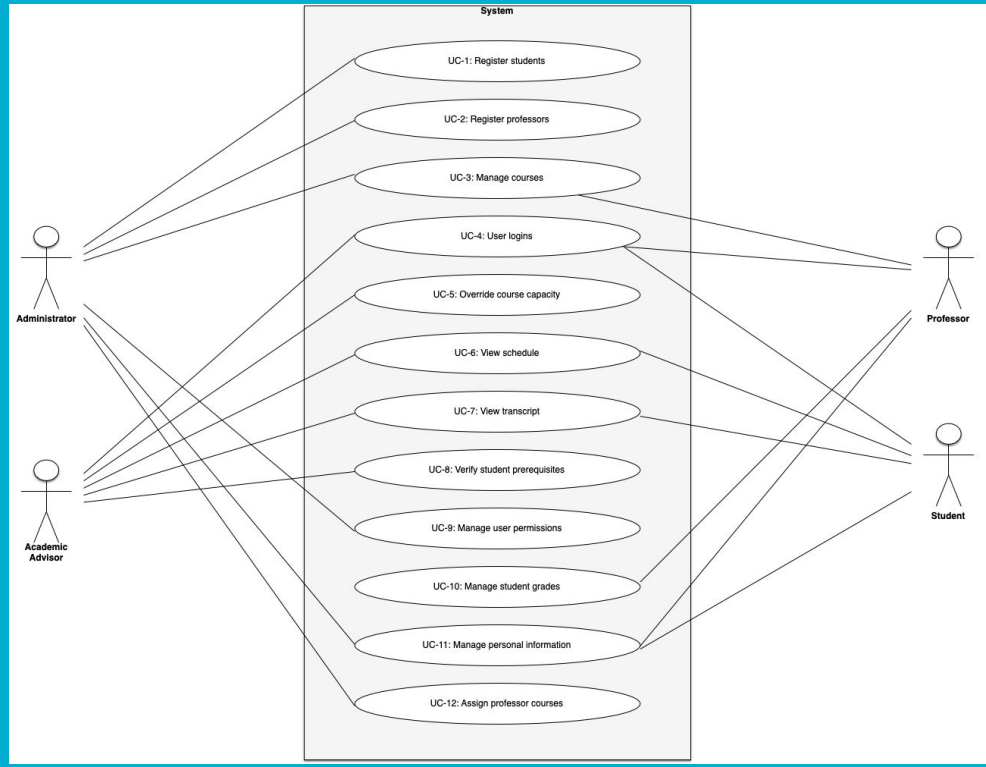
Project Description & Principal Use Cases

The project we chose for this course was to design a University Database Management System.

Our primary use cases that we focused on were:

- Registering Students & Professors
- Managing courses
- User administration & logins



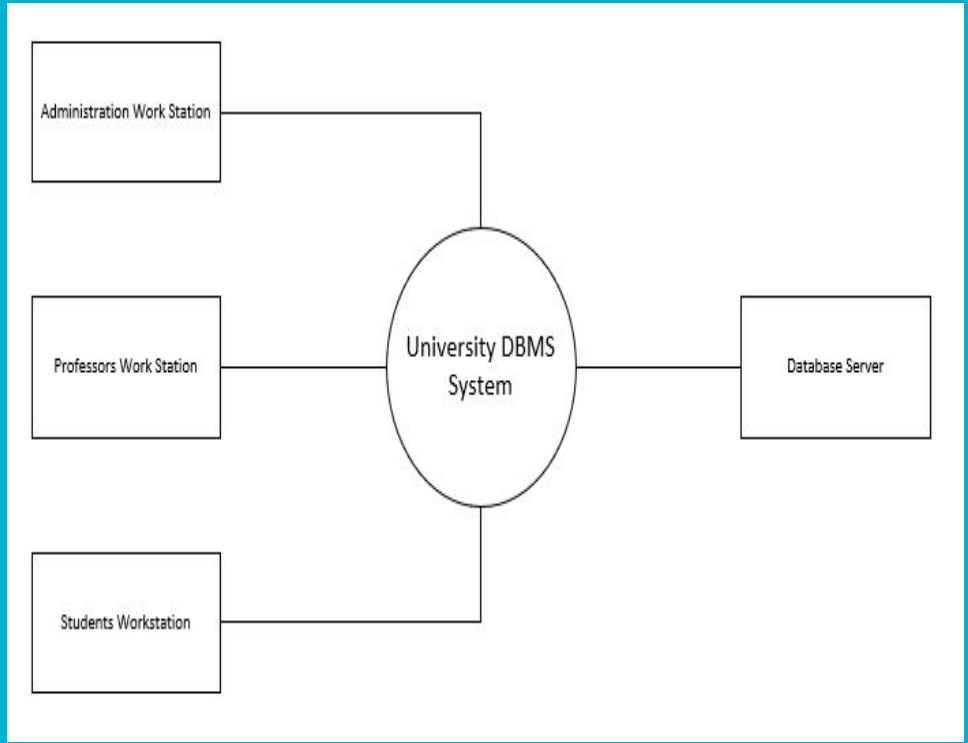
Outcome of Iteration 1

- System to refine -> University DBMS
- Design Concepts Idea
  - Mobile Application
  - Rich-Internet Application
  - Rich-Client
  - Three-Tier Deployment
  - Web Application

