Curriculum Management System

Team members

Name and Student id	GitHub id	Number of story points that member was an **author** on.
Keeran Ratnasabapathy 27658095	Keeran10	3
Irina Fakotakis 40029185	irinafakotakis	2
Georgik Barsemian 40032101	BarsemianGeorgik	2
Matthew Benchimol 27759614	MBenchimol	2
Scott Bouchard 26251625	sbouchard09	2
Antoine Betenjaneh 27161956	soenAnt	2

Project summary

CMS, Curriculum Management System, is a software-as-a-service which will allow University faculty members to easily modify their respective University Academic Calendar. This system will provide a clean and intuitive interface, as well as automation of the approval request workflow which accompanies changes to the University Academic Calendar.

Risk

The CMS is a project that has a lot of inter-dependencies going on all at once on the inside. Requirements need to be easily modified in future releases, but also very strict while they are valid and are in use. The biggest risk is making sure that the

initial design which includes the database that the entire system will depend on is properly designed to handle all the different criteria the system will have. This risk was mitigated first by making sure that three people were assigned the task to design the database, review that design and make sure that it will hold up against future iterations and releases, remaining flexible enough for any future modifications by us or the stakeholder. The initial E/R diagram design of the database can be found in the **Overall Arch and Class Diagram** section.

Legal and Ethical issues

- Since the stakeholder is an associate dean at Concordia University, there are no legal obligation for the CMS team to sign Concordia's IP opt-out. Furthermore, we have decided to license the project under the MIT agreement.
- There is an ethical issue concerning the transfer of sensitive documents pertaining to the curriculum approval process. These are provided to the team for study purpose exclusively; therefore, these documents should not be leaked. Such action would lose stakeholder trust.

Velocity

Project Total: 2 stories, 13 points over 2 weeks

Iteration 1 (2 stories, 13 points)

Iteration 1 was focused on project setup, mitigating project risks before beginning to work on features. The project was containerized via Docker, TravisCI was

integrated, mockito and logging libraries were added as well as linting and the feature tag config file, all to prepare for future development.

Overall Arch and Class diagram

Provided below is our initial design for the CMS database. We believe these associations will provide University faculty with a smart system which displays the impact of change to their calendar.

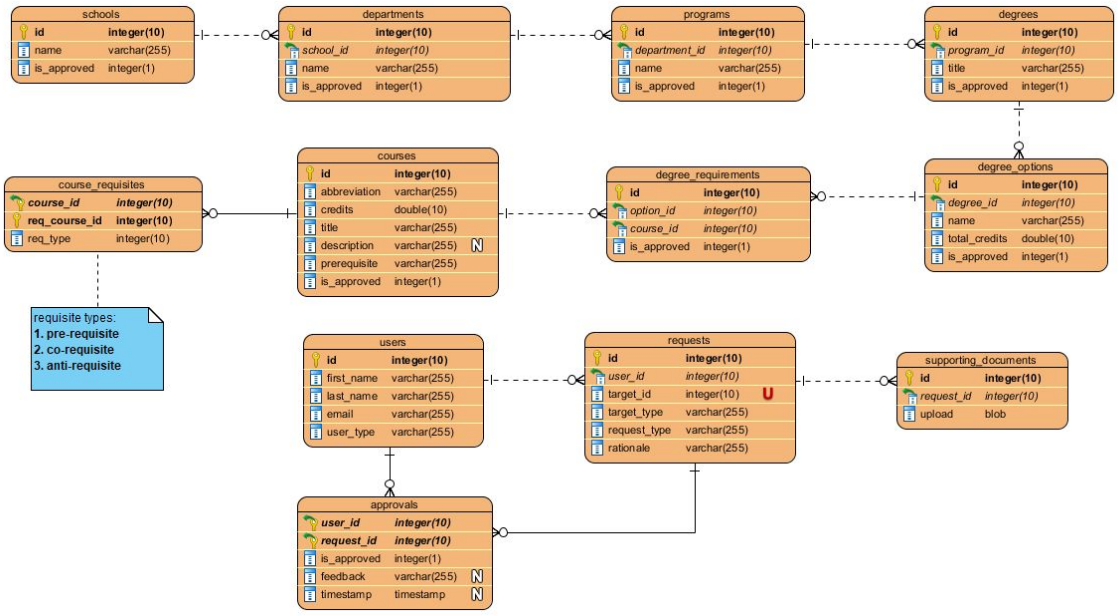

Figure 1 - E/R Diagram

Infrastructure

For the CMS project, we are using Docker to containerize the project to reduce runtime and the deployment process. By dockerizing the project it allows us to

deploy easily on different platforms such as Windows, Linux and Mac. With no current dependencies with specific operating systems, the containers are also very lightweight and are easily shareable between different parties.

Another key tool that we will be using for this project is Travis Ci. Travis allows to evaluate every commit that is happening to our GitHub repository. With the Code Coverage stage, it allows to verify that the code satisfies all the unit tests, It allows to notify all the development team whenever a build fails or succeeds. With the static code analysis step its possible to verify if the code is following certain specific standards and rules. Most importantly Travis Ci comes with a free cloud based hosting environment and is easily integrate with the GitHub repository.

For the database infrastructure, the project CMS will be using MySQL. MySQL provides data security, since the product is going to be used by the university to update course calendar therefore its important that the data remains secure so that it cannot be compromised and modified externally. It also has high performance compared to the other types of databases, the connection and the transfer of the requests are always done time efficiently and at high speed. Lastly, MySQL is highly scalable whenever the demand of storing data rises with time. That feature could be beneficial since a program curriculum might require more database usage with time.

In further iterations, the advantages of the different frameworks and libraries that we are planning to use will further be discussed and explained once the development of the project progresses. For the Frontend we have decided to implement the Angular system and for the backend system Java Spring framework. Angular is known to be two-way data binding either interacting from the server to the frontend or sending data from the frontend to the backend. It helps to improve the server performance as well. And as for the Java Spring can quickly start up a project and provides HTTP endpoints to integrate api calls easily. It also provides an implementation of injection system to facilitate object creation.

Name Conventions

We will be following the following naming conventions for our project:

- Front-End: Angular Style Guide
- Back-End: Java and Spring Bean Naming Conventions
- Database: MySQL Naming Convention

Code

File path with clickable GitHub link	Purpose (1 line description)
src/cms-api/src/main/java/com/soen490/cms/App.java	Contains the main function which runs the back end for the CMS.
src/cms-api/src/main/java/com/soen490/cms/Controllers/FeatureFlagTestController.java	A controller for feature flag testing
src/cms-client/angular.json	Provides configuration defaults for Angular
docker-compose.yml	The configuration for containerizing the CMS client and API using Docker
src/cms-api/src/main/resources/log4j2-spring.xml	Contains the configuration for Log4j2, which will be used for logging.

Testing and Continuous Integration

Test File path with clickable GitHub link	What is it testing
Initial dummy test JUnit/Mockito	Testing the correct importation of JUnit/Mockito into the project.

We are using TravisCI as our continuous integration environment for testing and deployment. TravisCI is very useful as it builds and runs the project in a simulated environment and makes sure that no commit pushed breaks the build. Every commit pushed triggers TravisCI and re-builds and runs the entire project. A notification of a build failure would advise the member that caused the build failure to investigate the cause of this failure. TravisCI does provide a detailed log of the build operation with a message that can provide clues as to why the build failed. Another benefit to using TravisCI is the fact that it can separate the building/testing processes into two or more stages that run subsequent to each other, independently and a stage cannot proceed if the stage before it has failed. For more information, please click here.