

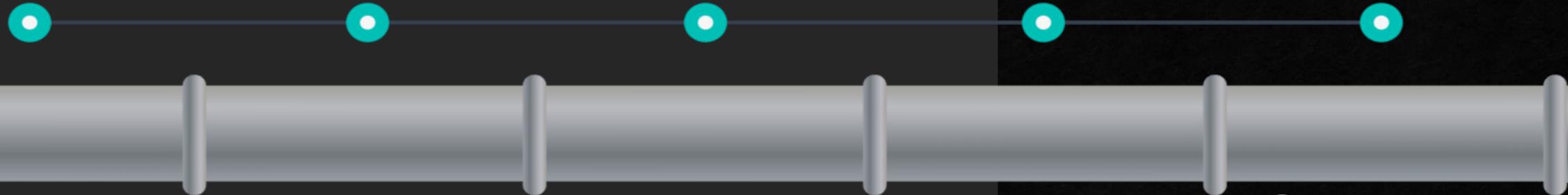
Commit

Build

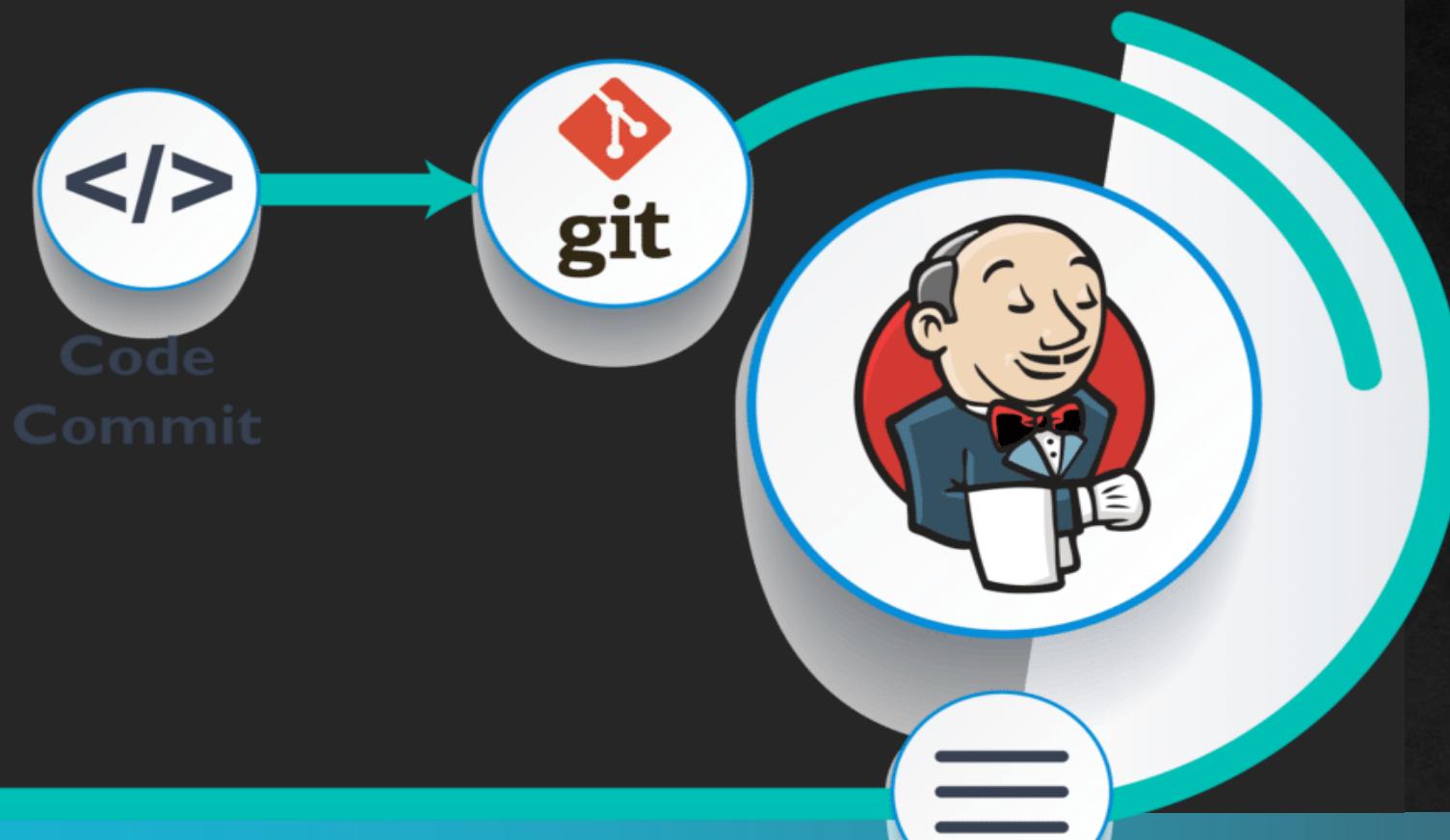
Test

Stage

Deploy Dev/QA...



