

Anonymous Architects

Phase 1 Interim Presentation

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Presentation Overview

- Requirements
 - FRS
 - NFRS
 - SIG
- Architecture
 - Abstract Architecture
 - Class Diagrams
 - Sequence Diagrams
 - Architectural Alternatives
 - Garbage Words
- Demo

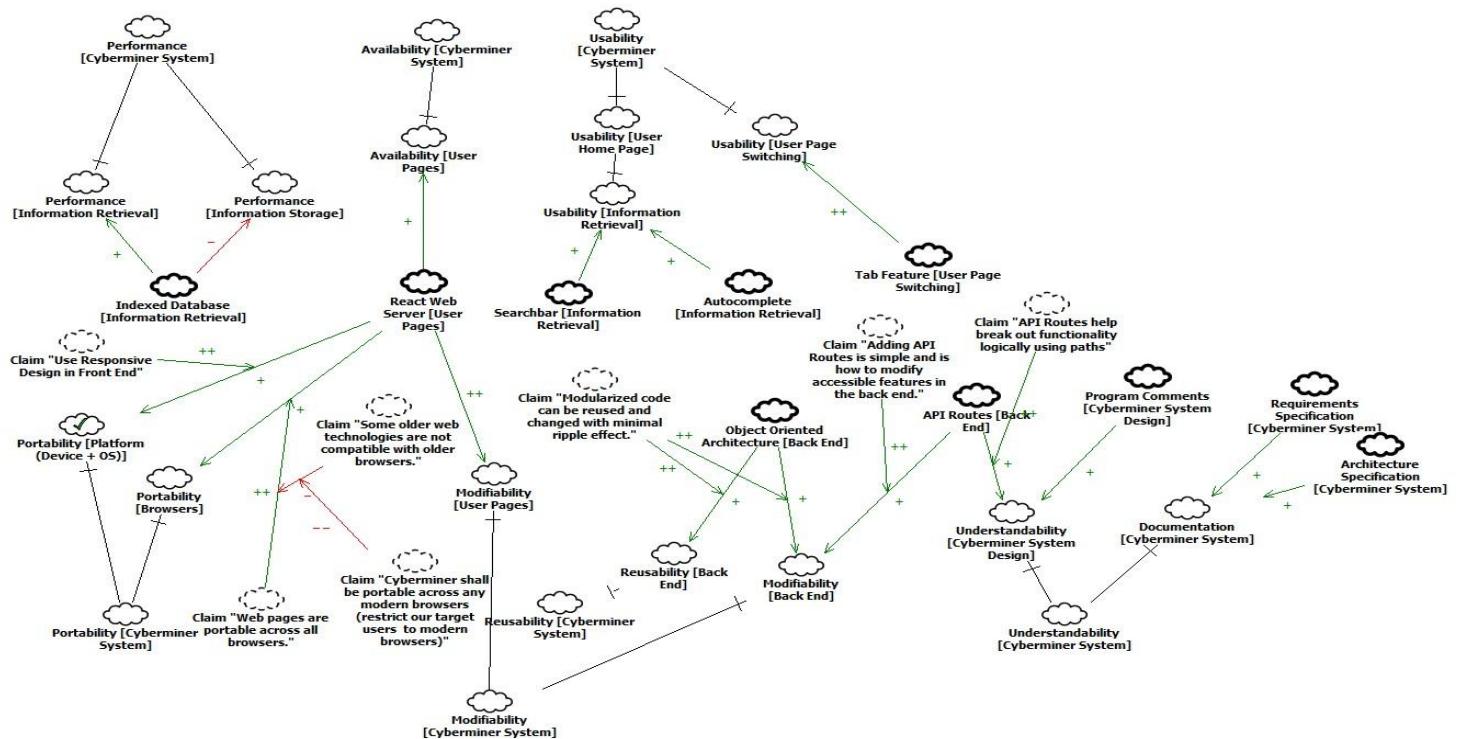
Requirements - FRS

- Backend: Process circular shifts requests
- Frontend: Handle user interface interactions
- Event-driven format: If-then specifications
 - Clear system component boundaries
 - Real-time progress monitoring specified

