LoomLite v4.0 - System Flow Diagrams

Visual Reference Guide for Architecture and Data Flow

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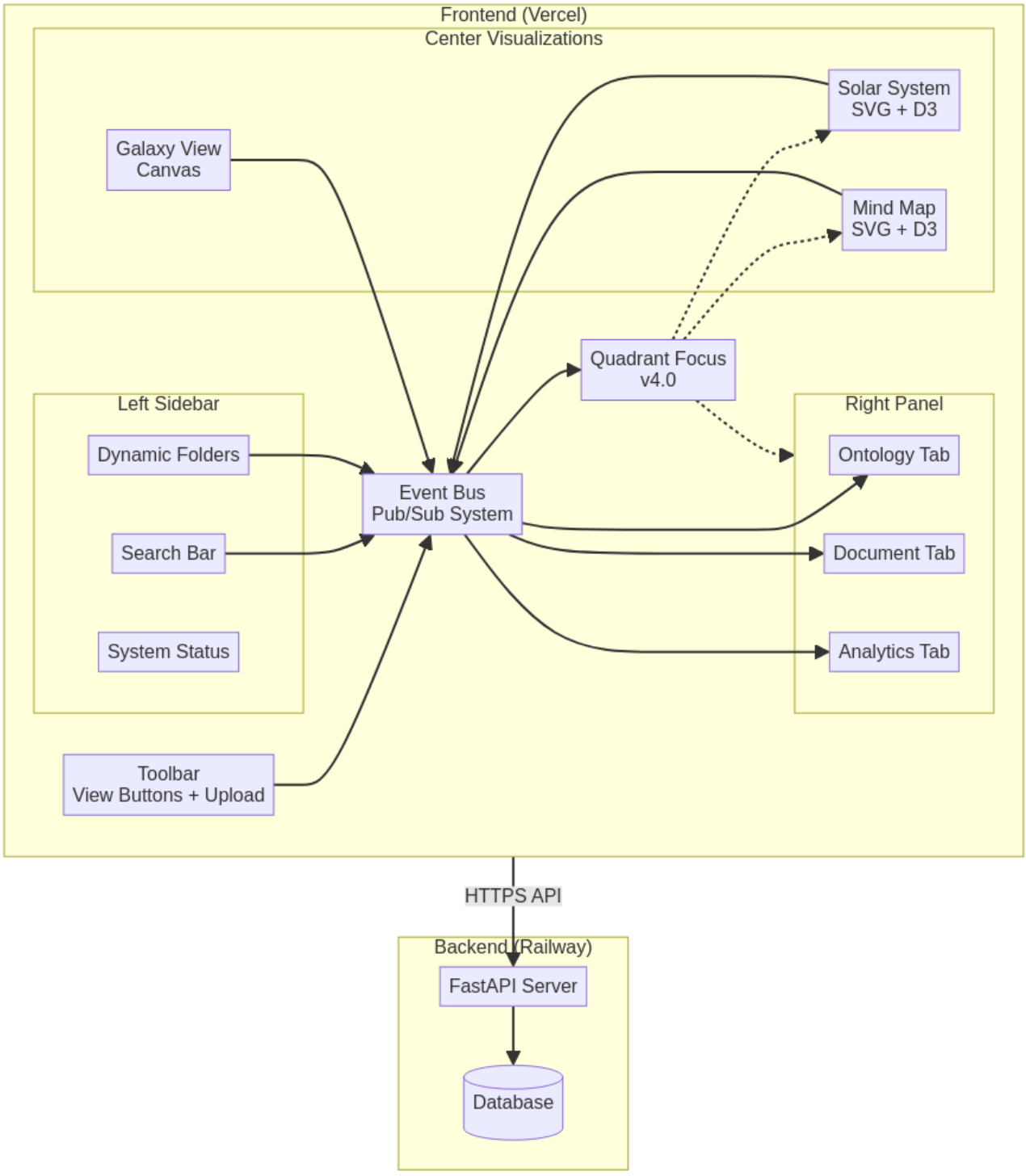
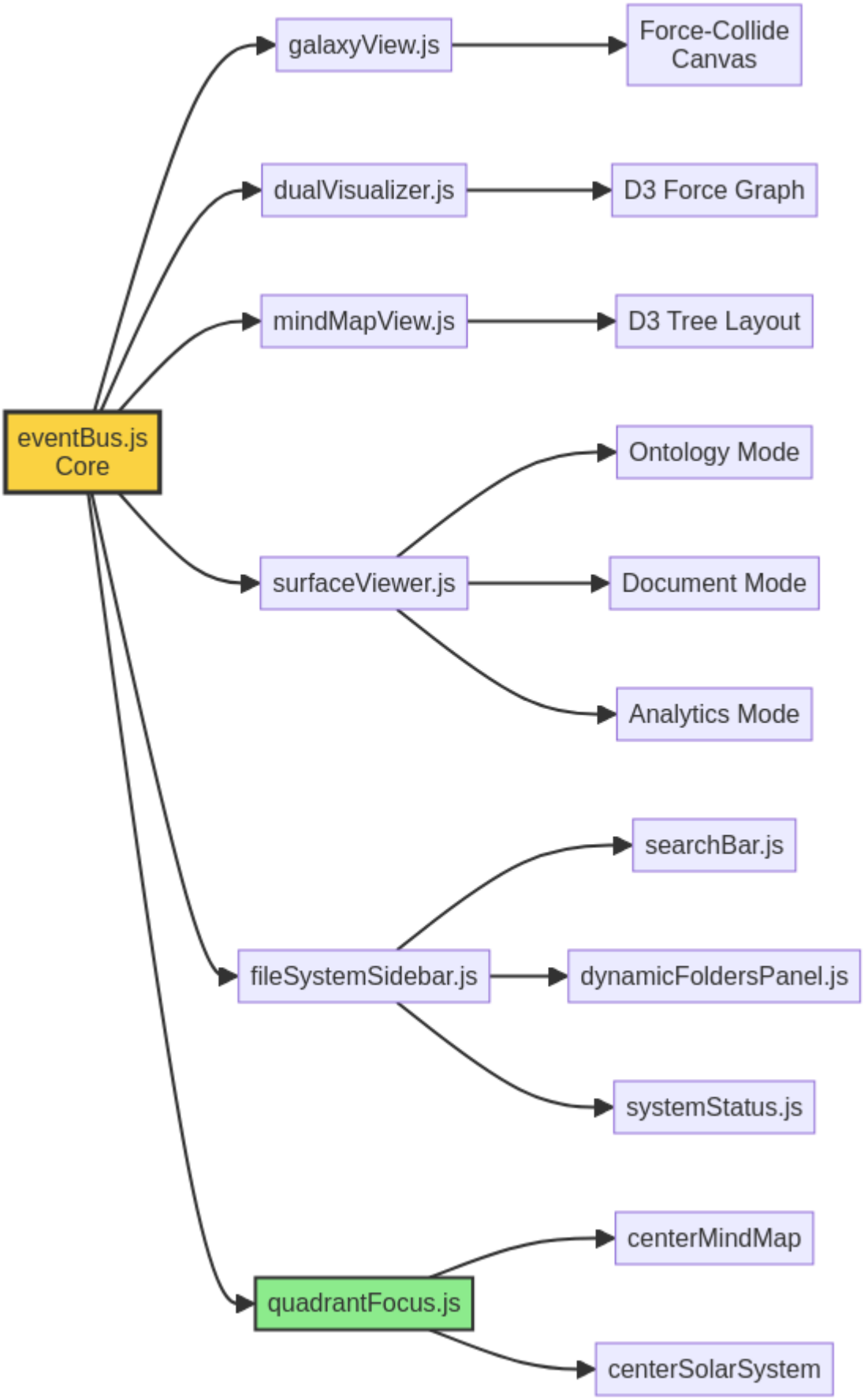
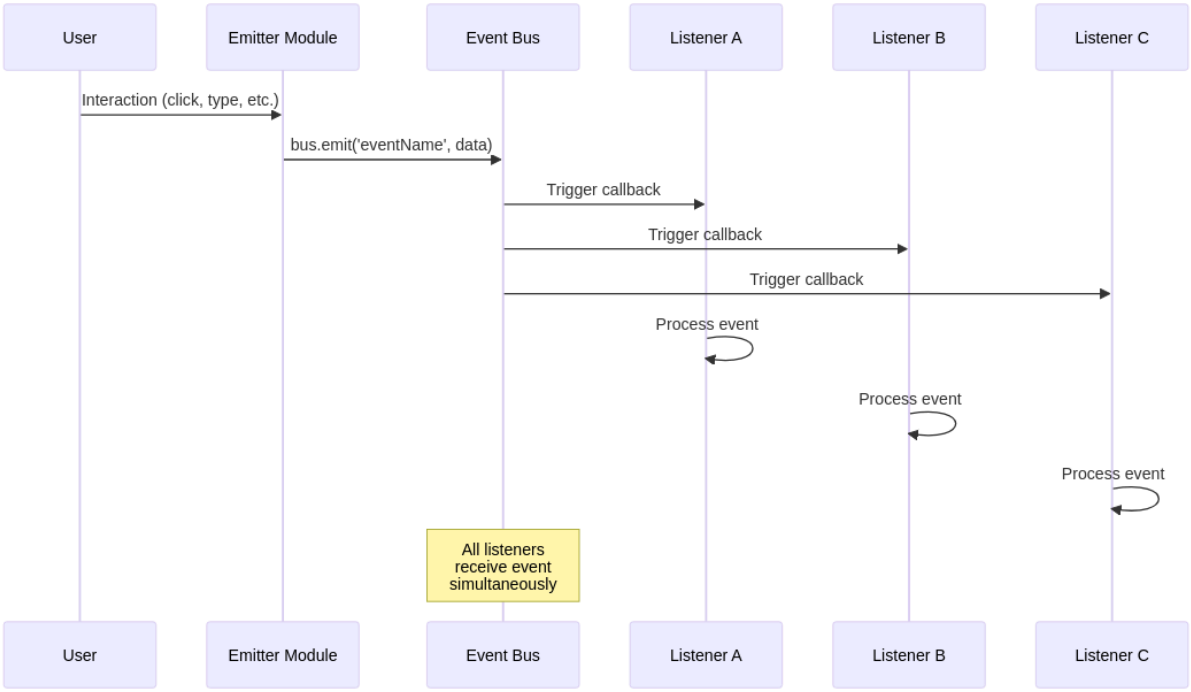
System Architecture Diagram



