Modelling Data and Data Persistence

Data modelling and data persistence are crucial components of the Uni Portfolio application, which require a thorough understanding of the underlying data structures and technologies. Effective data modelling enables the creation of a well-structured data storage system that can efficiently store and retrieve data. The Entity-Relationship (ER) model is a popular data modelling technique that represents data as entities and their relationships.

Modelling Data:

Uni Portfolio utilizes the ER model to define entities such as user profiles, connections, modules taken/taught, and events attended or organized. Each entity is defined by its attributes, which describe the characteristics of the entity. For example, the user profile entity includes attributes such as name, bio, and social media links, while the connections entity includes attributes such as connection type and connection date. The modules taken/taught entity includes attributes such as module name, module code, and grade.

Data Persistence:

Data persistence involves storing data in a way that it can be easily accessed and managed. Uni Portfolio uses a combination of file-based storage and relational database management systems to ensure efficient data storage and retrieval. The relational database stores user data in tables, which are organized by relationships between entities. Uni Portfolio uses PostgreSQL as the relational database management system, which provides advanced features for data storage and manipulation, such as indexing and transactions.

File-based storage is used to store user-generated content, such as notes and academic works. The content is typically stored in the form of files on local disk, with a reference to the file location stored in the corresponding entity's attribute. Uni Portfolio must ensure that these files are properly linked to the relevant user profile using foreign keys to ensure efficient data retrieval.

In conclusion, Uni Portfolio's effective data modelling and data persistence techniques, such as the ER model and relational databases, provide a well-organized and easily accessible data storage and retrieval system. The use of advanced technologies, such as PostgreSQL, ensures efficient data management, leading to a seamless and user-friendly experience for the application's users.

Resources:

- https://www.postgresql.org/
- https://www.lucidchart.com/pages/er-diagrams
- https://www.ibm.com/docs/en/zos-basic-skills?topic=zos-what-is-database-management-system