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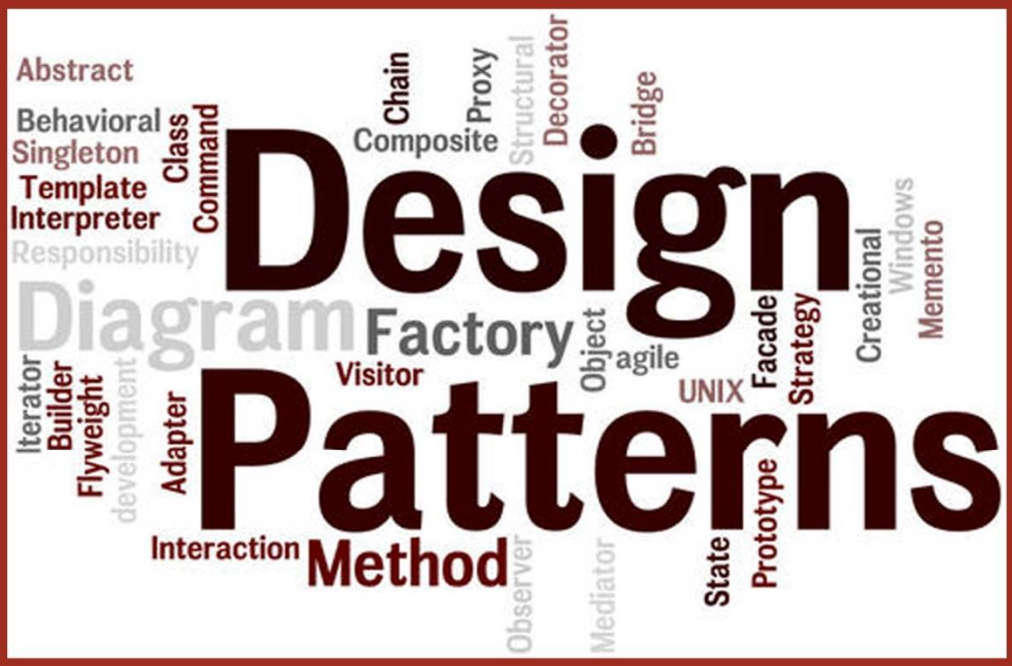
Design Patterns

Enterprise Application Level Design Patterns

6. Message Facade



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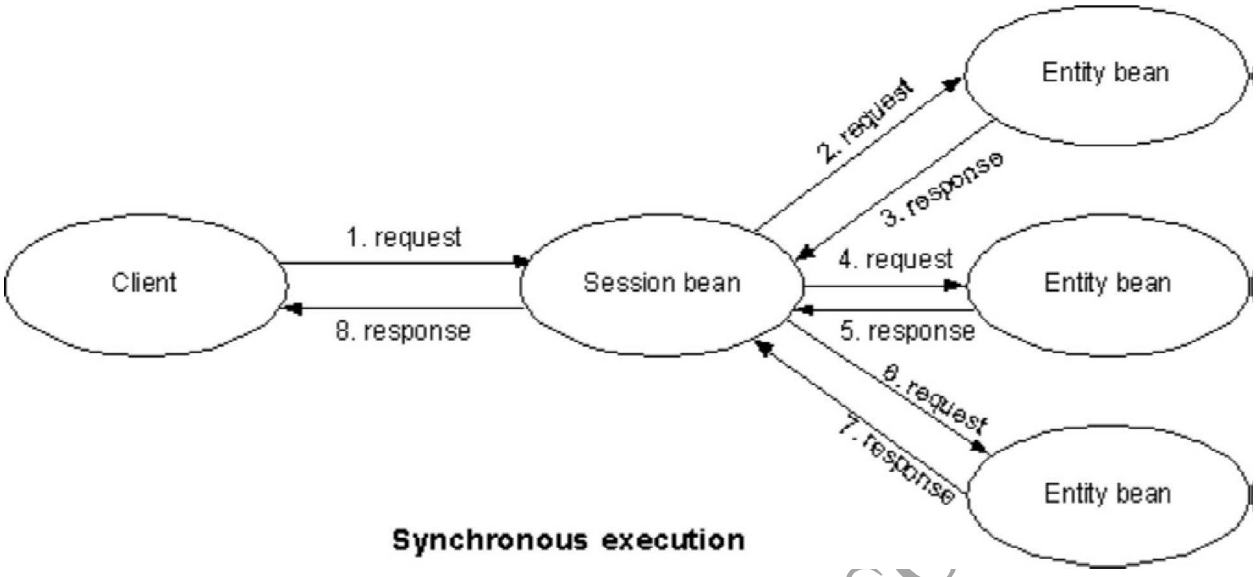
Message Facade