Module Dependency Graph

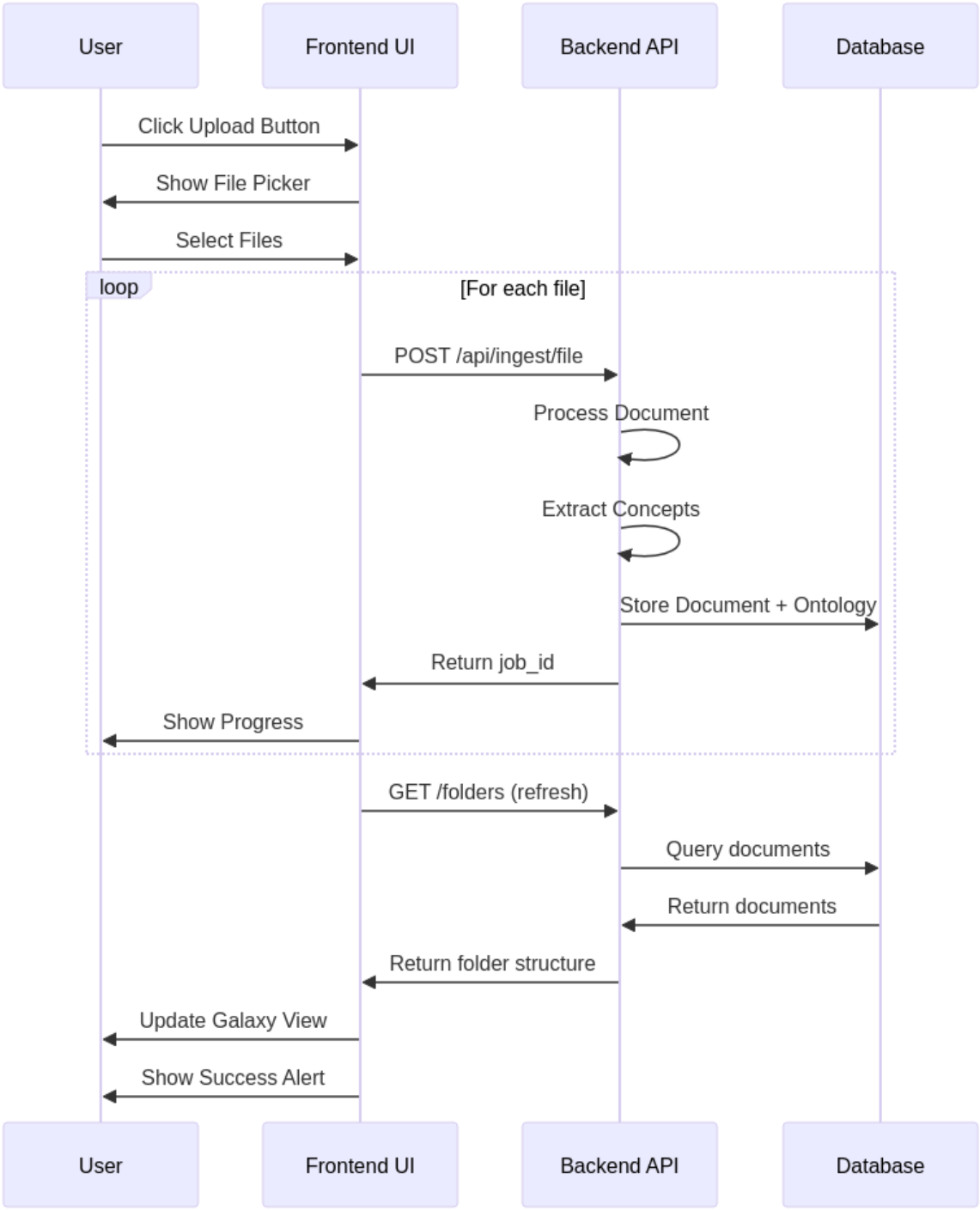


Event Bus Flow

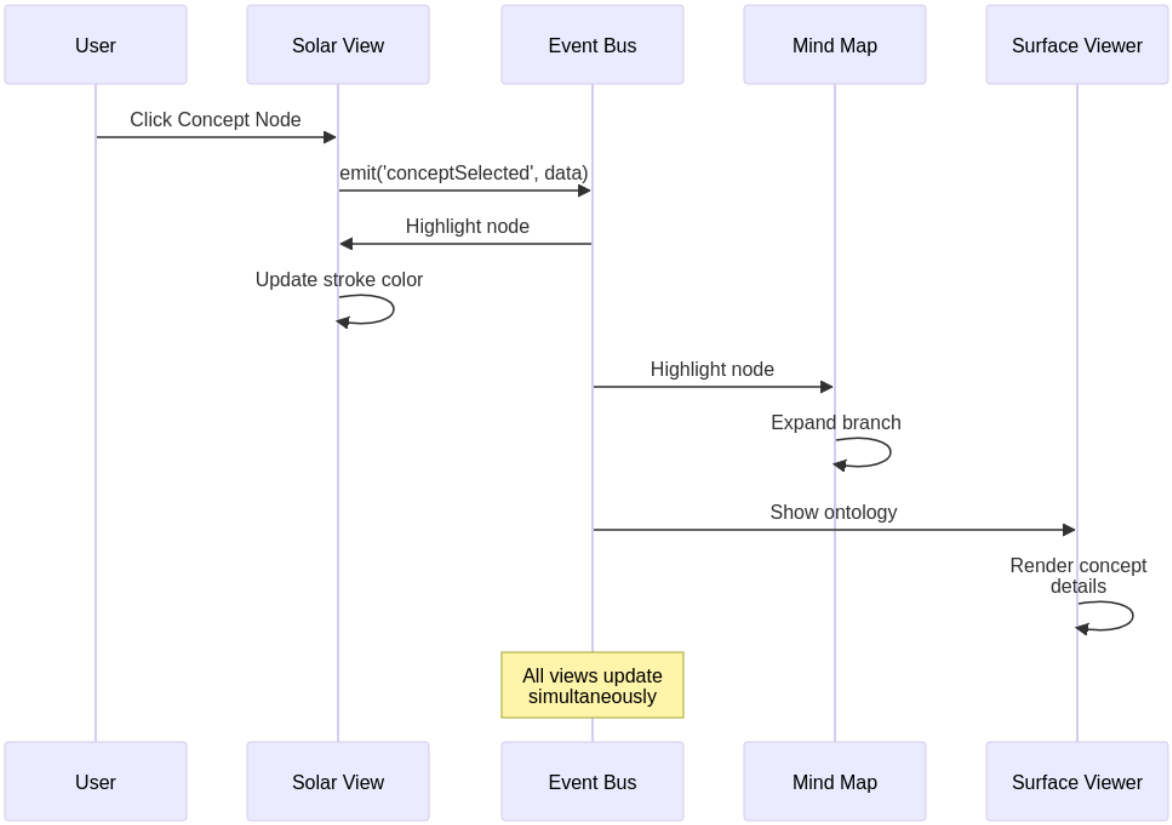


User Interaction Flows

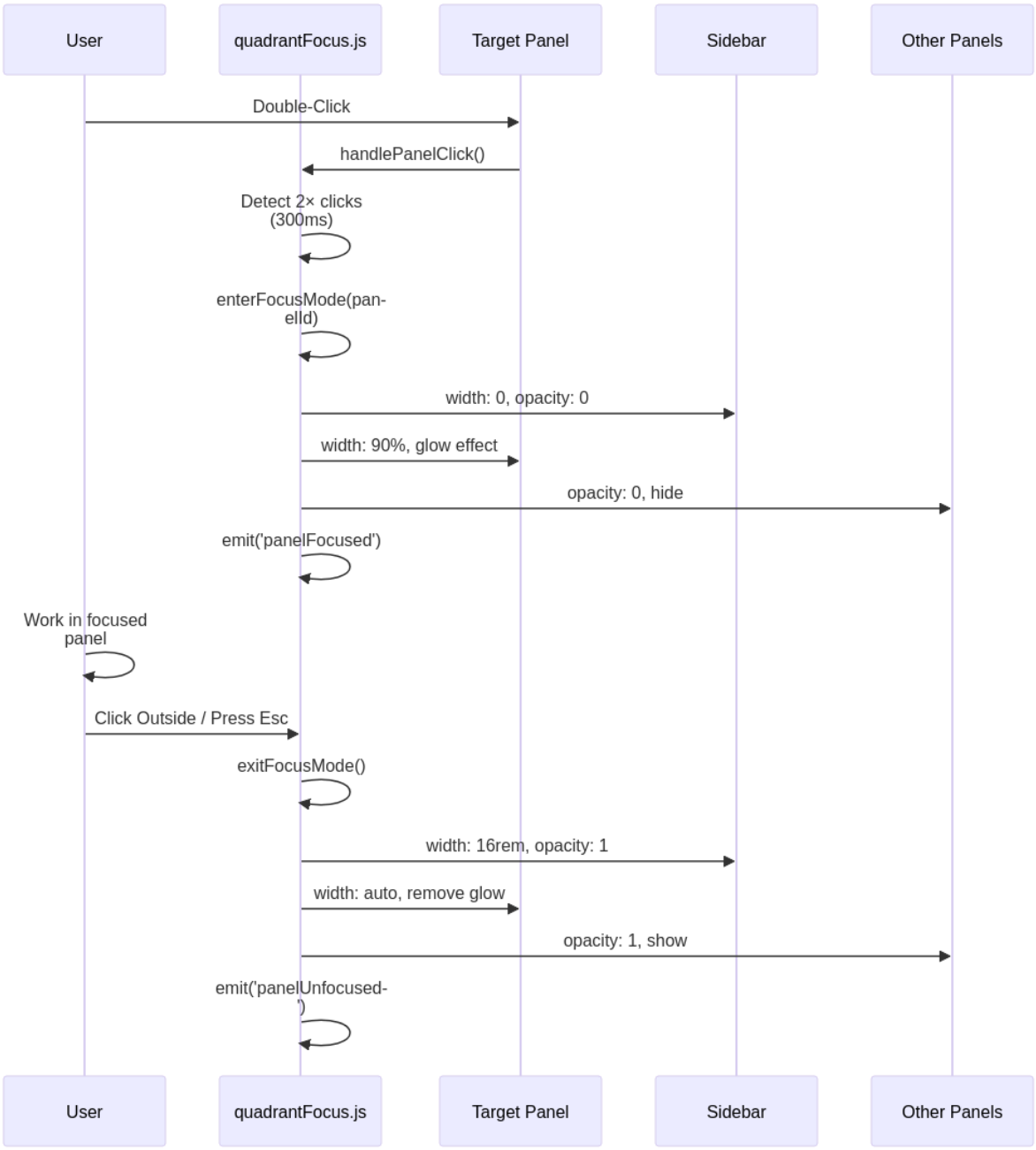
1. Document Upload Flow



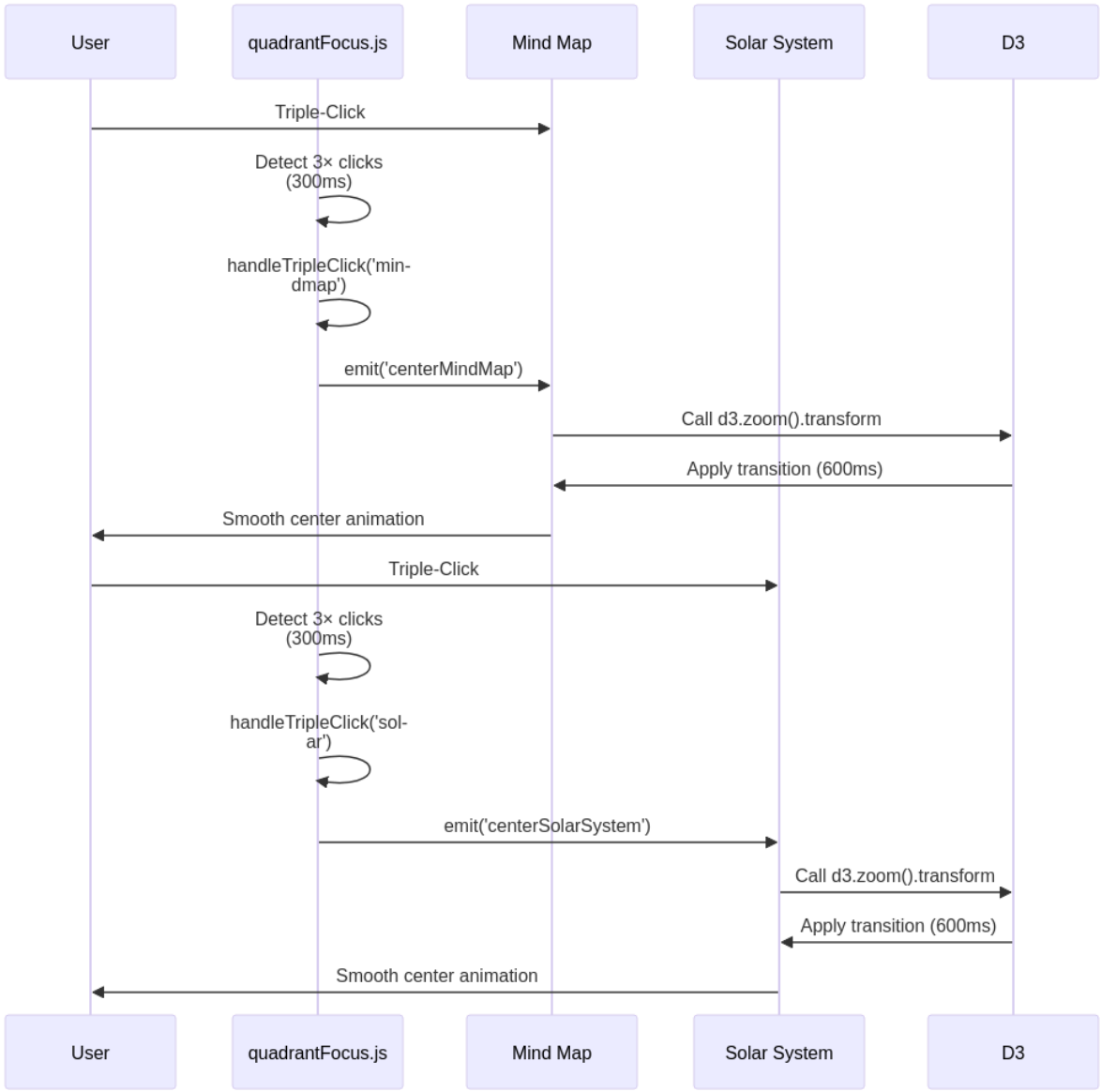
2. Concept Selection Flow



