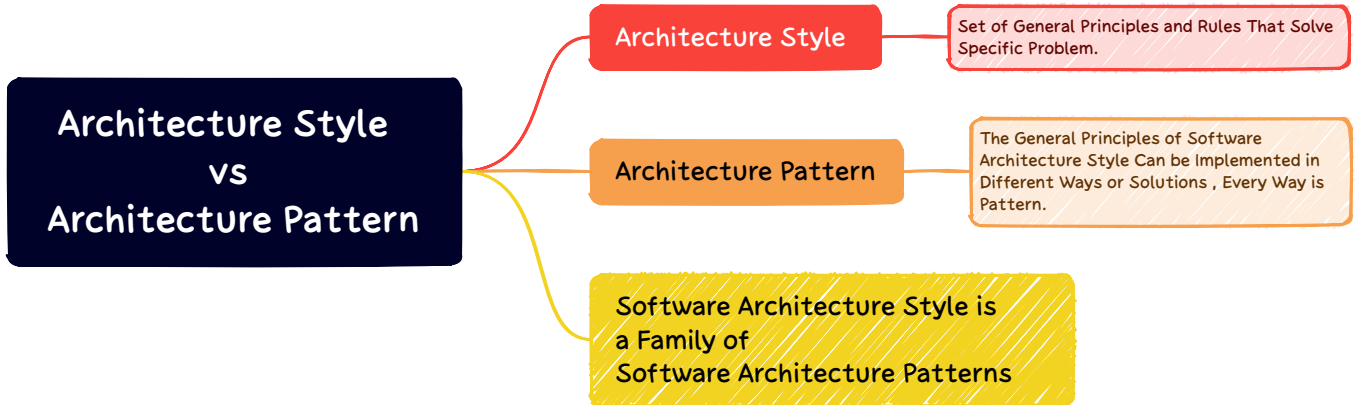




Software Architecture Road Map

Structure Style

- 1.Monolithic Style
  - Layered Architecture Pattern
  - Component Based Architecture Patterns
    - angular
    - react
  - Page Based Architecture Patterns
    - Asp.net Core Razor Pages
  - Model-View Based Architecture Patterns
    - MVC
    - MVVM
    - MVP
  - Pipeline architecture pattern
  - Microkernel architecture pattern
- 2.Distributed Style
  - N Tier Architecture Pattern
  - Service-oriented architecture pattern
  - Microservices architecture pattern

Software Development Style

- Database Centric Style (CRUD Apps)
  - 3 Traditional Layered Pattern
- Domain Centric Style
  - Clean architecture pattern
  - Onion architecture pattern
  - Hexagonal architecture pattern

Communications Style

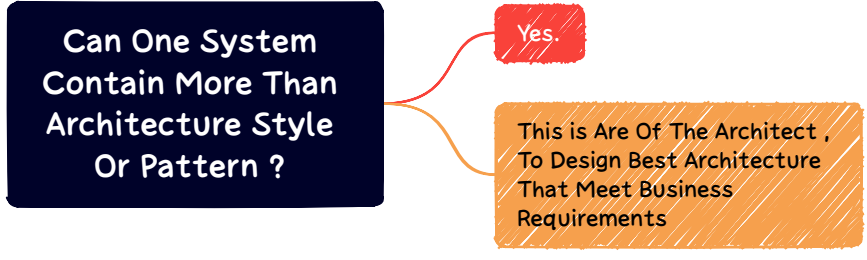
- Synchronous Communications Style
  - Request Driven Architecture Pattern
- Asynchronous Communications Style
  - Task Driven Architecture Pattern
  - Event Driven Architecture Pattern
  - Meesage Driven Architecture Pattern