Problem: In session façade design pattern implementation the client application interact with session façade synchronously and the session façade interact with other business components synchronously. Due to this the client has to wait long time to generate next request because session façade generates response to client only after communicating with multiple other business components.

Session bean and entity bean methods execute synchronously that means the method caller has to wait till a value is returned. In some situations like sending hundreds of mails or firing a batch process or updating processes, the client does not have to bother about return value. If you use synchronous session and entity beans in such situations, they take a long time to process methods and clients have to wait till the method returns a value.

The following figure illustrates how session bean and entity bean methods execute synchronously:

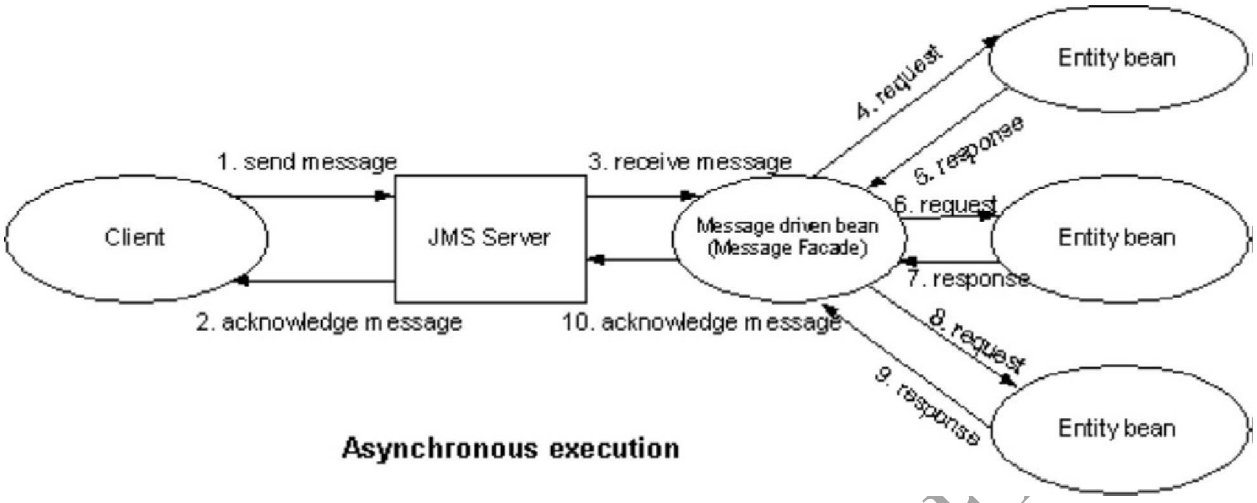


Synchronous execution

The client has to wait till all the eight synchronous steps complete. This synchronous execution takes a long time and has an impact on performance when the method process is huge.

Solution: work with **Message Faced** design pattern which gives message based asynchronous Communication.

To avoid blocking of a client, use asynchronous message driven beans, so that client does not have to wait for a return value. If a client uses asynchronous messaging then the client need not wait for a return value but can continue its flow of execution after sending the message. The following figure illustrates how a client sends a message and how a message facade (Message driven bean) processes messages asynchronously.



Asynchronous execution

Here the client sends a message to JMS server gets acknowledgement from the JMS server immediately in two step process and continues its flow of execution. Whereas JMS server delivers the messages to Message driven bean (Message Facade) without blocking client's execution and Message driven bean executes messages. You can use normal JMS consumers instead of Message driven beans. This process improves performance by reducing the client's blocking time considerably.

Note: Request/ Response model communication is generally **Synchronous** Communication where as **Message** based communication is generally **Asynchronous** Communication.

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