3. Focus Mode Flow

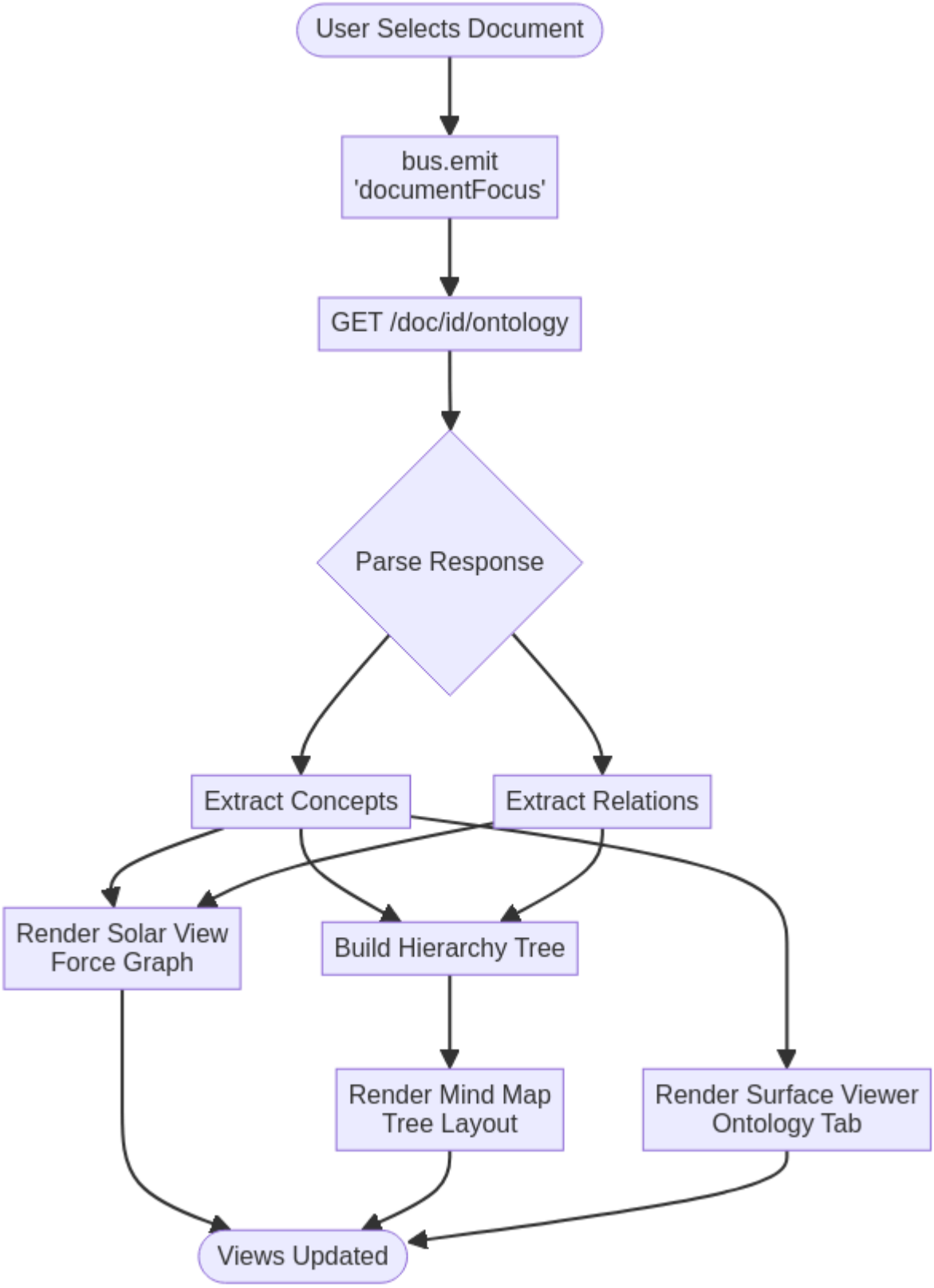


4. Semantic Centering Flow

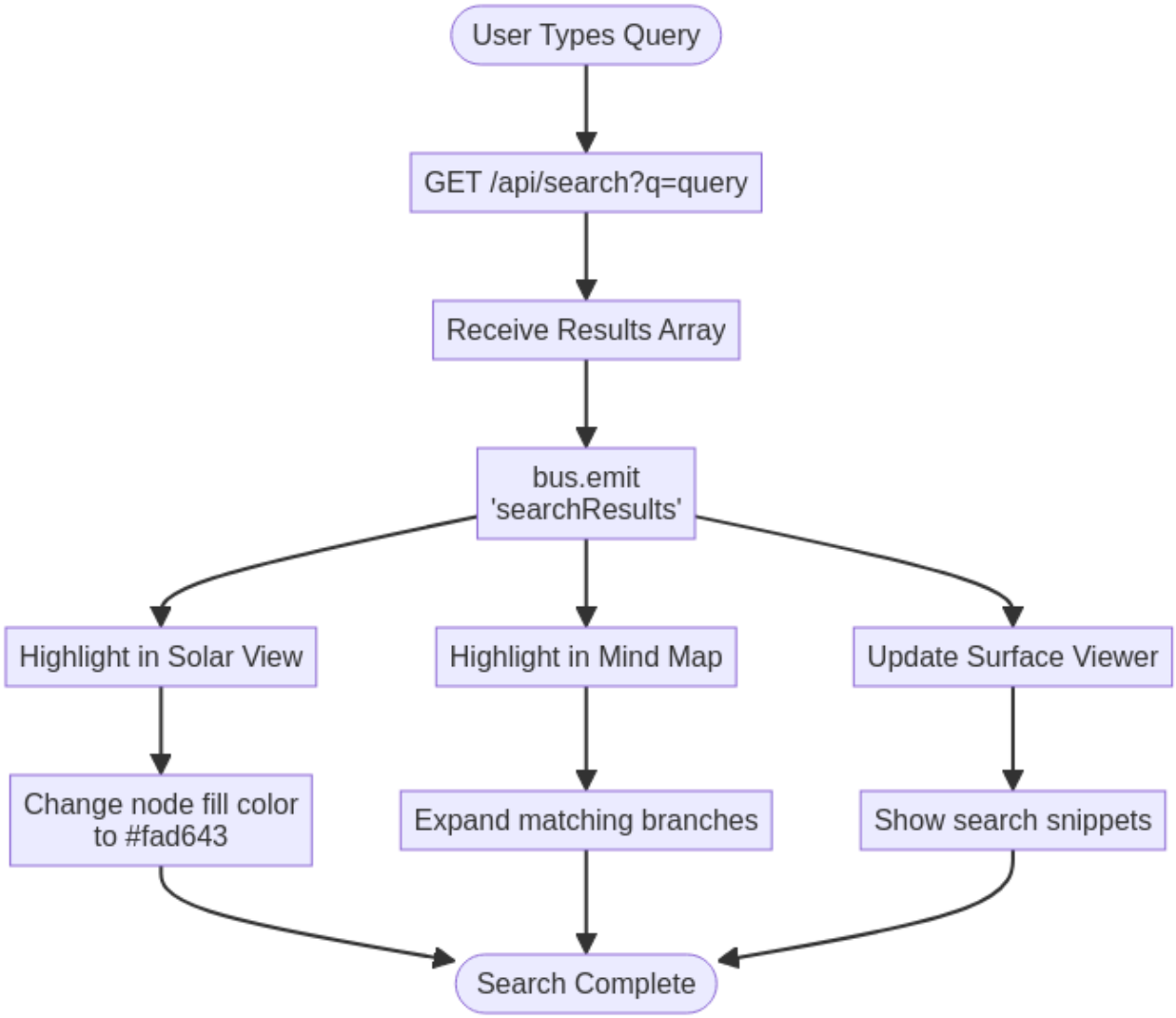


Data Flow Diagrams

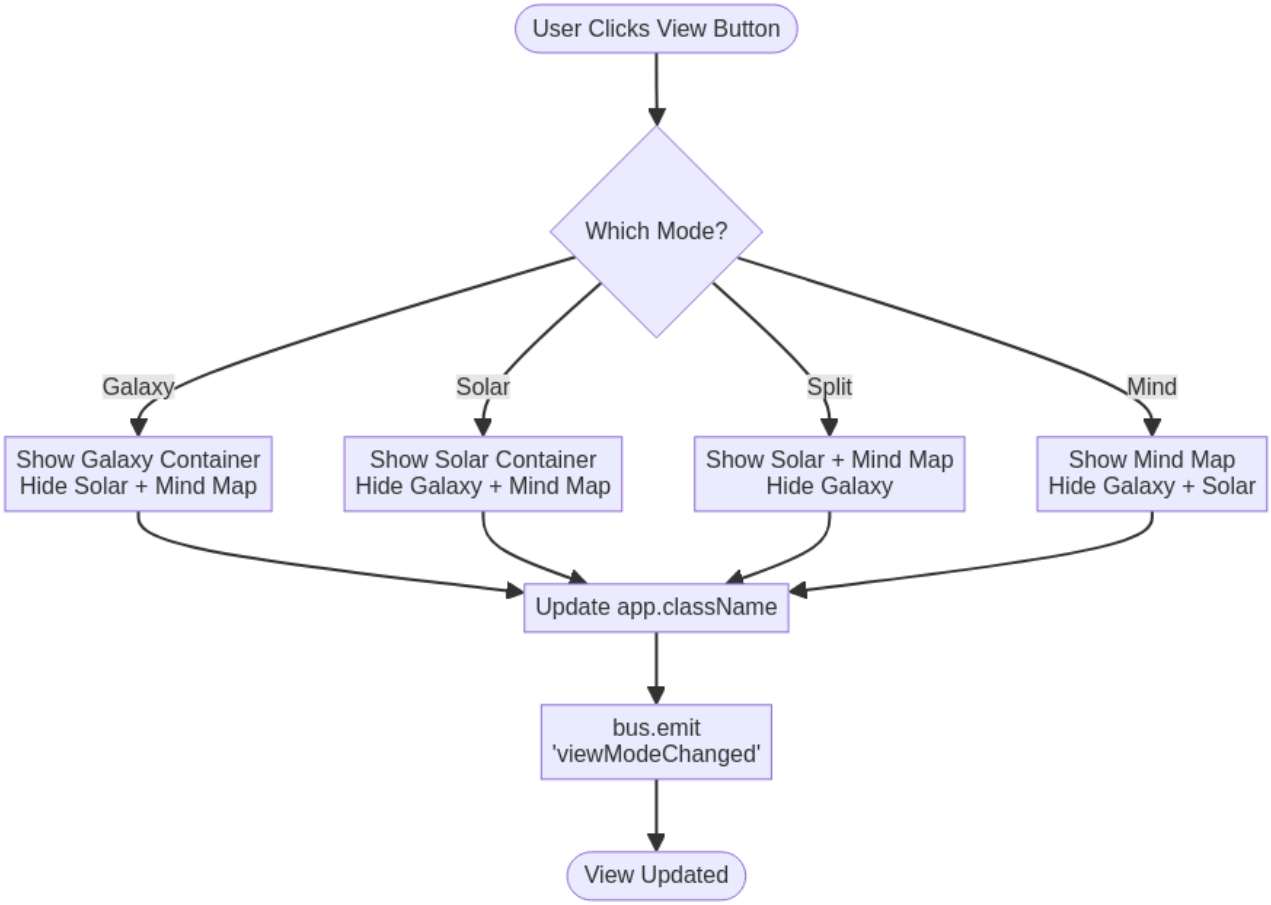
1. Document Ontology Loading



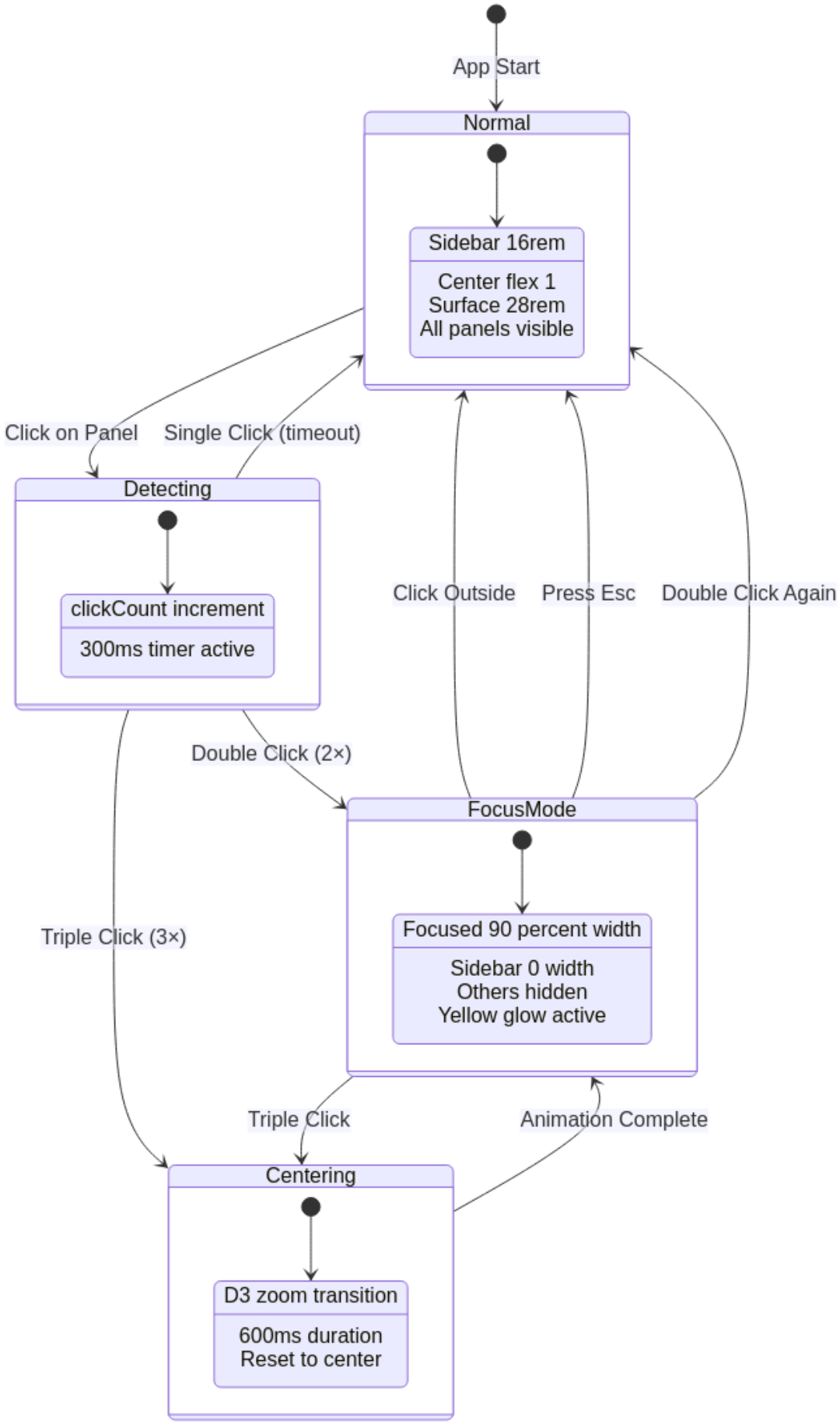