Requirements - NFRS

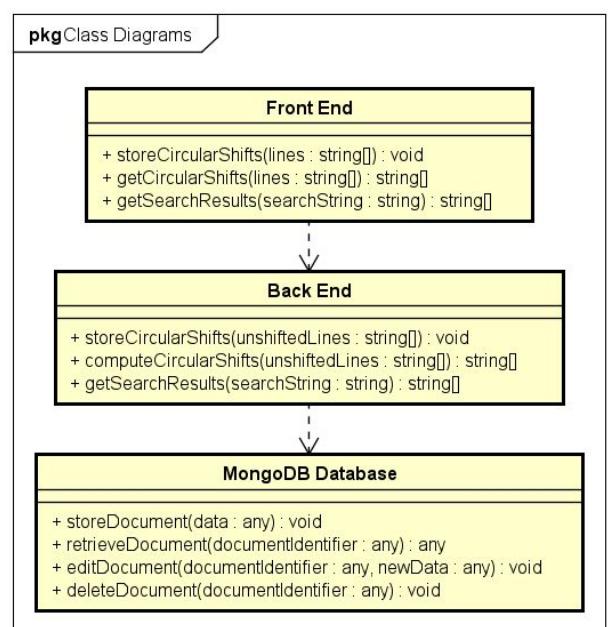
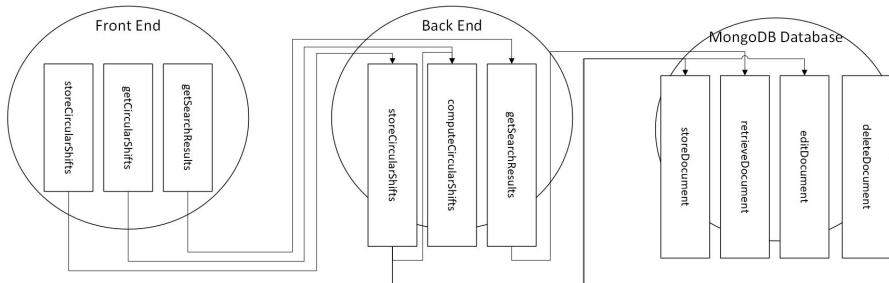
- Performance: Measurable speed metrics
- Usability: Quantified user experience
- Availability: System reliability targets
 - 17 measurable NFRs defined
 - NFRS linked to system features

Requirements - SIG



Architecture - Overall Cyberminer System Architecture

- Based on Model-View-Controller
- Shared UI system for KWIC tester & search engine
- High level of abstraction (These aren't real methods)
- UML adds data types, removes method invocations

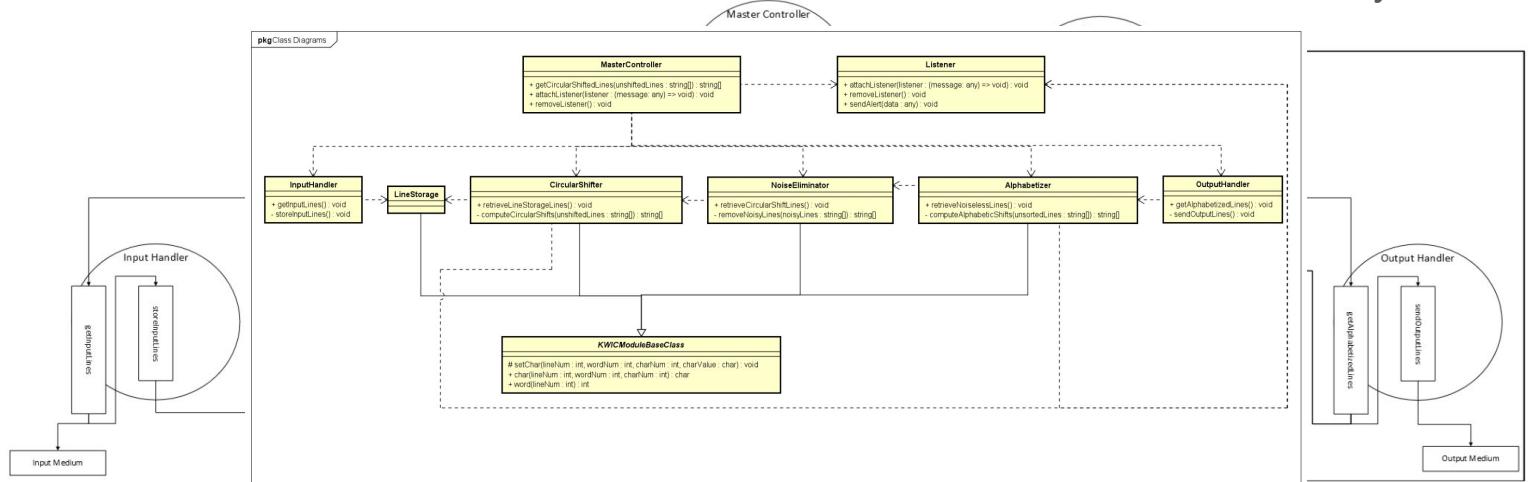


Architecture - KWIC Module Architecture

Object-oriented design. Each processing step is a separate data type.

