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C4 Modelling

Applying the C4 model on Frontends

Marcel Schutte - 18-09-2024

The C4 method is a simple, lightweight approach to describing and visualizing your software architecture using layered levels of abstraction.

Easy to learn for everyone and perfect for both technical and non-technical audiences.

Purpose

- Introduction to the C4 model
- Explore practical applications
- Examine its role in Frontend Architecture

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Introduction

- Easy to understand
- Clear communication
- Flexible and scalable
- Focus on important aspects
- Better designs
- Improved collaboration
- Applicability in diverse domains

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Introduction

C4 stands for:

- Context
- Container
- Component
- Code

Purpose: Visualize software architecture at different levels of detail.

Focus: Provide clarity for both technical and non-technical stakeholders.

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The four key levels of C4

- **Context**: High-level overview of the system and its users.
- **Container**: Breakdown of the system into applications, services, and databases.
- **Component**: Detailed view of the internal structure within each container.
- **Code**: In-depth look at the source code and implementation details.

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The four key abstractions of C4

- **Person**: Represents users or actors interacting with the system.
- **Software Systems**: High-level systems interacting with users or other systems.
- **Containers**: Applications, databases, or services that compose the system.
- **Components**: Modules or parts within containers that handle specific functionality.

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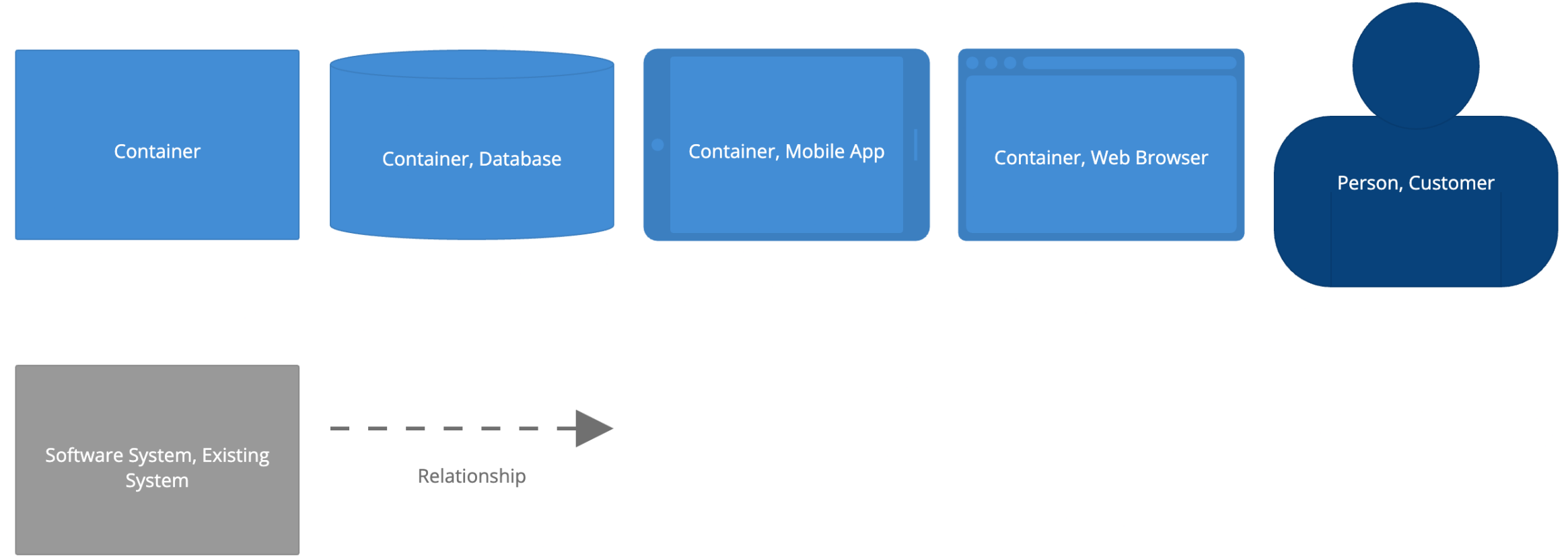
Abstractions