2. Search Result Highlighting



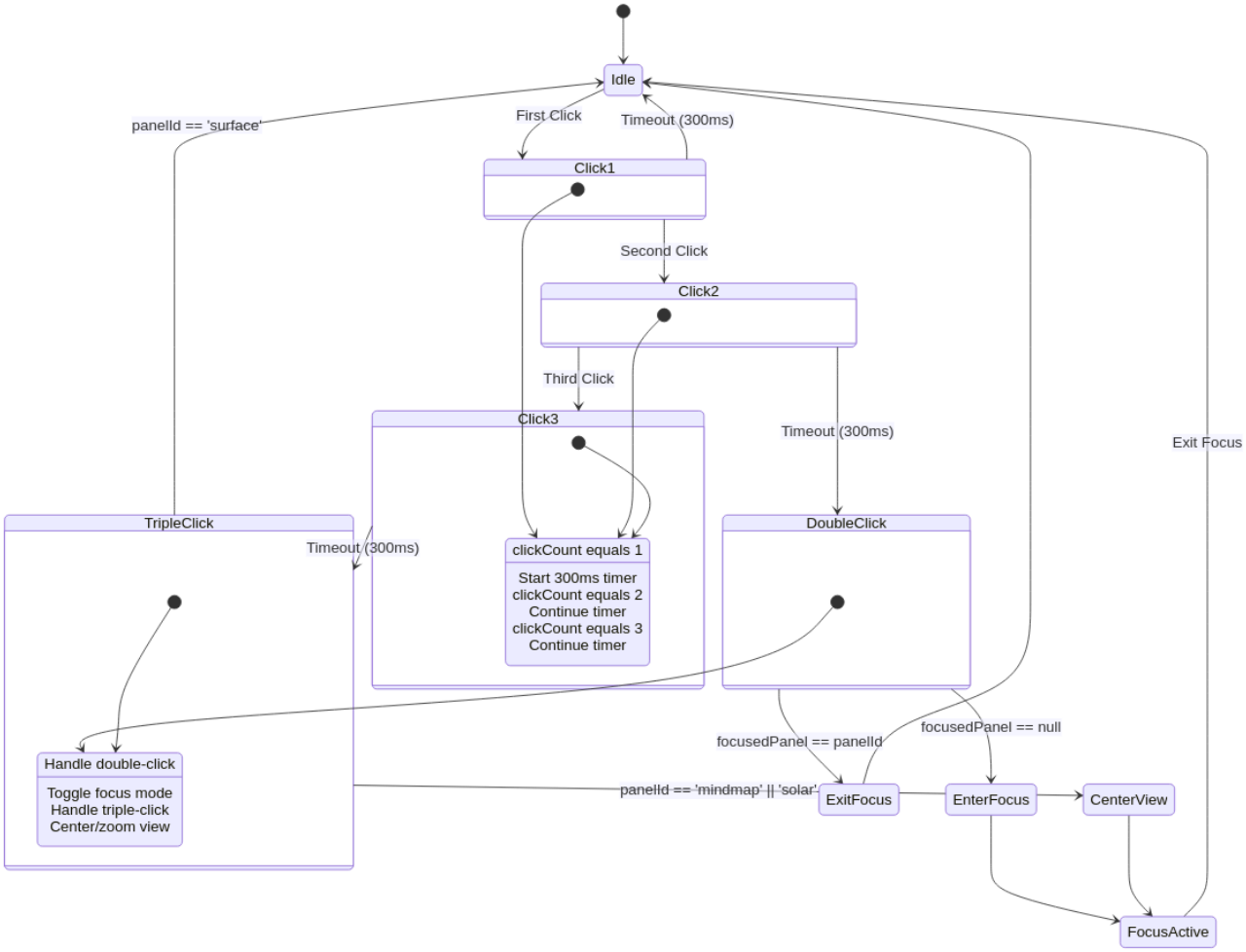
3. View Mode Switching



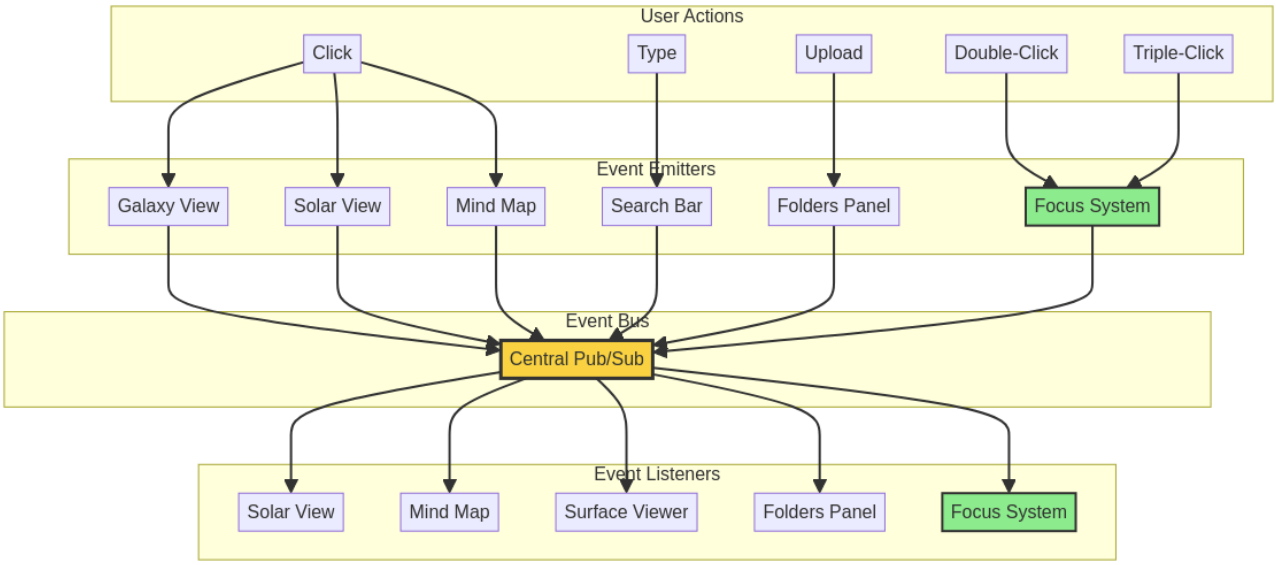
Focus Mode State Machine


App Start
Normal
Sidebar 16rem
Center flex 1
Surface 28rem
All panels visible
Click on Panel
Single Click (timeout)
Detecting
clickCount increment
300ms timer active
Click Outside
Press Esc
Double Click Again
Double Click (2×)
FocusMode
Focused 90 percent width
Sidebar 0 width
Others hidden
Yellow glow active
Triple Click (3×)
Triple Click
Animation Complete
Centering
D3 zoom transition
600ms duration
Reset to center