Cloud Style

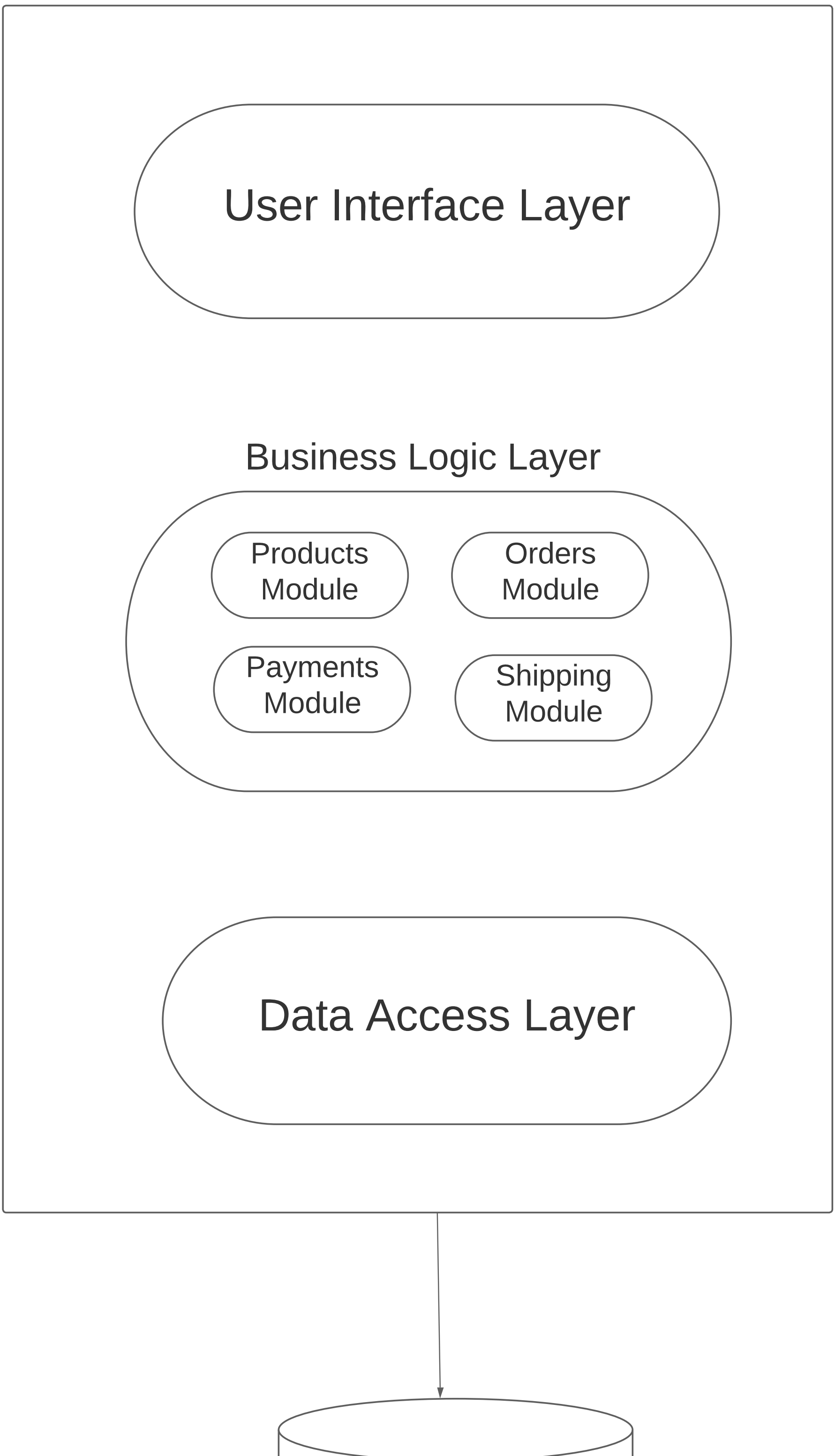
- coming soon

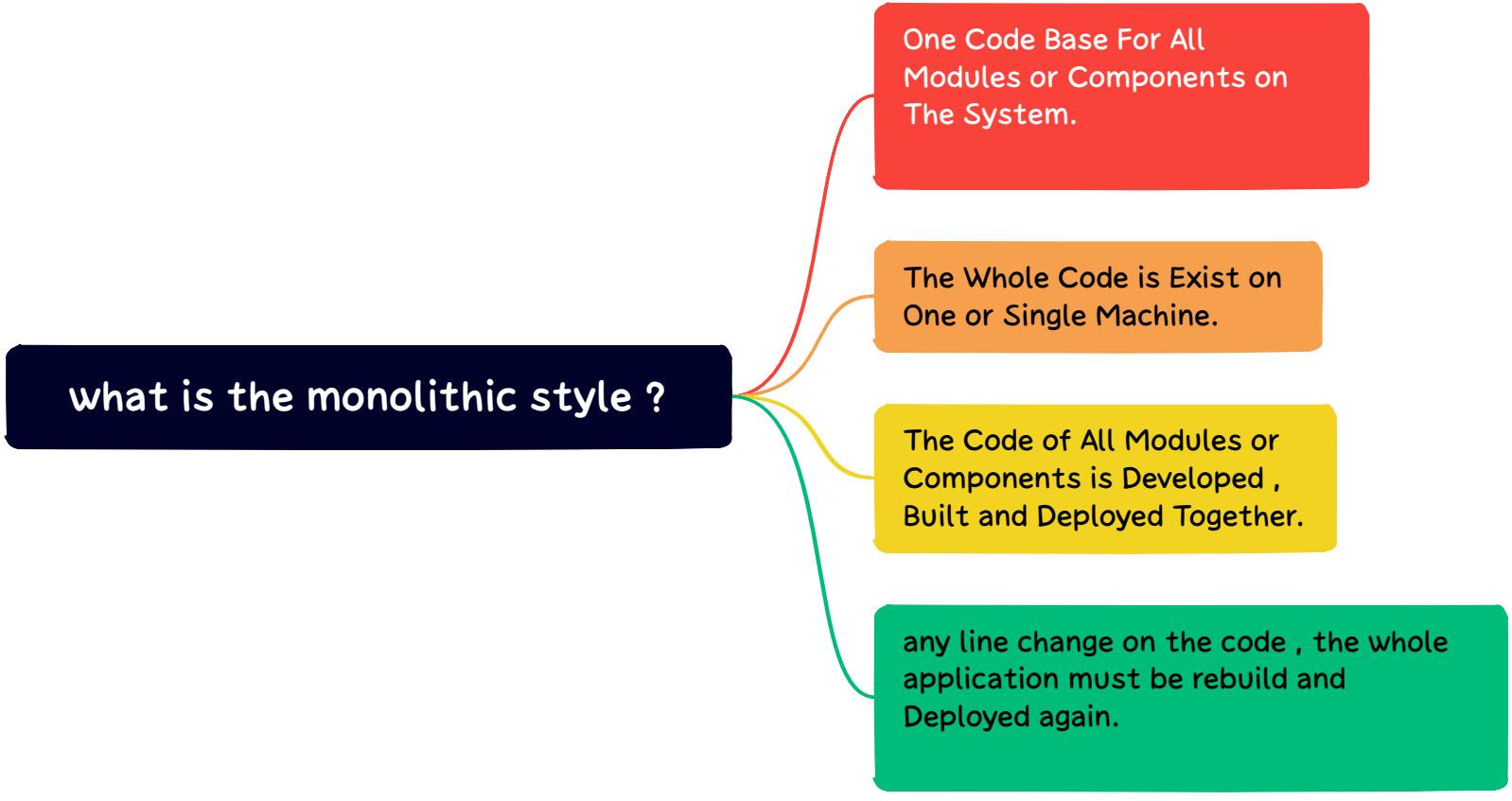
Big Data and Computed Styles

- coming soon



monolithic style





Advantages and Disadvantages of monolithic Style

	Topic	Advantages	Disadvantages
1	**Communications Performance and Latency**	**- connections between different modules is done at same the machine or code base and this more faster than distributed or microservices architecture which Need to make network call.**	
2	**Deployment**	**- easy and simple**	**- any line change on the code , the whole application must be rebuild and deployed again.** **- slower : when the size of project increase , the time of deployment increase.**
3	**Development**	**- easy to understand when : developer easy to understand the business and code when the project is small.**	**- complex to understand when : developer has a lot of complexity to understand the business and code when the project is large specially when there are a lot of coupled code and intercommunications between modules or components.**

Advantages and Disadvantages of monolithic Style

	Topic	Advantages	Disadvantages
4	**Scalability**		**- can't scale individual components for ex if orders module has a lot of traffic and load than other modules , we can not scale orders module only , we must copy the whole application on another server.**
5	**Availability**		**- If there's an error in any module, it could affect the entire application's availability**
6	**Technology Stack**		**- Usually Single Technology Stack (one programming language - single database - ...) - very very difficult and complex to adopt any new technology which is well suited for a particular functionality as it affects the entire application, both in terms of time and cost. - for ex :**

