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ontainer(
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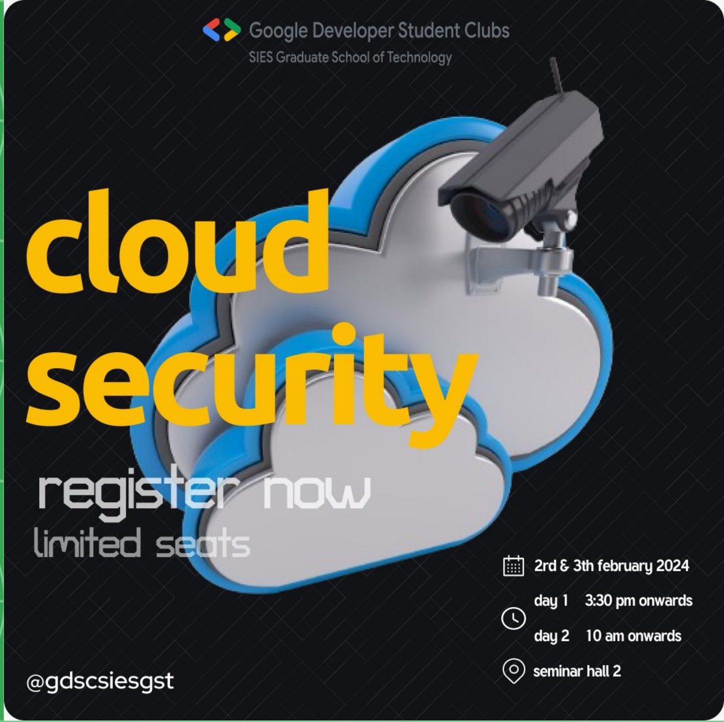
 child:
   label
   style
```

Google Developer Student Clubs
SIES Graduate School of technology

WHAT WE'LL BE LEARNING??

Google Cloud

- Git & GitHub Recap
- 3 Amazing Projects to master cloud deployment
- Project 1- Build & Deploy your Resume Website
- Project 2- Build & Deploy Meme
- Project 3- Build & Deploy Full Stack Website



Google Developer Student Clubs
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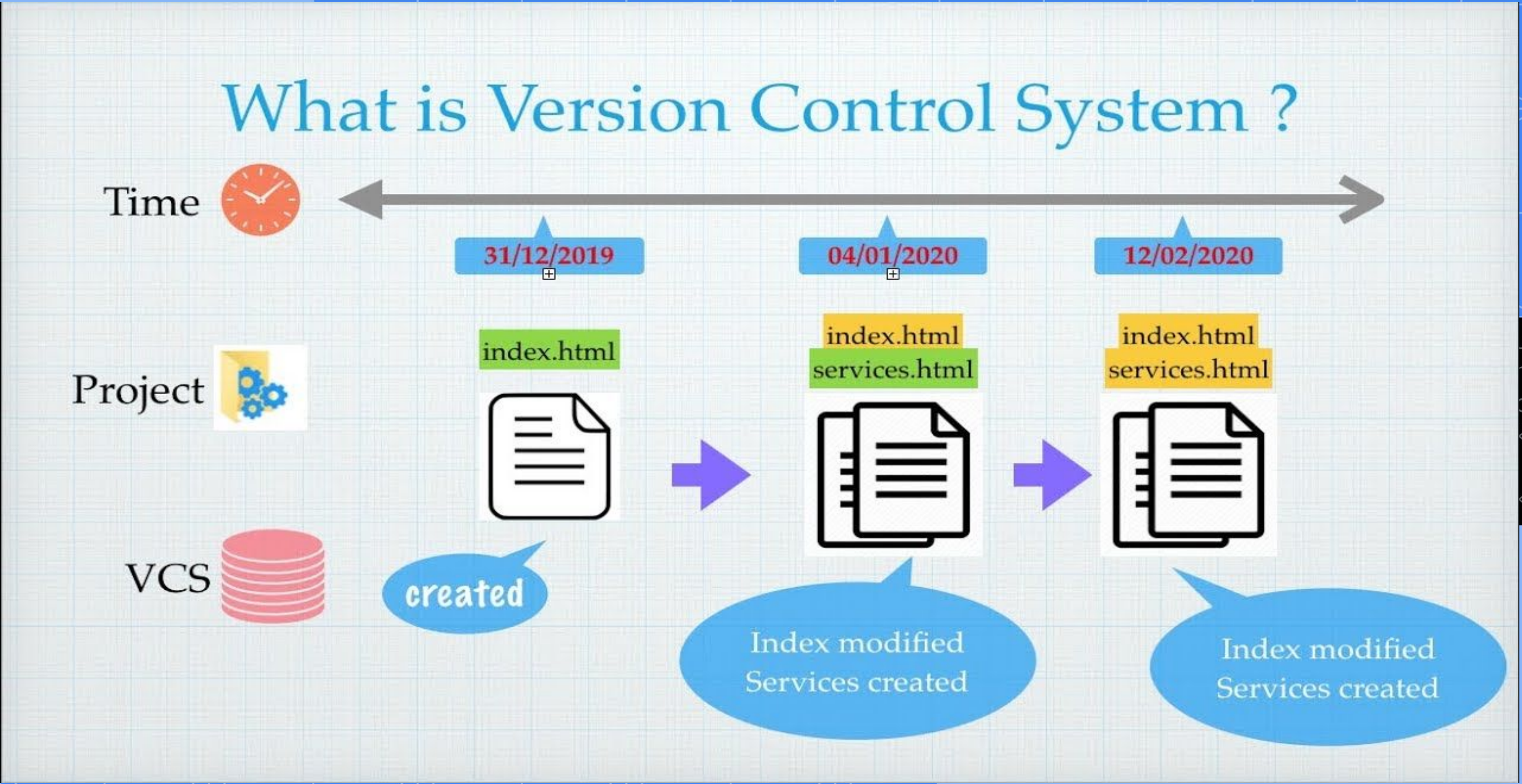
cloud security

register now
limited seats

2rd & 3th february 2024
day 1 3:30 pm onwards
day 2 10 am onwards
seminar hall 2

@gdscsiesgst

IN COLLABORATION WITH CLOUD, CYBERSECURITY AND OPEN SOURCE TEAM



What is Version Control System ?

Time

31/12/2019

04/01/2020

12/02/2020

Project

index.html

index.html
services.html

index.html
services.html

VCS

created

Index modified
Services created

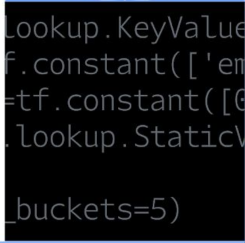
Index modified
Services created

```
up.KeyValue
nstant(['em
constant([
kup.StaticV

kets=5)
```

Version Control – GIT

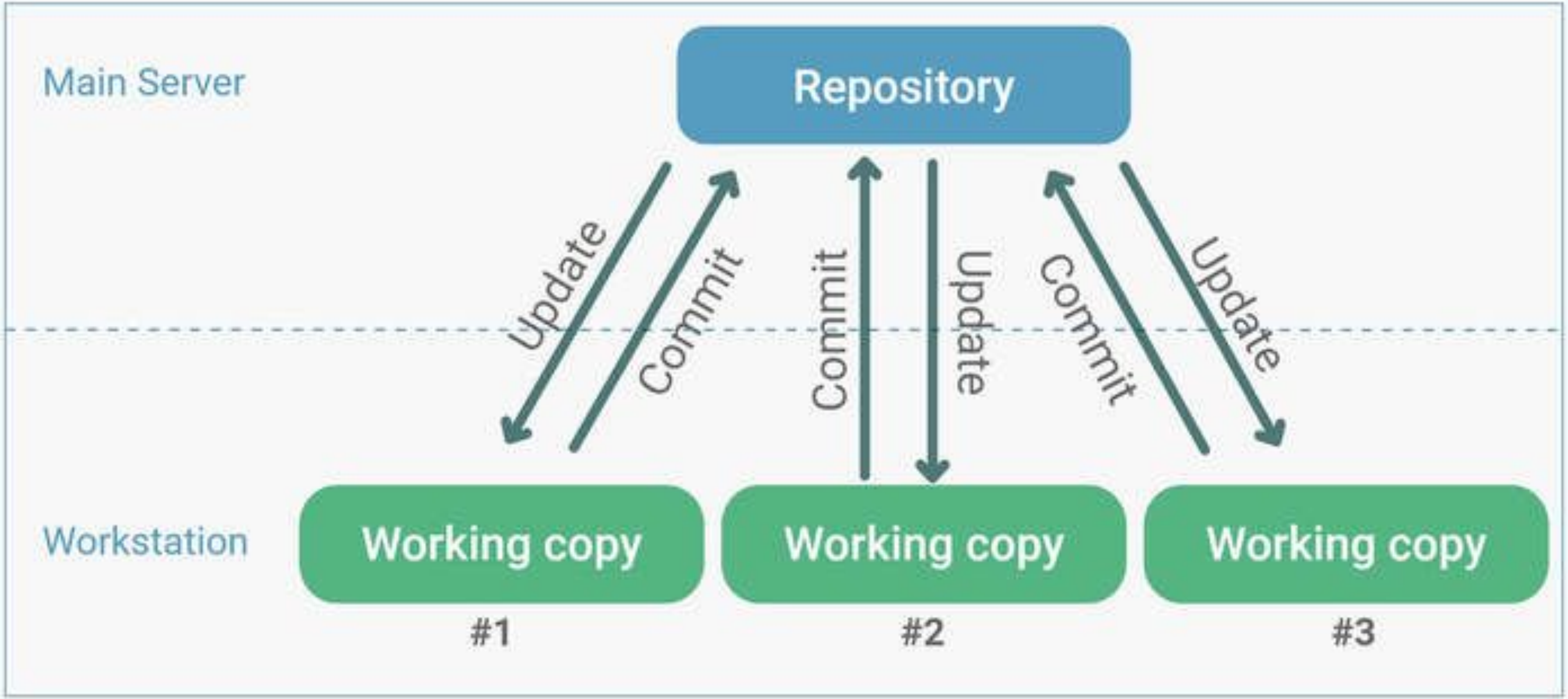
- What is Version Control
- What is GIT
- Why Git is needed for your Organization
- Advantages of GIT
- Architecture of GIT
- Features of GIT
- Common Commands in GIT
- Working with Remote Repositories



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

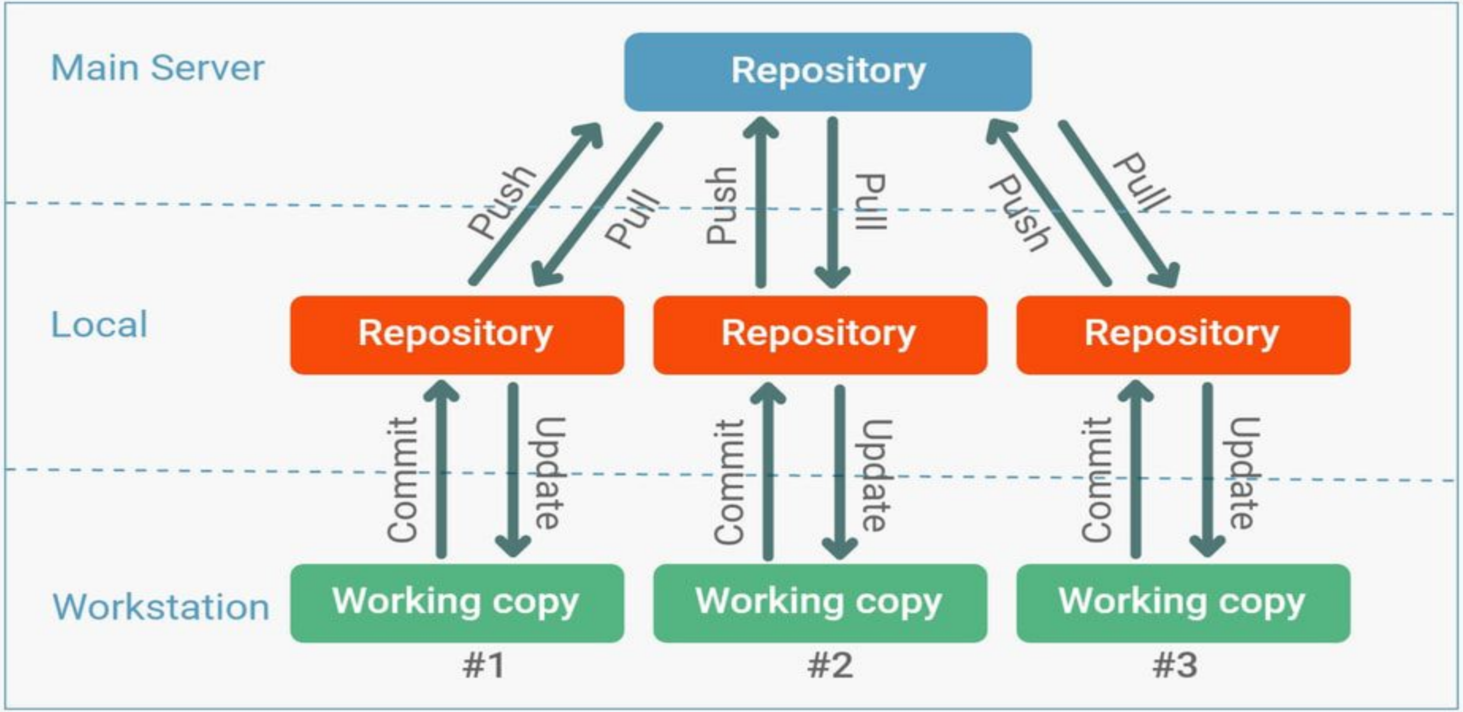
Central Version Control System


Main Server
Repository
Update
Commit
Commit
Update
Commit
Update
Workstation
Working copy
Working copy
Working copy
#1
#2
#3

