COMP1430: Systems Design and Development: Logbook 1 and 2

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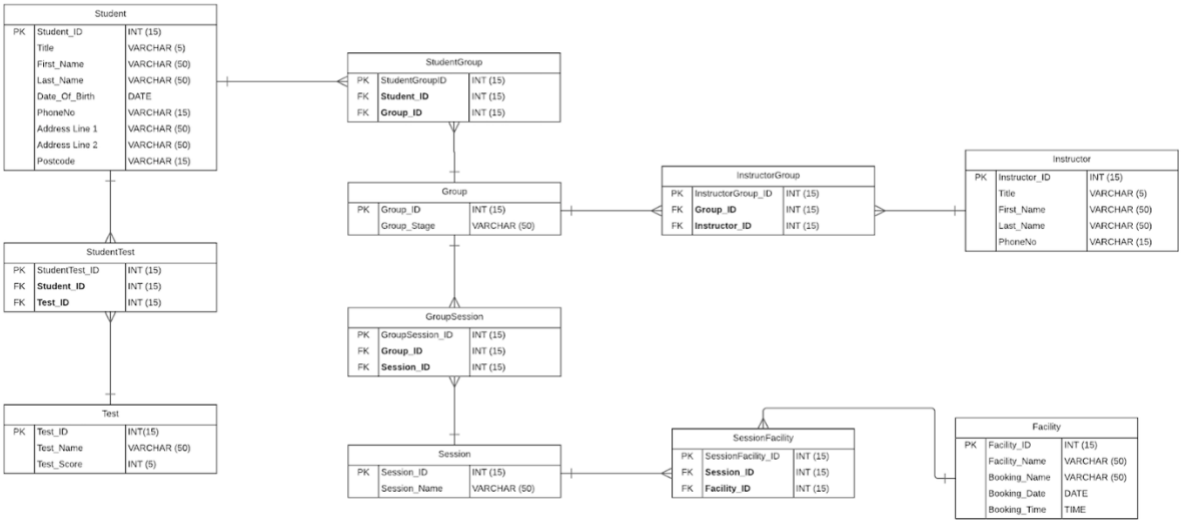
A report submitted in fulfilment of the requirements for the module, Systems Design and Development, Computing and Information Systems Department, University of Greenwich.

Task 1: Database Design

Entity Relationship Diagram:



Assumptions:

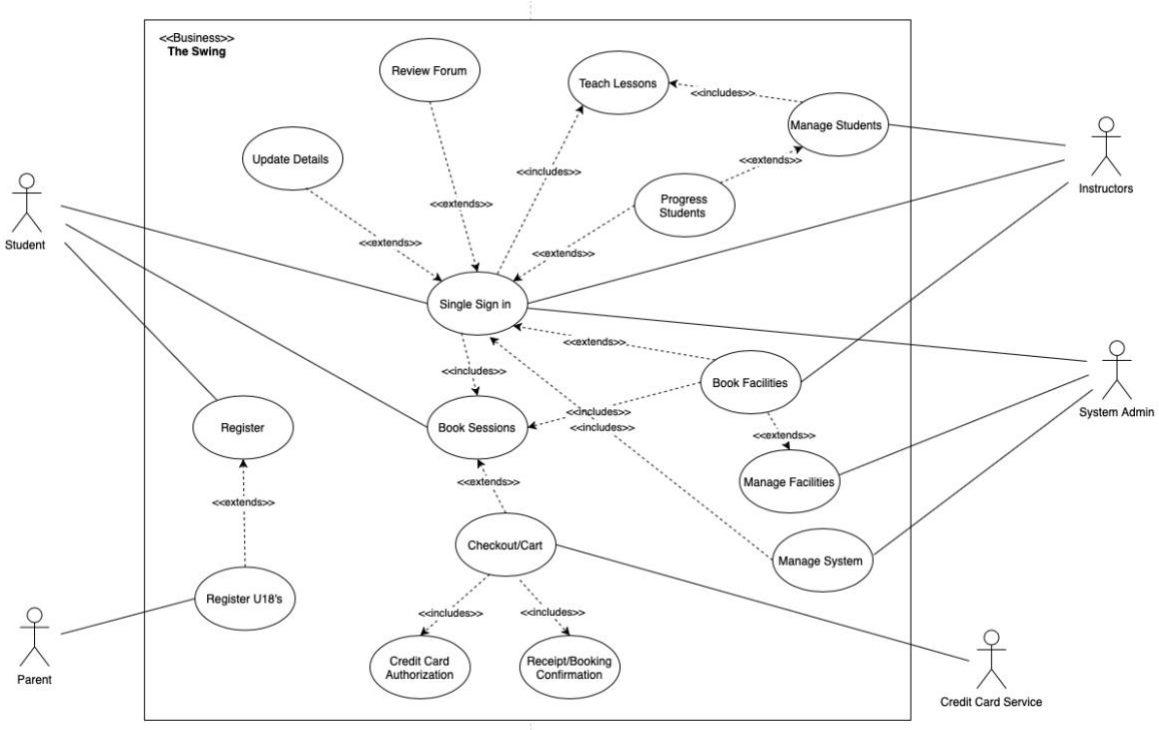
- A student will take a test to determine which group stage they are to be placed in.
- A student will take a test to determine whether or not they can advance to the next group/stage.
- It is possible that a group stage may not reach the capacity needed of 4 students. Students also develop at different rates, so group stage numbers might have to be adapted in the future.
- Many groups can have many students. This however would not promote good database design when making the ERD. To fix this, an intersection entity called ‘StudentGroup’ is created to resolve the many to many relationship.
- Many tests can be taken by many students. Once again, it would not promote good database design when making the ERD. To remedy this, an intersection entity called ‘StudentTest’ is created to alleviate the many to many relationship.
- Many groups can have many sessions. To resolve this many to many relationship, an intersection entity called ‘GroupSession’ is created.
- Many facilities can hold many sessions. To alleviate this, an intersection entity called ‘SessionFacility’ is created.
- Many instructors can teach many group-stages . To remedy this, an intersection entity called ‘InstructorGroup’ is created.

