
Courses/Labs Management System

 <https://github.com/StrugariStefan/CLMS> 

Summary

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Team members

- Birsan Ioana (B5)
- Ciulei Andrada-Teodora (B6)
- Loghin Alexandru (B4)
- Silistru Alexandru (A1)
- Strugari Mihai Stefan (B4)

Team of 5 logo



Project requirements

Creating a platform for the management of users, courses and laboratories that will allow:

- the registration of users who can be teachers or students
- sending notifications
- assessment of students
- uploading and downloading of courses/labs materials
- the existence of interaction between students and teachers, which consists in asking questions, providing feedback and giving answers
- authentication mechanism

Technologies involved

C#

.Net Core 2.2

OpenAPI Specification

Sql Server

Microsoft Azure Blob Storage

MSTest.TestFramework 1.3.2

Development workflow - Github

1. Checkout to master and pull the latest version from github locally before adding any other code. This should be done each time you want to make changes starting from the latest master changes:
 - `git branch -> current branch`
 - `git checkout branch-name -> move to branch branch-name`
2. Checkout to a new branch with a name that describes the feature, following the standard **name/feature**:

```
git checkout -b andrei/add-animations
```

3. Make your desired changes to the code and make commits with those changes:

```
git commit -m "message that describes commit" .
```

4. Push the changes to GitHub to a branch with the same name:

```
git push -u origin local-branch-name:desired-branch-name-on-github
```

5. Validate that the changes work as expected.
6. If your changes work as expected merge the new branch to the master branch. Merge only if the changes work as expected.

Development workflow - Trello

Your Team Boards

Authentication
Management

Content Management

Gamification
Management

Notifications
Management

Users Management

Create new board...

