Family Document Manager System

project spec

CHI 584 - Python Application Development

Abstract

This file proposes the main ideas of the Family Document Manager System and defines its initial features and services in addition to a user story that gives an impression of the interaction in the program.

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Spec Ver 1.2

Project Name: Family Document Manager (FDMS Ver 1)

Table (1) summary of changes

Modifications made	Previous version
- Full scope is achieved (all features work including add document, search document, update document, delete document) - The number of classes has been reduced to simplify the code. Classes including User, fileUploader, and datametaUbdater have been removed. - The main menu has been improved to be interactive. - Some features have been automated, such as document ID generation and PDF creation without a related folder. - Document status is merged with description. - Bendix has been added to the end of this document.	1.1

Project Description:

The **Family Document Manager** is a comprehensive application designed to store and organize family documents efficiently. This application addresses the common problem of locating and managing various family documents, which are often scattered across multiple locations. By centralizing document storage, the Family Document Manager ensures that important documents are easily accessible when needed, such as during university applications, medical emergencies, or financial planning.

Document Categories:

1. **Education**: Public school documents, university education, and higher education.
2. **Health**: Hospital and insurance documents.
3. **Financial**: Financial documents.
4. **Government and Private Services**: Service request documents.
5. **Self-Development**: Self-development documents.
6. **Family Photos**: Family photos.

Data to be Stored:

- Document title
- Document classification
- Document issue date (now is auto)
- Document pdf (now is auto)
- Document description

Program Features:

- New document data can be entered manually directly from the command line interface.
- Search and retrieve files based on keywords.
- Update document data.
- Delete documents.

User Story Table for FDMS Ver 1

User Story ID	**As a**	**I want to**	**So that**
1	User	Enter data manually from the CLI	I can add new documents directly into the system.
2	User	Search for documents by keywords	I can easily find specific documents when needed.
3	User	Update document data	I can keep the information up-to-date.
4	User	Delete documents	I can remove outdated or unnecessary documents.
5	User	Generate reports on documents	I can have an overview of all stored documents when searching for files.

Table (1) user story outlines the key functionalities of the Family Document Manager.

Final UML Class Diagram for the Family Document Manager

Class Name	Method/Variables	Purpose
Document	id, title, description, classification, file_path, upload_date	Attributes of the Document class.
	get_fields()	Returns a list of field names in the Document class.
	to_dict()	Converts the Document object to a dictionary.
DocumentRepository	__init__()	Initializes the repository with a CSV file path.
	load_documents()	Loads documents from the CSV file into memory.
	_add_document_from_row()	Creates a Document object from a CSV row and adds it to the list.
	save_documents()	Saves all documents to the CSV file.
	add_document()	Adds a new document to the repository and saves it.
	create_document_txt_file()	Creates a text file containing the document's details.
	_generate_txt_file_path()	Generates a file path for the document's text file.
	list_documents()	Prints a list of all documents in the repository.
	remove_document()	Removes a document from the repository based on user input.
	_confirm_deletion()	Asks for user confirmation before deleting a document.

	_delete_document_files()	Deletes the text and PDF files associated with a document.
	_remove_document_from_list()	Removes a document from the list based on its ID.
	search_documents()	Searches for documents containing a given keyword.
	_basic_search()	Performs a basic search on all document fields.
	get_document_by_id()	Retrieves a document by its ID.
	add_document_interactive()	Interactively adds a new document to the repository.
	generate_unique_id()	Generates a unique ID for a new document.
	generate_file_path()	Generates a file path for a new document's PDF file.
	update_document_interactive()	Interactively updates an existing document in the repository.
main.py	DocumentManagementSystem	Manages the document repository and user interactions.
	display_menu()	Displays the main menu options.
	run()	Runs the main loop to handle user choices.
	update_document()	Updates an existing document.
	delete_document()	Deletes a document.
	search_documents()	Searches for documents based on user input.

Data Types in the Flow

- **Lists**: For storing multiple documents or search results.
- **Dictionaries**: For storing document attributes (key-value pairs) .
- **String**: For storing file path and search query.

Self-Assessment

After working on the spec, the most significant or unexpected change I had to make from the initial sketch was the decision to remove several unnecessary classes and files, which I think made the project much easier and more organized. I also decided to store the data locally. Given the sensitive and important nature of the documents, and since the application would only have one user, I felt there was no compelling reason to store the data online.