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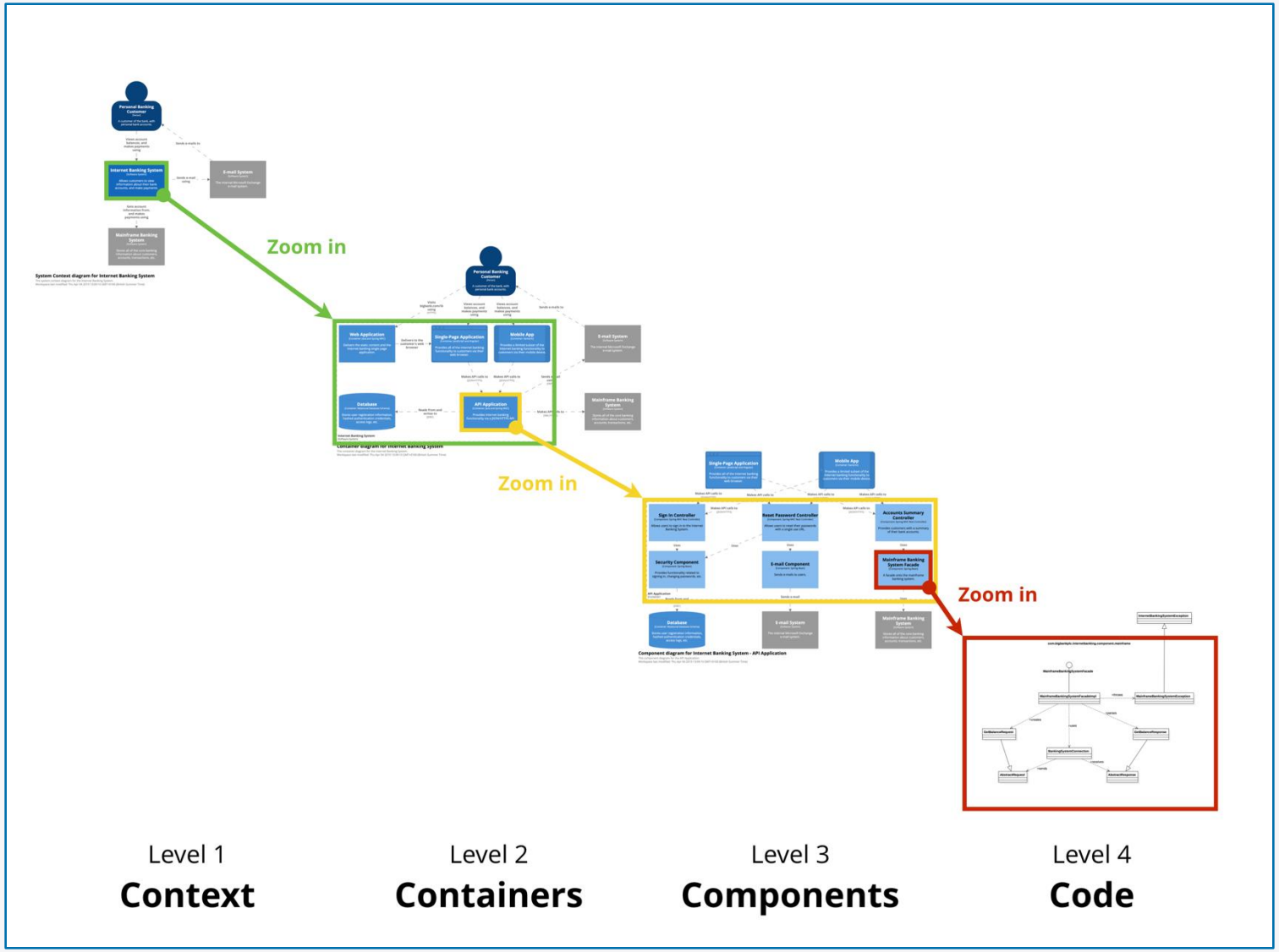
C4 in practice