Continuous Integration/Delivery



Code  
Commit

# DevOps (Pipeline) in Industry

Simplify your DevOps career and get insights  
into Jenkins Pipeline

# Presentation Outline

 Dev & Ops= DevOps

 Pipeline Implementation

 Takeaway Message

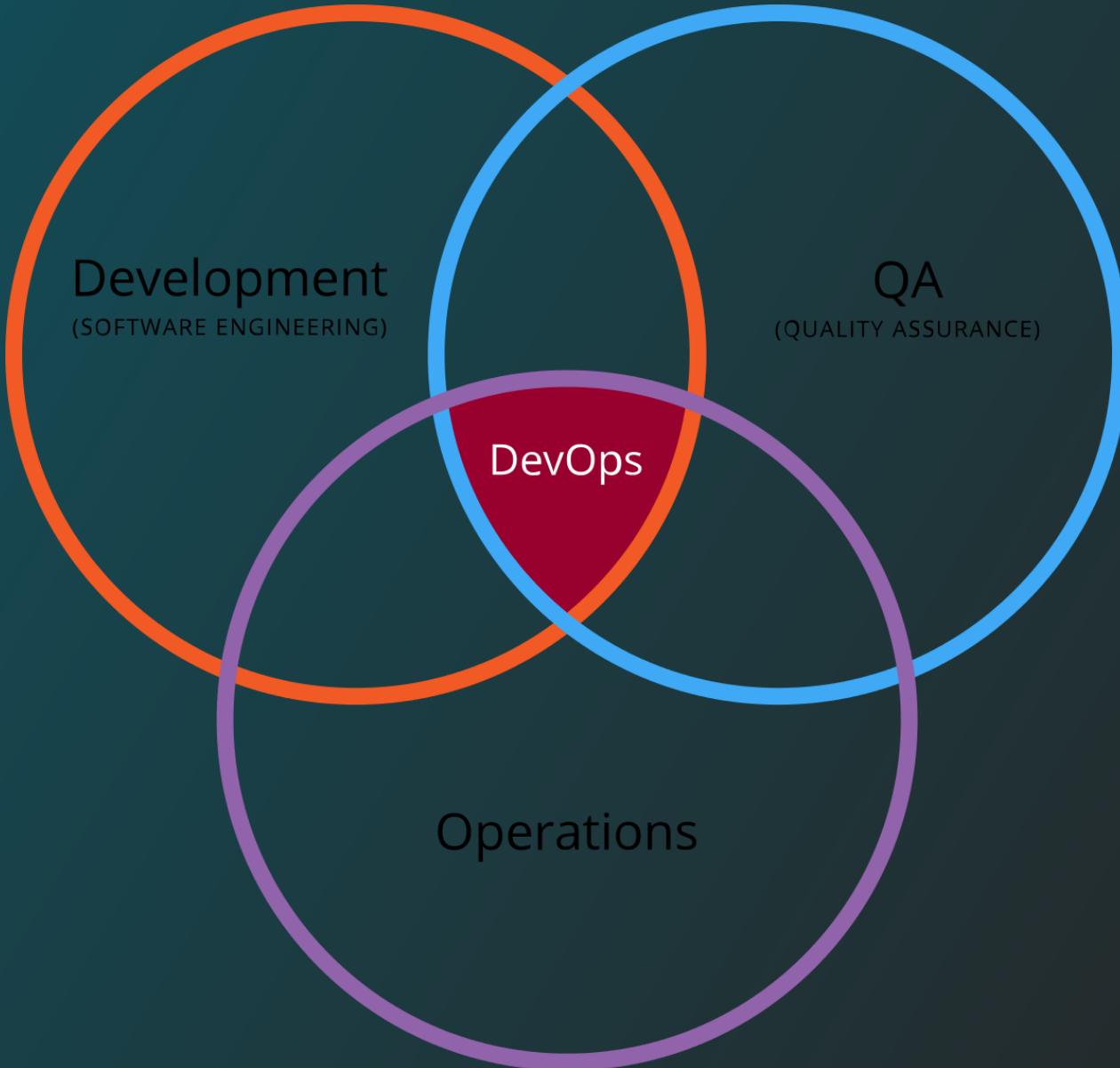
 Conclusion

Need of  
someone  
in the  
middle



Dev (Test)  
&  
Ops  
=

DevOps



## DEVOPS TOOLS (V3)

1 Os		DEVOPS TOOLS (V3)												2 En																					
Gl	GitLab	Open Source			Source Control Mgmt.			Deployment			Analytics			Monitoring			Sp																		
3	Fm	4	En	Fr	Free	Fn	Database Automation	Fr	Containers	Fn	Release Orchestration	Fr	Analytics	Fr	Monitoring	5	En	6	Fm	7	Pd	8	En	9	Fm	10	Fm								
Gh	GitHub	Freemium			Dt	Datical	Paid			Fr	Continuous Integration	Fr	Cloud	Fr	Security	Fr	Collaboration	XLr	Aws	Az	Gc	Op	Sg	Sumo Logic											
11	Os	12	En	Pd	Paid	En	Enterprise	Fr	Testing	Fn	Configuration	Fr	AIOps	Fr	Collaboration	13	Os	14	En	15	Pd	16	Pd	17	Fm	18	Os								
Sv	Subversion	DBMaestro			Db	DBMaestro	Jn			Cs	Codeship	Fn	JUnit	Ka	Su	Ch	Tf	XLd	Ud	Ku	Cc	Pr	Al	Os	Ps	Prometheus									
