

# Architectural Views

*Software Architecture*

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*Interesting Software is Complex*

Many aspects to the design of its architecture.

## *Architectural Design*

Managing technical complexity.

*Question*

How do you describe a complex architecture, without making it too difficult to understand?

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### *Answer*

## *Architectural Views*

- Only consider one aspect at a time.

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  - context, structure, behaviour, infrastructure

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- The Open Group Architecture Framework (TOGAF) *[Forum, 2022]*
- ISO/IEC/IEEE 42010:2011 *[iso, 2022]*

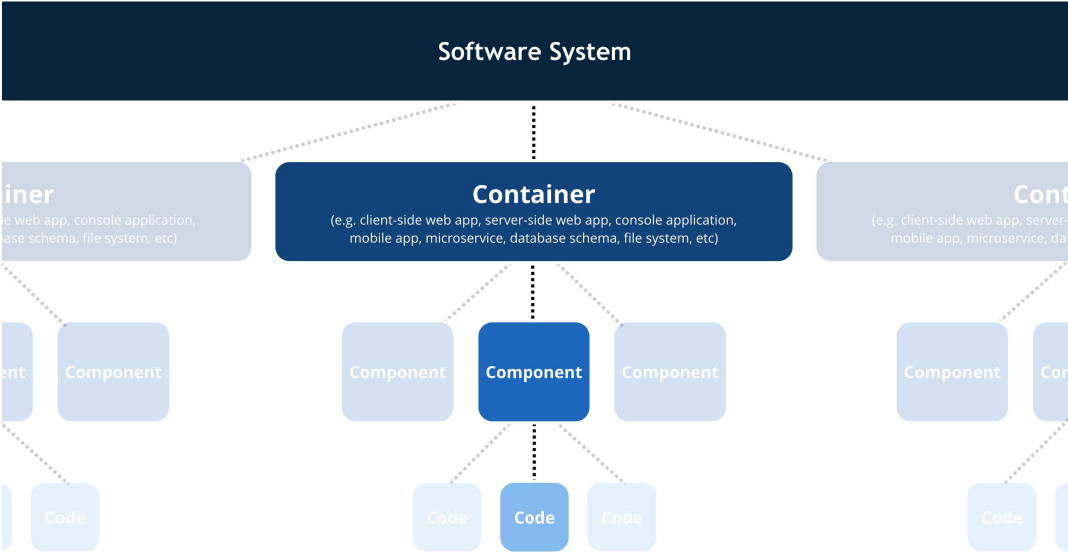
## Diagrams & Notation

- A *good* diagram is worth a thousand words
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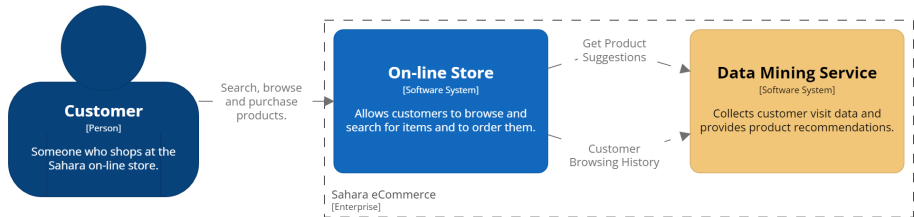
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- C4 – informal, simple structure *[Brown, 2023]*
- UML – formal, well-defined language *[uml, 2017]*
- You probably don't want to know about alternatives