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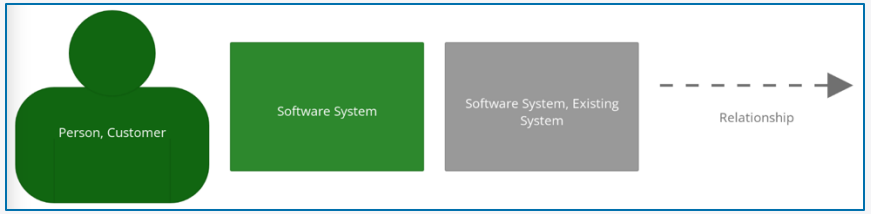
Context diagram



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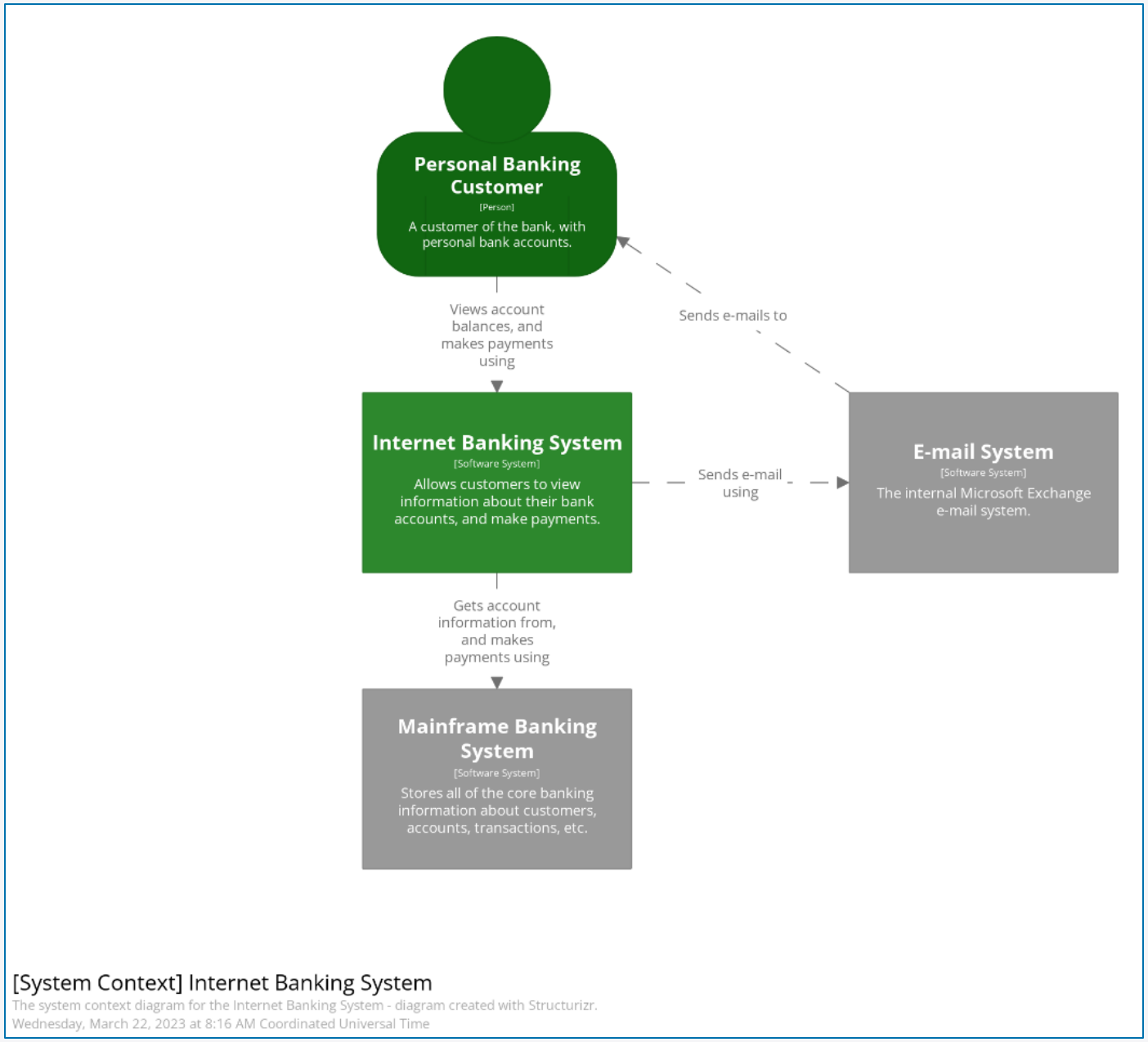