```
ookup.KeyValue
.constant(['em
tf.constant([0
lookup.StaticV

buckets=5)
```

Distributed Version Control System



Main Server

Repository

Push
Pull
Push
Pull
Push
Pull

Local

Repository

Repository

Repository

Commit
Update
Commit
Update
Commit
Update

Workstation

Working copy
#1

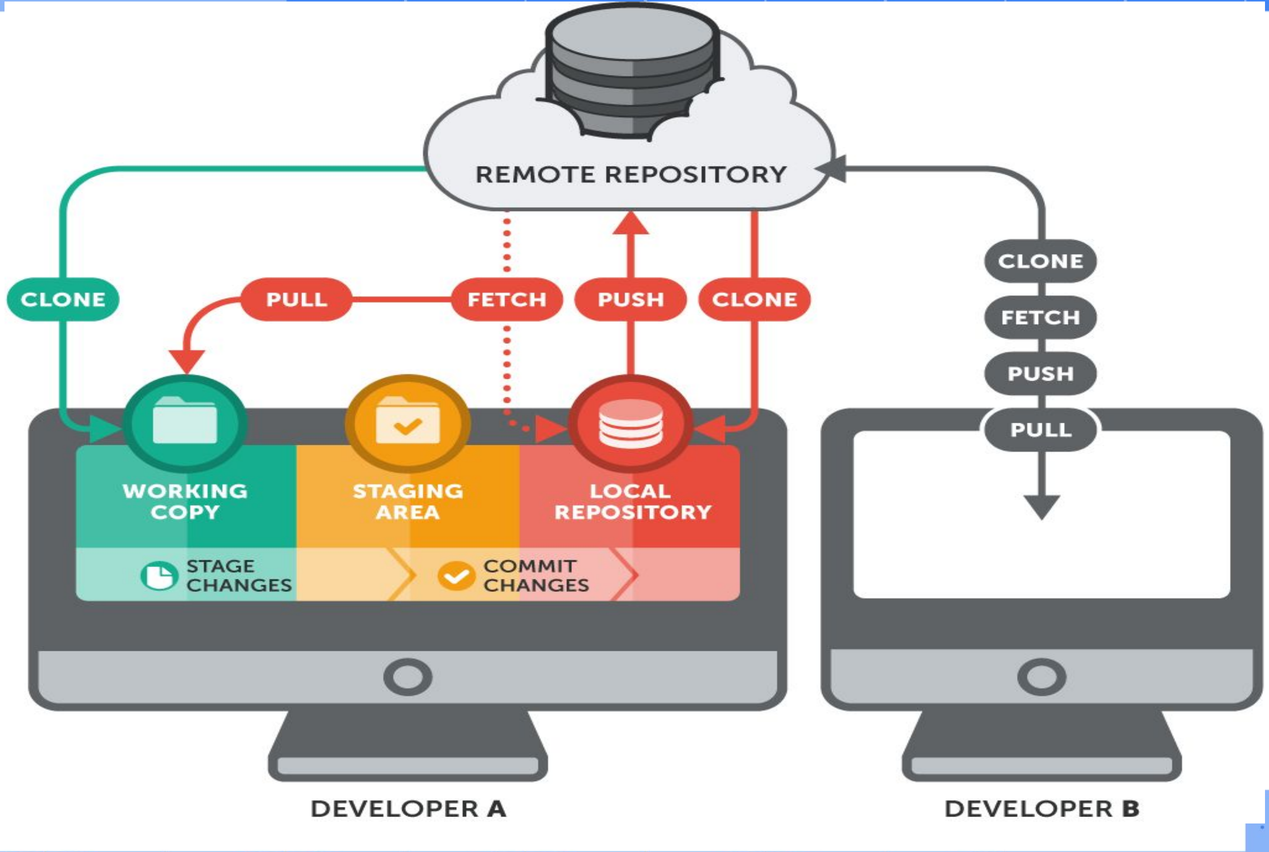
Working copy
#2

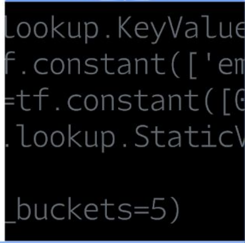
Working copy
#3

```
up.KeyValue
nstant(['em
constant([0
kup.StaticV

kets=5)
```

DVCS WITH REAL LIFE SCENARIO


REMOTE REPOSITORY
CLONE
PULL
FETCH
PUSH
CLONE
CLONE
FETCH
PUSH
PULL
WORKING COPY
STAGING AREA
LOCAL REPOSITORY
STAGE CHANGES
COMMIT CHANGES
DEVELOPER A
DEVELOPER B



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

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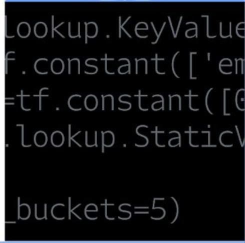
WHAT IS GIT?

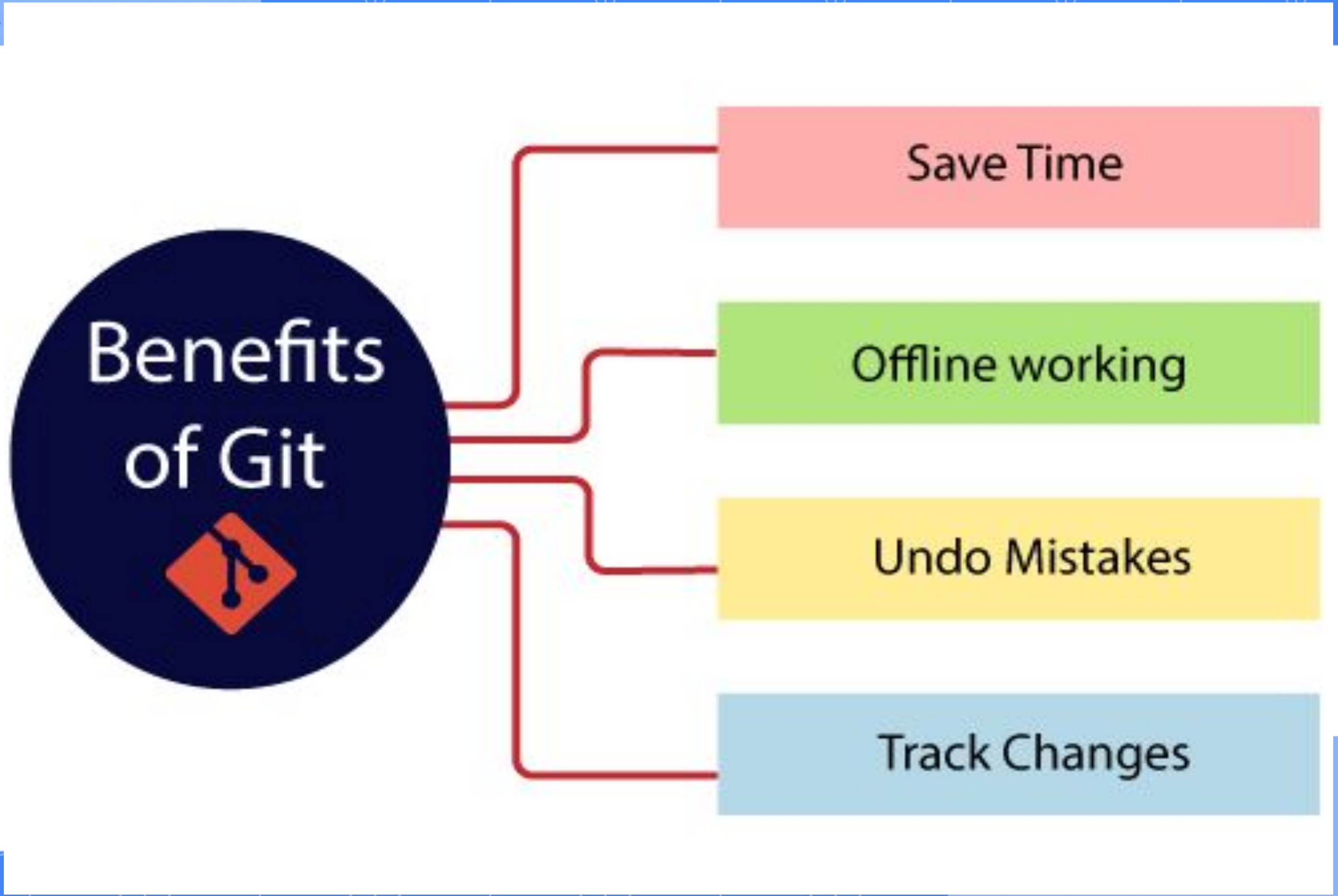
Git is a free and open source distributed version control system.

- Track changes
- History Backup -‘snapshot’
- Collaborative development
- Parallel Development



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```



Benefits of Git

- Save Time
- Offline working
- Undo Mistakes
- Track Changes

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

Key terminologies in GIT

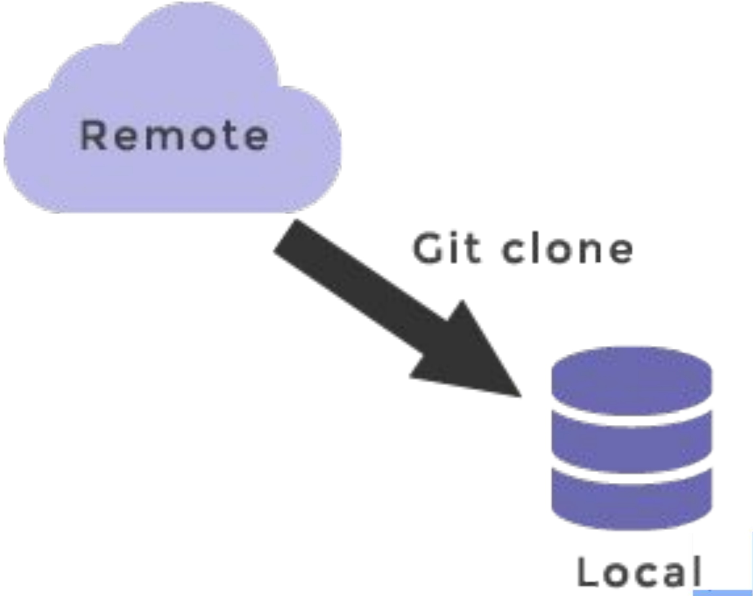
Google Developer St

Repository (Repo) :

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

Clone:


Remote
Git clone
Local

lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)

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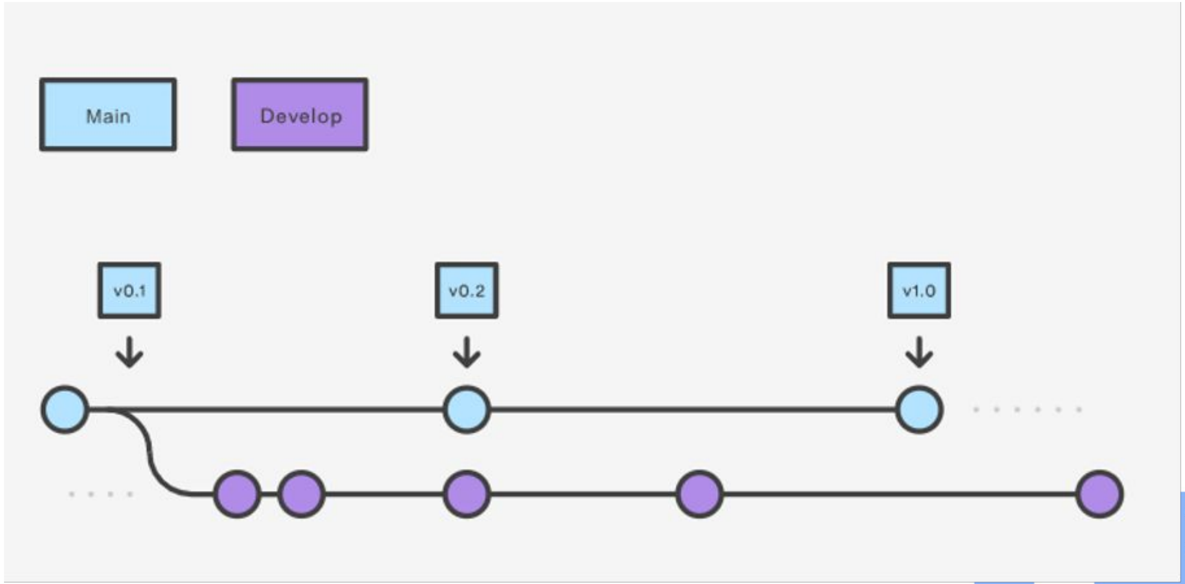
BRANCH:

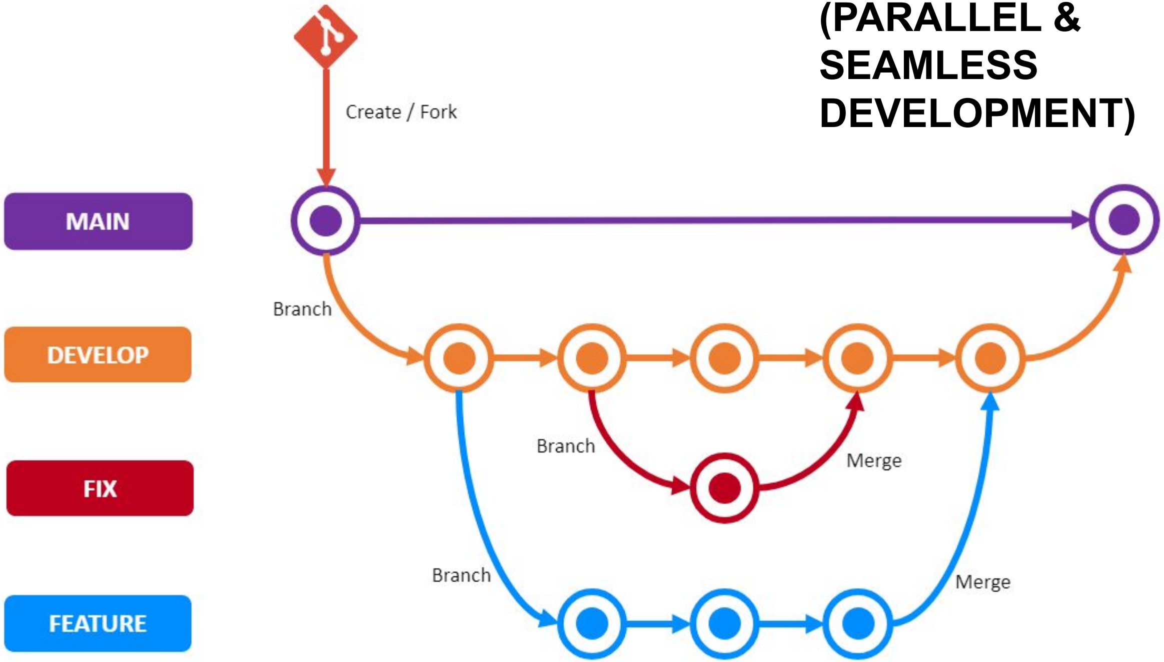

Main
Develop
v0.1
v0.2
v1.0

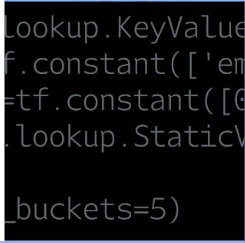
```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