19	En	20	En	21	Os	22	Fm	23	Os	24	Fr	25	Fr	26	Fm	27	En	28	Fr	29	En	30	En	31	Os	32	Fm	33	En	34	Pd	35	Os	36	Os
Cw	ISPW	Delphix			Dp	Delphix	Jn	Jenkins	Cs	Codeship	Fn	FitNesse	Ju	Karma	Su	SoapUI	Ch	Terraform	XLd	UrbanCode Deploy	Ku	CA CD Director	Plutora Release	Alibaba Cloud	Os	OpenStack	Ps	Prometheus	Prometheus						
37	Pd	38	Fm	39	Pd	40	Fm	41	Fr	42	Fr	43	Os	44	Pd	45	En	46	Os	47	En	48	Os	49	Os	50	Pd	51	Fm	52	Pd	53	Pd	54	En
At	Artifactory	Redgate			Rg	Redgate	Ba	Bamboo	Vs	VSTS	Se	Selenium	Jm	JMeter	Ja	Jasmine	Sl	An	Ru	Oc	Go	Ms	Gke	Om	Cp	Cy	It	ITRS	ITRS						
55	Pd	56	Os	57	Os	58	Fm	59	Os	60	Fr	61	Fm	62	Pd	63	En	64	Os	65	Fm	66	En	67	Os	68	Pd	69	Os	70	Os	71	Pd	72	Pd
Nx	Nexus	Flyway			Fw	Flyway	Tr	Travis CI	Tc	TeamCity	Ga	Gatling	Tn	TestNG	Tt	Tricentis Tosca	Pe	Puppet	Pa	Cd	Ec	Ra	Aks	Rk	Sp	Ir	Mg	Moogsoft	Moogsoft						
73	Fm	74	En	75	Fm	76	Pd	77	Fr	78	Os	79	Os	80	En	81	Os	82	Os	83	En	84	En	85	En	86	Pd	87	Fm	88	Os	89	Os	90	Os
Bb	BitBucket	Perforce			Pf	Perforce	Cr	Circle CI	Cb	AWS CodeBuild	Cu	Cucumber	Mc	Mocha	Lo	Locust.io	Mf	Micro Focus UFT	Sa	CFEngine	Eb	ElasticBox	Ca	CA Automic	De	Ae	Cf	Hm	Aw	Apache OpenWhisk	Ls	Logstash	Logstash		