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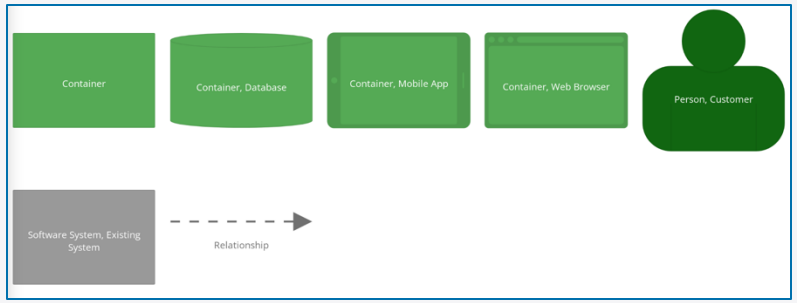
Container diagram



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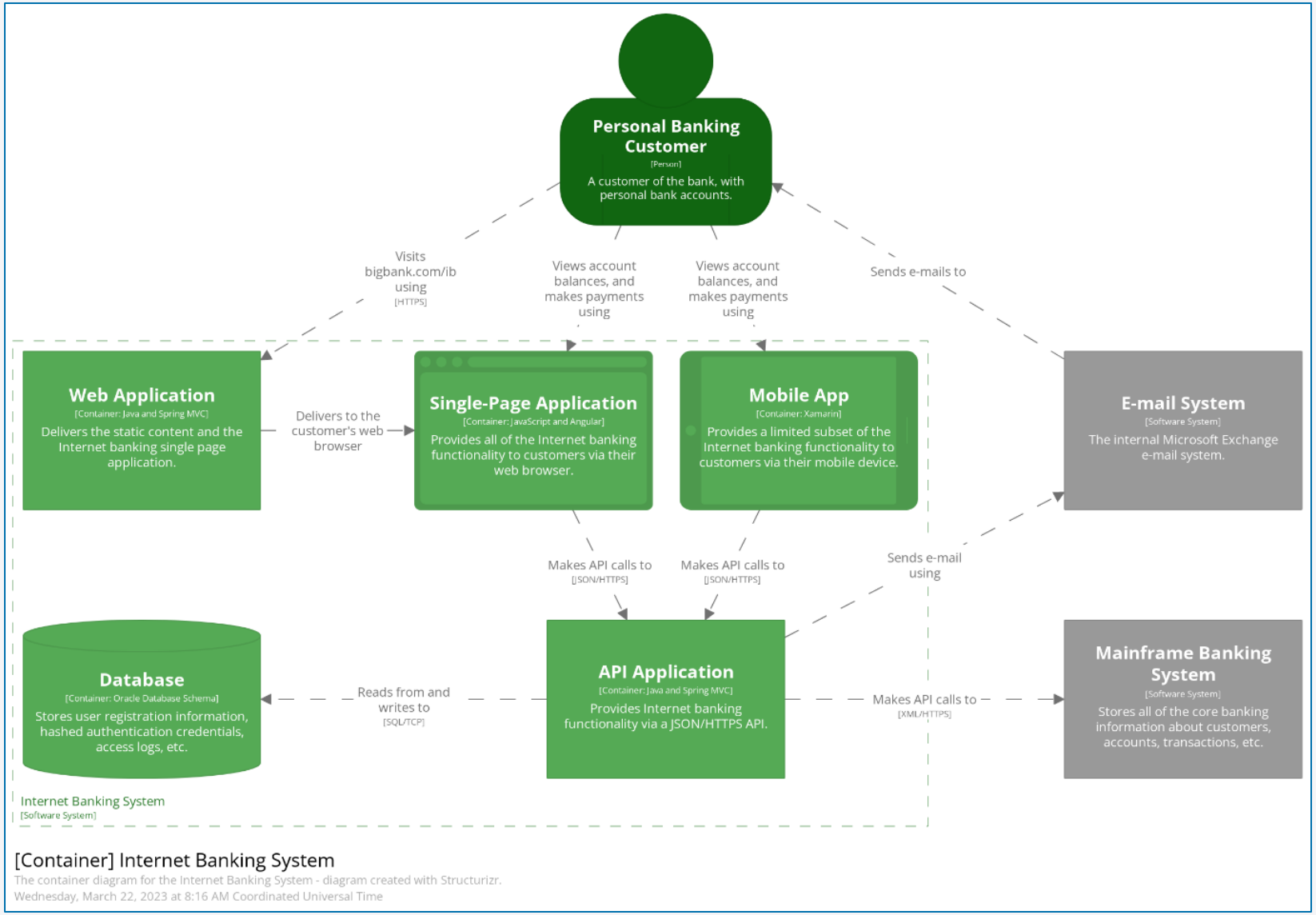

