



**Software Design and Architecture:
Deliverable 2 - Iteration 2
CRN: 43509 - Group #33**

SOFE 3650U

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Step 1 - Review the inputs:

The inputs were reviewed and analyzed.

Step 2 - Establish the interaction goal:

The goal of the iteration was to take a look at the architectural concern of identifying structures to help the functionality of the system. This would help address one of the concerns in the CRN list.

The focus for iteration 2 will be the **login/signup** and **observing the network** for the previously created use case.

Step 3 - Choose one or more element(s) to refine:

The elements that we will be refining are services server side, privacy module, and all four of the tiers in the deployment diagram. These methods all help the functionality of the course management system and they all work together to create the different layers in the architecture.

Step 4 - Choose one or more element(s) that satisfy the selected drivers:

Design Decisions/Locations	Rational/Assumptions
Producing a domain	An initial domain must be created, along with other efficient relationships. Alternate option: None
Identifying domain objects	Every operative element needs to be encapsulated in an isolated building block. Alternate option: If domain objects are not considered then layers can be decomposed into their own modules
Decomposing domain objects	Elements are supported by their own layers which rely on domain objects because these objects represent comprehensive groups of functionalities. These specialized components are referred to as modules.

	Alternate option: None
Using Spring Framework, Hibernate, and Google Web Toolkit (GWT)	Spring Framework is able to simplify developmental processes. Hibernate is used for handling the Java objects, tables, and records into a database which allows operations to run smoothly. In this case GWT will be used for developing web applications and creating rich, cooperative interfaces. Spring will improve the backend logic, and object relational mapping framework (ORM) will integrate with Spring making it the better and more suitable option for the development of the desktop and mobile application.

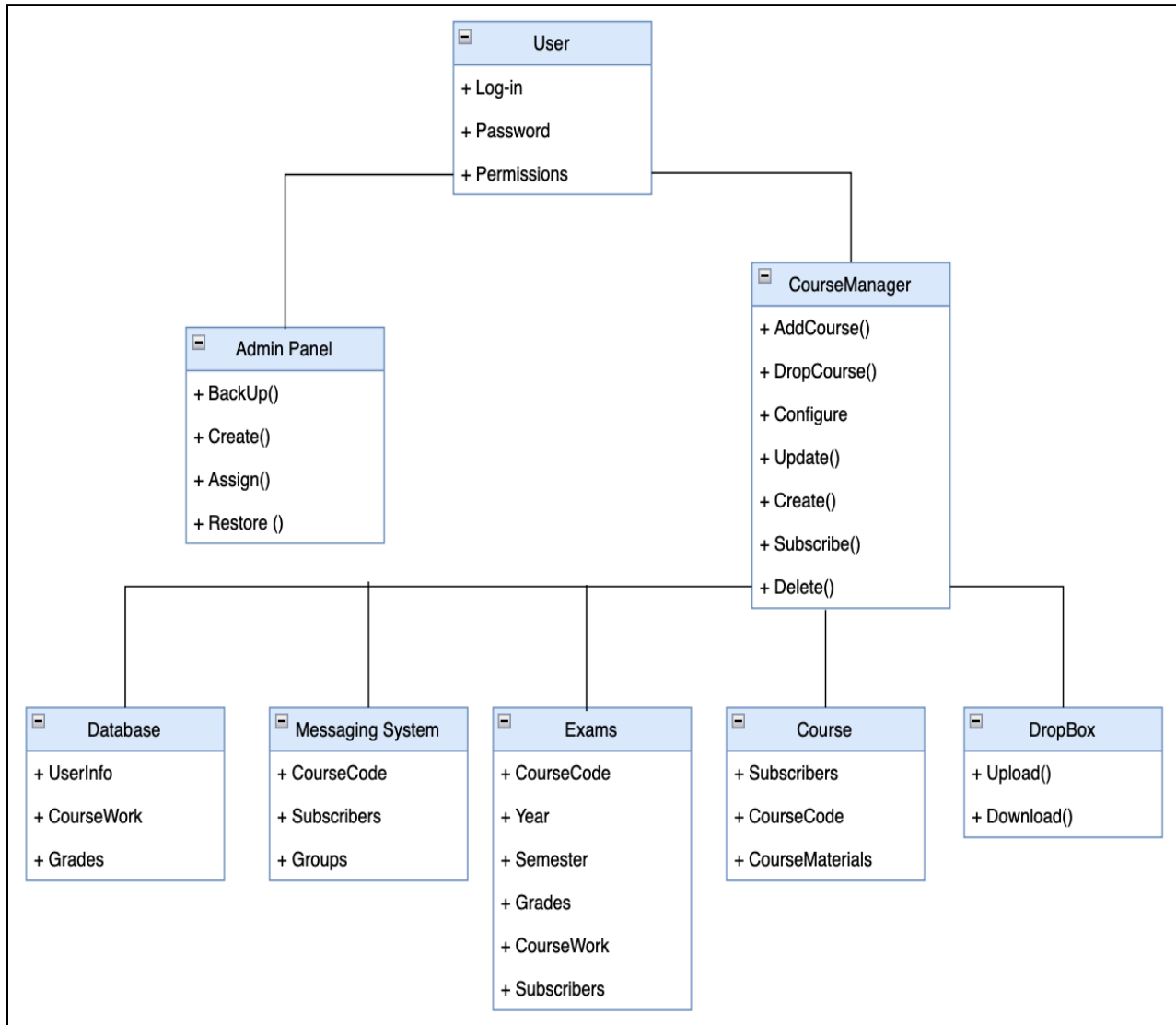
Step 5 - Choose one or more element(s) that satisfy the selected drivers:

Design Decisions	Rationale
Initial domain model	A domain model must be formed when entities in the initial use cases are identified/modeled.
Mapping use cases into domain objects	Domain objects can be identified by examining the use cases in the system.
Decomposing domain objects	By decomposing domain objects, the functionalities that are supporting the models will be recognized. Regarding the initial use cases, the architect will complete these tasks. In this stage, modules can be identified.
Connecting components	Spring is a framework that will use an inversion of control method to unit-test the modules.

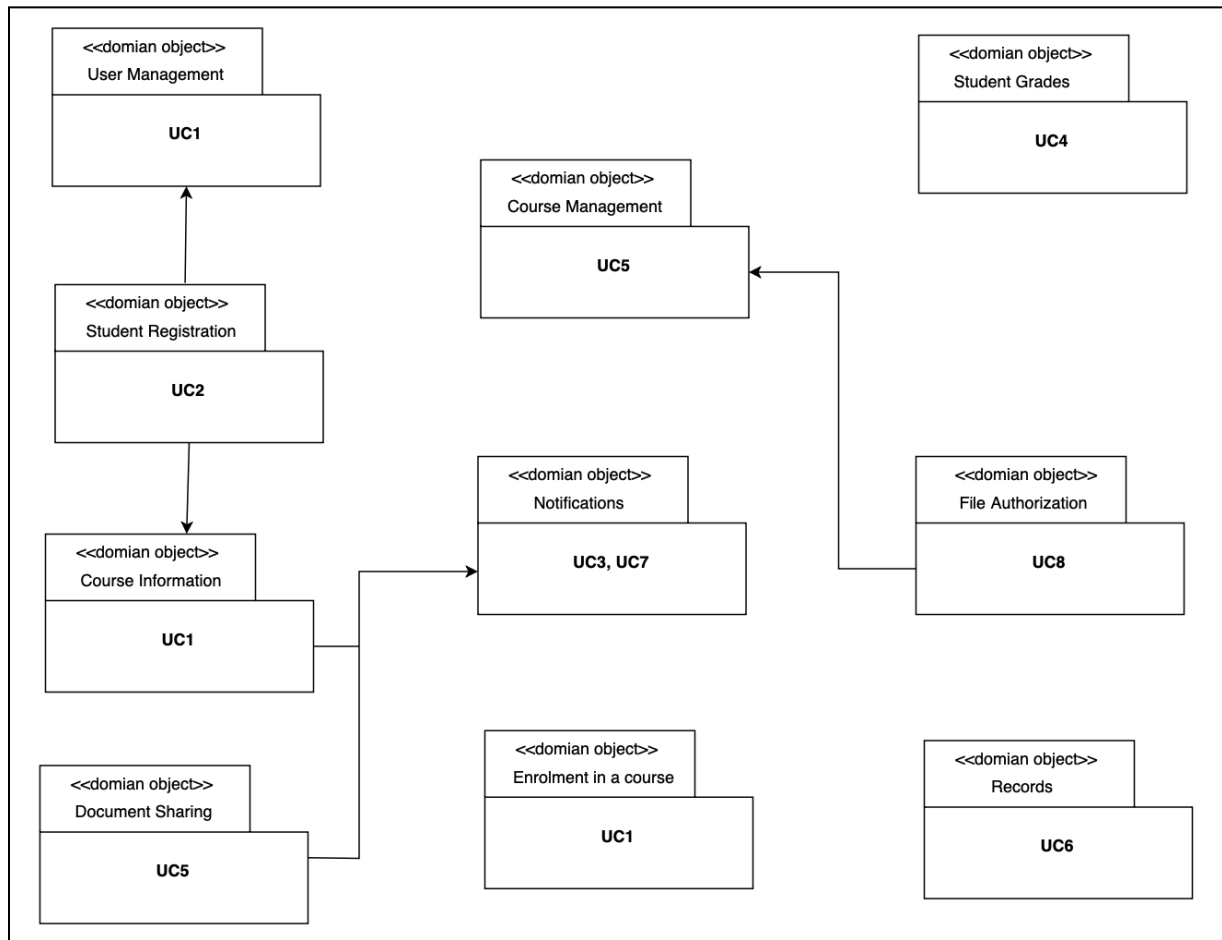
Frameworks → Module

Object relational mapping (ORM) is encapsulated in the layers of the module.