MERGE CONCEPT (BRANCH WORKFLOW)

(PARALLEL & SEAMLESS DEVELOPMENT)


Create / Fork
MAIN
Branch
DEVELOP
Branch
Merge
FIX
Branch
Merge
FEATURE



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

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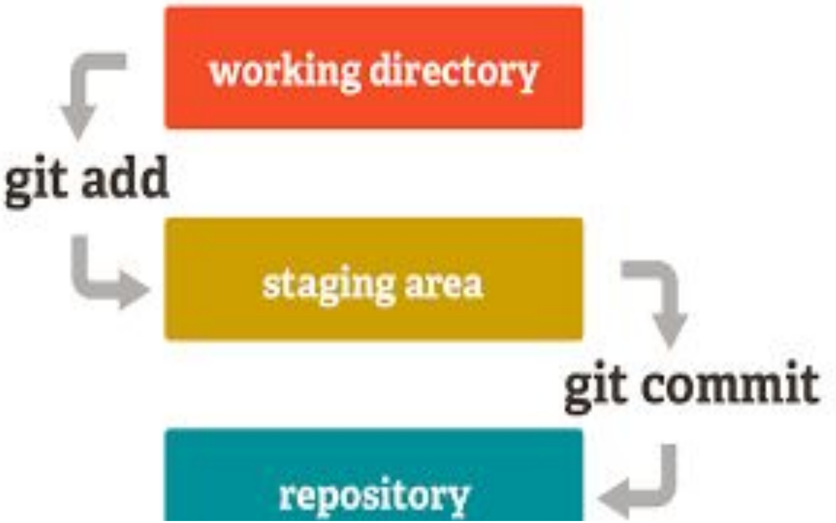
ADD & COMMIT:


working directory
git add
staging area
git commit
repository

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

TYPE OF MERGE- FAST FWD MERGE

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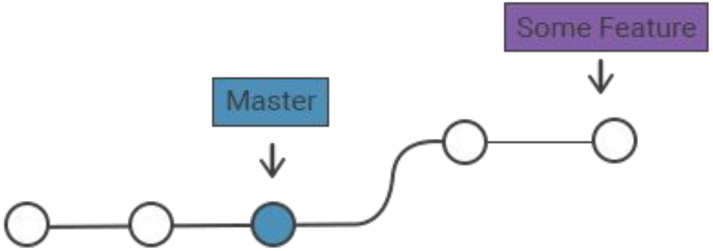
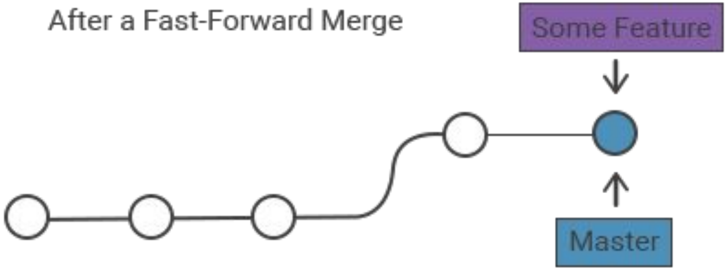
Before Merging


