1st Assignment

You and/or your DevOps team were hired to develop an application or to make an available application run in a DevOps scenario. In order to accomplish this job, the first step is to set up a proper development environment and assure that everything is working fine. You should focus on the "operation" side of the DevOps paradigm, deciding which step(s) you want to deal with and picking up the proper tools for your DevOps toolchain. In particular, the following aspects are relevant to the assignment:

1. Containerization/Virtualization (e.g., Docker, Vagrant, …)
2. Provisioning (e.g., Open Stack, Kubernetes, etc.)
3. Configuration (e.g., Ansible, Chef, Puppet, …)
4. Continuous Integration/Continuous Development (e.g., Jenkins, Travis, etc.)
5. Monitoring (e.g., ELK, Prometheus+Graphana, etc.)

PAY ATTENTION that every team or single developer MUST host the developed application on a public repository using GitLab. This is mandatory for everybody. Also, your application might have or not a distributed (not monolithic) architecture as described in the following. This means that separate modules can run in different virtual machines/containers, etc.

Assuming that you have already an application or you can quickly develop a simple one (see the example below), you should proceed to set up a DevOps environment as it follows, depending on the size of the team (the larger the team the more complicated is the task/architecture).

1. Single developers MUST address at least one aspect from the list above. The application can be monolithic.
2. Teams of 2 developers MUST address at least two aspects from the list above. The application can be monolithic.
3. Teams of 3 developers MUST address at least two aspects from the list above. The application MUST be distributed.
4. Teams of 4 developers MUST address at least three aspects from the list above. The application MUST be distributed.

Teams larger than 4 developers are NOT allowed.

Example

Develop a simple "Hello World" application, which takes some data in input (<student_name> and <id>) and outputs the following sentence:

"Hello <student_name>, your id is <id> and you visited this page N times"

You can decide which kind of application develop (e.g., web application with Servlet, JSP, etc.) but the information has to be stored in a database (pick your favorite one: MySQL, PostgreSQL, etc.)

However, this is just an example, but feel free to be creative and work on a different application, with the same features.

The first submission is a short document briefly illustrating the devops environment that will be demonstrated. The submission must include the address of the Git repository with all the material.
The team is responsible of **adding the user "ProSviSo2018" to the GitLab repository** as soon as the repository is created.

The second submission is the updated version of this document.

The document can be written either in English or Italian.

This assignment is expected to show your professional skills and it will be evaluated starting from:

1. The inspection of the application's code and all the artifacts (e.g., Docker files, Vagrant files, Ansible scripts, etc.) used to setup the DevOps environment.

2. A short **demo** (5 mins) where the team will show the DevOps environment in action. Instruction to define the day, time and place of the demo will be available on the site of the course.