



# kura labs

## COHORT 3

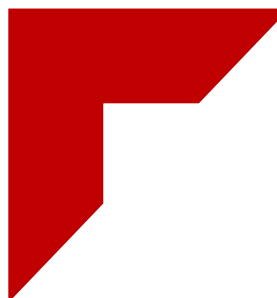
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# Deployment #2

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27<sup>th</sup> September 2022



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# Summary

## CI/CD Pipeline

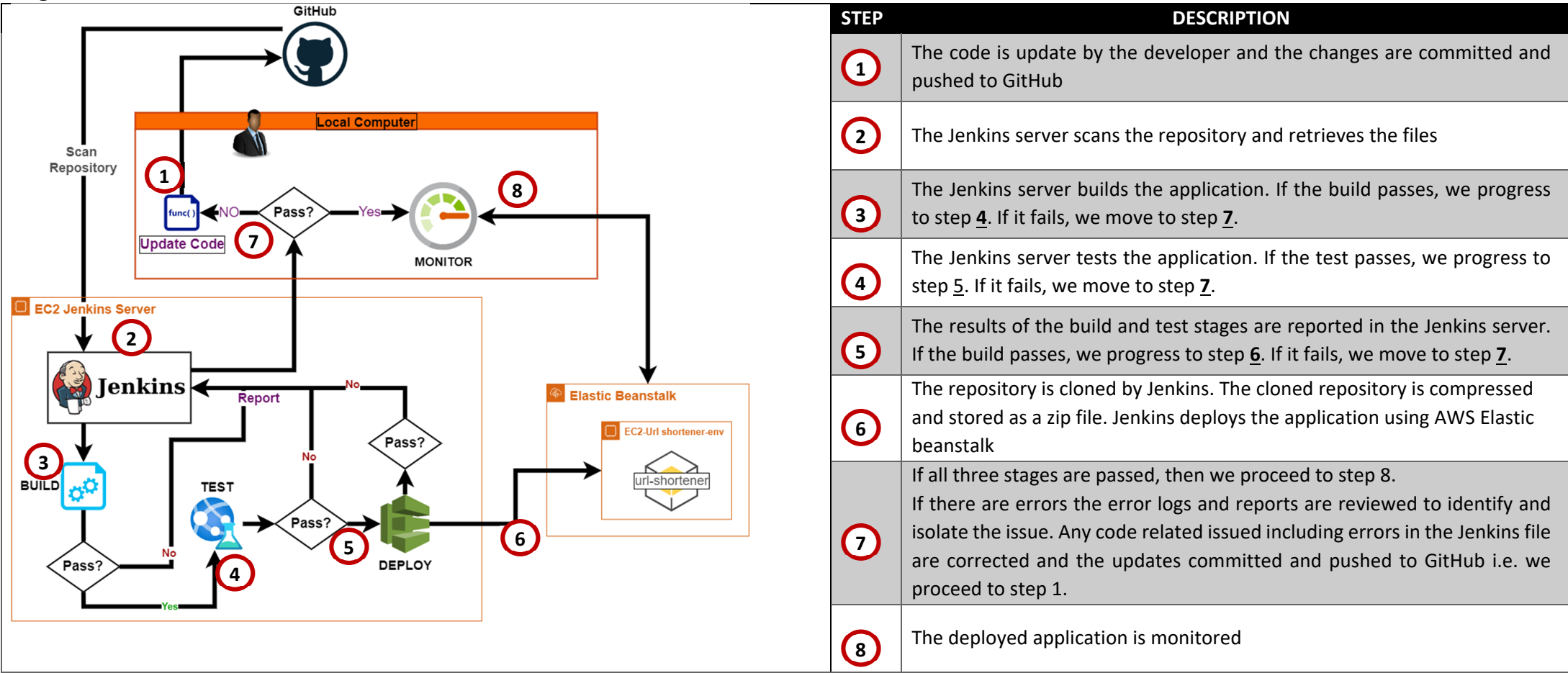
Continuous Integration and Continuous Deployment (CI/CD) pipelines use automation to improve software delivery throughout the software development life cycle. This deployment exercise demonstrated the steps for setting up a basic CI/CD pipeline consisting of four main stages: CODE, BUILD, TEST, and DEPLOY

The software application used in this case was a Flask web application called “url shortener”

GitHub was used to manage the code and Jenkins was used to automate the build, testing as well as the deployment stages.

# Pipeline

## Diagram



# Observations

## Create a multibranch build

At this stage a few of the builds failed because of typos in the Jenkins file.