Some Feature
Master

After a Fast-Forward Merge


Some Feature
Master

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

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Conflict

GitHub/GitLab

Remote

Git Ignore

Git Log

Git Status

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
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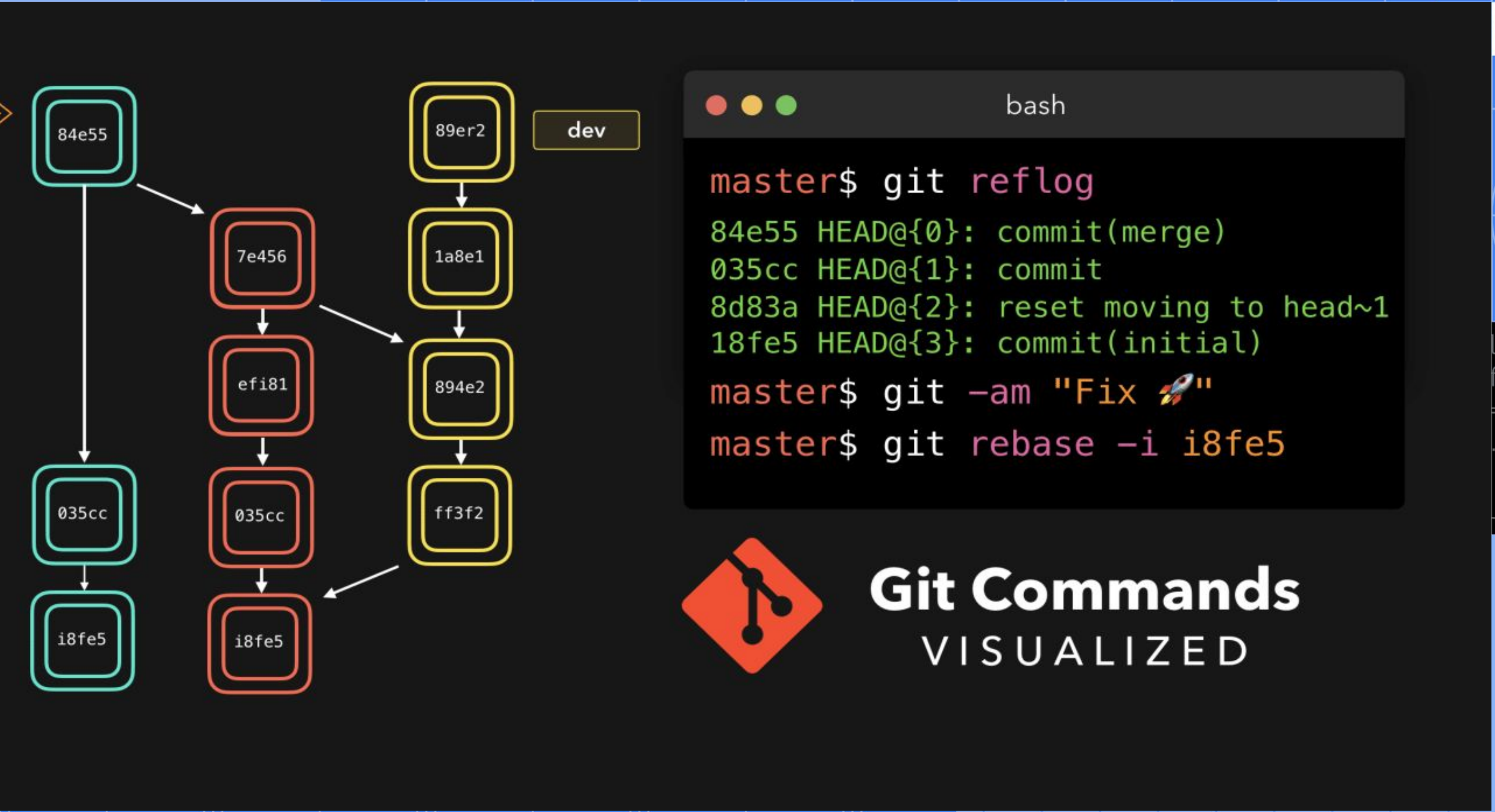
_buckets=5)
```

LET’S DO SOME HANDS-ON!!!

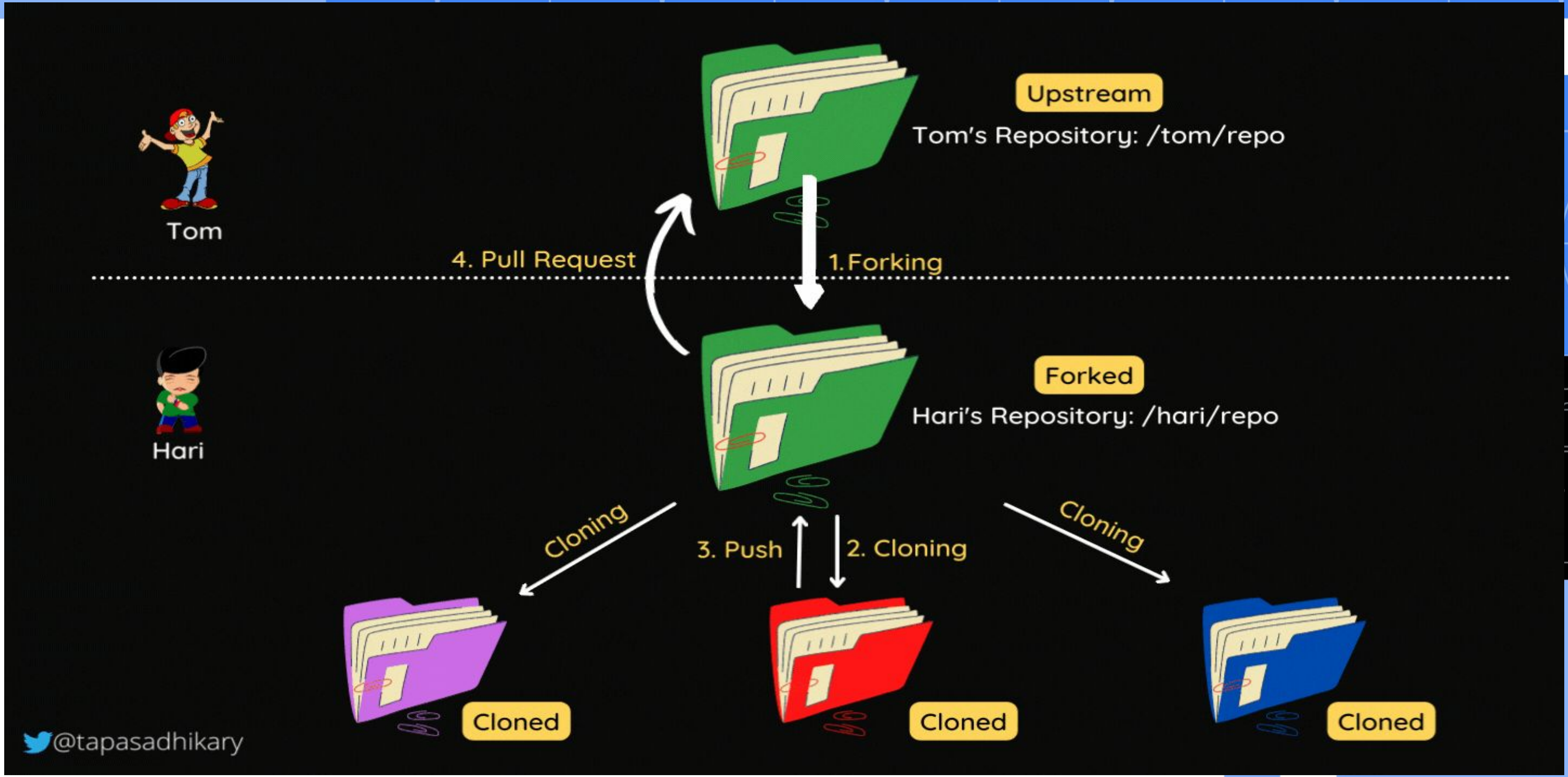

84e55
89er2
dev
7e456
1a8e1
efi81
894e2
035cc
035cc
ff3f2
i8fe5
i8fe5
bash
Git Commands
VISUALIZED

```
master$ git reflog
84e55 HEAD@{0}: commit(merge)
035cc HEAD@{1}: commit
8d83a HEAD@{2}: reset moving to head~1
18fe5 HEAD@{3}: commit(initial)
master$ git -am "Fix 🚀"
master$ git rebase -i i8fe5
```

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

PUSH, PR, CLONE V/S FORK


Tom
Upstream
Tom's Repository: /tom/repo
4. Pull Request
1.Forking
Hari
Forked
Hari's Repository: /hari/repo
Cloning
3. Push
2. Cloning
Cloning
Cloned
Cloned
Cloned
@tapasadhikary

Let’s Learn About GitHub

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INTRODUCTION TO GITHUB

```
lookup.KeyValue
f.constant(['em
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_buckets=5)
```

Setup

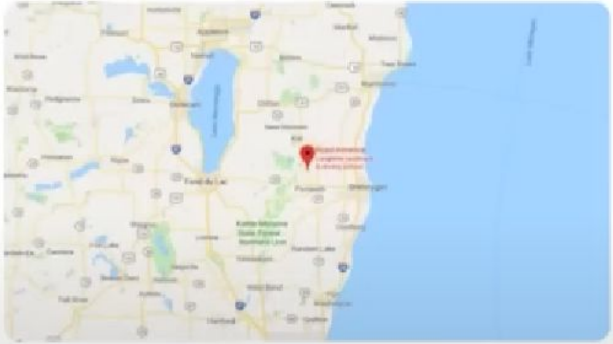
GitHub

Account

Google Developer Student Clubs

elon
Frontend
developer

mukesh
Backend
developer



lives in America

lives in India

```
ookup.KeyValue
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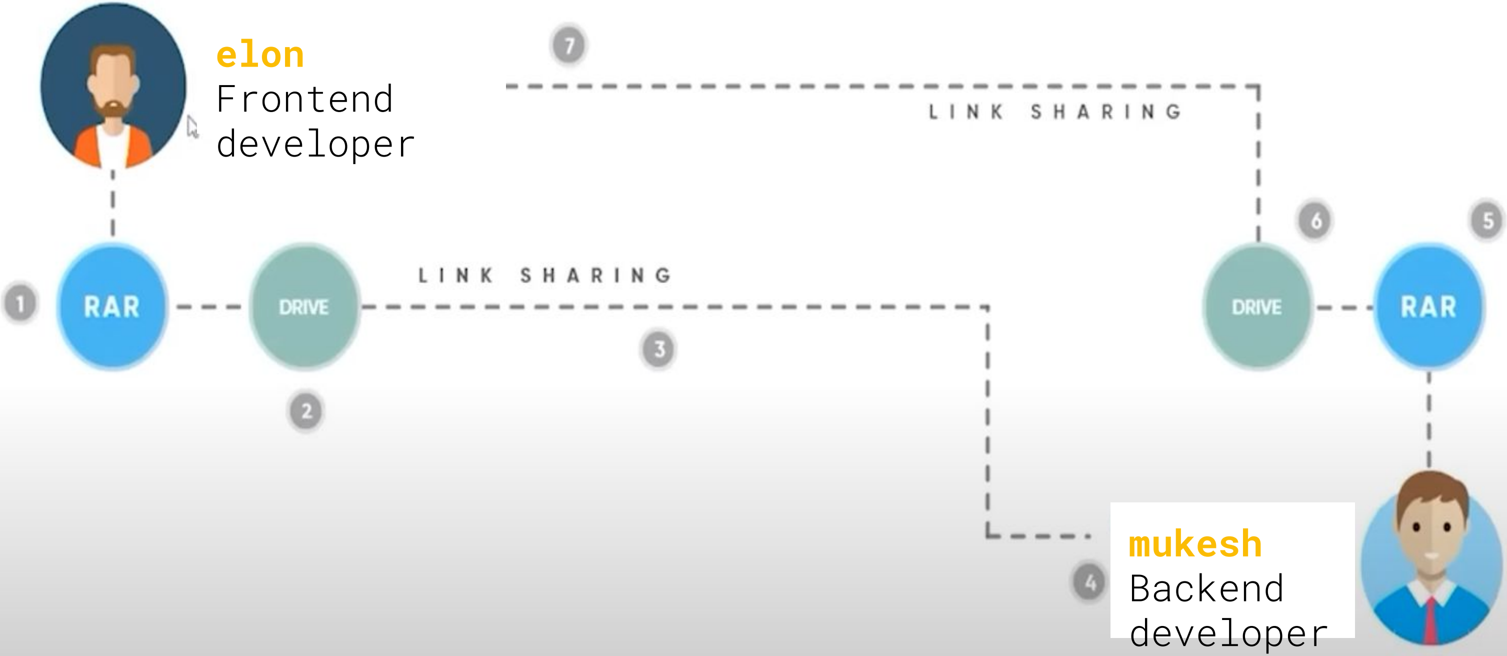
lookup.StaticV

_buckets=5)
```

YE HAI AAM ZINDAGI



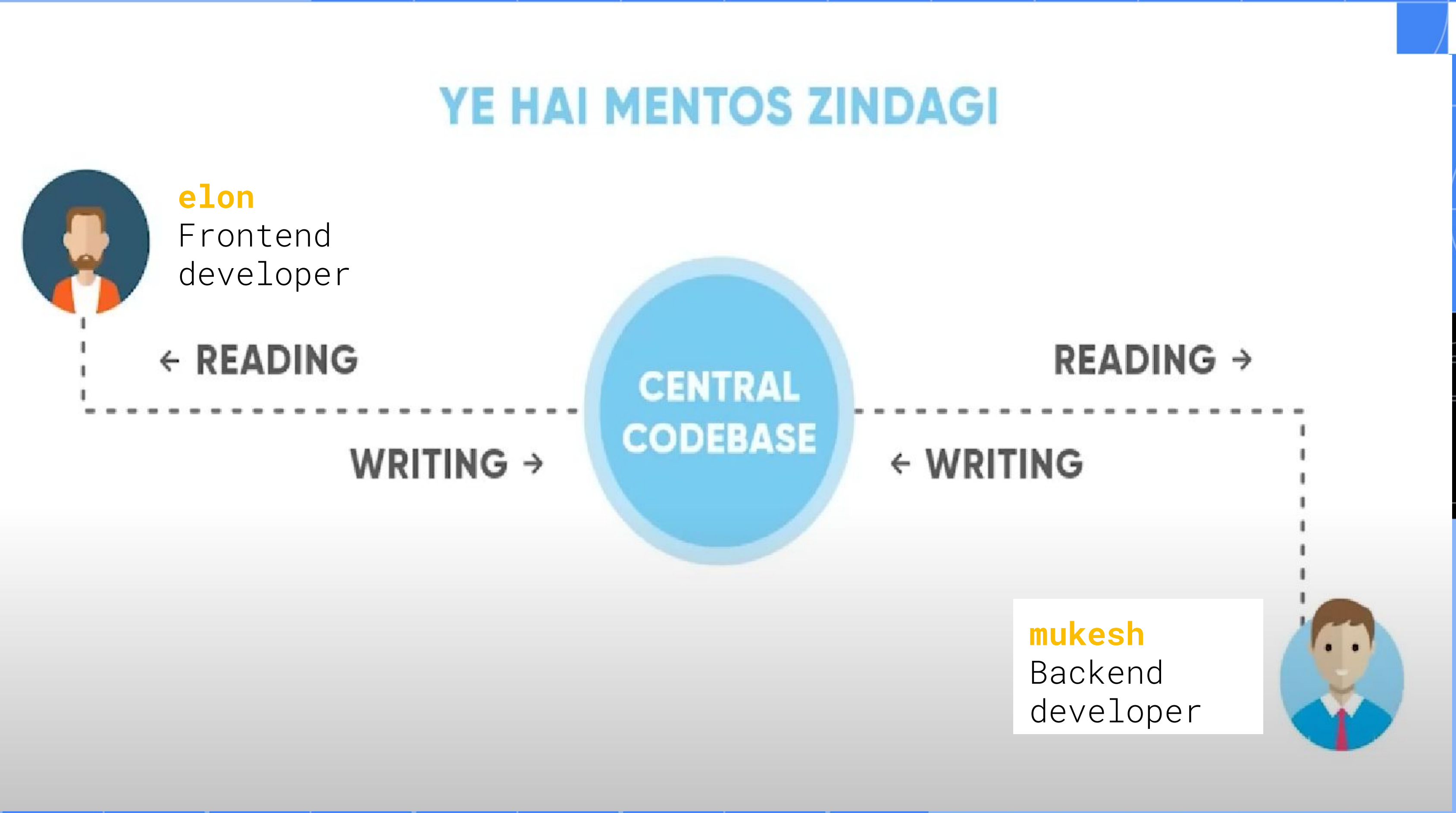
elon
Frontend
developer

mukesh
Backend
developer

1
RAR
2
DRIVE
LINK SHARING
3
4
5
RAR
6
DRIVE
LINK SHARING
7