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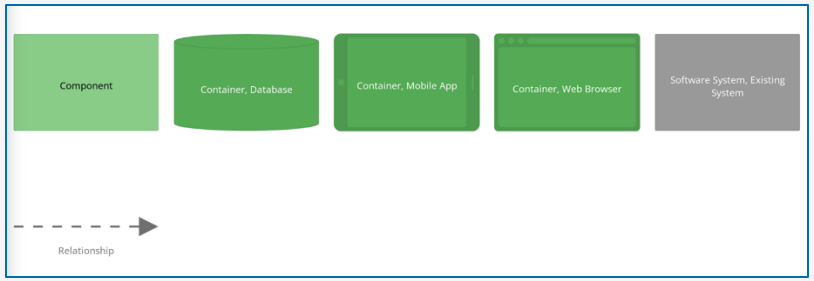
Component diagram



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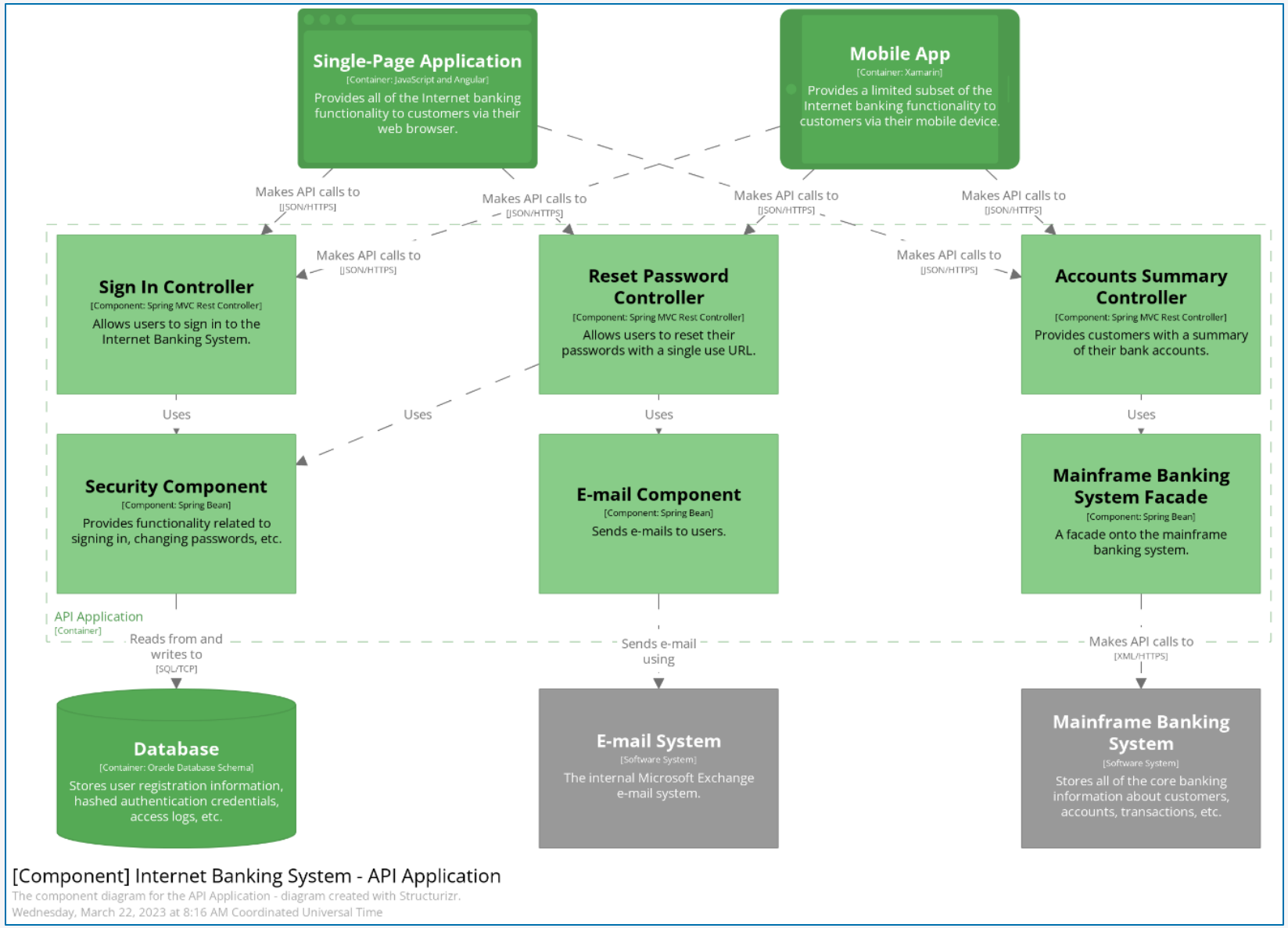

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C4 and Frontend Architecture

Why apply the C4 model to frontend:

- Provides a clear overview of the architecture, even if it runs on the client-side.
- Helps distribute responsibilities and facilitates collaboration with backend teams.

Benefits for teams:

- Enhances communication between frontend and backend teams and offers a structured way to design frontend systems.

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Component layer in Frontend Architecture (level 3)

Changes to the component diagram:

- Component diagram -> module diagram
- UI guides the breakdown

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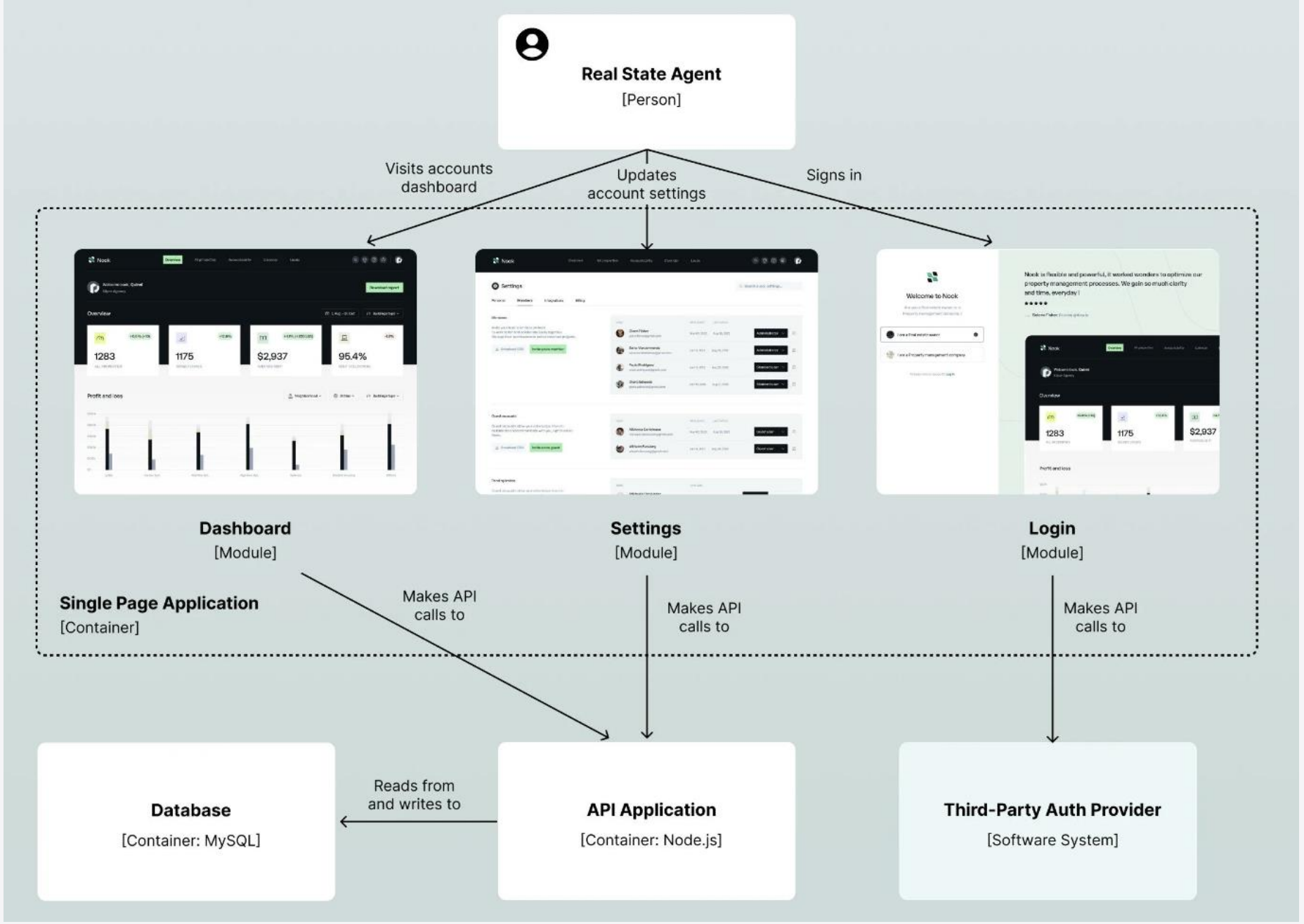

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Component layer in Frontend Architecture (level 3)