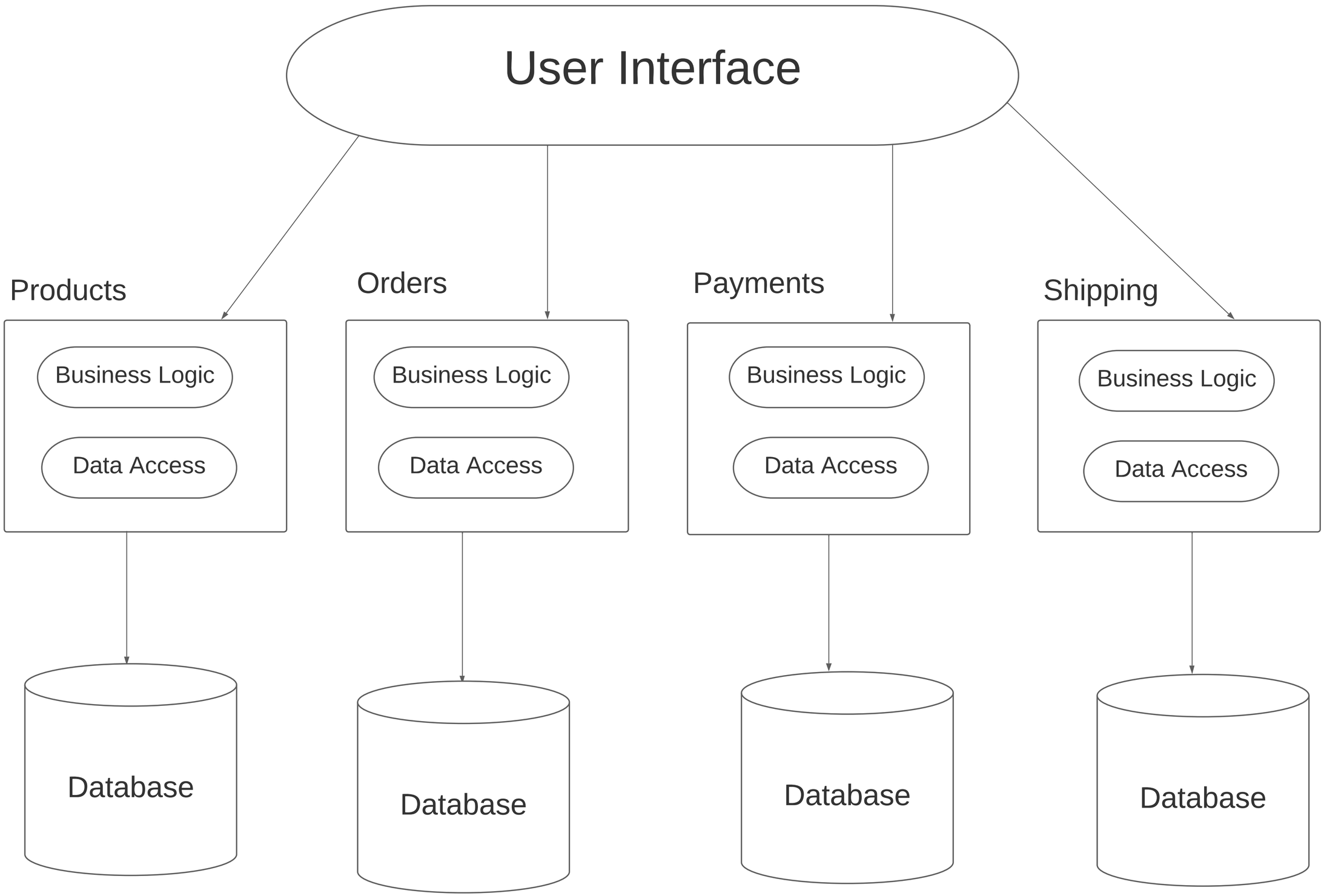
Advantages and Disadvantages of monolithic Style