The screenshot displays the Jenkins web interface for a multibranch build named 'url-shortener'. The 'Stage View' table shows the following build results:

Commit	Declarative: Checkout SCM	Build	Test	Deploy
Sep 27 18:21	613ms	4s	702ms	35s
Sep 27 17:54	534ms	3s	699ms	1s
Sep 27 17:48	520ms	3s	688ms	1s
Sep 27 17:42	638ms	4s	973ms	913ms
Sep 27 08:16	589ms	3s	725ms	
Sep 27 08:24	818ms	10s	1s	

The 'Test Result Trend' graph shows a green line for 'Passed' and a red line for 'Failed'. The 'Permalinks' section lists the last build (#6) as failed.

The error message for the failed build is: `error: unrecognized arguments: delpoy url-shortener-main-dev`. A red box highlights this error message, and a red arrow points from it to a code snippet in a separate box, which shows the Jenkinsfile code for the failed build, where 'delpoy' is used instead of 'deploy'.

```

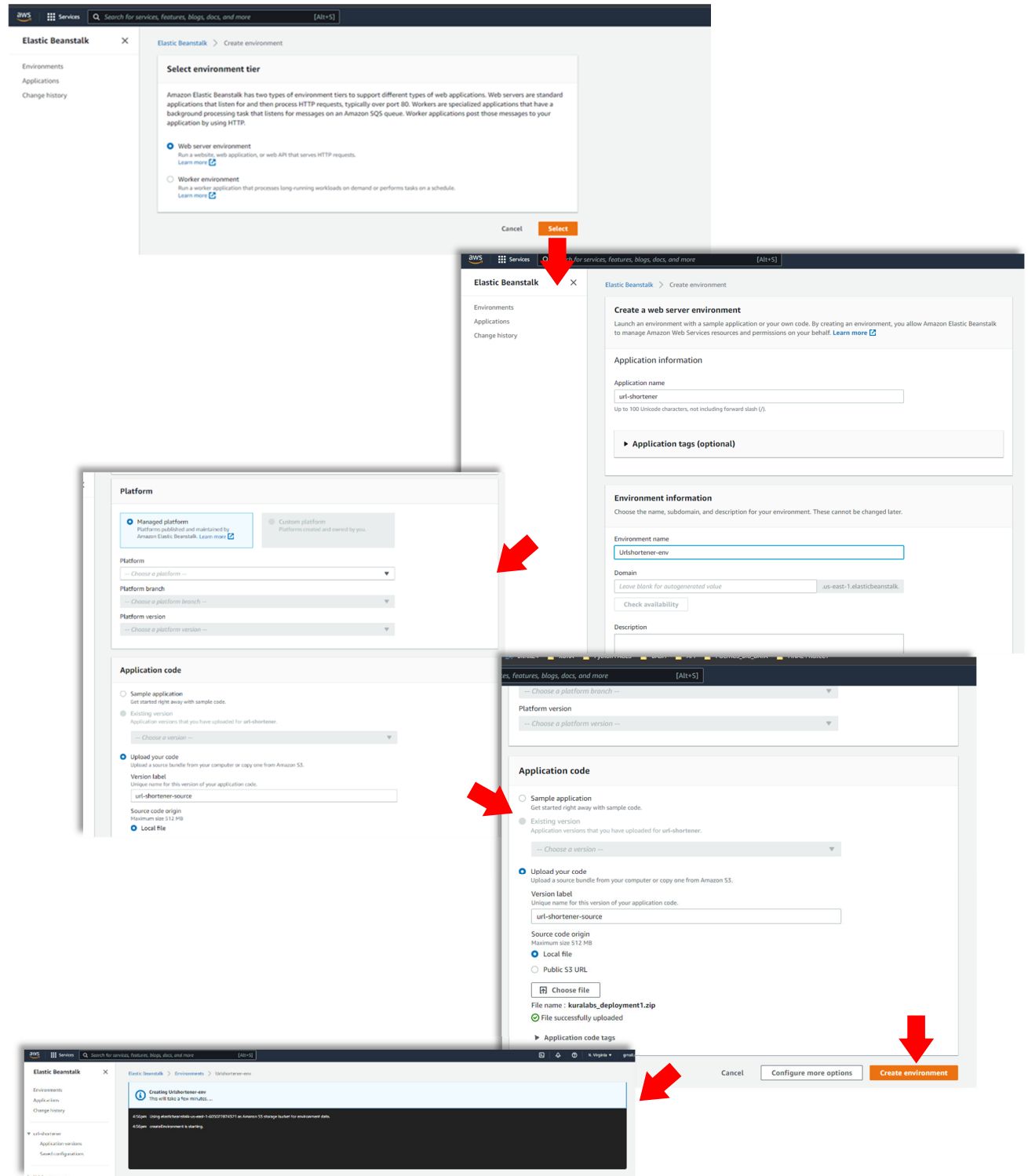
[Pipeline] sh
+ /var/lib/jenkins/.local/bin/eb deploy url-shortener-main-dev
eb (sub-commands ...) [options...] {arguments ...}
error: unrecognized arguments: delpoy url-shortener-main-dev
[Pipeline] }
[Pipeline] // stage
[Pipeline] }
[Pipeline] // withEnv
[Pipeline] }
[Pipeline] // node
[Pipeline] End of Pipeline
ERROR: script returned exit code 2
  
