A Collaborative Visual Database

by

Imed Adel

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1   Conceptual study

1.1   Detailed architecture

With our architectural patterns selected and our requirements fully defined, we can, now, proceed to producing detailed diagrams of our application. In the following sections, we will present our application's class, sequence, and activity diagrams.

1.1.1   Class diagrams

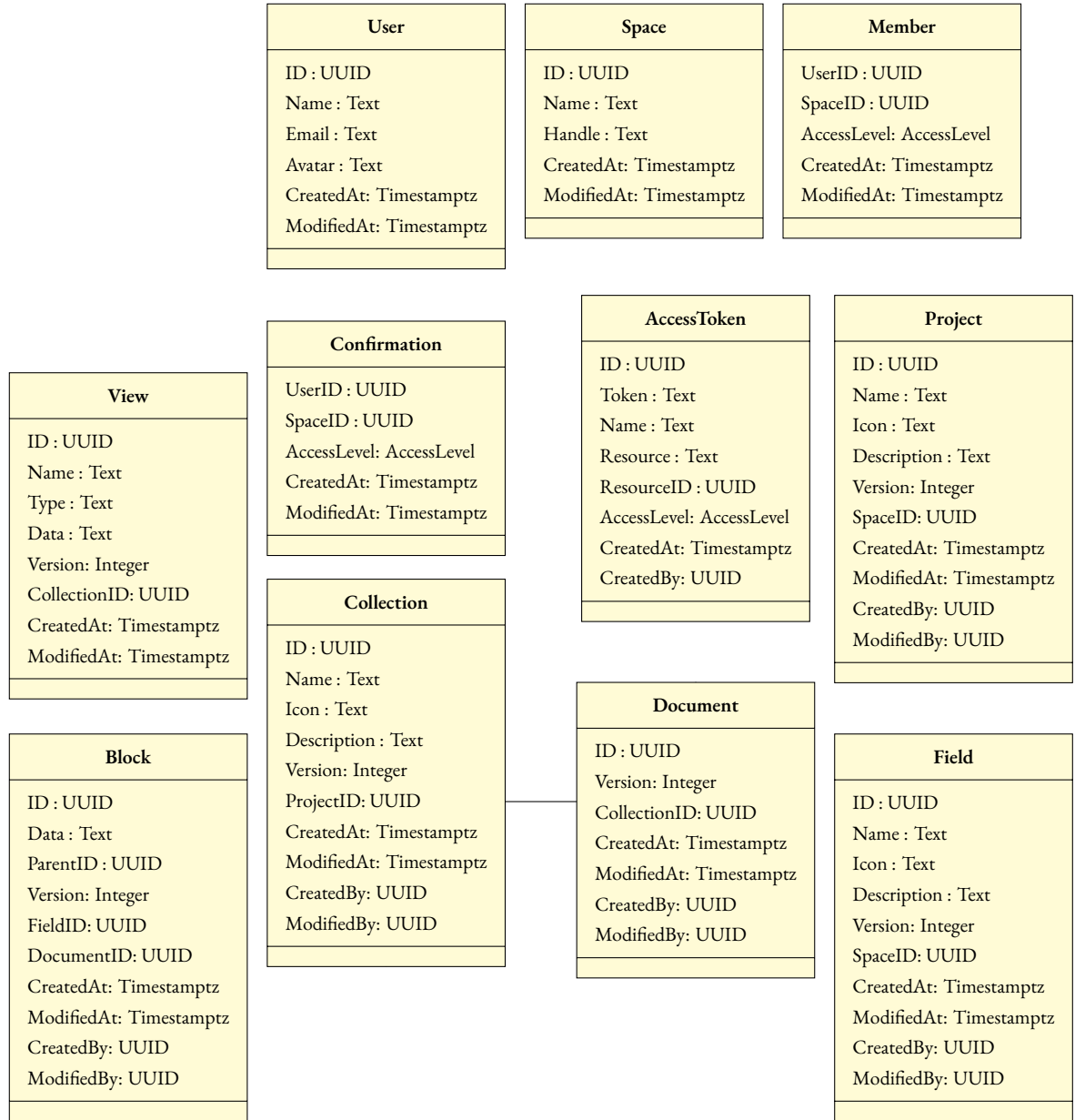Figure 1.1 represents our application's general class diagram.

User

ID : UUID
Name : Text
Email : Text
Avatar : Text
CreatedAt: Timestamptz
ModifiedAt: Timestamptz

Space

ID : UUID
Name : Text
Handle : Text
CreatedAt: Timestamptz
ModifiedAt: Timestamptz

Member

UserID : UUID
SpaceID : UUID
AccessLevel: AccessLevel
CreatedAt: Timestamptz
ModifiedAt: Timestamptz

View

ID : UUID
Name : Text
Type : Text
Data : Text
Version: Integer
CollectionID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz

Confirmation

UserID : UUID
SpaceID : UUID
AccessLevel: AccessLevel
CreatedAt: Timestamptz
ModifiedAt: Timestamptz

AccessToken

ID : UUID
Token : Text
Name : Text
Resource : Text
ResourceID : UUID
AccessLevel: AccessLevel
CreatedAt: Timestamptz
CreatedBy: UUID

Project

ID : UUID
Name : Text
Icon : Text
Description : Text
Version: Integer
SpaceID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz
CreatedBy: UUID
ModifiedBy: UUID

Block

ID : UUID
Data : Text
ParentID : UUID
Version: Integer
FieldID: UUID
DocumentID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz
CreatedBy: UUID
ModifiedBy: UUID

Collection

ID : UUID
Name : Text
Icon : Text
Description : Text
Version: Integer
ProjectID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz
CreatedBy: UUID
ModifiedBy: UUID

Document

ID : UUID
Version: Integer
CollectionID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz
CreatedBy: UUID
ModifiedBy: UUID

Field

ID : UUID
Name : Text
Icon : Text
Description : Text
Version: Integer
SpaceID: UUID
CreatedAt: Timestamptz
ModifiedAt: Timestamptz
CreatedBy: UUID
ModifiedBy: UUID

Figure 1.1: General class diagram

1.1.2 Sequence diagrams

1.1.3 Activity diagrams

1.2 Conclusion

2   Implementation

Researching the current solutions led us to formulate a set of requirements to ensure that Merebase offers the best experience.

Acronyms

CmRDT Commutative Replicated Data Type

CMS Content Management Software

CRDT Conflict-free Replicated Data Type

CvRDT Convergent Replicated Data Type

FDD Feature-Driven Development

JSON JavaScript Object Notation

MVC Model-View-Controller

MVVM Model-View-ViewModel

OT Operational Transformation

P2P Peer-To-Peer

RBAC Role-Based Access Control

SaaS Software as a Service

UI User Interface

UX User Experience

WOOT WithOut Operational Transformation