As for my confidence in implementing the spec as it is currently written, I have largely hit the mark and have met all of the specifications required in the project proposal. Although this is the first full application I have developed on my own, while I believe I can meet most of the project requirements in the next phase, I am not sure that I will achieve 100% of the scope.

I will have to redesign some of the interfaces I have previously proposed due to changes and updates to the app, and when linking the interfaces to the code, I will have to revisit the designs of the interfaces and other system components. I suspect there are many areas I don't know much about that may need your help in fully integrating all the parts into one easy-to-use GUI application.

Appendix

General description of the project

The "Family Document Manager" will be a super handy app designed to help families store, organize, and retrieve all their family documents in one place. It will solve the common hassle of trying to find important papers that are usually scattered all over the house and devices. With this app, families will be able to keep everything in one spot, making it easy to grab what they need for things like college applications, medical emergencies, or financial planning. Since the program is family-specific and will be designed for a single user, and due to the sensitivity of family data, the program will not use any external mechanisms such as packages, APIs, or email. Instead, the program will use a desktop GUI and will not require a Command Line Interface (CLI).

This project will be important because it will make managing family documents much easier. In the world of Human-Computer Interaction (HCI), this app will be a great example of user-friendly design. It will have a simple and intuitive interface that anyone can use, no matter their age or tech skills. By following HCI principles, the Family Document Manager will not only make life easier but also help you stay organized and ready for anything.

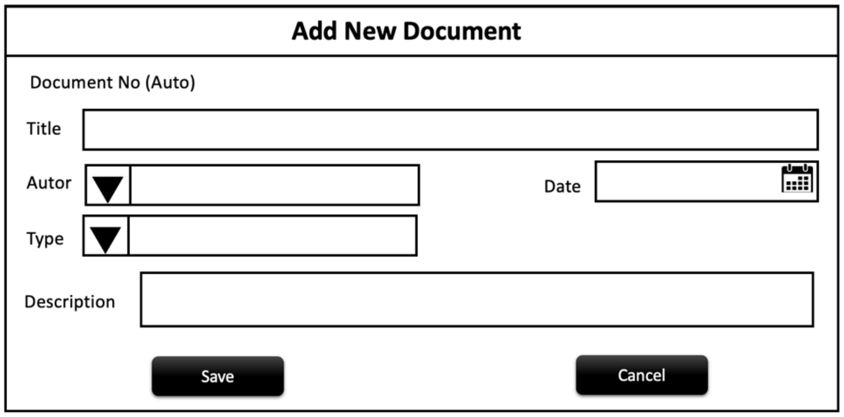
Plus, the way it will centralize and streamline document management will show how HCI aims to create tech that boosts our abilities and improves our lives. With this app, important documents will be just a few clicks away, giving you the confidence to handle any situation. This project will really show how well-designed tech can solve real problems and make life more efficient and stress-free.

Task Vignettes (User activity "flow") for ver 2

1. Manual Data Entry

Vignette: My wife Sarah, opens the program and navigates to the data entry section. She manually inputs the details of a new document, including its title, category, description, and date of creation. Once she completes the entry, she clicks ‘Save’ to store the information in the database.

Technical Details:
Input Fields: Document No, Title, Author, Date, Document Type, Document Copy, Description.
Validation: Ensure all required fields are filled.
Save Mechanism: Store data in a structured database.
Mockup:

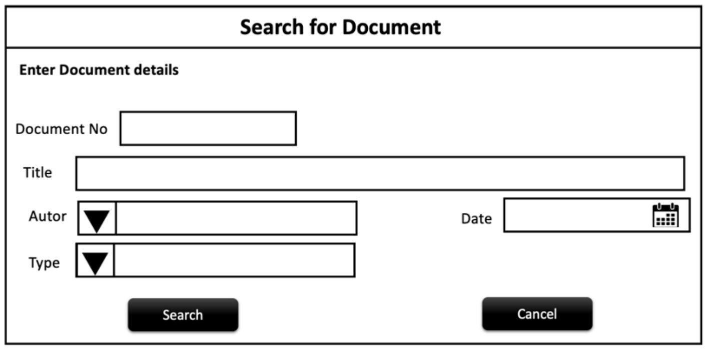


2. Search and Retrieve File Data

Vignette: My daughter Emily needs to find a document based on its properties. She uses the search bar to enter keywords like the document title or author. The program quickly retrieves and displays a list of matching documents. Emily clicks on a document to view its details.

