End of Module Assessment: Individual Reflection

I used Gibbs' Reflective Cycle (1988, cited in The University of Edinburgh, 2025) for this reflection.

Description

The main project of this module was focused on designing a secure, scalable and regulation compliant database system for our fictitious private healthcare organisation, MedicaidUK. The aims were to replace the fragmented legacy system currently implemented with a unified My-SQL based solution that effectively manages patient records, appointments, treatments and billing/insurance claim workflows. Key aspects of this piece of work included:

- Entity-Relationship (ER) modelling and normalisation
- Ensuring GDPR, NHS and other legal compliance
- Providing role-based access control and encryption, where necessary
- Demonstrating an evaluation of relational vs. non-relational architectures
- Ensuring the future scalability of the system through hybrid SQL/NoSQL models

These components were clearly articulated in both the initial proposal and the executive summary, with technical depth and strategic framing that aligned with MedicaidUK's transformative goals.

Feelings

I was excited to be able to use my experience of working in healthcare to contribute to the assignment project and was motivated by the useful and not so useful systems and processes I had experienced in my professional life. I was apprehensive regarding the technical requirements of this assignment, though found myself increasingly motivated by the collaborative work with my team. I haven't been so confidence in taking the lead, or even presenting my own work initially, during group-based work, though I wanted to challenge myself in this aspect and create an initial draft to share with my group. After I had provided the group with my concept work, they were able to make suggestions and amendments using their own knowledge and expertise, such as structuring the ER model, refining the logical schema and integrating references to support our work. I had to often confront moments of self-doubt and remind myself that I was contributing to the overall piece of work, not having to complete it all on my own. I have greatly appreciated the opportunity to work collaboratively with my peers and hope that it is something I am able to continue during my studies. I enjoyed writing the executive summary as part of Unit 11, as I was able to draw upon my professional experience of working in healthcare and framing the information in a non-technically minded way, to ensure that the benefits and overall operation ability of the database design was conveyed,

without sounding too technical or difficult to understand to the intended audience. I also appreciated the opportunity to reflect on how data design can directly impact patient safety and operational efficiency, which made the project feel meaningful beyond its academic scope.

Evaluation

Overall, the experience was highly positive. Our team worked cohesively, using tools like Google Docs for collaborative drafting and Zoom for regular check-ins. These platforms enabled us to iterate quickly and maintain transparency in our progress. My contributions, particularly in designing the ER schema and drafting the executive summary, were well received, and I felt that my suggestions were genuinely considered and incorporated. One of the strengths of our group was the balance between technical rigour and strategic framing. We didn't just build a database; we contextualised it within the broader goals of MedicaidUK and the NHS's digital transformation strategy. That said, there were moments where we had to navigate differing opinions, especially around modelling choices and compliance features. These discussions, though challenging, helped me develop stronger interpersonal and critical thinking skills. I also learned the importance of aligning technical decisions with stakeholder needs, a skill I'll carry forward into future projects. The project not only reinforced my existing strengths but also highlighted areas for growth, such as conflict resolution and strategic communication.

Analysis

This project deepened my understanding of database architecture in healthcare, namely learning how ER modelling and normalisation supports data integrity and auditability, as well as providing me the opportunity to evaluate SQL and noSQL models and challenge my previously favoured databases. For example, exploring MongoDB's flexibility for unstructured data helped me understand the value of hybrid systems, and it helped to reframe the database design as a dynamic ecosystem rather than a static design. I also recognised the importance of 'writing for my audience' and ensured I applied this to my executive summary to convey our design proposal and process to non-technically minded individuals.

Conclusion

Overall, this assignment project significantly enhanced both my technical and professional capabilities. Through the the process of designing a database for MedicaidUK, I developed practical skills in schema design, including entity-relationship modelling, normalization, and relational structuring. These skills were critical in ensuring the database was scalable, logically coherent, and compliant with healthcare regulations such as GDPR and NHS standards. I also gained experience in integrating compliance features like role-based access control and

audit logging, which deepened my understanding of data governance in clinical settings.
Beyond the technical aspects, the project strengthened my strategic communication skills. Drafting the executive summary required me to translate complex design decisions into accessible language for stakeholders, aligning technical outputs with MedicaidUK's operational goals. This exercise improved my ability to write with clarity, precision, and purpose, skills that are transferable to both academic and professional contexts.

Importantly, I grew in confidence as a collaborative contributor. I took initiative in leading schema development discussions, synthesising literature to support our design choices, and coordinating feedback across the team. The supportive group dynamic allowed me to refine my ideas, respond constructively to critique, and contribute meaningfully to a shared outcome. This experience has prepared me to take on leadership roles in future group-based projects and to apply reflective practices that support continuous improvement.

Action Plan
Moving forward, I plan to:

- Consider hybrid modelling strategies in future database design projects, especially were unstructured data is involved.
- Continue to refine my technical writing to support all audiences (both technical and non-technical minded individuals).
- Document my learning in my e-Portfolio.
- Engage in peer review and feedback loops to strengthen collaborative outcomes and to build my knowledge and skill set by learning from others.

Word Count: 1001 words

References
The University of Edinburgh (2025) *Reflection Toolkit: Gibbs' Reflective Cycle.* Available at: https://reflection.ed.ac.uk/reflectors-toolkit/reflecting-on-experience/gibbs-reflective-cycle (Accessed: 20 October 2025).