To clearly understand the business requirements of Hyde Travel for developing a database system it was key to critically analyse the provided documents. An assiduous examination of each document aided in identifying and understanding the core operations of Hyde Travel.

Assessing document, one helped identify that Hyde Travel makes up a trip using different components which are assigned using a component code thus requiring separate entities to store data about all trips and all components. Since a single trip consists of multiple components, that made it clear the one-to-many relationship between trips and components. Document two’s assessment helped establish another entity requirement for Hyde Travel to store the different places and identified another one-to-many relationship between components and the new entity; Places. Examination of document three contributed in recognising that Hyde Travel requires an additional entity for storing data about vessels which also establishes a many-to-many relationship with the components entity. Lastly a thorough evaluation of document four assisted in identifying the crucial requirement and need for Hyde Travel of having complete data on booking records and customer records thus leading to the redesigning of document four to ensure that the requirement is met. Overall, the core operations included managing different trips, places, vessels, components and booking records.

On the basis of these operations I identified the primary entities, the data they each must store and the relationships between them. The result of the examination helped set a concrete base for the development of Hyde Travel’s database ensuring that it accurately captures all the business requirements.

Next step involved converting the requirements into a database system by carefully defining tables, attributes, primary and foreign keys and assigning appropriate data types. Due to the involvement of composite primary keys and foreign key constraints, there was scrupulous consideration shown during this step to ensure data integrity and consistency. Additionally, junction tables were created to accurately reflect many-to-many relationships and to eliminate transitive key dependencies where necessary.

Post creation of the database system there were queries established to meet Hyde Travel’s operational requirements and allow seamless retrieval of data from the database. These queries are designed by keeping in mind that data retrieval should be done accurately and efficiently. All queries were designed ensuring only the optimal use of SQL statements. Queries requiring joins or multiple joins were given careful consideration to ensure only the required entities are joined upon and the attributes in usage are accurately referenced.

Reviewing the finished database system, it is apparent that it has proficiently captured and met the requirements of Hyde Travel. The entities and relationships accurately reflect the business structure, requirements and operations while ensuring there are no dependencies present as well as addressing any constraints. The database system is able to efficiently store data and the designed queries are enabling effective retrieval from the schema.

There is scope for improvements present which could further optimise the database’s usability and functionality. Incorporating the usage of views can greatly improve the performance of querying data from the database as well as simplifies the complexity of queries by utilising virtual tables. Furthermore, employing triggers can help automate tasks such as inserting or updating data in the entities depending on the execution of other SQL operations. Triggers can also drastically help in creating audits by logging any changes or modifications made to the database therefore it can assist with database security.