**Introduction:**

In this lab, we were given two systems, one is from a previous exercise of “Gradebook” and other is the “Attendance” system. We were supposed to design a business object layer on top of these both systems to use them in one application. Also we were supposed to design a UI or a console application to show the working of the newly developed application. Most of the functionality was provided by the sample code of these two systems, so you have to consider these systems as separate modules of one application and our task was to integrate them into one system.

We will upgrade the lab 11 submission to integrate Spring into lab-11. Students are supposed to design a business object layer implemented via spring utilizing beans for all dependency injections and application management. Compare the various DI and data loading strategies provided by spring and use only HCQL for data retrieval.

## Description

Integrating two or more independent modules into a single system is one of the important tasks that you are supposed to do in the capacity of a developer. This lab is about integrating two separate but related systems into one system so that the functionality of both can be achieved in one system. You are provided with two systems “Gradebook” and “Attendance” system, you are not supposed to redesign these systems into one application (do not redesign the schemas) but you are asked to integrate these systems into one application. You have to design an application that uses the functionality of these two systems. Only retrieval and insertion operations are required, but the important part is that if the insertion is related to both systems then both systems must be updated with the data simultaneously, same goes for retrieval.

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You have to design a UI or console based application to perform the tasks described above. Both the systems that are provided must be fully used for their functionality. The new system must communicate with both systems together when it is required.

**How to Run:**

Run the program. Choose the desired application to run. The chosen application will run.