Users Management



CLMS Free

Team Visible

IB

AS

AC

MS

4



OTHERS

DDD



1

Follow this example



1

netcorekit



OPEN API



Creating a simple data-driven
CRUD microservice



Nexmo Developer | Send an SMS
with the Messages API



2

TO DO

Test WriteUserRepository

AS

Test ReadUserRepository

AS

Test UserValidator if necessary

AS

+ Add another card

IN PROGRESS

Test endpoints

MS

+ Add another card

DONE

Refactor: consult the details for
more info



IB

Add OPEN API config



IB

Implement TeachersController



IB

Finish documentation for endpoints



IB

Create UserValidator class and
implement



IB

Create project structure



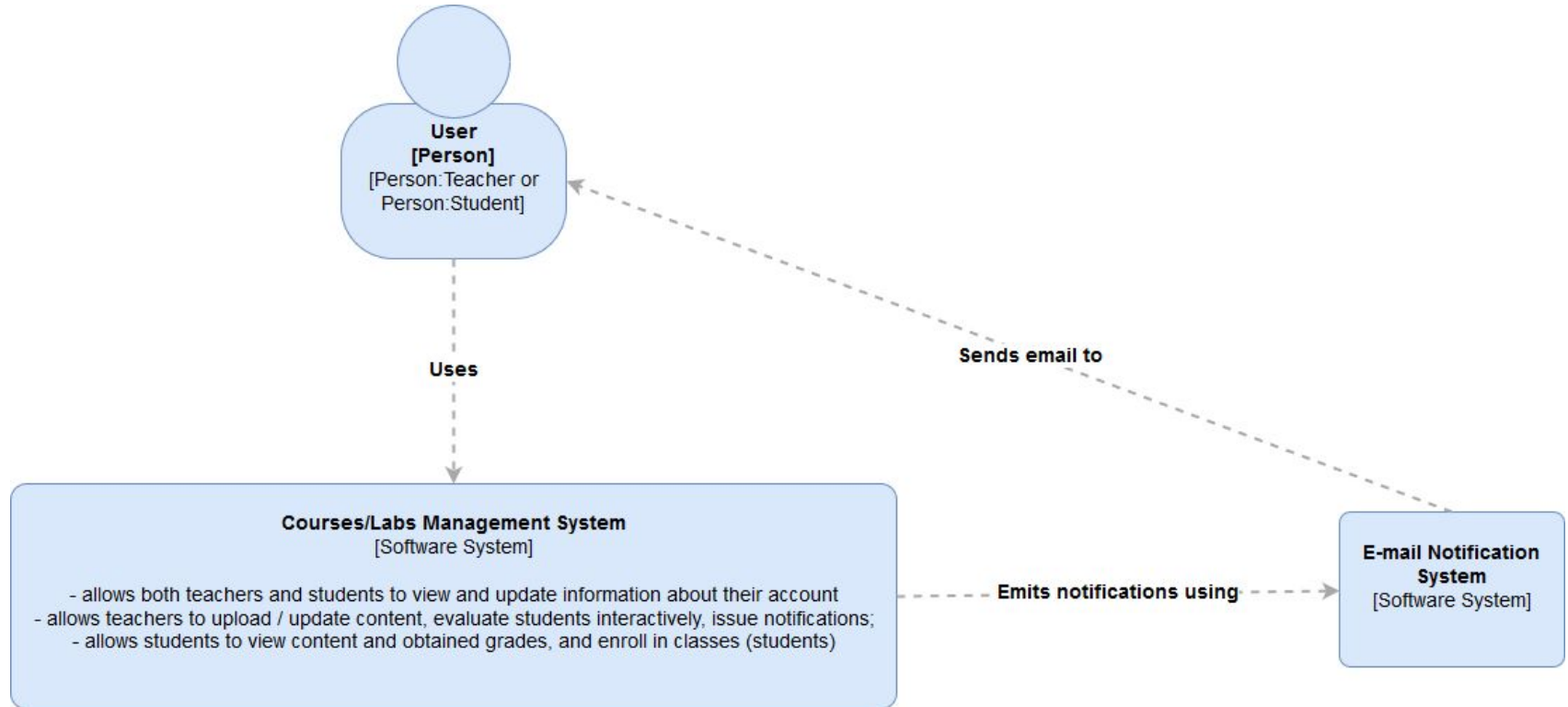
Update README with information



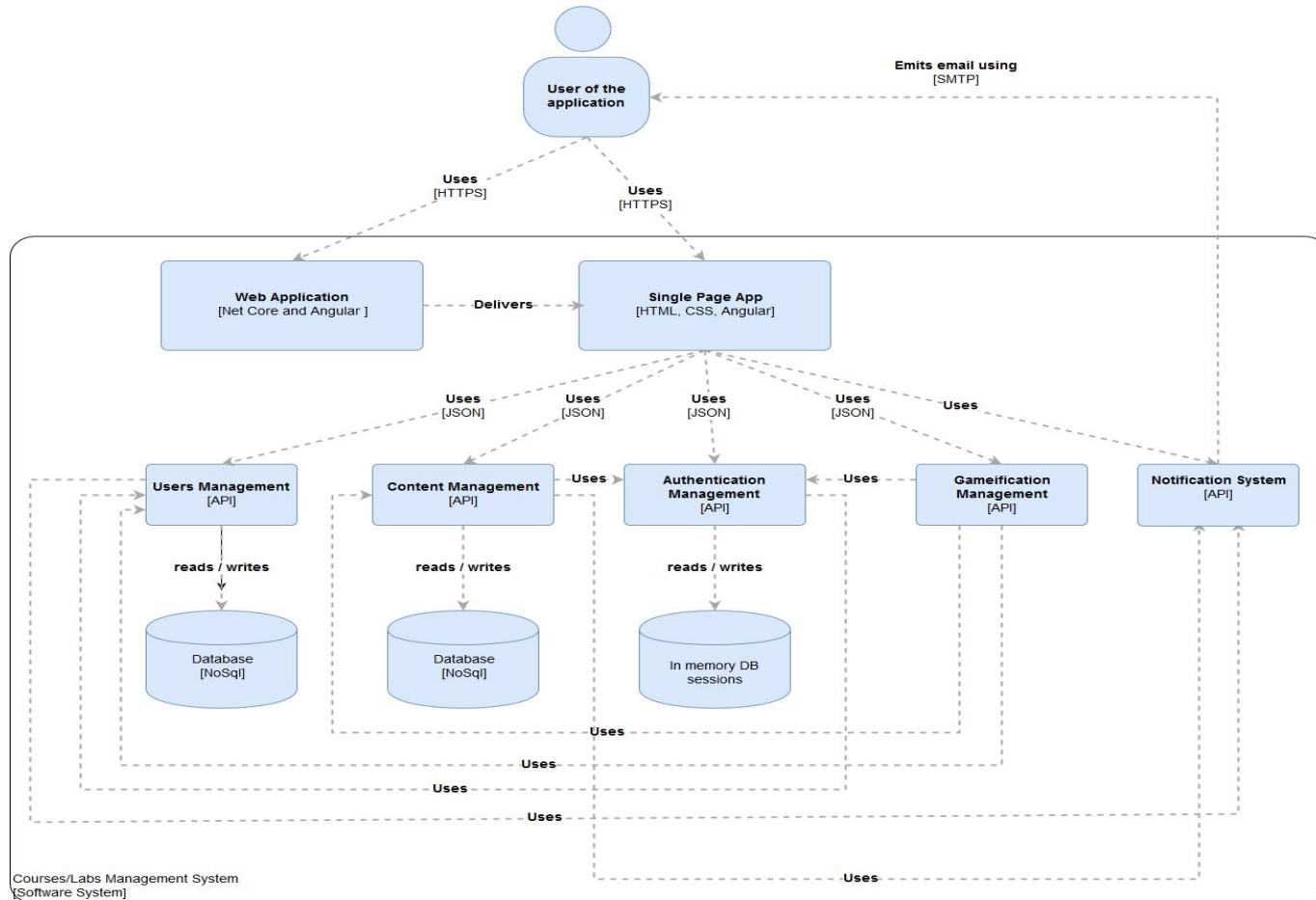
Implement WriteStudentRepository

AS

Architecture - level 1



Architecture - level 2



Microservices - Auth.API

Auth

GET `/api/v1/auth/loggedIn/{token}` Checks if a user is logged in.

POST `/api/v1/auth/login` Logins a user.

POST `/api/v1/auth/logout` Disconnects a user.

GET `/api/v1/users/role/{role}` Obtains all users by role.

Parameters

Name

Description

role * required
integer (\$int32)
(path)

AuthToken
string
(header)

Execute

Microservices - Users.API

Users

GET `/api/v1/users/{id}` Obtains an user by id.

DELETE `/api/v1/users/{id}` Deletes an user by id.

GET `/api/v1/users/role/{role}` Obtains all users by role.

GET `/api/v1/users` Returns all users.

POST `/api/v1/users` Registers an user. Roles: 1 = student, 2 = teacher.

POST `/api/v1/users/registered` Checks if a user is registered.

Microservices - Gamification.API

Answers



GET /api/v1/answers Return all answers.

POST /api/v1/answers Creates a new answer.

GET /api/v1/answers/{id} Obtains answer by id.

DELETE /api/v1/answers/{id} Deletes a specific Answer.

Microservices - Courses.API

Courses

GET /api/v1/courses Return all courses.

POST /api/v1/courses Creates a new course.

GET /api/v1/courses/{id} Obtains course by id.

DELETE /api/v1/courses/{id} Deletes a specific Course.

GET /api/v1/courses/{name} Obtains course by name.

ResourceFiles