- An instructor can only teach one group stage at a time.
- An instructor can teach multiple group-stages on the same day.
- There can be a given period of time throughout the day in which the instructor and/or facility are unoccupied.

Task 2: UML Use Case Diagram

Discussion of key stakeholders:

The potential internal stakeholders in this model would include the students, instructors, and school officials/administrators that help to create session and test curriculum. Admins also control everything that happens in the system via the 'Single Sign in System'. The external stakeholders would include actors such as parents and guardians; this assumption has been made as the coursework specification mentions that some students might be under the age of 18, meaning that they would need parental consent to attend. Other more external stakeholders include equipment suppliers, (they make sure that the equipment the students are using is up to date), groundsmen that make sure the facilities are up to standard, and the community and potential outside investors that make sure that the school runs smoothly and safely within their budget. Shown below are the main use cases and actors for the system:



Discussion regarding the LSEMi associated with interaction design

Interaction design is at the core of any "data-intensive project" (Ebrahim, 2019), meaning that it is one of the most important aspects of modern system development. However, just like any other process in the development cycle, database design in particular does have its legal, social, ethical and moral implications (LSEMi). The legal and ethical/moral issues are very similar; the developer must ensure "legal compliance" (SNHU, 2017) is implemented regarding design, data use and data storage practices. The same study echoes the same message regarding ethics and morality, citing that these practices must be upheld to make sure that the company runs ethically. Examples of these positive practices include observing "copyright laws", protecting "cardholder data", "acquiring the users' consent" and hiring "trustworthy, reliable and experienced staff" (SNHU, 2017). Regarding more casual assignments like this one, the implications are much more centered around morality. The developer must make sure to not plagiarize another system, to document any references, and to make sure that any assumptions match the ones that are being illustrated. Failure to uphold these values can lead to assignment failure on the smaller stage, and large fines/public embarrassment on the corporate scale.

References:

- Ebrahim, M. (2019) 9 of the Most Common Mistakes in Database Design - DZone Database, *dzone.com*, [online] Available at: https://dzone.com/articles/9-of-the-most-common-mistakes-in-database-design (Accessed 25 November 2020).

- SNHU (2017) Database Management: Law, Ethics and Security, *UKEssays.com*, [online] Available at: https://www.ukessays.com/essays/computer-science/database-management-law-ethics-9552.php (Accessed 25 November 2020).