91	En	92	Os	93	Fm	94	En	95	En	96	Fm	97	Os	98	Os	99	Os	100	En	101	En	102	En	103	En	104	Os	105	Os
<b>XLi</b> XebiaLabs XLImpact		<b>Ki</b> Kibana		<b>Nr</b> New Relic		<b>Dt</b> Dynatrace		<b>Dd</b> Datadog		<b>Ad</b> AppDynamics		<b>Ei</b> ElasticSearch		<b>Ni</b> Nagios		<b>Zb</b> Zabbix		<b>Zn</b> Zenoss		<b>Cx</b> Checkmark SAST		<b>Sg</b> Signal Sciences		<b>Bd</b> BlackDuck		<b>Sr</b> SonarQube		<b>Hv</b> HashiCorp Vault	
106	En	107	Pd	108	Fm	109	Fm	110	Fm	111	En	112	En	113	En	114	Pd	115	Pd	116	Os	117	Fm	118	En	119	En	120	En
<b>Sw</b> ServiceNow		<b>Jr</b> Jira		<b>Tl</b> Trello		<b>Sk</b> Slack		<b>St</b> Stride		<b>Cn</b> CollabNet VersionOne		<b>Ry</b> Remedy		<b>Ac</b> Agile Central		<b>Og</b> OpsGenie		<b>Pd</b> Pagerduty		<b>Sn</b> Snort		<b>Tw</b> Tripwire		<b>Ck</b> CyberArk		<b>Vc</b> Veracode		<b>Ff</b> Fortify SCA	

# Jenkins Build Job

The screenshot shows the Jenkins web interface. At the top, there is a dark header bar with the Jenkins logo on the left, a search icon on the right, and a red notification badge with the number '1' in the center. Below the header, the main navigation bar has 'Jenkins' and 'All' items. The main content area has a title 'Enter an item name' and a text input field containing 'play\_build-coverage'. A note below the input field says '» Required field'. Below this, there are two project creation options: 'Freestyle project' (represented by a house icon) and 'Maven project' (represented by an owl icon). Both descriptions mention Jenkins' integration with various source control management (SCM) systems. At the bottom of the page, there is a navigation bar with tabs: 'Ci/Cd pipeline' (which is highlighted in blue), 'Take-home Message', and 'Summary'.

## Enter an item name

play\_build-coverage

» *Required field*

**Freestyle project**  
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with anything else you want to do with your software build.

**Maven project**  
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration required to build your project.

# Jenkins Pipeline Creation

## Enter an item name

Pipe

» Required field

---

 **Freestyle project**  
This is the central feature of Jenkins. Jenkins will build your project, combining any SCM with any build system, and this can be even used for something other than software build.

 **Maven project**  
Build a maven project. Jenkins takes advantage of your POM files and drastically reduces the configuration.

 **Pipeline**  
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

# Jenkins Pipeline Configuration (1)

Jenkins 1 search Hitesh Sharma

Jenkins Pipe

General Build Triggers Advanced Project Options Pipeline

Description [Plain text] Preview

Discard old builds

Strategy Log Rotation

Days to keep builds 7  
if not empty, build records are only kept up to this number of days

Max # of builds to keep 5  
if not empty, only up to this number of build records are kept

Ci/Cd pipeline Take-home Message Summary PAGE 8

Pipeline

Definition Pipeline script from SCM

SCM Git

Repositories

Repository URL amap.jenkins.user/\*\*\*\*\*

Credentials amap.jenkins.user/\*\*\*\*\*

Branches to build

Branch Specifier (blank for 'any') \*develop

Repository browser bitbucketweb

URL

Additional Behaviours

Clean before checkout

Script Path Jenkinsfile

Lightweight checkout

[Pipeline Syntax](#)

