**Homework Task Database Sac 4 Part 2**

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**New ERD:**

A diagram of a computer program

Description automatically generated with medium confidence

**erDiagram**

    Teacher **{**

        text teacherID Pk

        text Name

        text loginUser

        text loginPass

**}**

    Subject **{**

        text subjectID Pk

        text Name

        text teacherID Fk

**}**

    Task **{**

        text  taskID Pk

        text title

        text details

        text dueDate

        text subjectID Fk

**}**

    Allocation **{**

        text allocationID Pk

        integer submittedDate

        integer grade

        text taskID Fk

        text studentID Fk

**}**

    Student **{**

        text studentID Pk

        text Name

        text loginUser

        text loginPass

**}**

    Teacher **||--|{** Subject **:** ""

    Subject **||--|{** Task **:** ""

    Task **||--|{** Allocation **:** ""

    Student **||--|{** Allocation **:** ""

**Query description:**

Q1 – Subject information:

This query returns the list of subjects, and their IDs, teachers and the teacher’s IDs. This could be used by the school to know which classes would be affected by teacher absences and in timetabling.

Q2 – Email, user, pass:

This query fetches the user login and password from the database and generates an email using the username. This query gets important student information which can be used in student logins or creating student accounts for various things.

Q3 – All tasks:

This query returns every task, its ID, due date, title, details, subject and subject ID that exists and orders them by due date. This could be very useful in determining when assessments need to be scheduled on the timetable or in students’ notifications.

Q4 – Task average:

This query returns the average grade achieved in every task, and the subject this task is part of. This can be used to determine if scaling is necessary or to simply see how the class is doing.

Q5 – Student average:

This query gets the average grade of a student over all their tasks and orders them highest to lowest. A query like this could be used to determine academic excellence and to identify which students need a little help.

Q6 – Scaled grades:

This query returns the raw grades and scaled grades of every student in a particular task. It scales the scores by square rooting the raw grade then multiplying this by 10. This could be used to get scaled grades if a task was extremely difficult.

**Reflection:**

I really enjoyed this topic as I learnt a lot about how databases function. Additionally, learning the basics of sqlite was enjoyable and a great experience overall. Generating random data was a bit difficult and took some time to get right; however, I was able to do it in the end. If I were to do this task again, I would likely check my ERD a few more times just to ensure it is correct.