```

## DEPLOYMENT #2 - Kerri Smith

### Create a new environment in AWS Elastic Beanstalk

Screenshots of Elastic beanstalk deployment

Creating new environment



## EC2 instance created

**Instances (2)** Info

Find instance by attribute or tag (case-sensitive)

Instance filters: Instance state = running

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
<input type="checkbox"/>	Urlshortener-env	i-0f58ad0844bf3d20c	Running	t2.micro	Initializing	No alarms	us-east-1b
<input type="checkbox"/>	Deployment2	i-032f5ccef7732cba4	Running	t2.micro	2/2 checks passed	No alarms	us-east-1c

## Environment status

**Urlshortener-env**

Health: ✔ Ok

Running version: url-shortener-source

Platform: Python 3.8 running on 64bit Amazon Linux 2/3.5.17

**Recent events**

Time	Type	Details
2022-09-27 17:00:17 UTC-0400	INFO	Successfully launched environment: Urlshortener-env
2022-09-27 17:00:17 UTC-0400	INFO	Application available at Urlshortener-env.eba-h6c43e2t.us-east-1.elasticbeanstalk.com.
2022-09-27 17:00:14 UTC-0400	INFO	Environment health has transitioned from Pending to Ok. Initialization completed 21 seconds ago and took 3 minutes.
2022-09-27 17:00:14 UTC-0400	INFO	Added instance [i-0f58ad0844bf3d20c] to your environment.
2022-09-27 16:59:43 UTC-0400	INFO	Instance deployment completed successfully.

## Application running

URL Shortener

API [New URL](#)

