

Architecture & Design Decisions

Smart Collections is designed as a modular JavaFX application. The architecture separates the UI, data, and logic layers.

Data Structure Choices & Complexity Trade-offs

Appropriate data structures were chosen for each feature. ObservableList is used for the library to support dynamic updates.

I/O Format & Serialization Plan

Object I/O is used for saving and loading the library, indices, and tasks. A versioned file header ensures compatibility across different versions.

Testing Strategy & Known Limitations

Manual testing was conducted to verify all features, including recursive folder import, undo functionality, and search performance.

Future Work

Future improvements include adding automated tests, optimizing performance for large libraries, and supporting more file formats.