```
ookup.KeyValue
.constant(['em
tf.constant([
lookup.StaticV

_buckets=5)
```



YE HAI MENTOS ZINDAGI

elon
Frontend
developer

← READING

WRITING →

CENTRAL CODEBASE

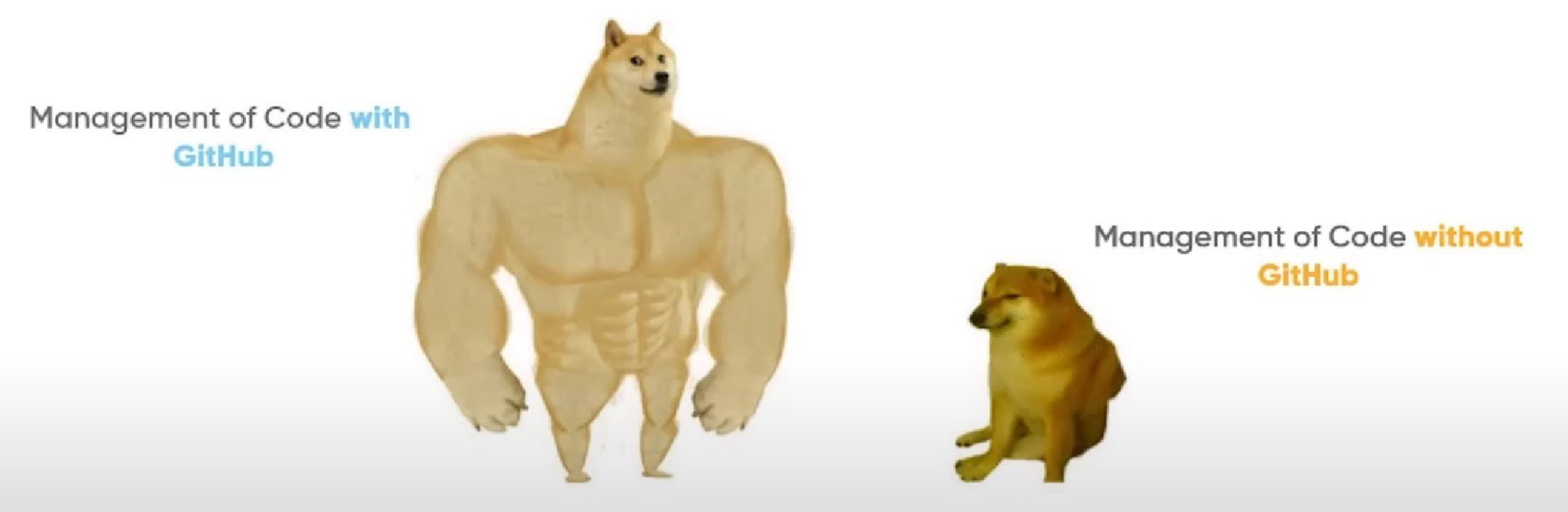
READING →

← WRITING

mukesh
Backend
developer

```
ookup.KeyValue
.constant(['en
tf.constant([0
lookup.StaticV

buckets=5)
```


Management of Code with GitHub
Management of Code without GitHub

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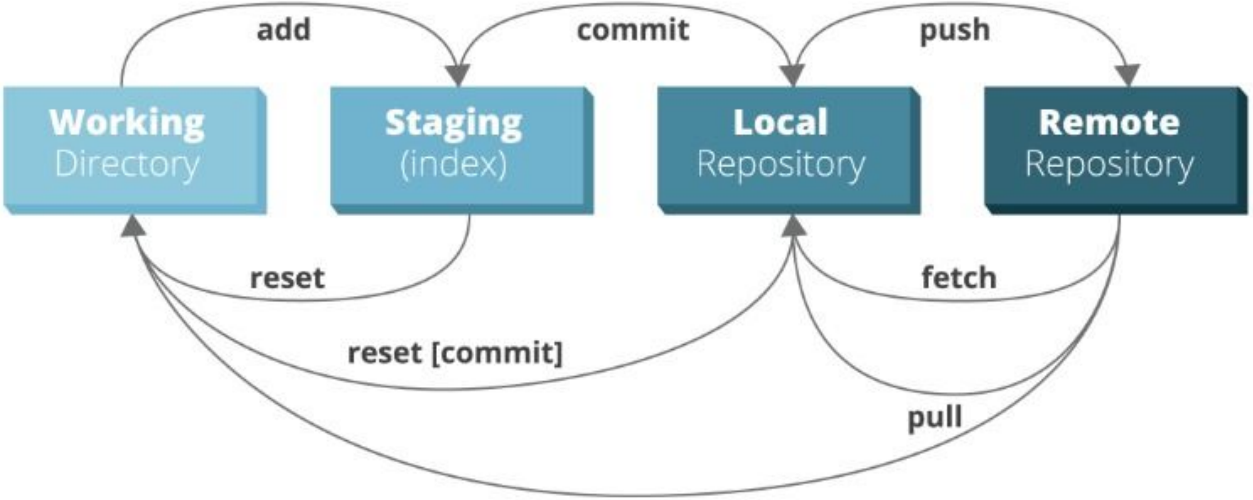
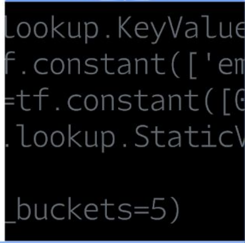

add
commit
push
Working Directory
Staging (index)
Local Repository
Remote Repository
reset
fetch
reset [commit]
pull

GIT PUSH
ORIGIN MASTER -F
memegenerator.net



```
lookup.KeyValue
f.constant(['em
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_buckets=5)
```

Push and Pull workflow diagram

Hassle of a PR being accepted

Google D

WAITING FOR A PULL REQUEST APPROVAL
imgflip.com

```
lookup.KeyValue
f.constant(['em
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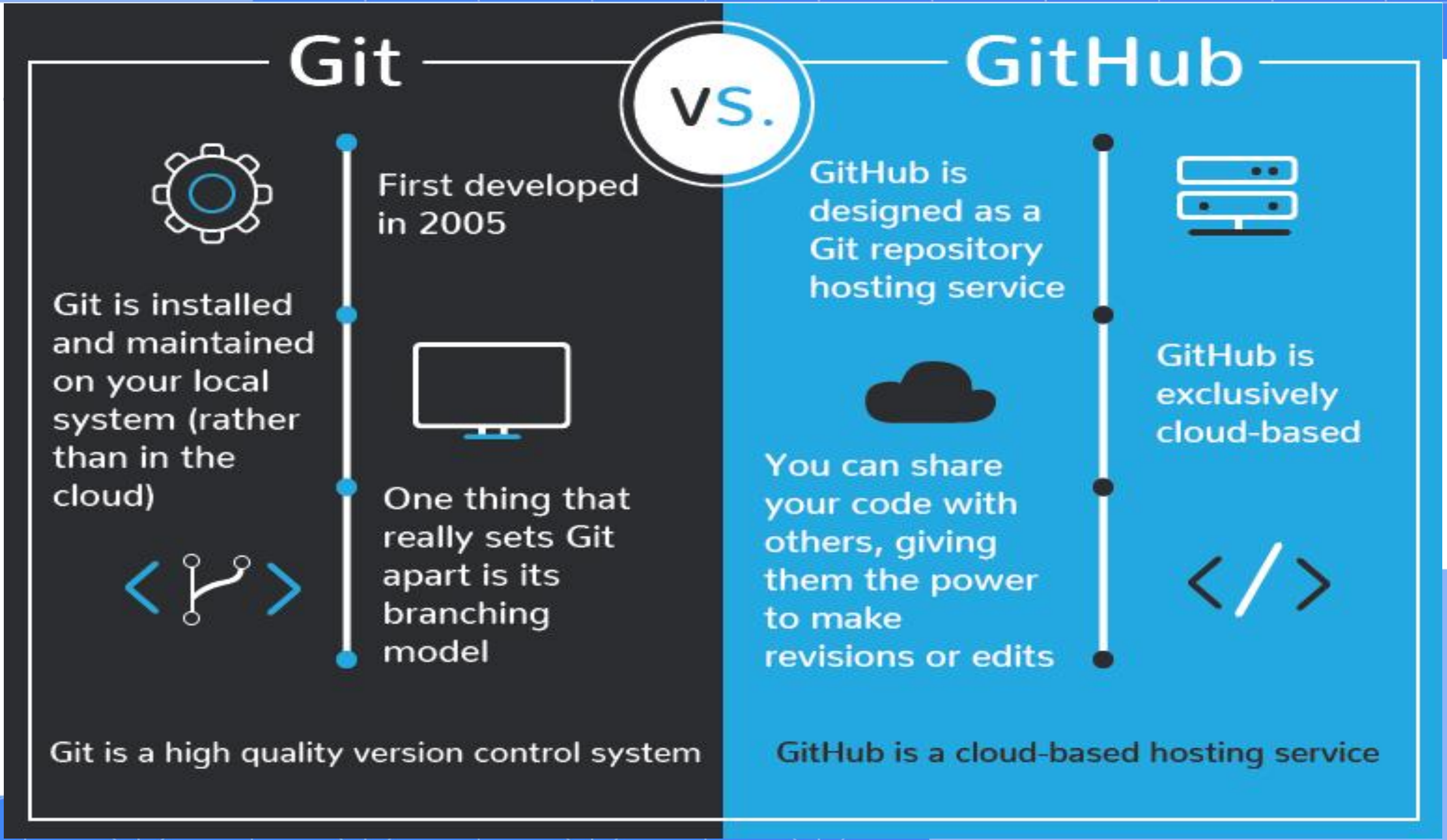
_buckets=5)
```



Git

vs.

GitHub

First developed in 2005

Git is installed and maintained on your local system (rather than in the cloud)

One thing that really sets Git apart is its branching model

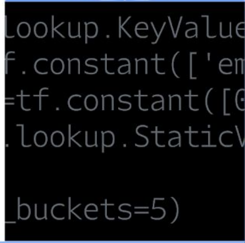
Git is a high quality version control system

GitHub is designed as a Git repository hosting service

GitHub is exclusively cloud-based

You can share your code with others, giving them the power to make revisions or edits

GitHub is a cloud-based hosting service



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

FEATURES OF GitHub (Open GItHub)

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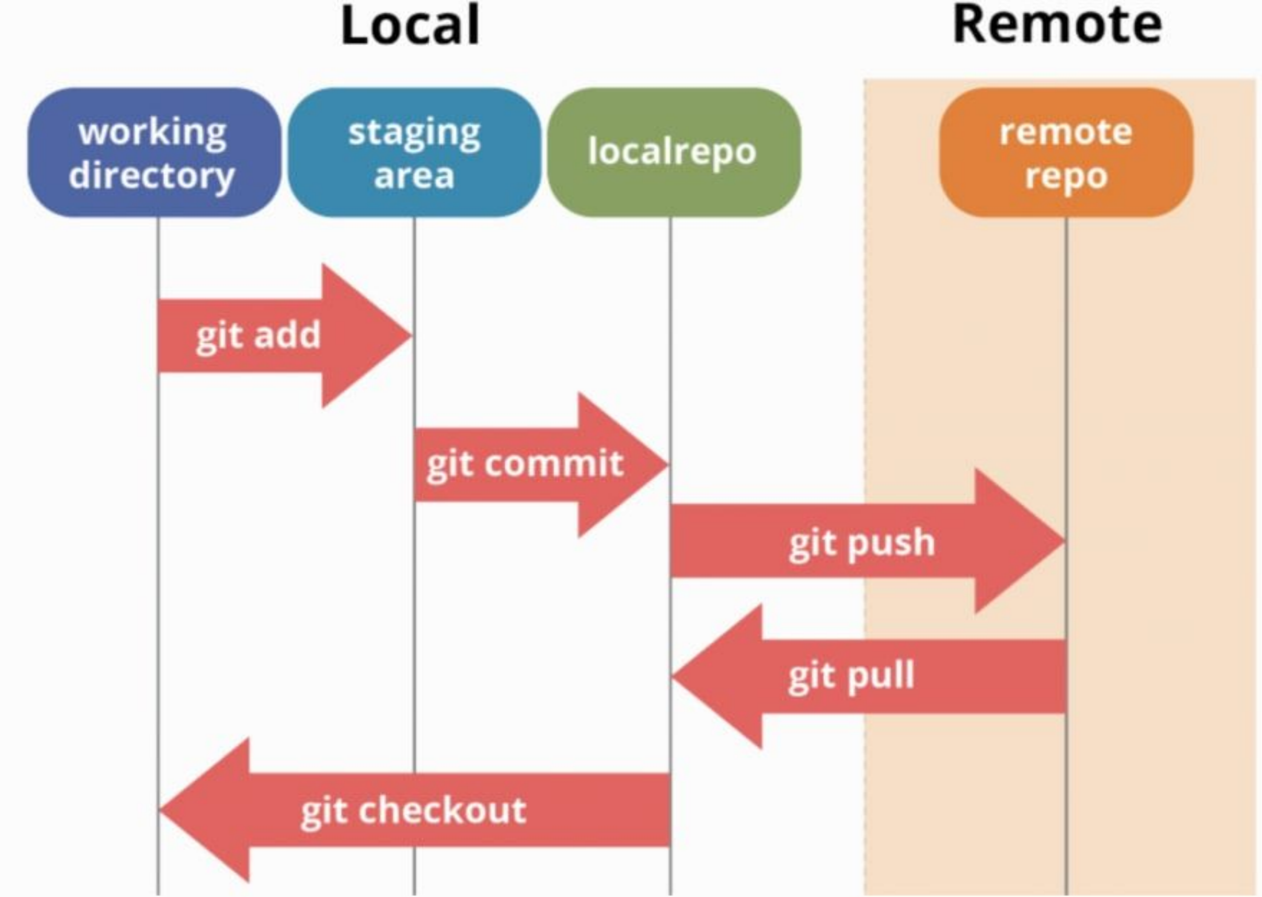
Code Review and Collaboration

- Pull Requests
- Issue Tracking
- Discussions
- Traffic Analytics
- GitHub Wiki
- Actions Marketplace
- GitHub API