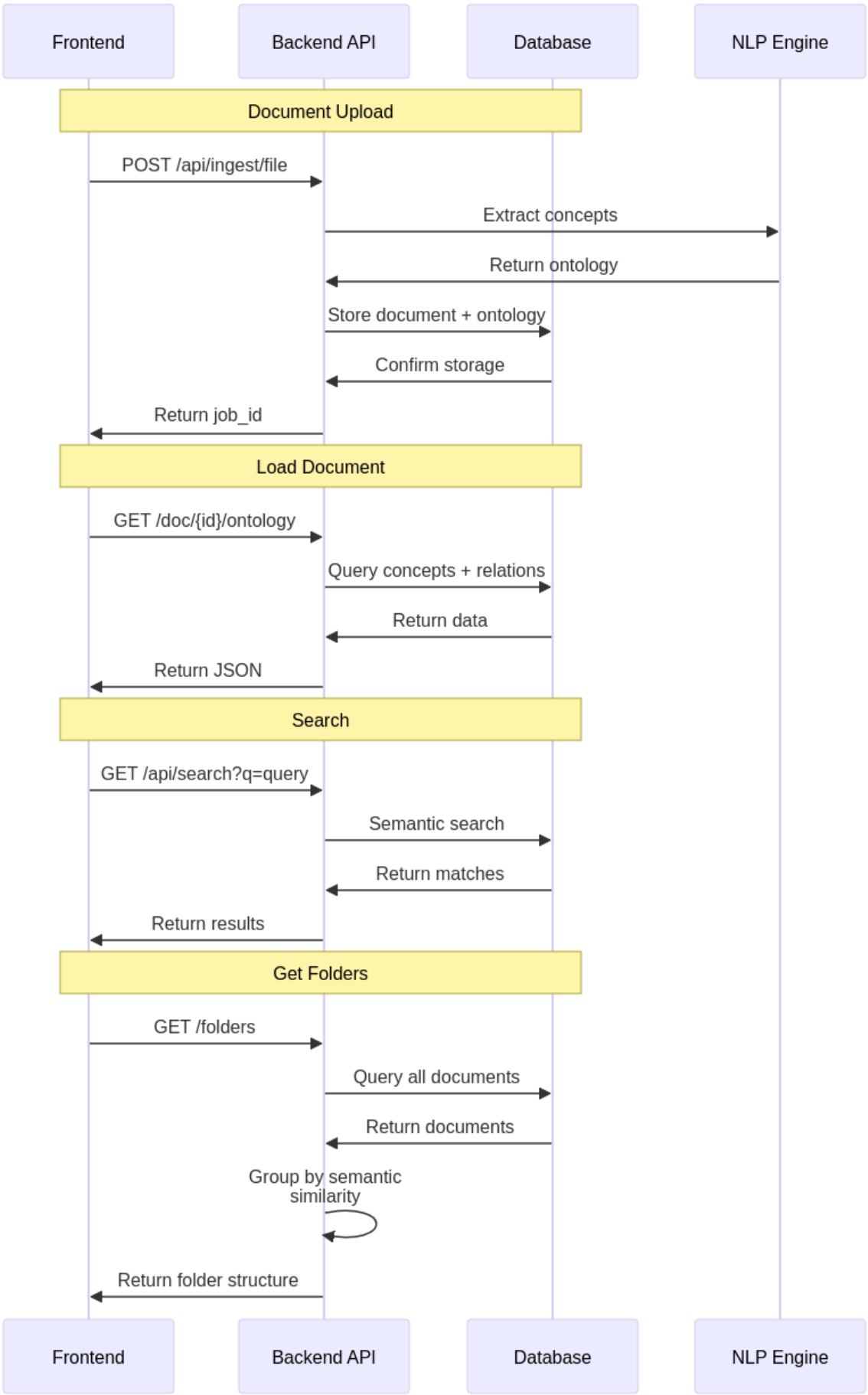
Click Detection State Machine



Component Interaction Map

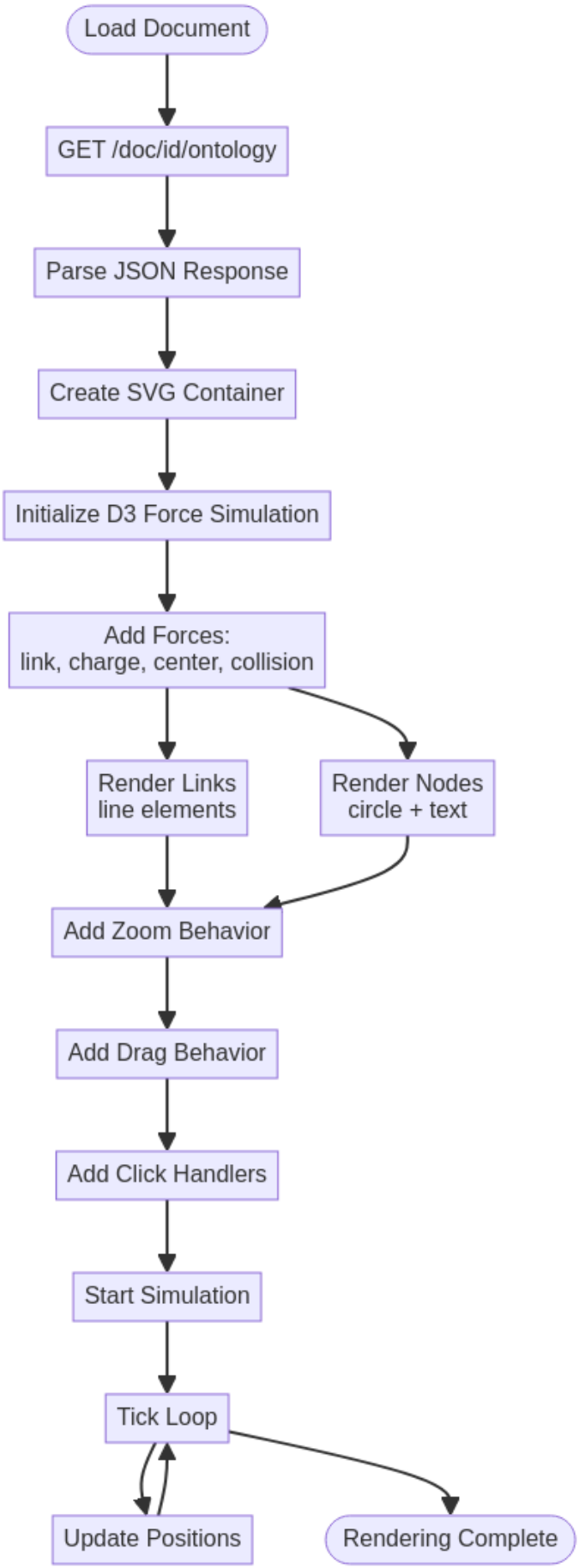


API Request Flow

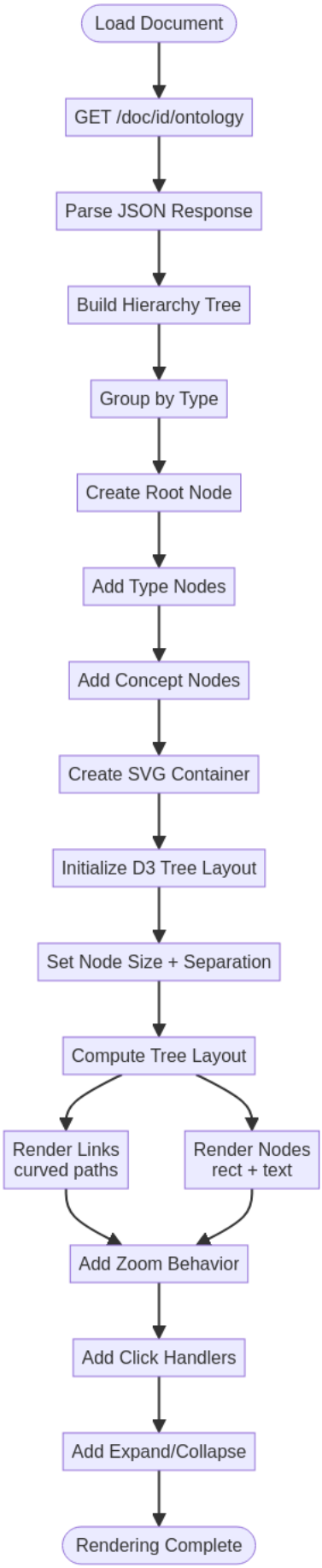

Frontend
Backend API
Database
NLP Engine
Document Upload
POST /api/ingest/file
Extract concepts
Return ontology
Store document + ontology
Confirm storage
Return job_id
Load Document
GET /doc/{id}/ontology
Query concepts + relations
Return data
Return JSON
Search
GET /api/search?q=query
Semantic search
Return matches
Return results
Get Folders
GET /folders
Query all documents
Return documents
Group by semantic similarity
Return folder structure
Frontend
Backend API
Database
NLP Engine

Rendering Pipeline

Solar System View Rendering

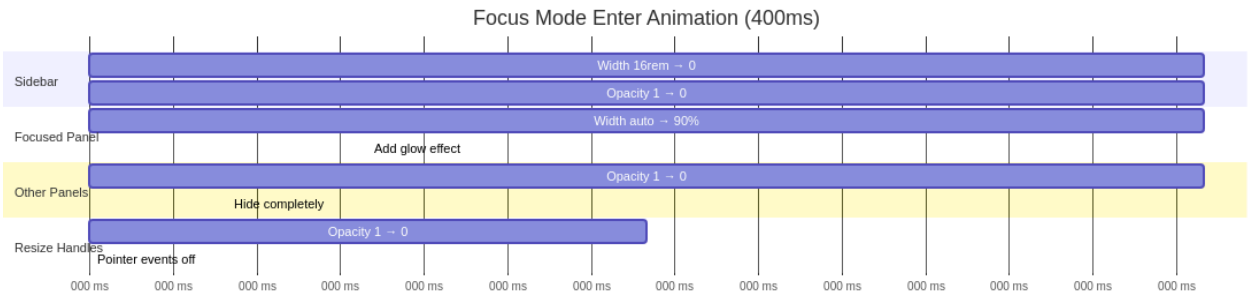