- Design Concepts we chose

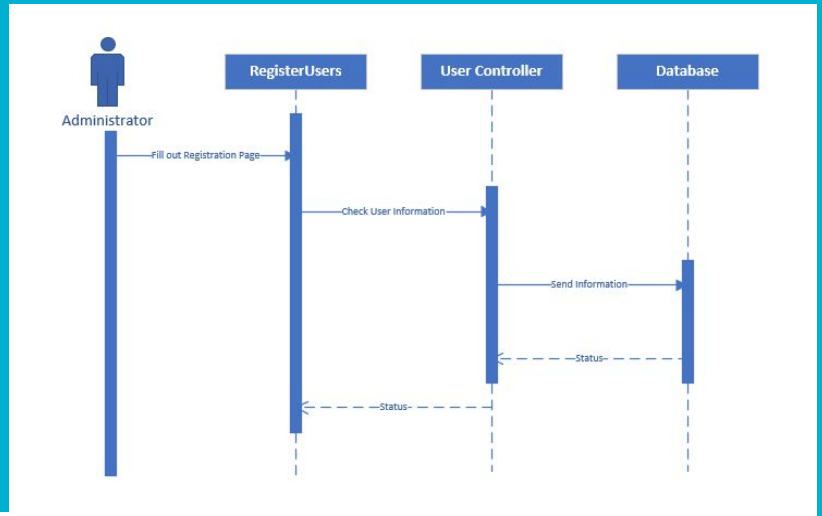
  - Three-Tier Deployment

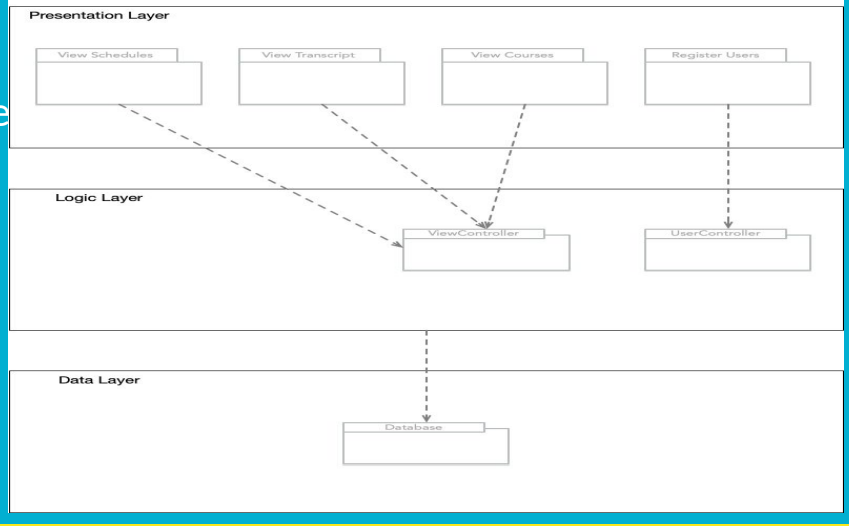
  - Web Application



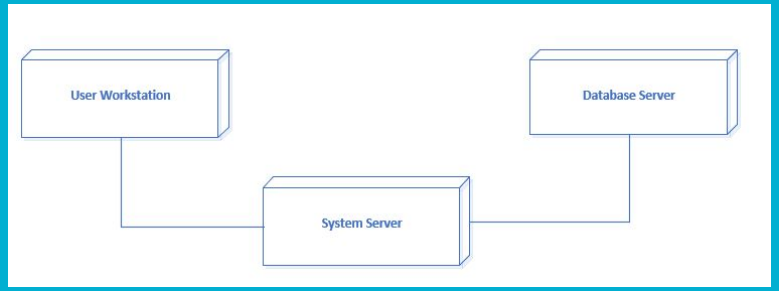
Outcome of Iteration 2

In the case of iteration 2 our goal was to identify a series of structures to support primary functionality for the application. From this goal a domain model was created which identified domain objects and subsequently mapped them to their functional requirements. These domain objects can be further decomposed into components located within the layers. These layers are referred to as modules and are specialized corresponding to the layer the are located in. These decisions provide us with a base understanding of how functionality is supported in the system which is vital in future iterations.





Outcome of Iteration 3



For this iteration, we as architects chose to focus on the QA-2: Performance scenario:

"A course's information requires an update during peak registration times. Once the necessary changes are made, the system should be able to update quickly and efficiently, within 5 seconds for all users."

Elements that we chose to be refined:

-the Database server

-the Application server.

Some of the design concept decisions we made during this iteration:

- Implementing a patch manager to effectively manage the patch update process
- Introducing an element from the message queue technology family (Kafka)
  - Kafka - high throughput and low latency and
  - Producer & Consumer model which can allow us to add more consumers in the future