```
lookup.KeyValue
f.constant(['em
=tf.constant([
.lookup.StaticV

_buckets=5)
```

GIT & GITHUB WORKFLOW


Local
Remote
working directory
staging area
localrepo
remote repo
git add
git commit
git push
git pull
git checkout

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

LET’S DO SOME HANDS-ON!!!

Your first
GitHub
Pull
Request

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

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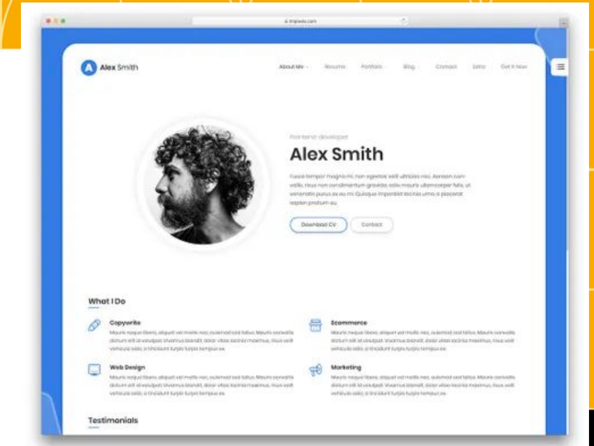
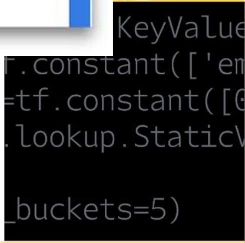

Alex Smith
Alex Smith
Download CV
Contact
What I Do
Copywrite
Ecommerce
Web Design
Marketing
Testimonials

BUILD & DEPLOY YOUR OWN MEME GAME RIDE SHARING APP ON CLOUD



```
 KeyValue
f.constant(['em
=tf.constant([0
.lookup.Static\

_buckets=5)
```

WorkFlow Plan

PART 1
Build a static website on S3

Free to a few cents

ChatGPT S3

PART 2
Make it work with a custom domain name

Domain name: $10+

Hosted zone: 50 cents per month

Queries: 40 cents per million

S3 Route 53

PART 3
Incorporate CloudFront and SSL/HTTPS

ACM Certificates: Free

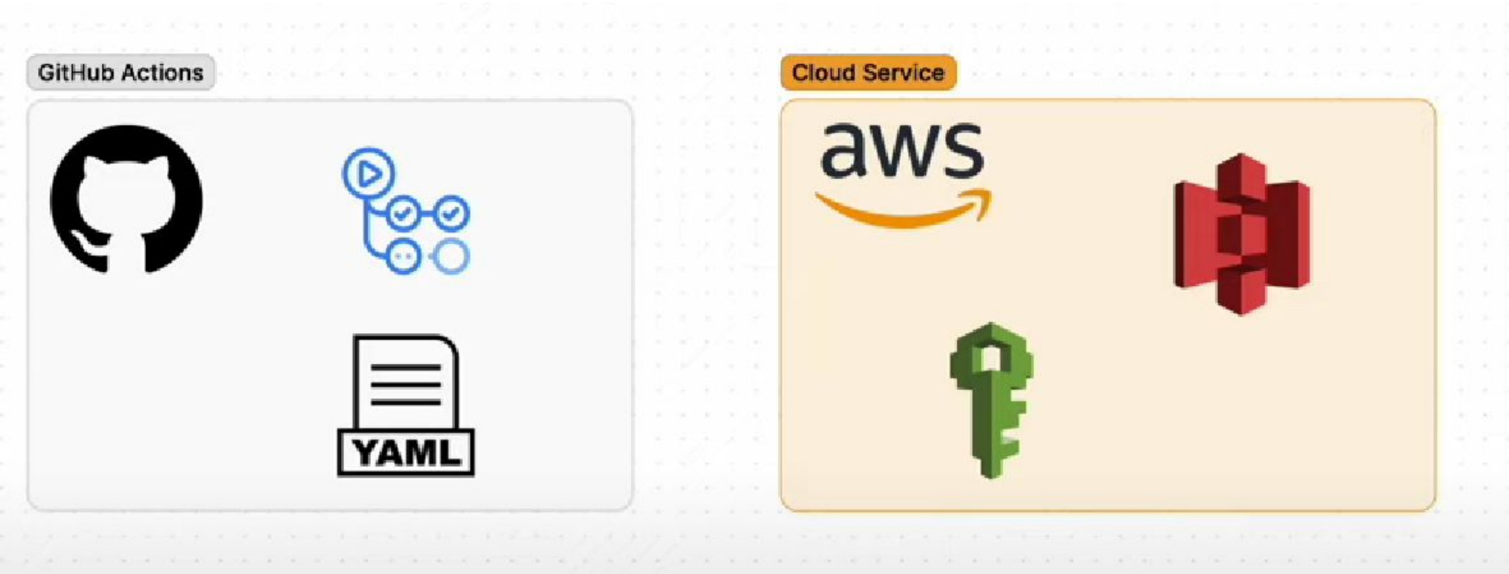
CloudFront: Free+, depending on how many requests are made

S3 Route 53 ACM

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

WorkFlow Plan


GitHub Actions
YAML
Cloud Service
aws

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

GITHUB ACTION HANDS-ON!!!

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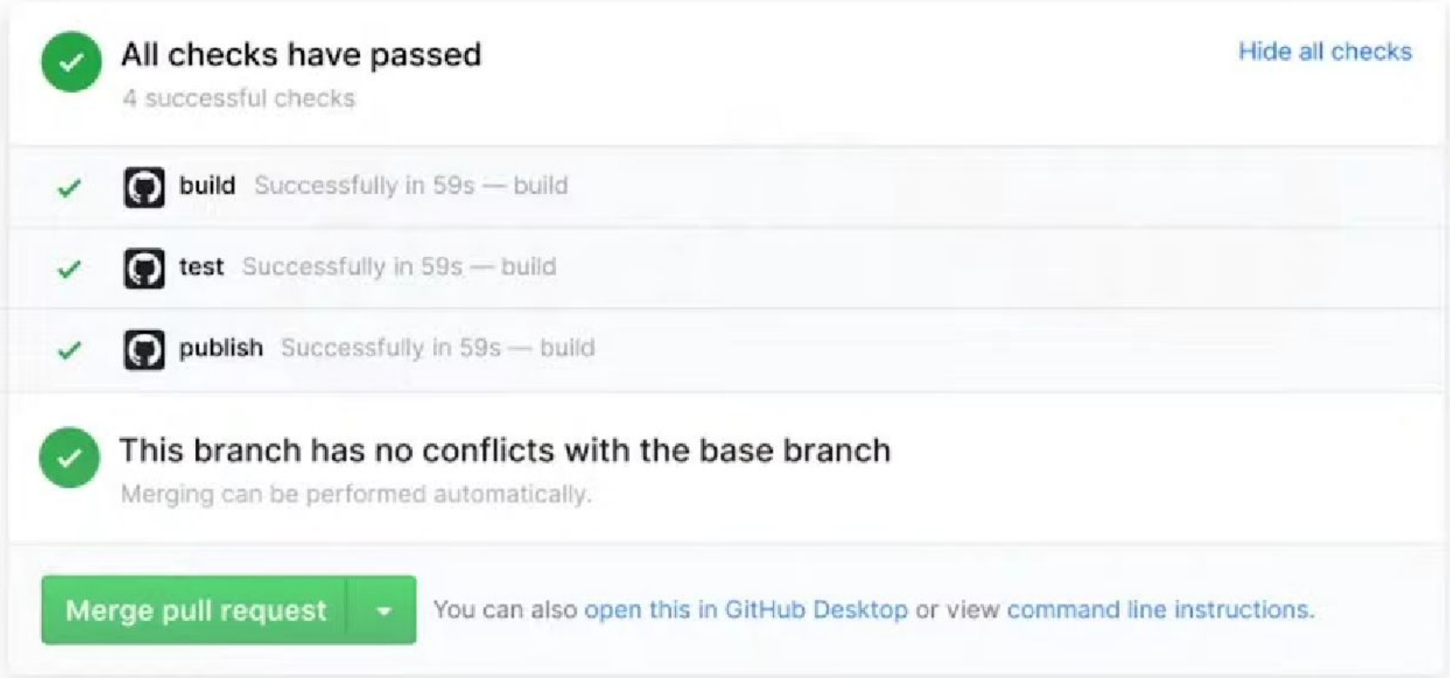
GitHub Actions

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

GITHUB ACTION HANDS-ON!!!

It is fully integrated into GitHub



All checks have passed

4 successful checks

✓ **build** Successfully in 59s — build

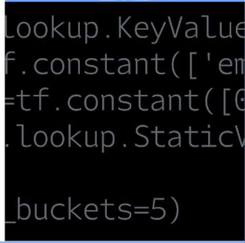
✓ **test** Successfully in 59s — build

✓ **publish** Successfully in 59s — build

This branch has no conflicts with the base branch

Merging can be performed automatically.

You can also open this in GitHub Desktop or view command line instructions.

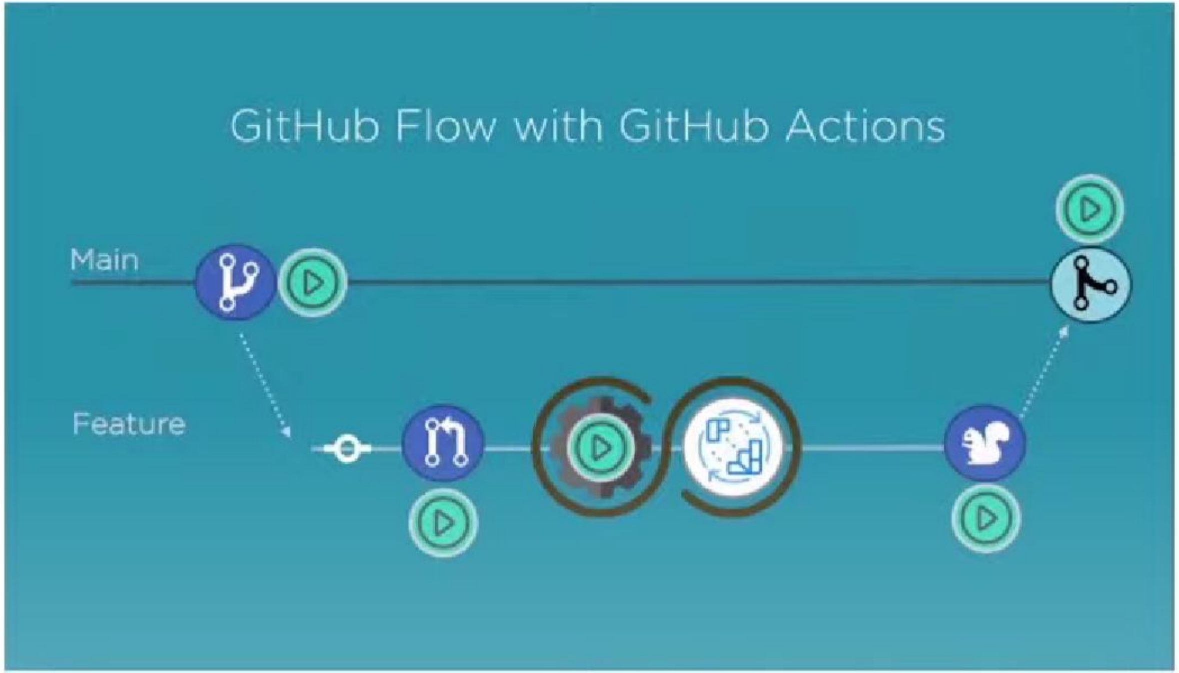