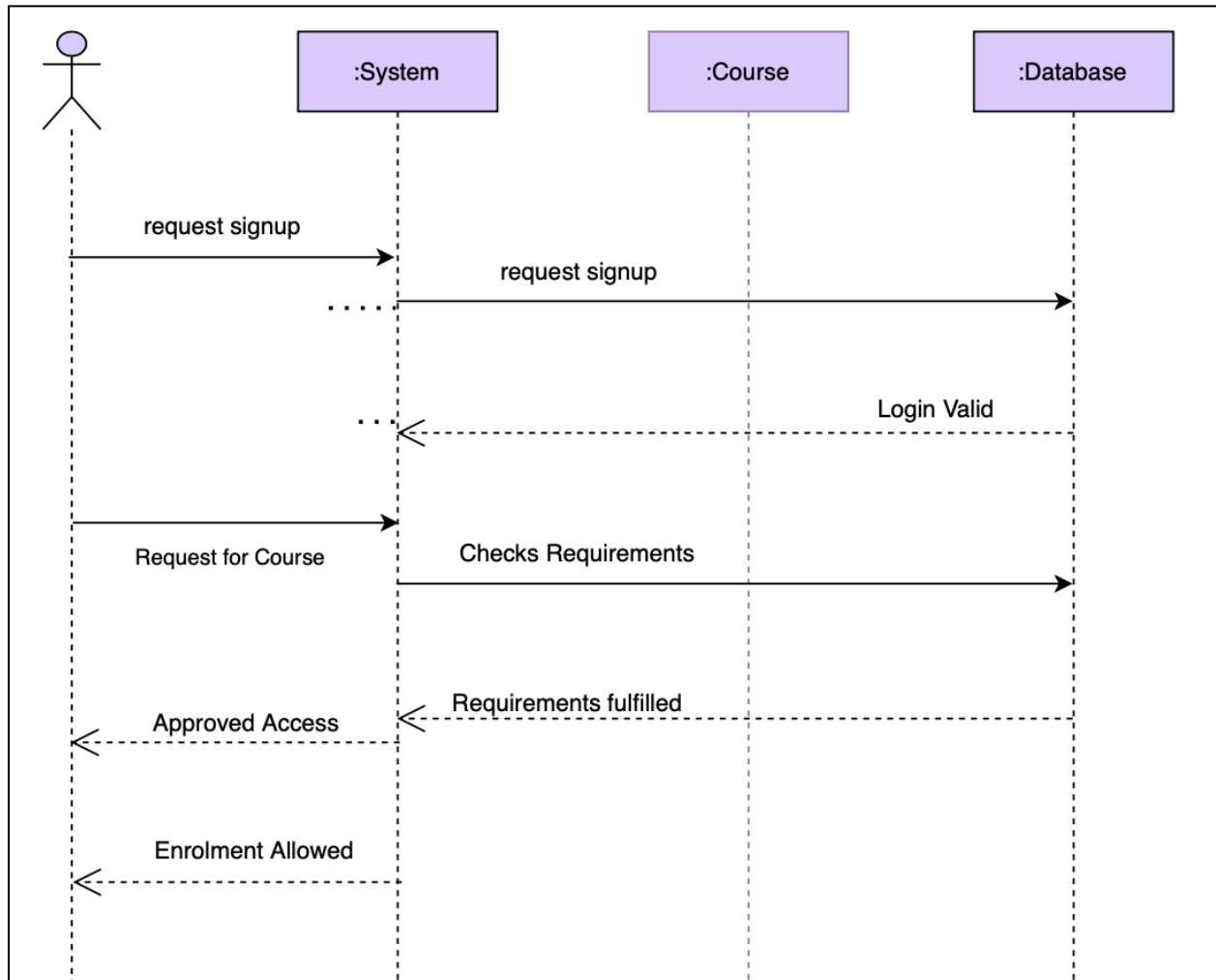
Step 6 - Record Design Decisions (Domain):