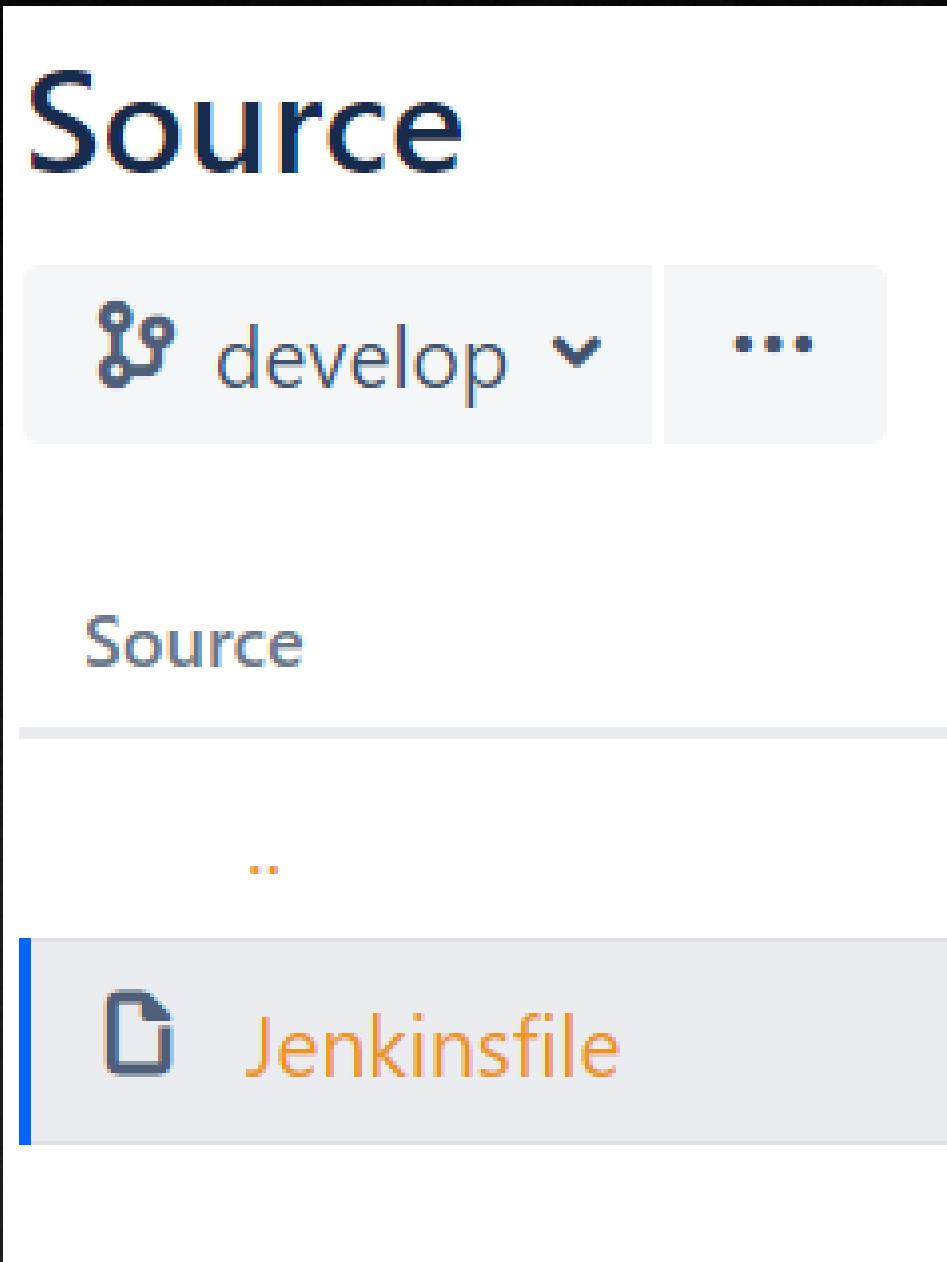
This screenshot shows the Jenkins Pipeline configuration interface for a new pipeline. The 'Definition' is set to 'Pipeline script from SCM'. Under 'SCM', 'Git' is selected. In the 'Repositories' section, a repository URL is specified as 'amap.jenkins.user/\*\*\*\*\*' with a credential dropdown and an 'Add' button. The 'Branches to build' section shows a branch specifier of '\*develop'. A 'Repository browser' is set to 'bitbucketweb'. Under 'Additional Behaviours', there is a 'Clean before checkout' option with an 'Add' button. The 'Script Path' is set to 'Jenkinsfile'. A 'Lightweight checkout' checkbox is checked. At the bottom, there are 'Save' and 'Apply' buttons.