```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
```

GITHUB ACTION HANDS-ON!!!

You can do automations with GitHub Actions or even build a CI/CD pipeline


GitHub Flow with GitHub Actions
Main
Feature

You can create your own GitHub Actions or use a prebuilt one at any stage in your GitHub workflow

```
KeyValue
ant(['em
stant([0
.StaticV

s=5)
```

GITHUB ACTION HANDS-ON!!!

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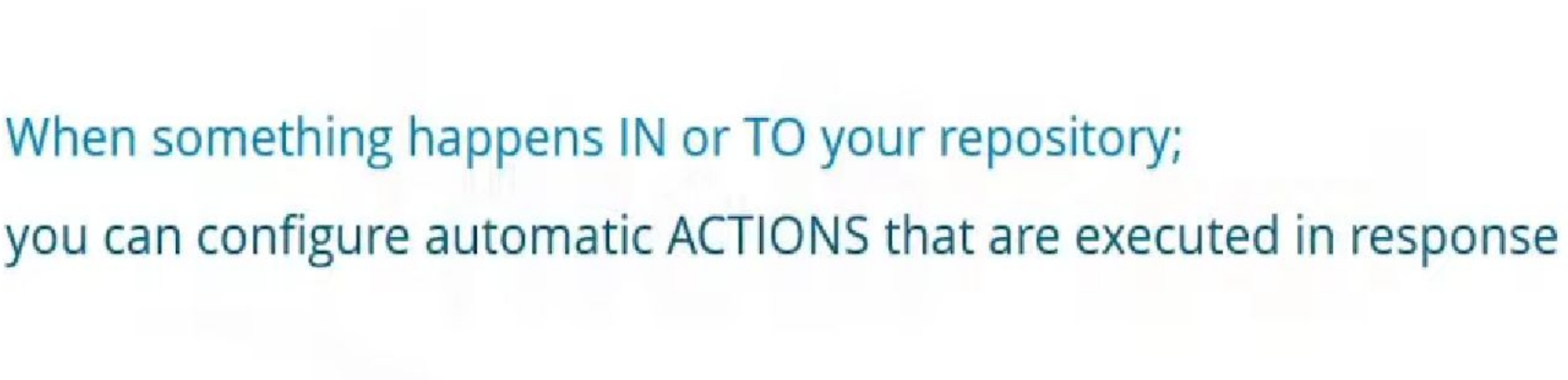
HOW WORK FLOWS ARE AUTOMATED?



When something happens IN or TO your repository;

you can configure automatic ACTIONS that are executed in response

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
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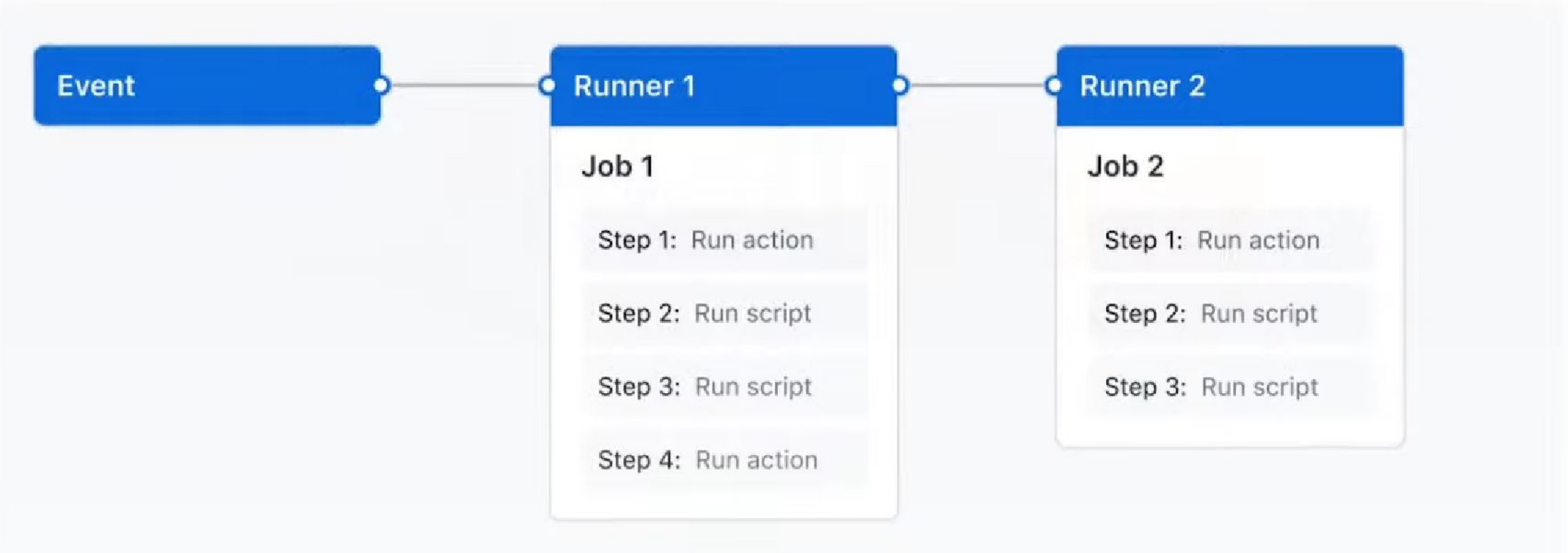
_buckets=5)
```

WHAT EXACTLY IS A WORKFLOW?

Actions in a particular order constitute a workflow. This workflow can be triggered after an event occurs in GitHub.



Event

Runner 1

Job 1

Step 1: Run action

Step 2: Run script

Step 3: Run script

Step 4: Run action

Runner 2

Job 2

Step 1: Run action

Step 2: Run script

Step 3: Run script

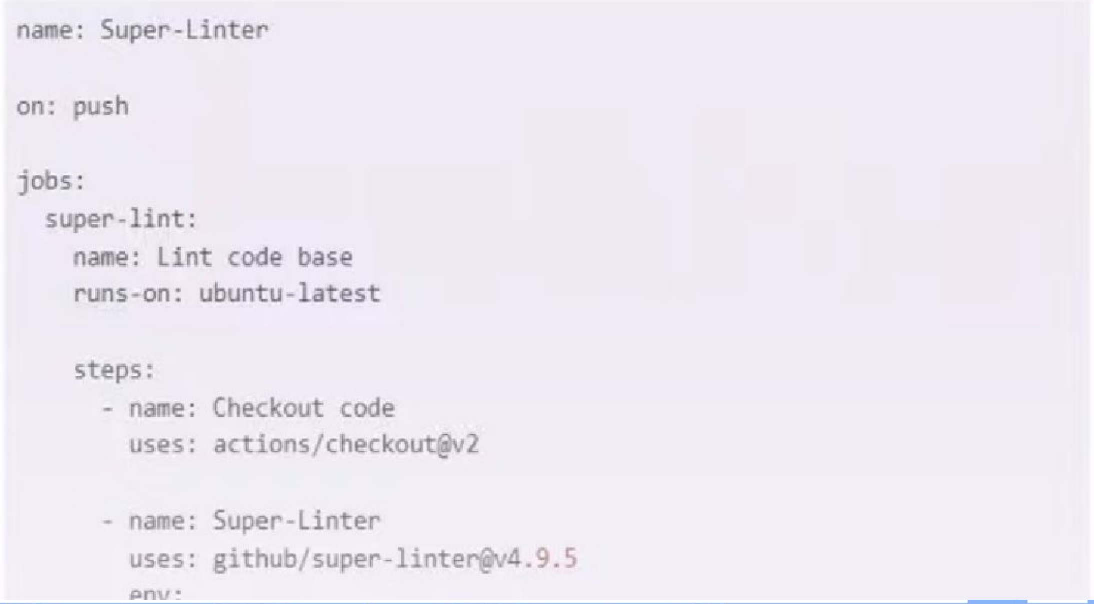
```
Value
(['em
nt([0
aticV

)
```

HOW TO WRITE A WORKFLOW?