# C4 Model: Levels



## C4 Model: Context



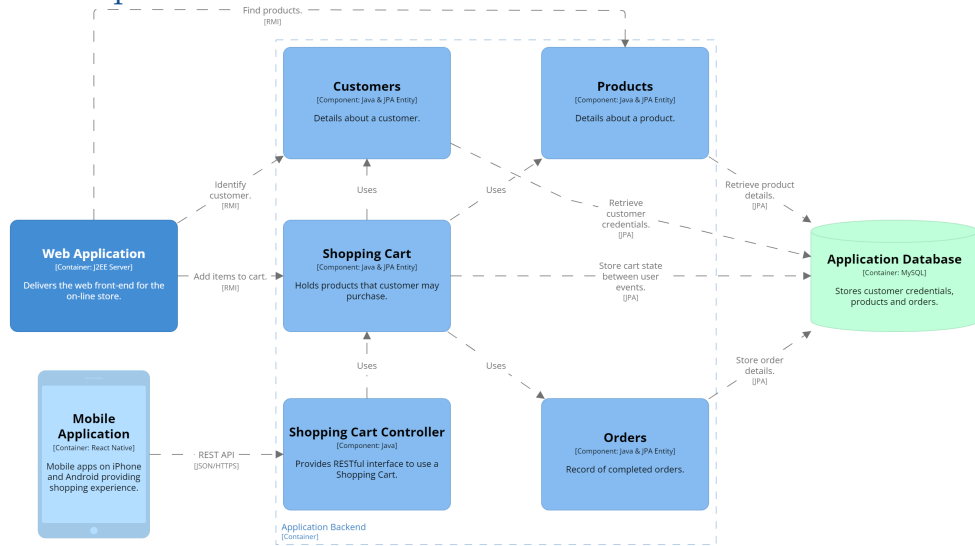
How software system fits into broader *environment*

# C4 Model: Containers



*Structure* of the software system

# C4 Model: Components



*Elements* that implement a container

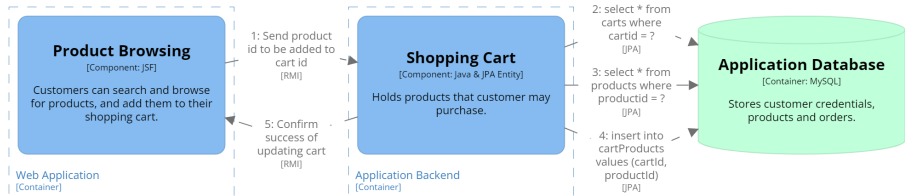


# C4 Model: Code



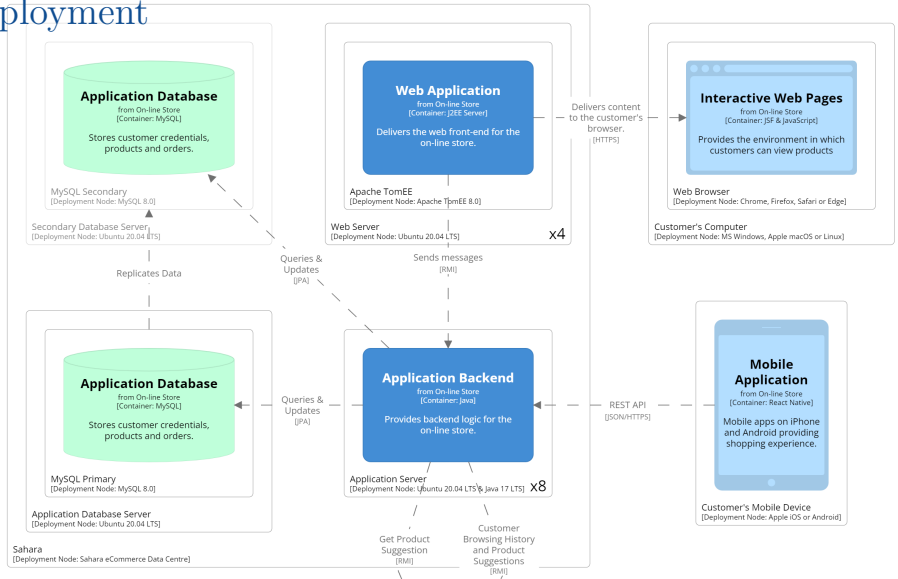
*Structure* of code implementing a component

## C4 Model: Dynamic



How parts of the model *collaborate* to deliver *behaviour*

# C4 Model: Deployment



*Infrastructure* on which system will be deployed

## 4+1 Views

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- address non-functional requirements
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Scenario – *Demonstrate* functionality delivered by architecture

- use case details
  - *drive* functional design of architecture
  - *validate* design of architecture
  - *illustrate* purpose of architecture



*Reading...*

“Architectural Views” Notes<sup>1</sup> *[Thomas and Webb, 2023]*

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<sup>1</sup>Remember, I said you had to read the notes.

## References

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