

painting by Jyoti Jagtap



# Domain-Driven Design And Microservices Explained with Examples

Learn to clarify and focus the boundaries of your system's architecture

Sandeep Jagtap

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*To My Mother and Father. Thanks for everything!*

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# Introduction to Domain-Driven Design

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## What is Domain Driven Design aka DDD

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# Domain Events - Understanding building blocks of DDD

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## Use case 5

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## DDD Concept 1 - Domain Event

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# Entity - Understanding building blocks of DDD

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## Use case 6

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## DDD Concept 2 - Entity

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# Value Object - Understanding building blocks of DDD

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## Use case 7

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## DDD Concept 3 - Value Object

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## Is it value object or entity

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# Domain Service - Understanding building blocks of DDD

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## DDD Concept 3 - Domain Service

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## Refactoring/Improving existing codebase or existing microservices

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## Recap of what we covered so far

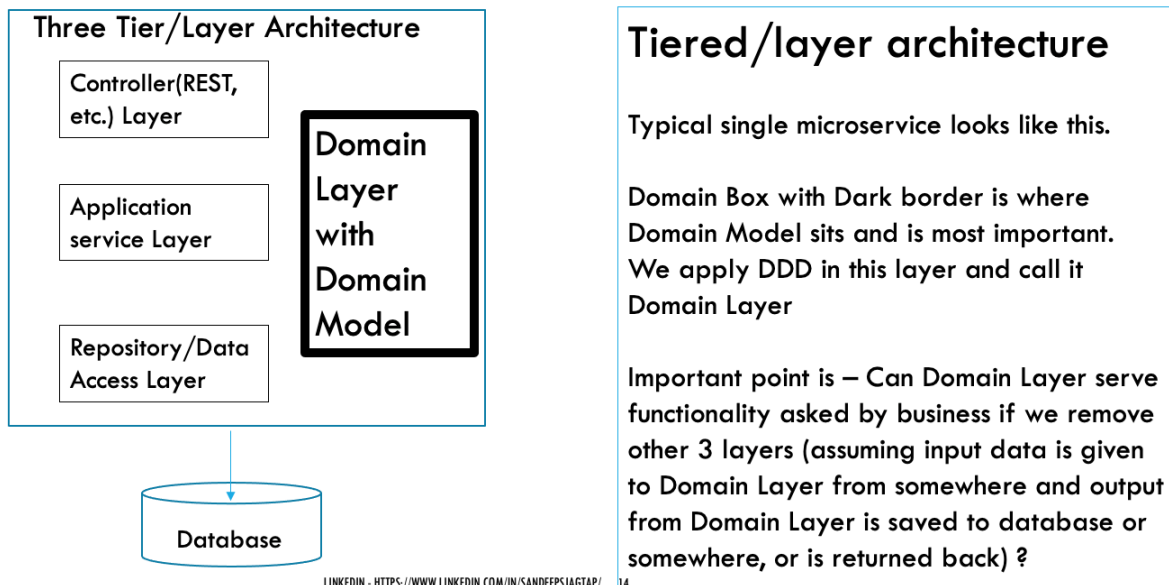
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# What is Domain Layer / Domain Model

Lets try to understand what a Domain Model or Domain Layer is.

The code used in previous chapter with java's package `com.ddd_bootcamp.domain` makes a Domain layer/ Domain Model.

We all are familiar with three tier/n-tier/layered architecture which is used in monolith, microservices or SOAP based services.



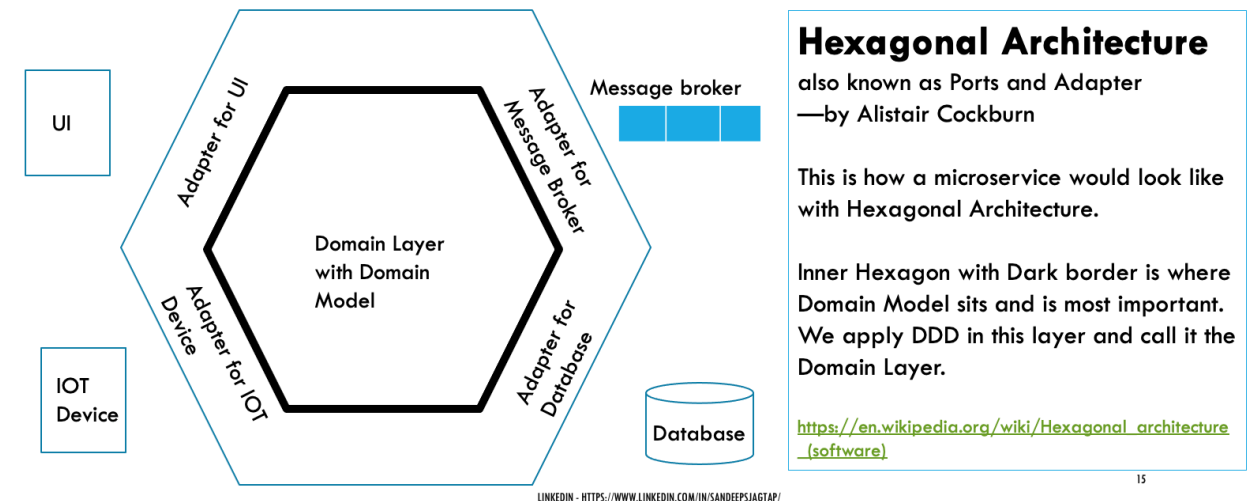
Three tier architecture

The most important layer is the Domain Layer here, the vertical box in the diagram above. A good litmus test for the current code base is if we remove Controller, Application Services/Facades and Repository/DAO layer, are we still able to achieve functionality that Business people want us to implement.

If our Domain Layer is able to represent all functionality needed by business given we provide Domain Layer needed input data. Domain Layer is what Domain Driven Design focuses on. Domain Layer takes the data given and then does necessary things to achieve business functionality, Domain Layer should not care about what modified state is written to the database or something else like Kafka messaging system.

**Domain layer takes input and does NOT care about where input data came from. Domain layer returns data and does NOT care where that data is being saved or sent to e.g DB, Message broker**

There is a popular architecture style called Hexagonal Architecture also known as Ports and Adapters.



Hexagonal architecture

The most important layer is the Domain Layer here and is represented by inner hexagon. We can keep adding new adapter as needed. If we want to send domain events to Kafka then we can write new adapter. Adapter in hexagonal architecture is similar to application service or repository layers in three tier/n-tier/layered architecture.

DDD helps with UI as well Database not influencing the design of domain layer/model.

Each microservice can use Layered Architecture or Hexagonal Architecture.

In CQRS architecture style (which we will look at in upcoming chapters), we have Write side Domain model and Read side Model.

Read model is influenced by UI requirements/Consumers.

Write side model should not be influenced by UI and Database.

# Understading Aggregates and relationship to microservices

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## Use case 9

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## Use case 10

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## Aggregates

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## Relationship to microservices

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## Other scenarios in which Aggregates may be split

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# Bounded Contexts

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## Use case 11

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## Subdomains

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# Modular Monoliths

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# github code links

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