Breakdown of the UI of a particular module

- Screens
- Features
- Components

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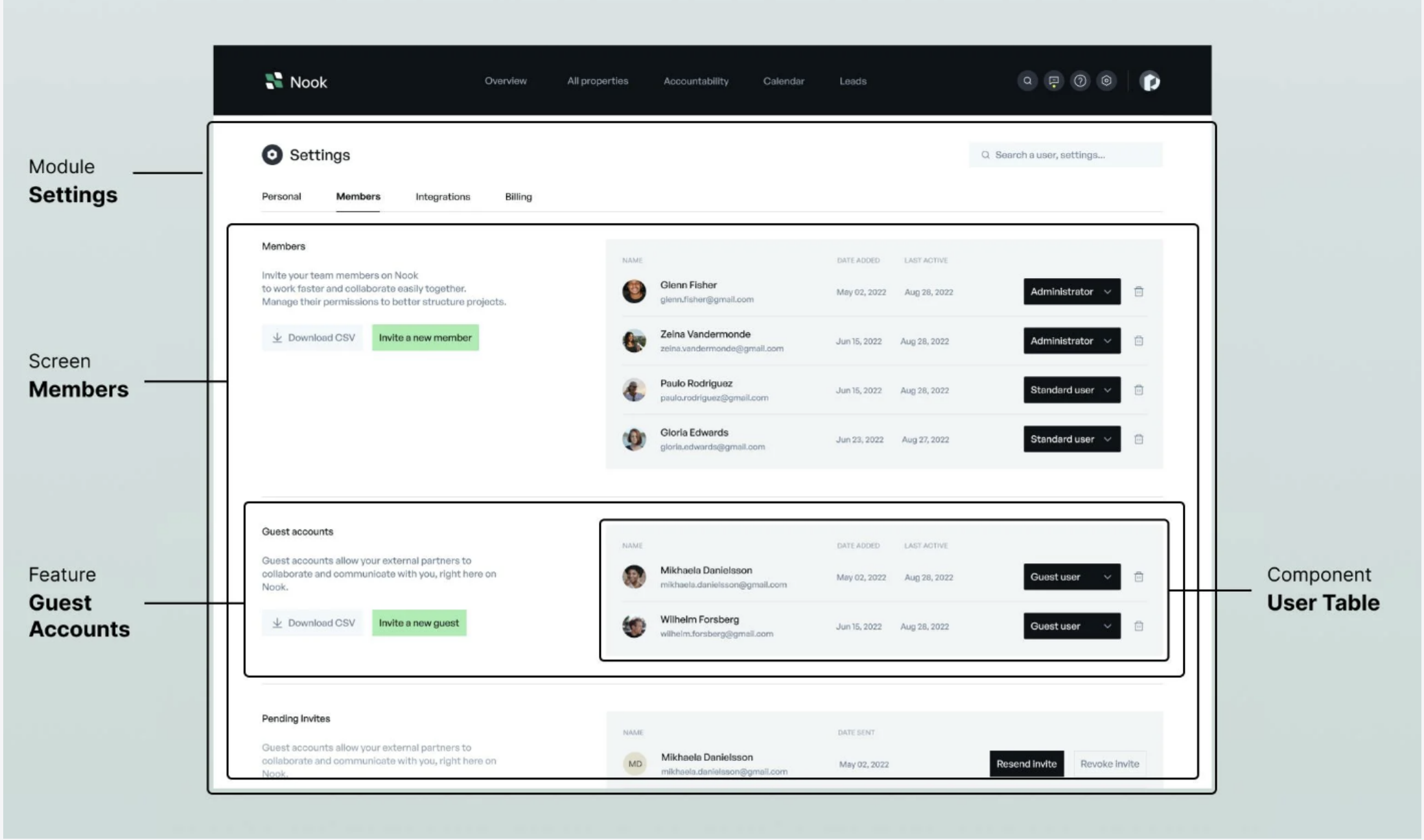

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Key Takeaways

Pro’s:

- Clear communication
- Flexible and scalable models
- Better designs
- Higher productivity

Tips:

- Start small
- Use tools
- Share your models
- Document
- Keep up-to-date

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Key Takeaways

- **C4 model** breaks down systems into **Context**, **Container**, **Component**, and **Code** views.
- Helps both **technical and non-technical** stakeholders understand system architecture.
- Offers a clear structure for modeling **complex systems** at different levels of detail.
- Especially useful for improving **collaboration** across teams by providing a shared understanding.
- Applicable to both **frontend** and **backend** architectures for a holistic view.

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Thank you for your attention!

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https://github.com/marceljschutte/slidedecks

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