This is done by a YAML script. This is a scripting language that follows a certain syntax. A workflow YAML file will contain the follows parts to it:

Events, Jobs, Runners, Steps and Actions



```
name: Super-Linter

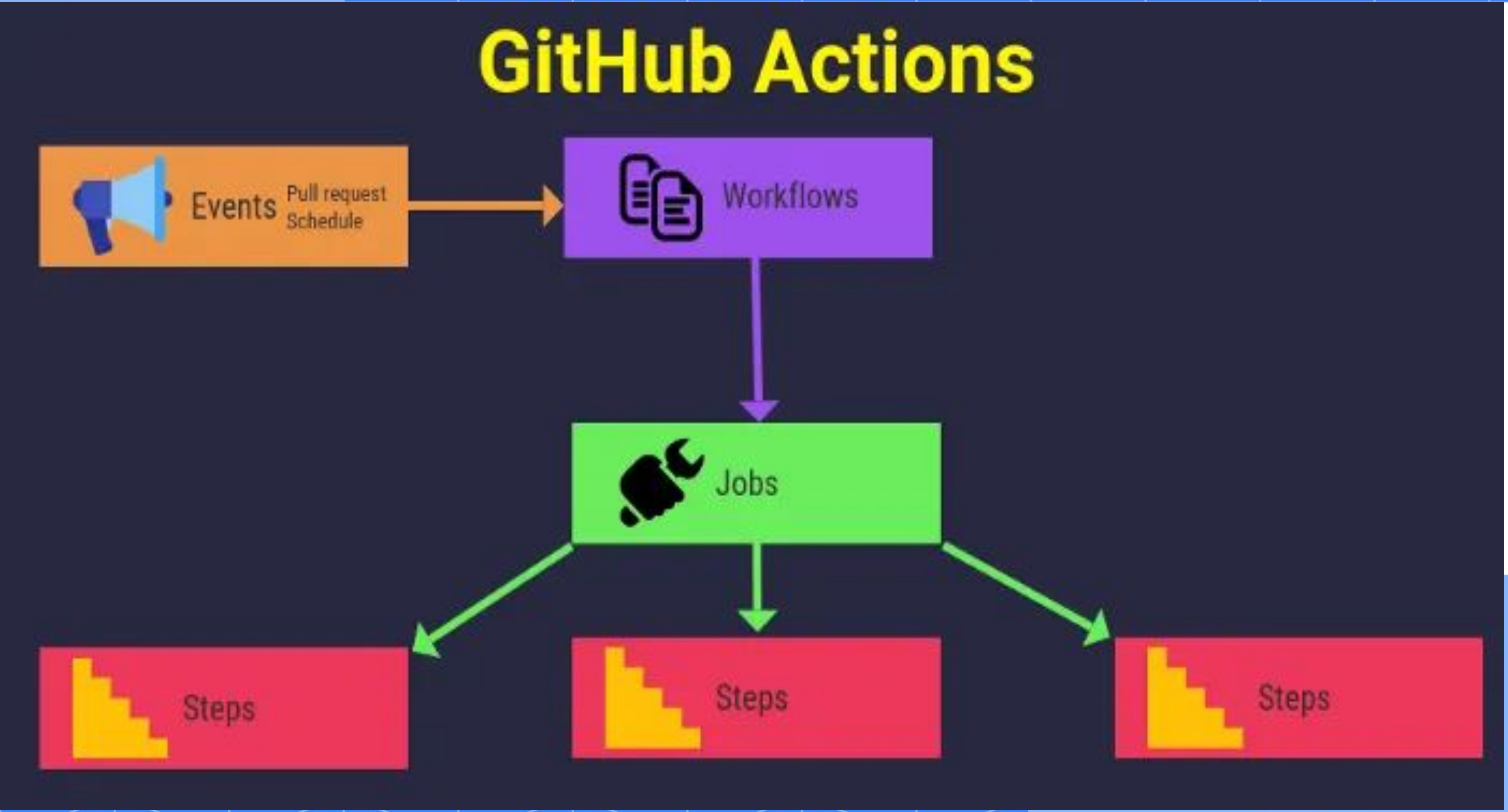
on: push

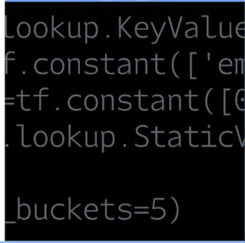
jobs:
  super-lint:
    name: Lint code base
    runs-on: ubuntu-latest

    steps:
      - name: Checkout code
        uses: actions/checkout@v2

      - name: Super-Linter
        uses: github/super-linter@v4.9.5
        env:
```

GITHUB ACTION HANDS-ON!!!


GitHub Actions
Events
Pull request
Schedule
Workflows
Jobs
Steps
Steps
Steps



```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

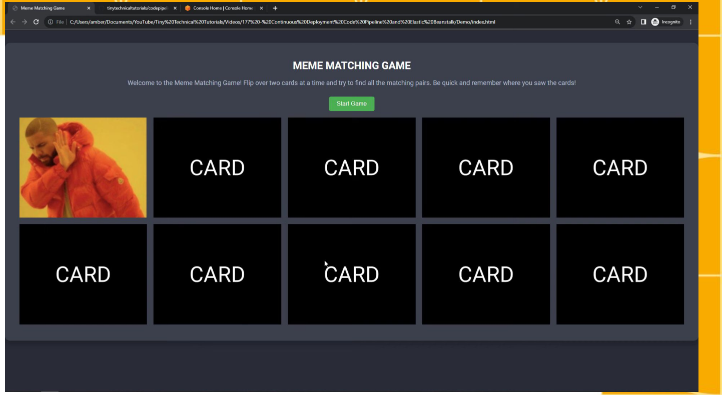
_buckets=5)
```

```
dren: [
on(icon, color: color
ntainer(
margin: const EdgeIns
child:
  label
  style
```

Google Developer Student Clubs
University Name

Lets do some Hands-on to build our Resume Project

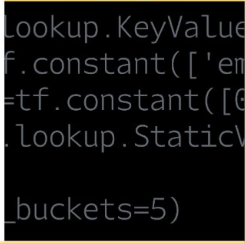
Google Developer Student Clubs


Meme Matching Game
tinytechnicaltutorials/codepipeli
Console Home | Console Home
File
C:/Users/amber/Documents/YouTube/Tiny%20Technical%20Tutorials/Videos/177%20-%20Continuous%20Deployment%20Code%20Pipeline%20and%20Elastic%20Beanstalk/Demo/index.html
Incognito
Start Game
CARD
CARD
CARD
CARD
CARD
CARD
CARD
CARD
CARD

MEME MATCHING GAME

Welcome to the Meme Matching Game! Flip over two cards at a time and try to find all the matching pairs. Be quick and remember where you saw the cards!

BUILD & DEPLOY MEME GAME ON CLOUD



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University Name

Lets do some Hands-on to RIDE SHARING APP ON CLOUD

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BUILD & DEPLOY FULL STACK APP ON CLOUD

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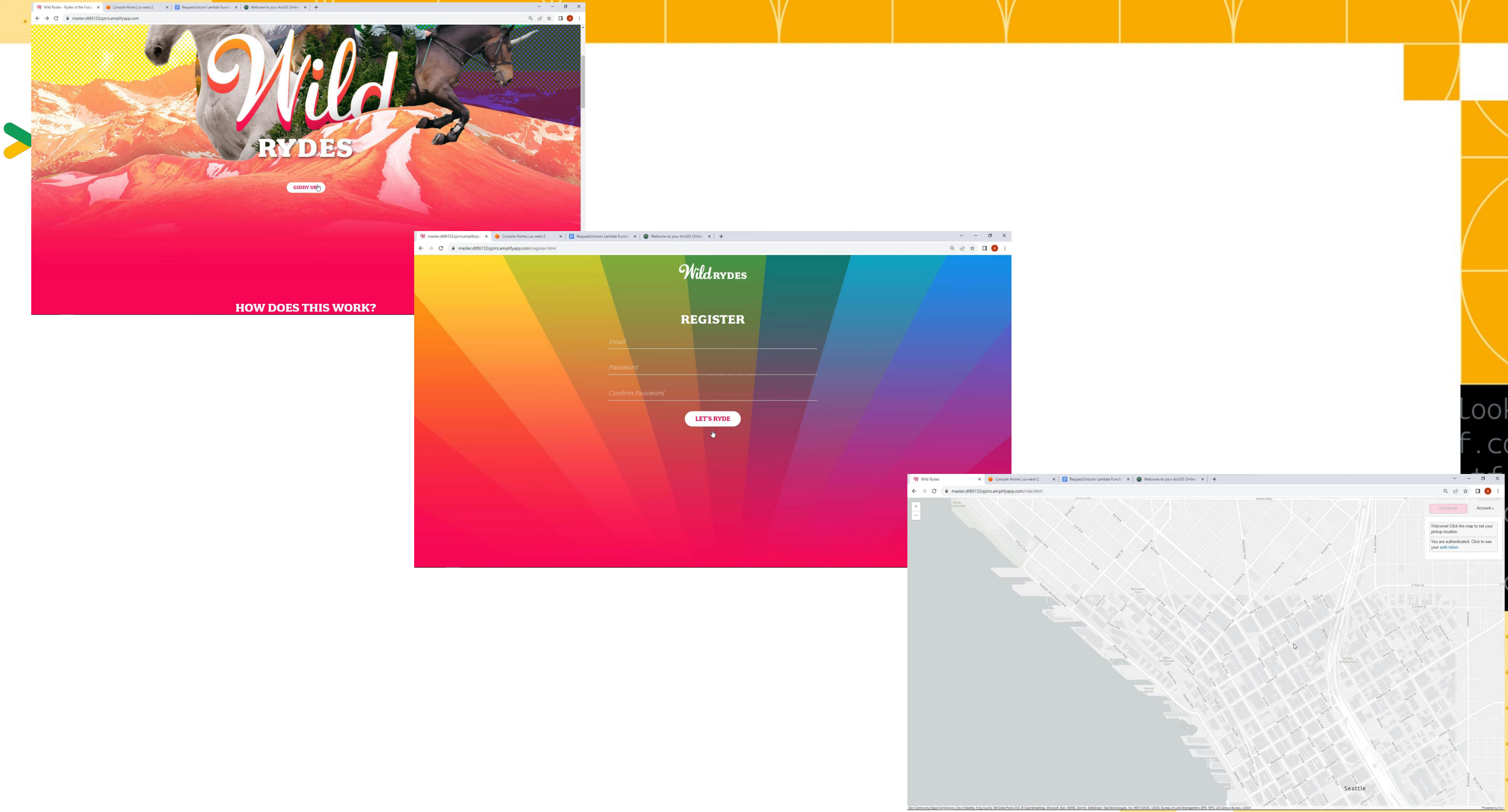

Wild Rydes - Rydes of the Futur
Console Home | us-west-2
RequestUnicorn Lambda Functi
Welcome to your ArcGIS Online

master.dt86132ojzrrs.amplifyapp.com

Wild
RYDES
GIDDY UP!

HOW DOES THIS WORK?

master.dt86132ojzrrs.amplifyapp.com/register.html

Wild RYDES

REGISTER

Email

Password

Confirm Password

LET'S RYDE

Wild Rydes

master.dt86132ojzrrs.amplifyapp.com/ride.html

Set pickup
Account
Seattle

Welcome! Click the map to set your pickup location.

You are authenticated. Click to see your auth token.

```
lookup.KeyValue
f.constant(['em
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Services We'll be Using

- AWS CodeCommit
- AWS Identity & Access Management (IAM)
- AWS Amplify
- Amazon Cognito
- AWS Lambda
- Amazon API Gateway
- Amazon DynamoDB

```
lookup.KeyValue
f.constant(['em
=tf.constant([0
.lookup.StaticV

_buckets=5)
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MEET YOU AT THE NEXT SESSION WITH THE SAME ENTHUSIASM!!

THANK YOU FOR JOINING :)