## Jenkins Pipeline Configuration (2)

Declarative

Scripted

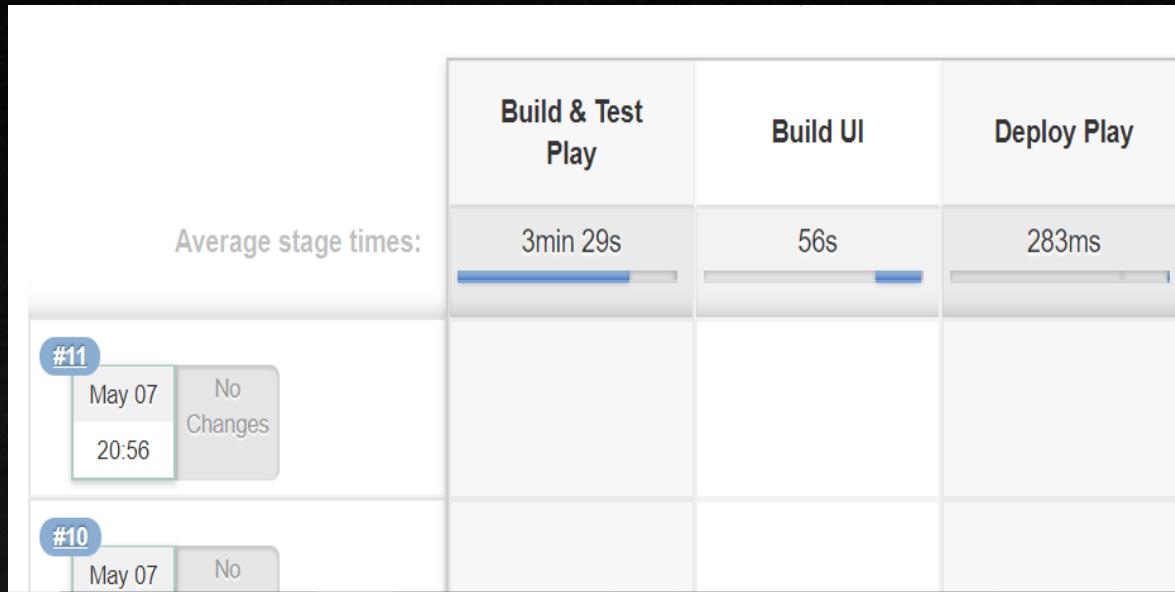
# Bitbucket Representation of Jenkinsfile



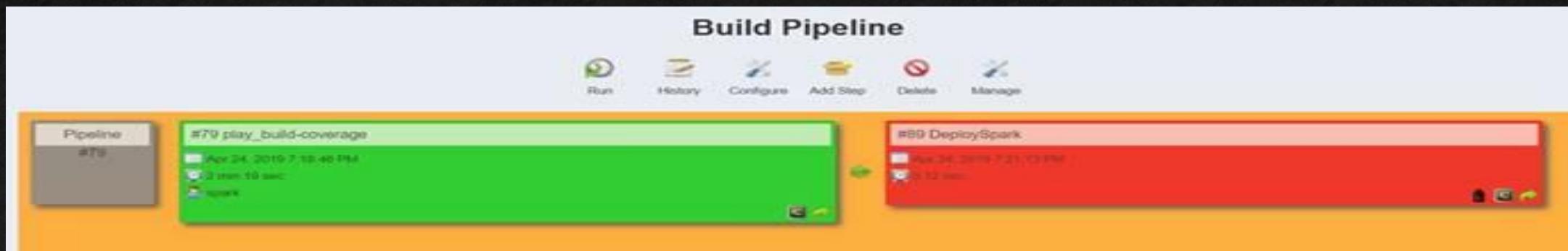
# Pipeline Script

```
pipeline {  
    agent any  
    stages {  
        stage ('Build & Test SBT ') {  
            steps {  
                echo 'Hello, Maven'  
                //Rest of your groovy code... } }  
        stage('Example Test') {  
            agent {  
                docker 'openjdk:8-jre' }  
            steps {  
                echo 'Hello, JDK' sh 'java -version' }  
            }  
        }  
    }
```