GET /api/v1/resourceFiles Return all resourceFiles.

POST /api/v1/resourceFiles Creates a new resourceFile.

GET /api/v1/resourceFiles/{id} Obtains resourceFile by id.

DELETE /api/v1/resourceFiles/{id} Deletes a specific resourceFile.

GET /api/v1/resourceFiles/download/{id} Downloads a specified resource file

Microservices - Gamification.API

Questions



GET /api/v1/questions Return all questions.

POST /api/v1/questions Creates a new question.

GET /api/v1/questions/{id} Obtains question by id.

DELETE /api/v1/questions/{id} Deletes a specific Question.

GET /api/v1/questions/type/{type} Obtains questions by type.

GET /api/v1/questions/levelOfInterest/{levelOfInterest} Obtains questions by level of interest.

Microservices - Gamification.API

Scores



GET `/api/v1/scores` Return all scores.

GET `/api/v1/scores/user/{userId}` Return all scores by userId.

GET `/api/v1/scores/course/{courseId}` Return all scores by courseId.

GET `/api/v1/scores/user/{userId}/course/{courseId}` Obtains score by userId and courseId.

DELETE `/api/v1/scores/user/{userId}/course/{courseId}` Deletes a specific Score.

PUT `/api/v1/scores/user/{userId}/course/{courseId}/addpoints` Adds points to score, creates new score if it doesn't exist.

Microservices - Notifications.API

The functionality displayed by this service consists in sending emails and sms.
As far as implementation is concerned, we have used the services outlined by:

[Mailgun API](#)

[Twilio Programmable SMS](#)

Notifications

POST

`/api/v1/notifications/email` Sends an e-mail.

POST

`/api/v1/notifications/sms` Sends an sms.

CLMS application characteristics

- **Flexibility and extensibility**

CLMS application can be easily modified, continued and improved

- **Modularity and scalability**

The microservices architecture gives us flexibility in terms of how we can scale the whole application.

- **Easy to use and understand by the user**
- **Well documented**

What we have learned

- What a microservice is
- How to develop microservices
- Better communication skills
- How to manage a large project and create small, feasible tasks