**Objective**

Design and implement a Delphi-based desktop application that manages different types of documents within an n-tiered folder hierarchy (requirements provided below). This application should use a database to store the folder hierarchy and document metadata and support querying of that data.

This exercise is designed to evaluate your design and problem-solving skills.  The focus of the evaluation will be on the design of the data model and structure of the supporting Delphi code and classes.  We encourage you to spend more time on your thought process and approach, rather than rushing to complete the application.

Good luck!

**Requirements**

**Data Model**

* Create a data model that stores folders and documents, supporting multiple document types, each with type-specific attributes.
* Required metadata for all document types:
  + Name
  + Date Added
  + Date Last Modified
  + Size
  + Type (e.g., "txt", "report", "article")
  + Description
  + Key Tags (for querying)
* Additional attributes for specific document types:
  + **Text Document**
  + **Report Document**:
    - Author, Summary.
  + **Article Document**:
    - Publication Date, Author.
  + **PDF Document**:
    - Version, Encryption Status.

**Folder and Document Management**

* Provide functionality to add and remove folders in the hierarchy.
* Provide functionality to manage (add/remove) different types of documents within folders.

**Search Functionality**

* Implement search capabilities for documents based on:
  + Name, Date, Description, Key Tags.
  + Type-specific attributes such as Author for reports or articles.

**Report Generation**

* Provide the ability to generate reports of all documents in a folder or across all folders.

**User Interface:**

* Design a basic UI that displays the folder hierarchy and allows users to manage folders and documents.

**Deliverables**

**Explanation of Your Design**

* **This is the most important aspect of the task**. Please provide a detailed explanation of how you approached the design of the application. Discuss your object-oriented approach, how you structured the data model, and why you chose specific strategies for managing the folder hierarchy, documents, and types.

**Implementation**

* You are not expected to provide a fully completed and polished application. A partially working or prototype-level implementation is acceptable.
* Focus on showcasing your design skills, logical problem-solving, and how you applied key object-oriented programming principles.

**Code Documentation**

* Provide clear and concise comments within the code to describe your thought process, especially around the design of the database model, folder/document management, and query handling.

**Sample Queries**

* Along with the application, include sample database queries for adding, removing, and searching for documents.