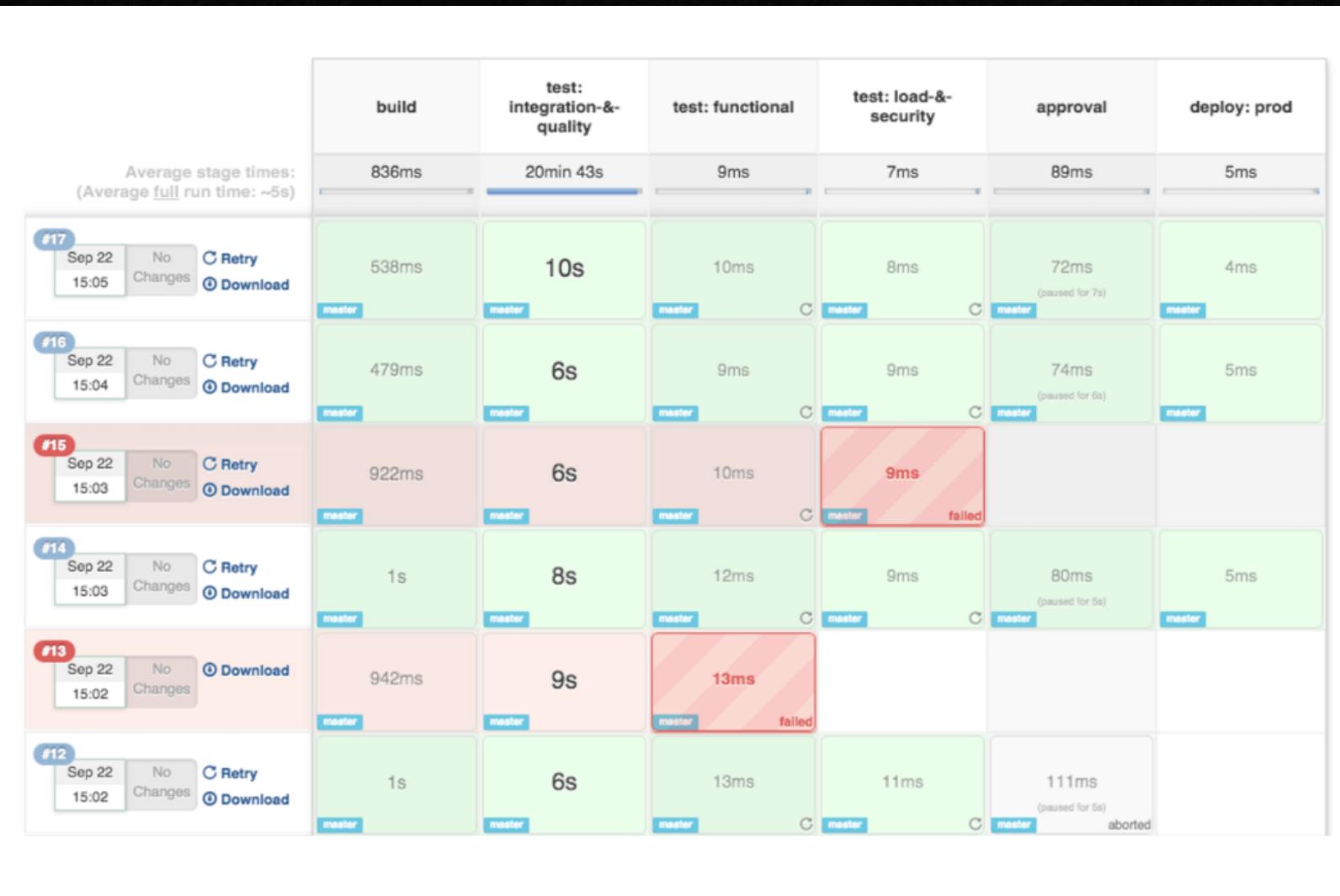
# Pipeline in Action



1. *Testing and building SBT Play code*
2. *Generate Coverage Report (Running Unit Tests)*
3. *Building UI Code*
4. *Backup of existing working code*
5. *Validation checks before deployment/ Working on prerequisites*
6. *Deploying stage for sbt code*
7. *Deployment of UI code*



# Jenkins Pipeline



# Code Coverage Report

/play\_build-coverage/

ENABLE AUTO REFRESH

### Permalinks

- Last build (#86), 4 days 9 hr ago
- Last stable build (#86), 4 days 9 hr ago
- Last successful build (#86), 4 days 9 hr ago
- Last failed build (#85), 4 days 9 hr ago
- Last unsuccessful build (#85), 4 days 9 hr ago
- Last completed build (#86), 4 days 9 hr ago

