Cloud Computing – Hands-on

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Prerequisites:
Host all your code and documentation on the university gitlab server (gitlab.reutlingen-university.de).
Invite martin.henke@reutlingen-university.de with role “Reporter” to this repository.
Upload your presentation to RELAX.

Tipps:

- Look online, you can find many examples of similar apps that you can use as inspiration.
- Don’t use Chat GPT to generate your code. You need to be able to explain and understand the details of your implementation.
- Documentation as code-comments is allowed. You do not need to prepare a separate documentation.

1. Exercise 2 – Mandatory features

The goal of this Exercise is to have your entire application running in Docker containers. This means you need to build a Docker image for the application itself. For the MongoDB database, you can either use a public docker image or create your own Docker image.

Requirements:

- A Dockerfile needs to be written to package your application into a Docker image
- The docker image for your application needs to contain all dependencies that your app needs to run (beside the database)
- It must be possible to successfully build the Docker image
- The database should run in a second container and not in the “main” application container
- You can find public images for MongoDB on dockerhub, or on the MongoDB website
- You should be able to run your application by starting the two Docker containers
- Expose the DB port for the DB container so that the application can access it. Also expose the HTTP port in your application so that you can access it in the Browser

2. Exercise 2 – Additional tasks for groups with more than one person

Additional Requirements:

- The database needs to be secured by a username/password
- The application should not have these credentials hard-coded but instead read them from environment variables
- Provide these credentials to your application Docker container at runtime via docker arguments (--env ...)

3. Exercise 2 – Presentation & Demonstration

- Enhance your presentation about your solution (Implementation details, UML diagrams).
    - Add any new details about containerizing the application
    - A slide with “lesson-learned” items from this exercise. This can be of any domain, e.g., architecture, coding, or behavioral.
    - Your presentation should take no more than 5 Minutes including the demonstration.
- Prepare a live demonstration of your solution as part of the presentation.