SIT772

DATABASE FUNDAMENTAL

Learning Summary Report

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Self-Assessment Details
The following checklists provide an overview of my self-assessment for this unit.

	Pass (D)	Credit (C)	Distinction (B)	High Distinction (A)
Self-Assessment			x	

Self-Assessment Statement

Checklist	Included
Learning Summary Report	x
All tasks required for the target grade completed	x
Evidence of any additional task(s) or activities completed	x

Declaration

I declare that this portfolio is my individual work. I have not copied from any other student's work or from any other source except where due acknowledgment is made explicitly in the text, nor has any part of this submission been written for me by another person.

Signature: Ngoc Phuong Trang Duong

Portfolio Overview

This portfolio includes work that demonstrates that I have achieved all Unit Learning Outcomes (ULOs) for SIT772: Database Fundamentals to a Distinction level.

Throughout this unit, I have built a strong understanding of database fundamentals, from theory to practice. At the beginning of the trimester, I only had basic knowledge, but after completing all the tasks, I became much more confident in designing databases, writing SQL queries, and dealing with security issues.

In Task 2.1P and Task 3.1P, I designed ER diagrams and correctly identified primary keys, foreign keys, and relationships between entities. Especially in Task 3.1P with Barwon Health's prescription system, I clearly explained my design choices for associative entities and constraints, showing my understanding of ULO1 and ULO2.

In Task 4.2C, I applied normalization rules to a real-world library management system and ensured all entities were in 3NF. Then, in Task 7.2C, I implemented the entire database using DDL and DML statements, including inserting data, adding columns, updating with conditions, and creating views. These tasks helped me demonstrate ULO3 and ULO4 clearly.

In Task 5.1P and Task 6.1P, I practiced SQL queries using JOIN, GROUP BY, COUNT, and time functions. In particular, Task 6.1P helped me improve the efficiency of my SQL queries by choosing the right type of JOIN, using aggregate functions with filtering conditions, and sorting the results properly. I also calculated the number of times a book was borrowed and the average days kept. Therefore, these tasks proved my problem-solving and optimization skills in SQL.

Moreover, Task 7.1P showed that I understood how to create tables with constraints (PK, FK), insert, update, and delete data with conditions. I also used ALTER TABLE to rename columns and add a self-referencing foreign key, which demonstrates my professionalism in data manipulation.

In Task 8.2D, I showed my ability to normalize complex datasets by explaining each step to reach 3NF. This helped me understand functional dependencies and how to organize data efficiently.

In Task 10.1P, I evaluated security vulnerabilities and wrote a report about the Latitude Financial data breach. I proposed technical and procedural solutions to prevent similar incidents. This proves my achievement of ULO5.

Overall, I believe the tasks in my portfolio show my full understanding and practical application of the unit's content. In addition to completing the requirements, I also optimized data models and improved SQL queries to make them more effective and easier to maintain. Therefore, this shows that I have a mindset for sustainable system design and the ability to work in real-world professional environments.

Reflections

The most important things I learnt:

I learned how to design logical and well-structured ER diagrams, normalize data into 3NF, write complex SQL queries, and understand the importance of data security in an organization. These skills are essential for any IT professional working with databases.

I feel I learnt these topics, concepts, and/or tools really well:

I feel confident in designing relational databases, writing SQL queries with multiple tables and conditions, and implementing databases from ER diagrams. Moreover, I am comfortable explaining my design choices and using best practices.

I found the following topics particularly challenging:

At first, I found it difficult to write advanced SQL queries involving multiple JOINs, GROUP BY, and aggregate functions. However, after practicing in Task 5.1P and Task 6.1P, I improved a lot and can now write queries more accurately and efficiently.

I found the following topics particularly interesting:

I was especially interested in database security and real-world case studies. These helped me see that technology is not just about tools, but also about user behavior and proper management policies. Therefore, this part of the unit gave me a broader perspective.

I still need to work on the following areas:

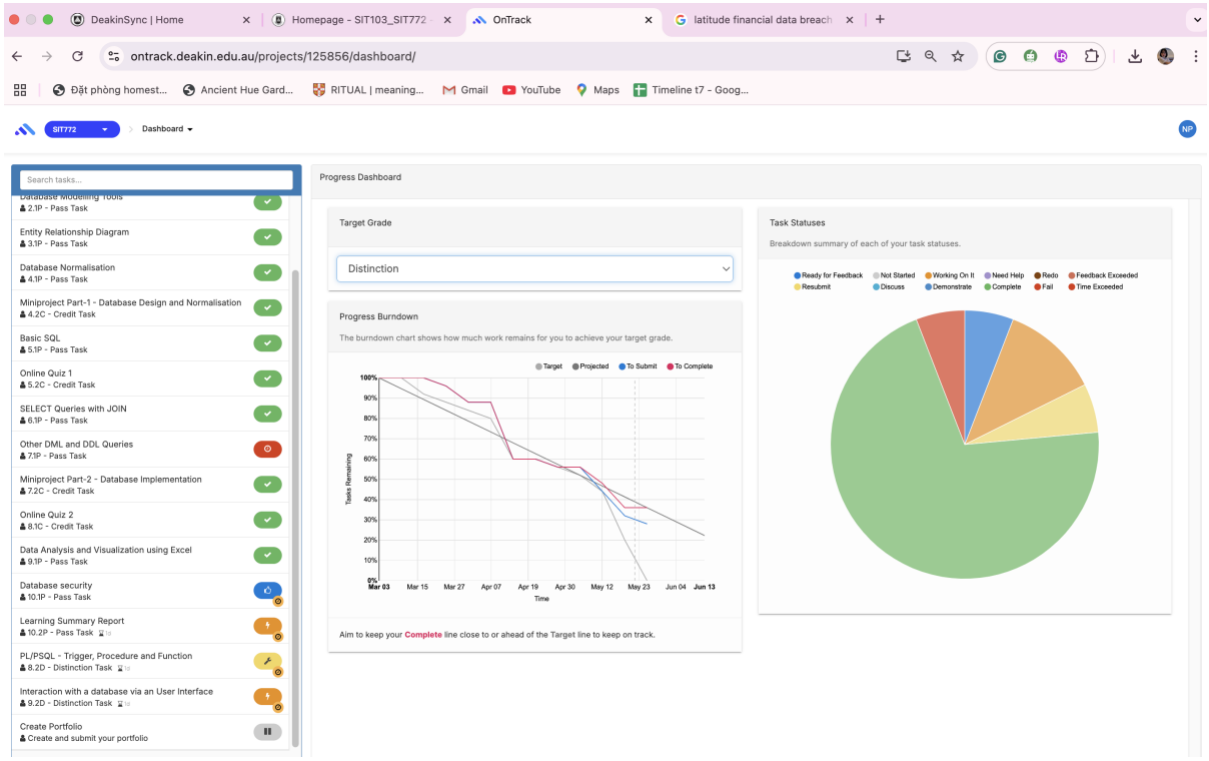
I would like to improve my skills in optimizing SQL queries and learning more about transactions, locking, and concurrency control. These are important for managing large databases in real-world environments.

The things that helped me most were:

The OnTrack resources, video lectures, and feedback from tutors were very helpful. I also used MySQL documentation to better understand certain commands and syntax.

My progress in this unit was …:

I stayed on track throughout the trimester, submitted tasks on time, and used feedback to improve my work. My progress graph in OnTrack shows steady development, especially in the later tasks.



If I did this unit again, I would do the following things differently:

I would start the bigger tasks earlier and review the lectures more frequently. I would also take better notes throughout the trimester to make writing the final portfolio easier.