Technical Details:

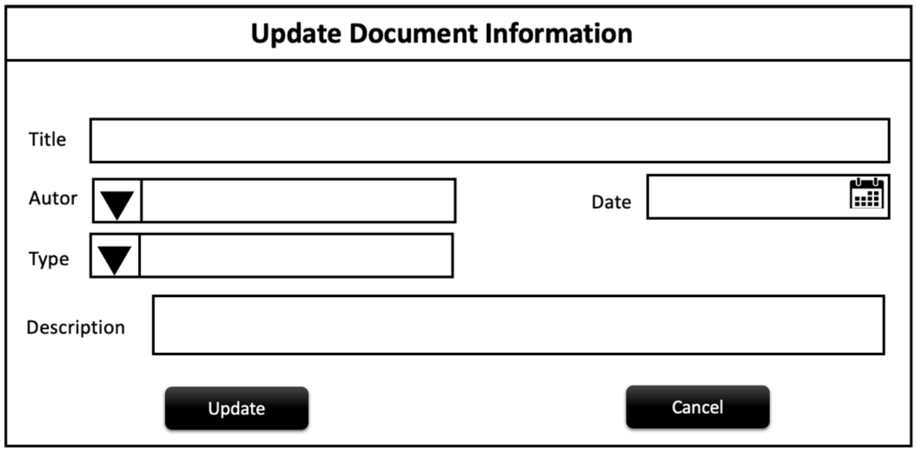
Search Fields: Document No, Title, Author, Date, Keywords.
Search Algorithm: Implement a fast and efficient search algorithm.
Result Display: Show a list of matching documents with brief details.
Mockup:



3. Update Document Data

Vignette: My other son, Mark, needs to update the details of an existing document. He searches for the document, selects it from the search results, and clicks 'Edit'. Mark updates the necessary fields and clicks 'Save' to apply the changes.

Technical Details:
Editable Fields: Title, Author, Date, Document Type, Description.
Version Control: Maintain a history of changes.
Save Mechanism: Update the existing record in the database.
Mockup:

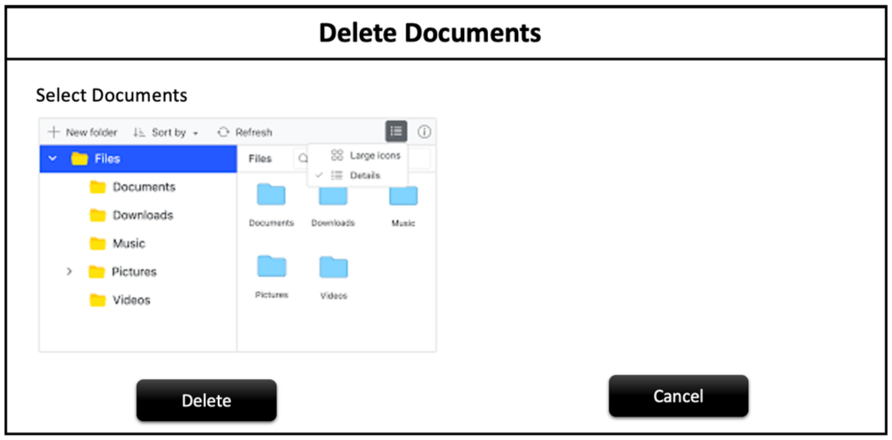


5. Delete Documents

Vignette: My second daughter, Lisa, needs to delete outdated documents. She searches for the documents, selects them from the list, and clicks 'Delete'. The program prompts for confirmation before permanently removing the documents from the database.

Technical Details:
Confirmation Prompt: Ensure user confirms deletion.
Data Integrity: Remove all associated data.
Audit Trail: Log deletion actions for accountability.

Mockup:



Some other technical considerations I'm thinking about: • Database: use a local DB (sqlite3 — DB-API 2.0 interface for SQLite databases.

Technical "flow"

Data Flow Analysis

Inputs:

- Upload user documents from local storage as a PDF Manually provide metadata by the user (title, description, classification, etc.)
- Search query results by the user via searches for specific documents.

Outputs:

- Organized document repository.
- Search results based on metadata.
- Reports generation in various formats (PDF).
- Document previews by displaying images of documents.

Processes:

- **Data Entry and Retrieval**: adding and fetching data based on user queries.
- **Data Update**: Modifying existing records.
- **Data Deletion**: Removing records from the database and files from the folder.