Load Document
GET /doc/id/ontology
Parse JSON Response
Create SVG Container
Initialize D3 Force Simulation
Add Forces:
link, charge, center, collision
Render Links
line elements
Render Nodes
circle + text
Add Zoom Behavior
Add Drag Behavior
Add Click Handlers
Start Simulation
Tick Loop
Update Positions
Rendering Complete

Mind Map View Rendering

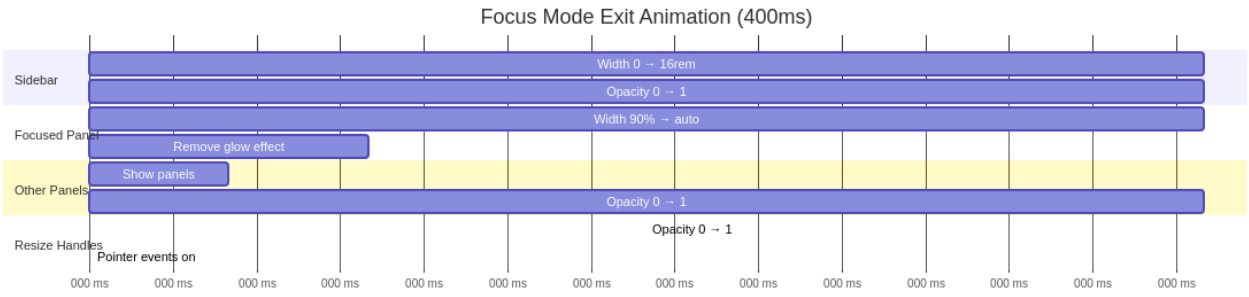

Load Document
GET /doc/id/ontology
Parse JSON Response
Build Hierarchy Tree
Group by Type
Create Root Node
Add Type Nodes
Add Concept Nodes
Create SVG Container
Initialize D3 Tree Layout
Set Node Size + Separation
Compute Tree Layout
Render Links
curved paths
Render Nodes
rect + text
Add Zoom Behavior
Add Click Handlers
Add Expand/Collapse
Rendering Complete

