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Work sample
Senior GoLang Developer

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Task: GPA Calculator Task

Overview:
You are tasked with building a REST API that interacts with a PostgreSQL database using Go. The API should allow users to retrieve the GPA for each student from a grades table.

Scenario:
Your company has a database of student grades. Each grade contains a student ID, a course ID, and the grade received. However, different schools or instructors may use different grading scales. You need to write a REST API that retrieves the GPA for each student and returns the results in JSON format, taking into account different grading scales.

Requirements

- The API should be built using Go and use a PostgreSQL driver or ORM of your choice to interact with PostgreSQL.
- The API should have a single endpoint: GET/students/gpa.
- The endpoint should retrieve the grades for each student from the grades table and calculate their GPA based on a simple grading scale (e.g. A=4.0, B=3.0, C=2.0, D=1.0, F=0.0).
- The GPA calculation should take into account different grading scales. The grading scales should be provided in a separate table in the database. The table should include the grade received, the minimum percentage required to achieve that grade, and the corresponding GPA value. For example, an A grade might require a minimum percentage of 90%, and have a corresponding GPA value of 4.0.

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Requirements

- The API should return the results in JSON format, including the student ID and their calculated GPA.
- The API should handle any errors that may occur (e.g. database connection errors).
- Include database schema migration in your solution.
- Create a docker-compose file to run the solution as a containerized environment.

Bonus Points:
- Implement tests to ensure that the API is functioning correctly.

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Good luck! 🎉

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