Initial input, final output, and master controller are also separate data types.

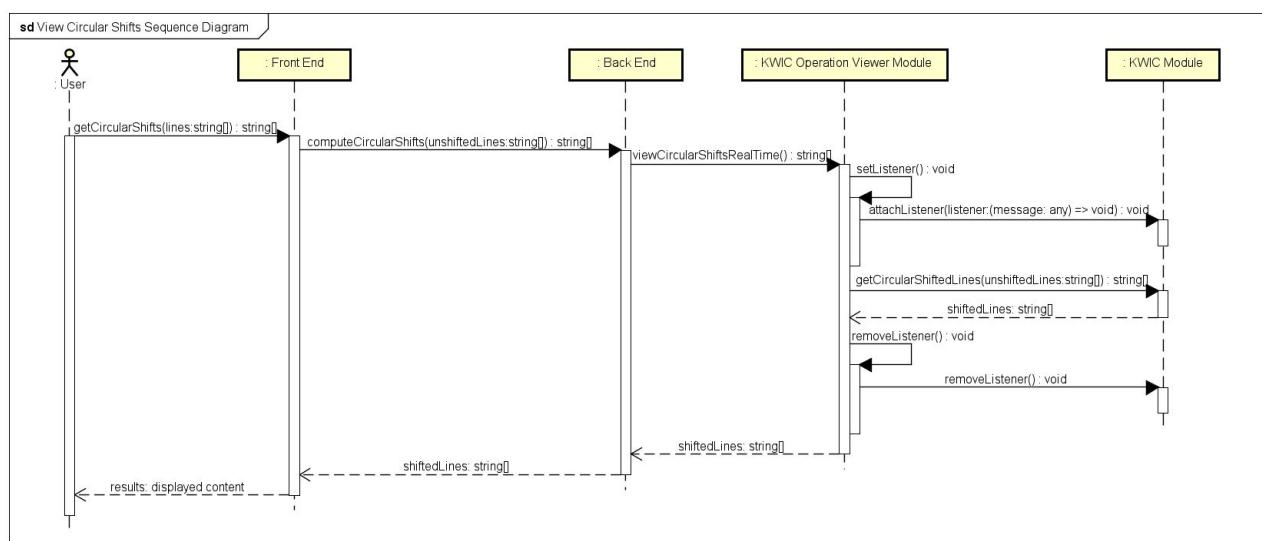
External modules can attach an event listener or obtain shifted lines directly.



Architecture - Sequence Diagrams

Helps to clarify interactions in high-level architecture.

High level of abstraction. Detailed design is hidden.



Architecture - Architectural Alternatives (Style)

Quality Attributes (NFRs)	Shared Data	Abstract Data
<u>Availability</u>	XX	XX
<u>Maintainability</u>	--	++
<u>Modifiability</u>	--	++
<u>Performance</u>	+	-
<u>Portability</u>	XX	XX
<u>Responsiveness</u>	XX	XX
<u>Reusability</u>	--	++
<u>Understandability</u>	--	++
<u>Usability</u>	XX	XX

Architecture - Architectural Alternatives (Tools)

AR_DEC_3. Indexed Database Structure

Option 1: SQL Tables, 1 line per URL

- + Simple SQL to store
- More complex SQL to retrieve

Option 2: SQL Tables, all associated URLs on 1 line

- + Simple SQL to retrieve
- Variable size storage

Option 3: NoSQL Data Storage

- + Dynamic data format, large-scale data
- Inconsistent formatting, tool-specific language

Final Decision: Option 3

Garbage Words

- And
- As
- At
- But
- By
- For
- In
- Is
- Nor
- Not
- Of
- On
- Or
- So
- Than
- The
- With
- Yet

Live Demo

References

- [1] L. Chung. "Advanced Software Architecture and Design." UTD Webpages. Accessed: Sep. 26, 2025. [Online.] Available: <https://personal.utdallas.edu/~chung/SA/syllabus.htm>
- [2] "List of Conjunctions in English with Examples." 7esl.com. Accessed: Sep. 27, 2025. [Online.] Available: <https://7esl.com/conjunctions-list/>
- [3] "Prepositions." Cambridge Dictionary. Accessed: Sep. 27, 2025. [Online.] Available: <https://dictionary.cambridge.org/grammar/british-grammar/prepositions>