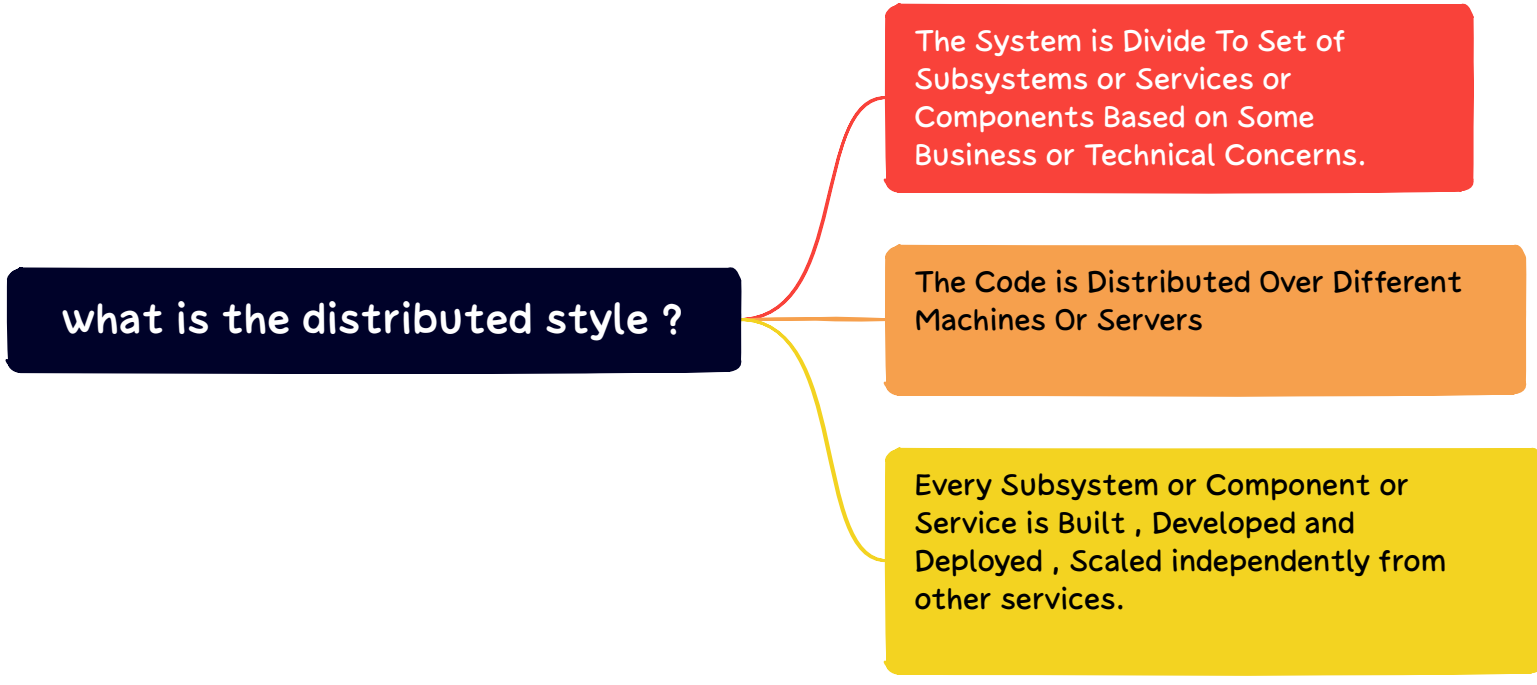
	Topic	Advantages	Disadvantages
7	**Simplified testing**	**Since a monolithic application is a single, centralized unit, end-to-end testing can be performed faster than with a distributed application**	
8	**Easy debugging**	**With all code located in one place, it's easier to follow a request and find an issue.**	

Type something

Distributed Style

Type something





Advantages and Disadvantages of distributed style

	Topic	Advantages	Disadvantages
1	**Communications Performance and Latency**		**- More Slower Than monolithic : Because There are a networking Call Between Different Services Because Every Service in Different Machine.**
2	**Deployment**	**- more complex than monolithic**	**- faster : when any line change on some service , the system rebuild and deploy only this service , no need to rebuild or redeploy the whole system as monolithic.**
3	**Development**	**- Every Team Will Focus Only on Specific Business and Subdomain.**	**Developers Will Face Challenges Like : - Integration Between Different Services. - Distributed Transactions. - Consistency.**

Advantages and Disadvantages of distributed style

	Topic	Advantages	Disadvantages
4	**Scalability**	**Every Service Can Scaled Independently Based on its Traffic Without Needing To Replication The Whole System as Monolithic Architecture**	
5	**Availability**	**if one service is down , the others services is still working without any problems**	
6	**Technology Stack**	**Every Service Can Have Different Programming Language, Frameworks , Database , Architecture Pattern**	

Advantages and Disadvantages of distributed style

	Topic	Advantages	Disadvantages
7	**Debugging**		**- More Complex single business process can run across multiple machines or services , further complicating testing.**
8	**Testing**		**- More Complex single business process can run across multiple machines or services , further complicating testing.**