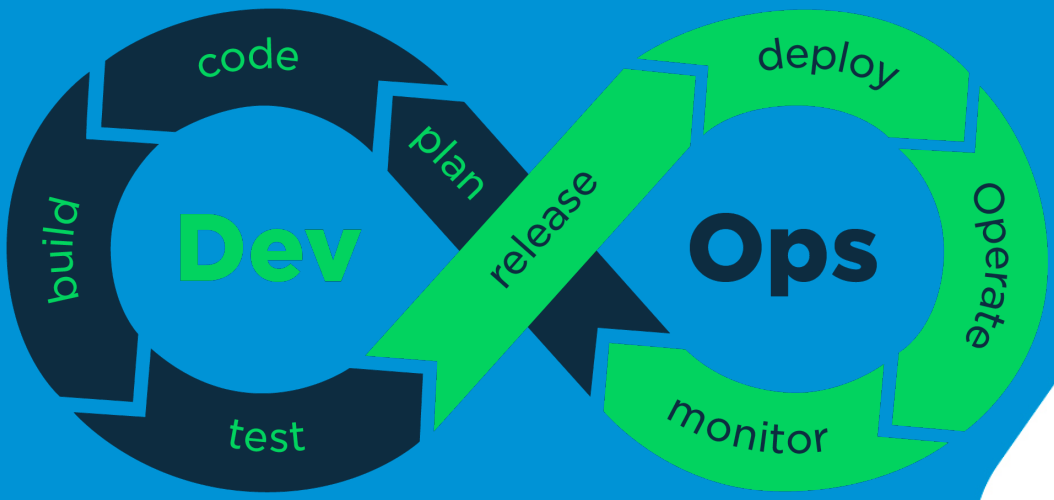
{EPITECH}

MY_MARVIN - BOOTSTRAP

AUTOMATE YOUR LIFE AND BECOME A REAL JENKINS MASTER



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Compiling is fun (yes please agree), but compiling everytime to see if nothing broke is not when you forget to do it the one time you should.

Testing a program is fun (yes please agree again), but forgetting to do it the one time you did a breaking change right before the delivery deadline is not.

Doing the same thing over and over again can be prone to errors and forgetting.
But a saviour is approaching: ***automation***!

Automation technologies allow you to automate a lot of tasks and do a LOT of actions automatically, exactly how you want them to be executed.

During this bootstrap, you are going to become familiar with one of the most popular automation platform: *Jenkins*, and two of its associated tools *Configuration as Code* and *Job DSL*.

Step 0 – Jenkins enters the game!

A little quiz to start with

Before starting to use Jenkins, it is important to gain some knowledge and to either acquire or clarify important points. Try to answer those questions with your friends:

- ✓ What is Jenkins?
- ✓ What are Jenkins' jobs?
- ✓ Why using Jenkins instead of just bare shell scripts?
- ✓ What are the key differences between Jenkins and GitHub Actions?
- ✓ Why is Marvin nicknamed the "Paranoid Android" and why do you have to answer this question anyway?

If you answered those questions right, you then have all you need to start your journey.

Setup time

To use Jenkins, you have to install it.

There are several ways to install Jenkins, but using Docker is by far the best way to proceed.

By setting the `JAVA_OPTS` environment variable to `-Djenkins.install.runSetupWizard=false`, you can skip the setup wizard that would otherwise appear when you first access Jenkins (and when you reset it).

The version of Jenkins that the Automated Tests will use is the **latest LTS** one.

Step 1 – Time to automate

You are now going to tinker with your new friend. Try to do the following tasks directly on your Jenkins instance.

System message

Your instance is not very welcoming, this is sad.
Set the system message to "`Hello! Welcome to my Jenkins instance :)`".

A visitor

Being anonymous is not fun, one should have an account with a great name! Create a user *Jigglypuff* with an id `jigglypuff`. Try to log in with it!

Your first job

Knowing the disk space usage in one click would be great. Create a freestyle job named "`Disk Space Check`" which executes the shell command `df`.

A polite DDoS

Having a bad day?
Create a freestyle job named "`Daily Dose of Satisfaction`" to comfort you when you need it.
Make it so that it:

- ✓ Has a `NAME` string parameter.
- ✓ When executed, in **separate** shell script steps:
  - displays "`Hello dear user!`" using `echo` (without any option) and replacing `user` by the value of the `NAME` parameter;
  - executes the `date` command;
  - displays "`This is your DDoS number 42.`" using `echo` (without any option) and replacing `42` by the build number.

For the love of chocolatines, please do not use ugly `echo` syntax like `echo -ne This is a word,\\ with some\\tspaces`, just use `echo "This is a word, with some spaces"`

Is something missing on your instance?
Try to go to the Update Centre to install relevant plug-ins!

Step 2 – Time to automate… the automation

You now know how to operate Jenkins to do essential work.

However, if you want to set up another instance with the same configuration, you would have to do all the previous steps over again.

That is not cool enough for us and we are too lazy for that.

So it is now time to automate the configuration of Jenkins!

Configuration as Code

The best way to set a configuration in stone is by using a configuration file.
And thankfully, a Jenkins plug-in offers the management of its configuration as a config file; its name is… Configuration as Code (a.k.a. JCasC) (what a surprise).

It allows you to define the entire configuration of your instance in just a single YAML file, how cool! Now this is lazy enough for us.

Create a file named `configuration.yml` at the root of your repository which contains the necessary definitions in order to have the same instance as the one manually configured in step 1.

It is possible to have an idea of the current code configuration of your instance by going to the associated page in the settings.

However, do not blindly copy and paste the shown YAML code into your file, as the given code might be incomplete or not completely deterministic when fed back into your instance.

Job DSL

Not all the operations can be achieved with bare YAML and Configuration as Code.

Another plug-in named Job Domain Specific Language (a.k.a. Job DSL) allows you to write scripts for the creation of, well… jobs (yes, everything is obvious there).

Define in a `job_dsl.groovy` file the two jobs you created in step 1 using Job DSL, and execute this file using an appropriate instruction in the `configuration.yml` file.

All your DSL scripts must be centralized into one `job_dsl.groovy` file located at the root of the repository. Other Job DSL sources will not be evaluated.

Do not use unnecessary plug-ins, as the virtual Jenkins instance will only have the required ones installed.
If you use unnecessary plug-ins, the entire DSL correction will fail. You have been warned.
Installed plugins: `configuration-as-code`, `instance-identity`, `job-dsl`, `script-security`, and `structs`.

Feed The Beast

Now that you have a great configuration file, try to reset your Jenkins instance and set it up using only your `configuration.yml` and `job_dsl.groovy` files.

Tired of having to go through the setup wizard each time you restart your instance?
Go check step 0 for a nice environment variable to use. ;)

If you can observe in the new instance the same configuration as the one you manually did in step 1, you won the game!
You now have everything you need to tackle the project like the master you are now. Good luck!

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