

In this project you will built upon a code base for an “URL Shortener” application. The current application is a working prototype, but you will be responsible for adding features. The application is written in Python 3, using the AWS cloud infrastructure, and it is designed in the style of de-coupled microservices. The use case for this application will be sharing short http links for web pages and files.

The code base will be shared by the instructor. The two features to be added are as follows:

1. Replace the current EC2-based Apache web server with a containerized solution. That is, instead of a dedicated virtual machine in the cloud, the web server will be running as a container.
2. Add a “history of clicks” feature. Currently, the application keeps track of the number of clicks on a given URL. You will expand this feature by keeping track of click-times (a date & time stamp for every click), using DynamoDB.

This project will be carried out as follows:

1. We are going to use Git for versioning. The following book is strongly recommended: <https://git-scm.com/book/en/v2>, and the following tutorial is a great starting point: <https://missing.csail.mit.edu/2020/version-control/>
2. We are going to use Bitbucket as our Git repository, and we are going to use Jira for Agile project management. The instructor will provide the accounts.
3. We are going to develop the project in the AWS cloud, with an account provided by the instructor. A significant part of the course will consist in a self-paced coverage of the AWS Academy Developing curriculum. Every software project is also a learning project (both in Academia and Industry!), and software developers are expected to be life-long learners.
4. The software is (and will be) written in Python 3, and we are going to use Boto3 as the AWS SDK (Software Development Kit) for Python. See this page for documentation: <https://aws.amazon.com/sdk-for-python/>
5. Excellent documentation is expected, to be written in Markdown (see here <https://missing.csail.mit.edu/2020/potpourri/#markdown>).
6. There will be 3 teams: one team to manage the AWS account, the code base and the infrastructure. A second team will develop the containerized solution (feature 1) and a third team will develop the DynamoDB solution (feature 2).