Focus Mode Transitions

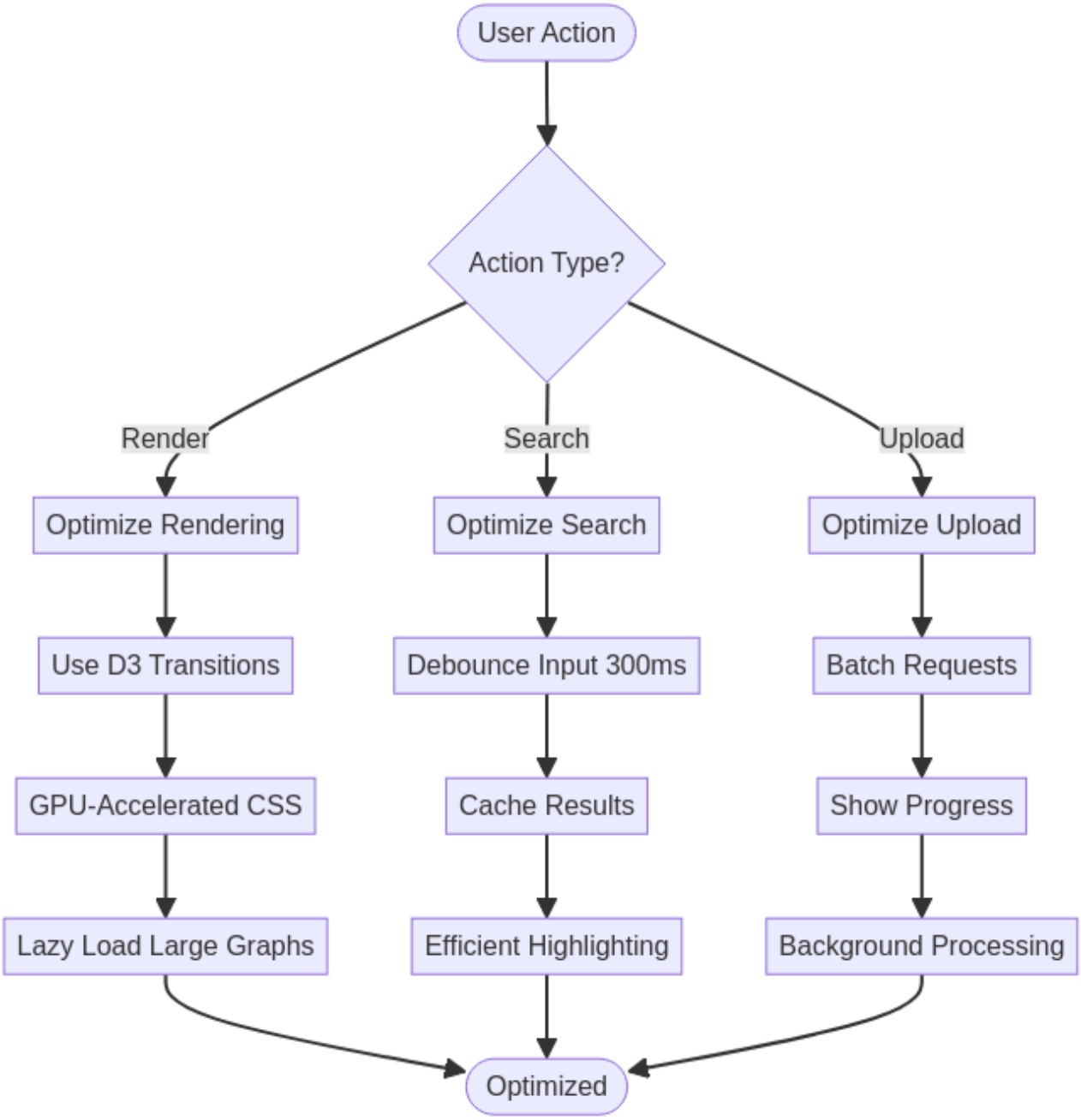
Enter Focus Mode Animation



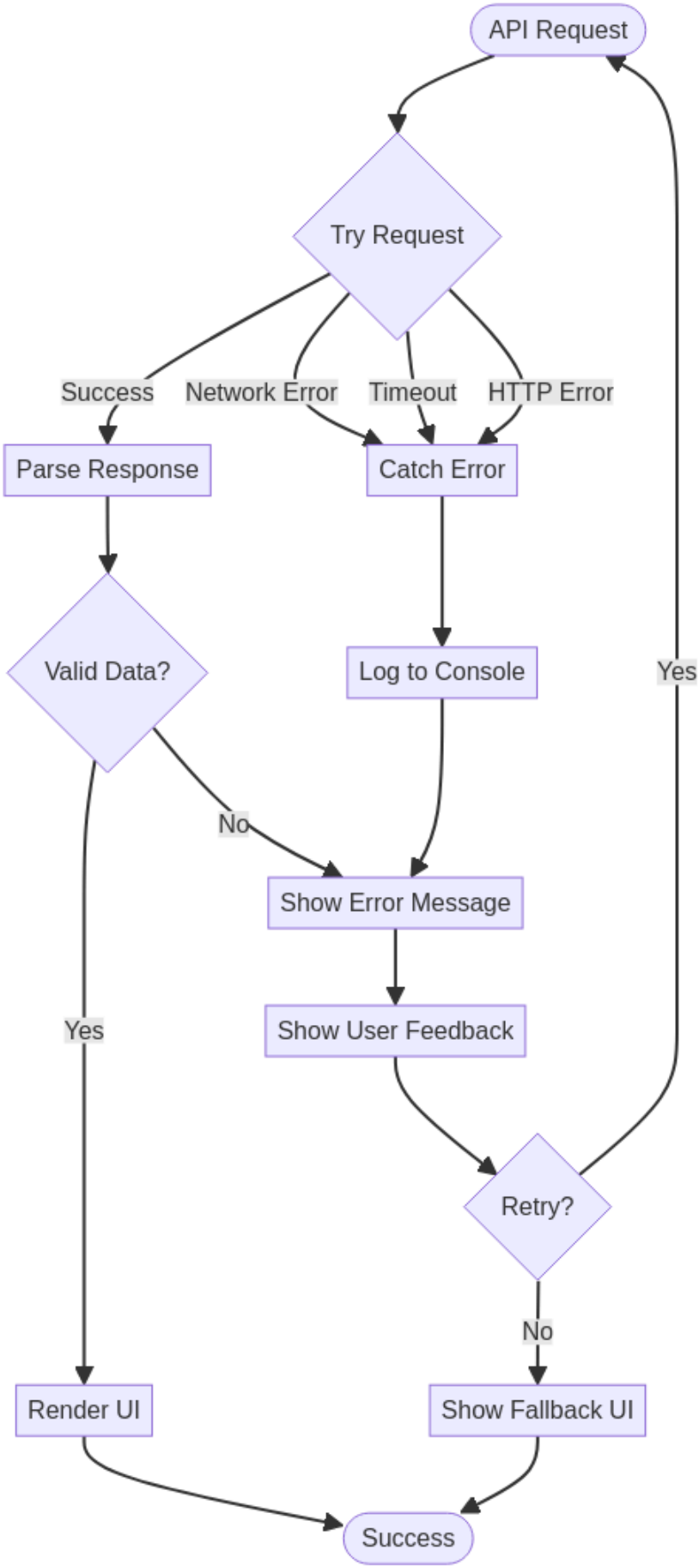
Exit Focus Mode Animation



Performance Optimization Flow



Error Handling Flow


API Request
Try Request
Success
Network Error
Timeout
HTTP Error
Parse Response
Catch Error
Valid Data?
Log to Console
Yes
No
Show Error Message
Yes
Show User Feedback
Retry?
No
Render UI
Show Fallback UI
Success

Conclusion

These diagrams provide a comprehensive visual reference for understanding LoomLite's architecture, data flow, and interaction patterns. Use them alongside the Developer Handoff document for complete system understanding.

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