**Website**

Short Name

Website URL

Shorten

**File**

Short Name

Website URL

Choose File No file chosen

Shorten

## DEPLOYMENT #2 - Kerri Smith

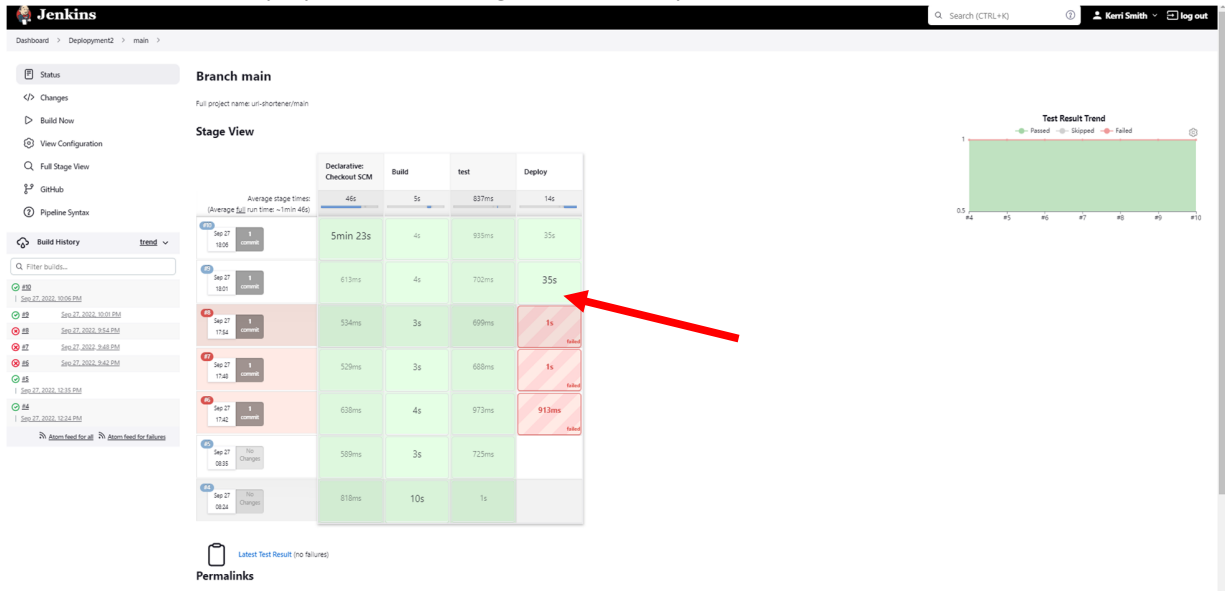
### Modification

The heading of the templates/base.html was changed header to " KERRI URL Shortener"

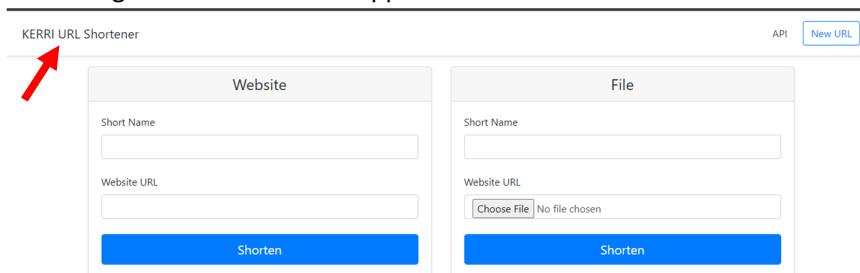


```
@@ -15,7 +15,7 @@
15 15 <body>
16 16
17 17 <div class="d-flex flex-column flex-md-row align-items-center p-3 px-md-4 mb-3 bg-white border-bottom shadow-sm">
18 18 - <h5 class="my-0 mr-md-auto font-weight-normal">URL Shortener</h5>
18 18 + <h5 class="my-0 mr-md-auto font-weight-normal">KERRI URL Shortener</h5>
19 19 <nav class="my-2 my-md-0 mr-md-3">
20 20 <a class="p-2 text-dark" href="{{ url_for('session_api') }}">API</a>
21 21 </nav>
@@ -40,4 +40,4 @@ <h5 class="my-0 mr-md-auto font-weight-normal">URL Shortener</h5>
40 40 <script src="{{ url_for('static', filename='bootstrap.min.js') }}"></script>
41 41 </body>
42 42
43 43 - </html>
43 43 + </html>
```

The build, test, and deployment was run again successfully in Jenkins.



The changes were seen in the application



KERRI URL Shortener

API New URL

Website

Short Name

Website URL

Shorten

File

Short Name

Website URL

Choose File No file chosen

Shorten



## Proposed Improvements

The pipeline could be improved in the following ways:

1. Include automated monitoring and reporting after deployment



## Appendix A – List of Terms & Acronyms

TERM	DEFINITION
AWS	Amazon Web Services
CI/CD	Continuous Integration and Continuous Deployment (CI/CD) pipelines use automation to improve software delivery throughout the software development life cycle.
Amazon EC2 or EC2	Amazon Elastic Compute Cloud (EC2) is a part of Amazon Web Services (AWS) cloud-computing platform. It allows users to rent virtual computers on which to run their own computer applications. EC2 encourages scalable deployment of applications by providing a web service through which a user can boot and configure a virtual machine called an "instance". A user can create, launch, and terminate server-instances as needed.
Git	Git is free and open-source software for distributed version control for coordinating work among programmers collaboratively developing source code during software development.
GitHub	GitHub, Inc., is an Internet hosting service for software development and version control using Git. It provides the distributed version control of Git plus access control, bug tracking, software feature requests, task management, continuous integration, and wikis.
Jenkins	Jenkins is an open-source automation server. It can automate the parts of software development related to building, testing, and deploying. The Jenkins server facilitates continuous integration and continuous delivery.
Python3	Python is a high-level, general-purpose programming language.
PIP	Package Installer for Python (pip) is a package-management system written in Python and is used to install and manage software packages
Flask	Flask is a Web Server Gateway Interface (WSGI) web application framework written in Python. It is classified as a microframework because it does not require particular tools or libraries
Elastic Beanstalk or EB	AWS Elastic Beanstalk is an orchestration service offered by Amazon Web Services for deploying applications which orchestrates various AWS services, including EC2, S3, Simple Notification Service (SNS), CloudWatch, autoscaling, and Elastic Load Balancers.