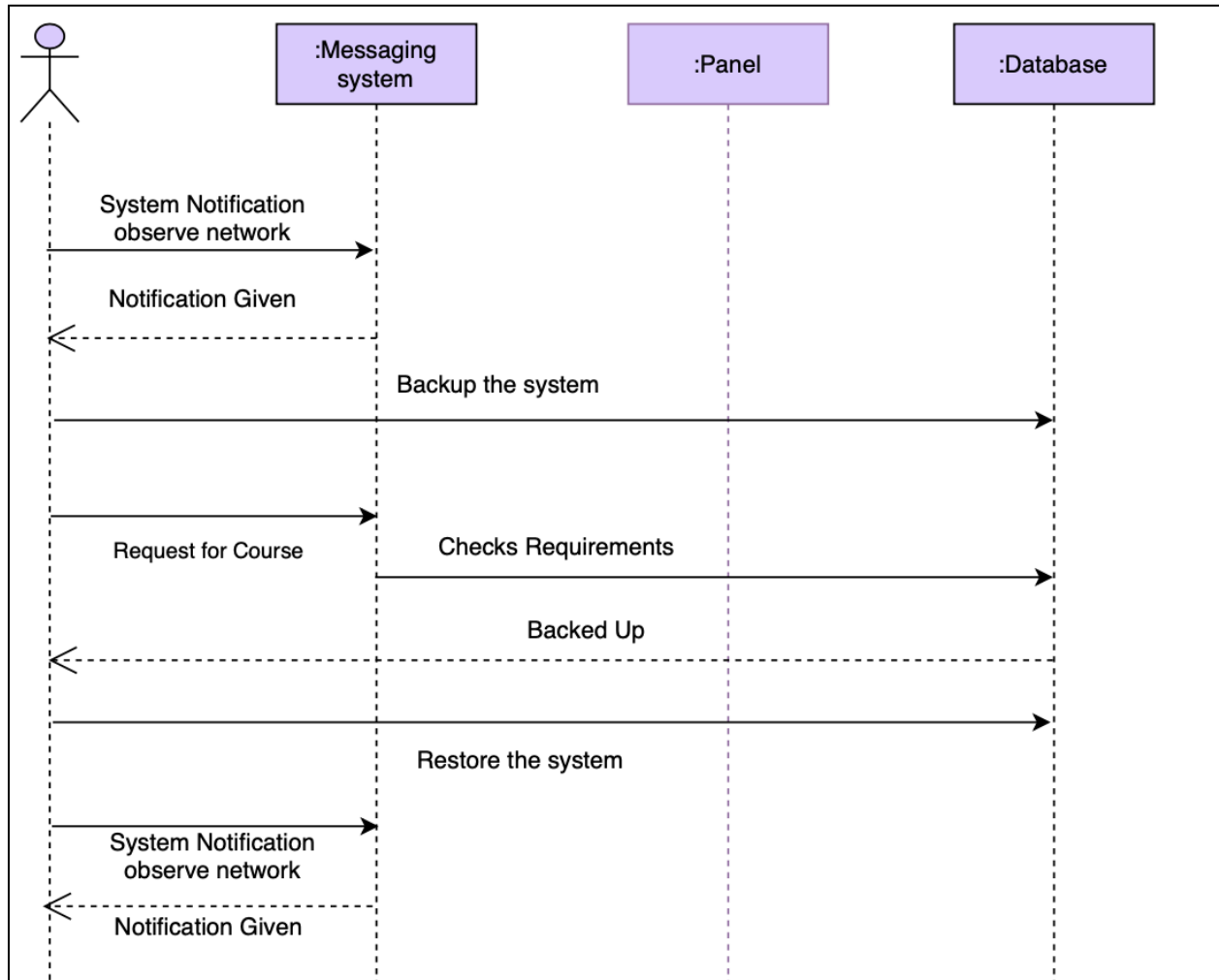
Step 6 - Record Design Decisions (Use Cases):



Step 6 - Record Design Decisions (Sequence Diagram for login/signup):



Step 6 - Record Design Decisions (Sequence Diagram for observing the network):



Step 7 - Analysis:

Not Addressed	Completely Addressed	Design decision made during the Iteration
	QA-1	The system should make program updates when needed and give a notification
	QA-2	The system should give 4-5 hours of downtime and be available at any time.
QA-3		No relevant decisions made
QA-4		No relevant decisions made
QA-5		No relevant decisions made
		The 4-tier deployment diagram in the system can keep all the information from previous courses and classes.
		The system will need management to ensure any unwanted user does not have access to grades and private information.
		No relevant decisions made
CON-7		No relevant decisions made
		Downtime is during less traffic time
		The system should only allow permission to access lectures and make groups.
CON-14		No relevant decisions made
	CRN-1	No relevant decisions made
		No relevant decisions made
		No relevant decisions made