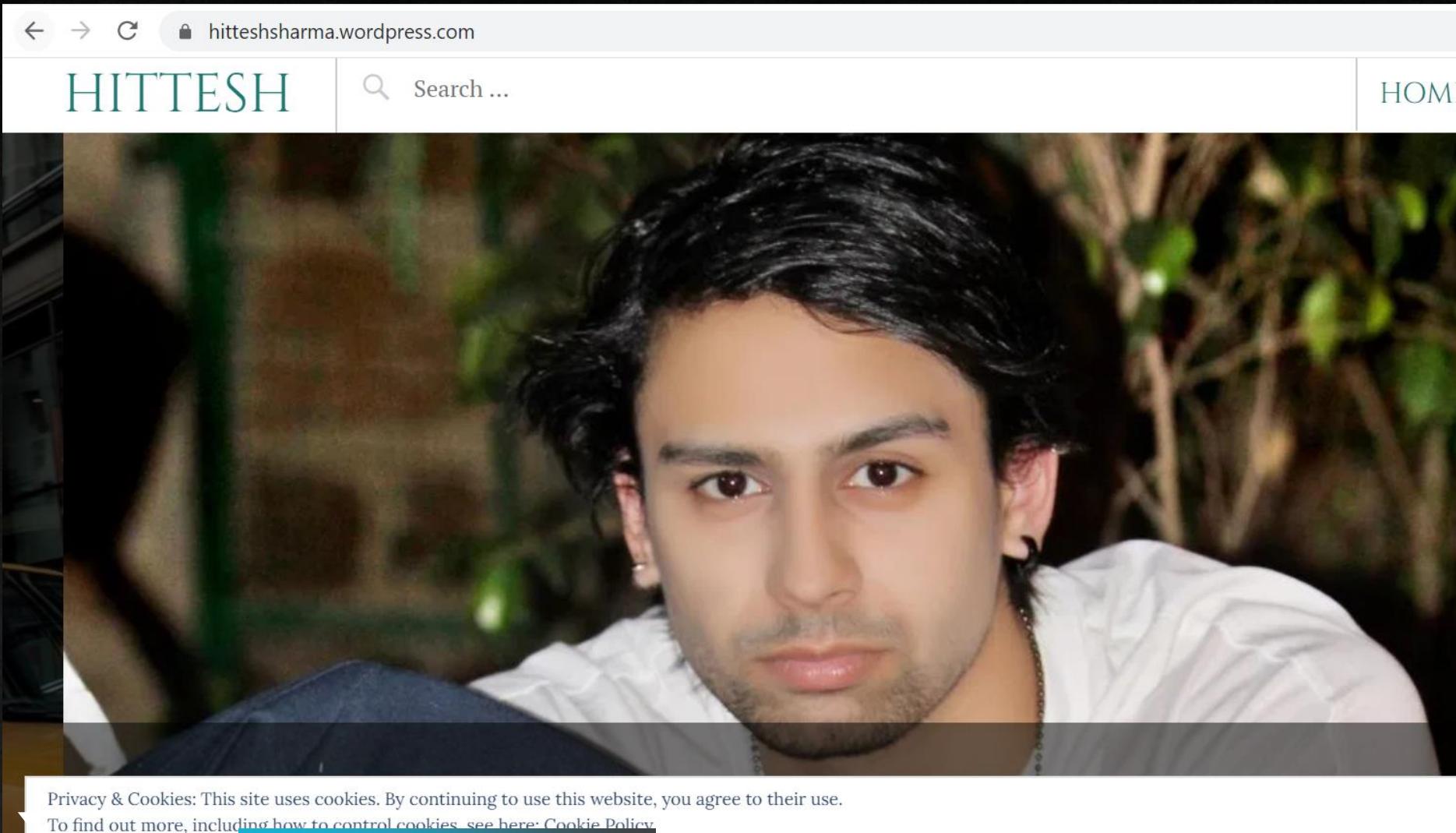
### Scala Code Coverage

Statement Coverage: 93.87%  
Branch Coverage: 85.91%

Class: LoadDefaultData  
Source file: LoadDefaultData.scala  
Lines: 71  
Methods: 1  
Statements: 42  
Invoked: 42  
Covered: 42

SCoverage generated at Fri May 03 09:45:19 IST 2019							
Lines of code:	19095	Files:	105	Classes:	130	Methods:	482
Lines per file:	181.86	Packages:	11	Classes per package:	11.82	Methods per class:	3.71
Total statements:	15789	Invoked statements:	14821	Total branches:	795	Invoked branches:	683
Ignored statements:	0						
Statement coverage:	93.87 %	Branch coverage:	85.91 %				
Class	Source file			Lines	Methods	Statements	Invoked
LoadDefaultData	LoadDefaultData.scala			71	1	42	42
Covered							

# Website Deployed (CD)



# Take-Home Message



Map.

**Talk more with the industry experts** in DevOps to get which technology is actually required in IT industry and set your goals accordingly.



Road.

**A basic scripting language** is must to start with. Don't know were to start just pick up a basic shell scripting (for Linux) or powershell (for MS). These helps to build up understanding of automation.



Mountain.

Once leaned a scripting language and have an overall understanding of concepts, jump to more fancy languages like **golang, yaml** or something just hot enough. Now, your ground is open for experimenting with technologies like K8s, Ansible etc. and **land your dream job**.



## Summary

- Pipelines can be implemented using different CI tools like Jenkins, Bamboo, GitLab CI being the famous ones.
- Pipeline explained in the presentation is an example, different languages and tools can be used to implement different types of pipelines depending upon the organization needs.
- To start working as a DevOps Engineer talk to industry experts and choose the right tool that is widely used in companies and interests you the most.



# Graphics Courtesy

- <https://xebialabs.com/wp-content/uploads/files/infographics/periodic-table-of-devops-tools-v3-1.pdf>