DevOps

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Post Graduate Program in DevOps

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Bitbucket and GitLab

Learning Objectives

By the end of this lesson, you will be able to:

- ● Define Bitbucket and GitLab

- ● Illustrate code review, undo changes and branching

- ● Classify GitLab basics

- ● Define users, groups, and track issues

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Introduction to Bitbucket

What Is Bitbucket?

Bitbucket is a web-based version control repository hosting service for the projects that use either Mercurial or Git.

Features of bitbucket are:

Provides central place for git repositories

Keeps the project organized

Builds in continuous delivery

Provides free unlimited private repositories

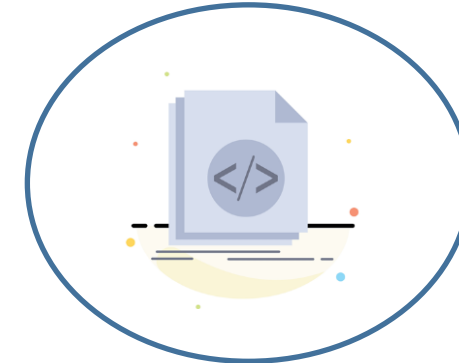# Git with Bitbucket Cloud

Git Repository

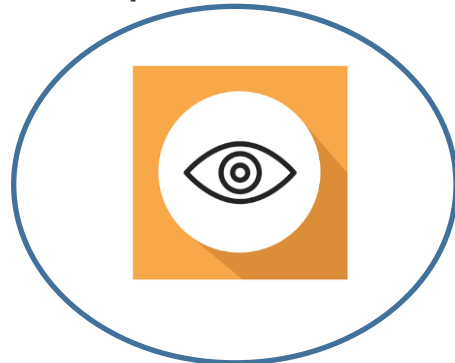Characteristics of git repository are:

Can access all files

Each repository belongs to a user or team

Project code can consist of single or multiple repositories

Can view public repositories

Only an admin can delete repositories

Each repository has a size limit of 2 GB

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Copy Git Repository and Add Files

- Git refers to copying a repository as cloning.

- Cloning creates a connection between the Bitbucket server and local system.

- Files are added to keep a track of all the locations.

Bitbucket server
(origin)

Local system

`$ git add location.txt`

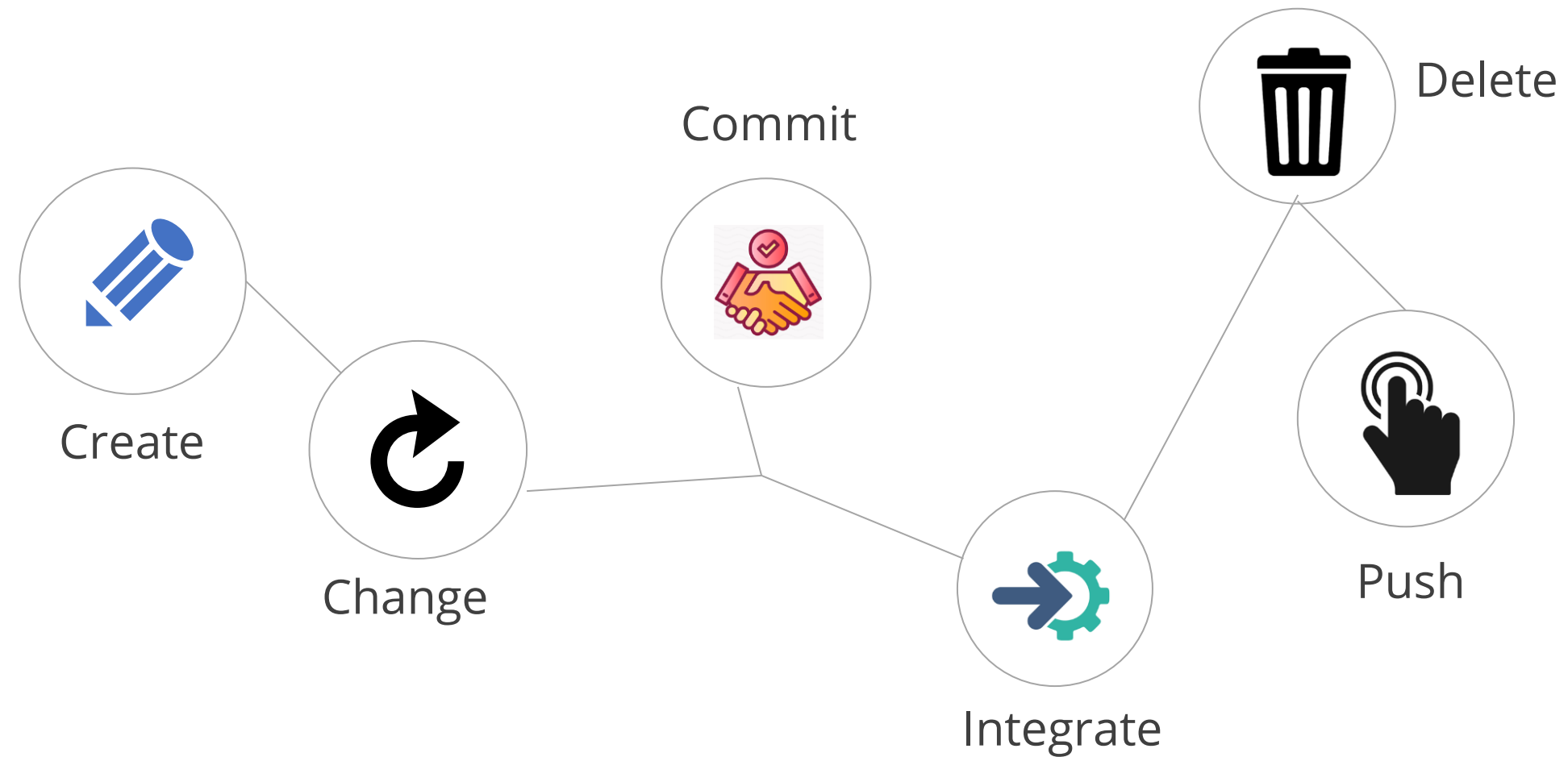Staging area

Commits

Origin
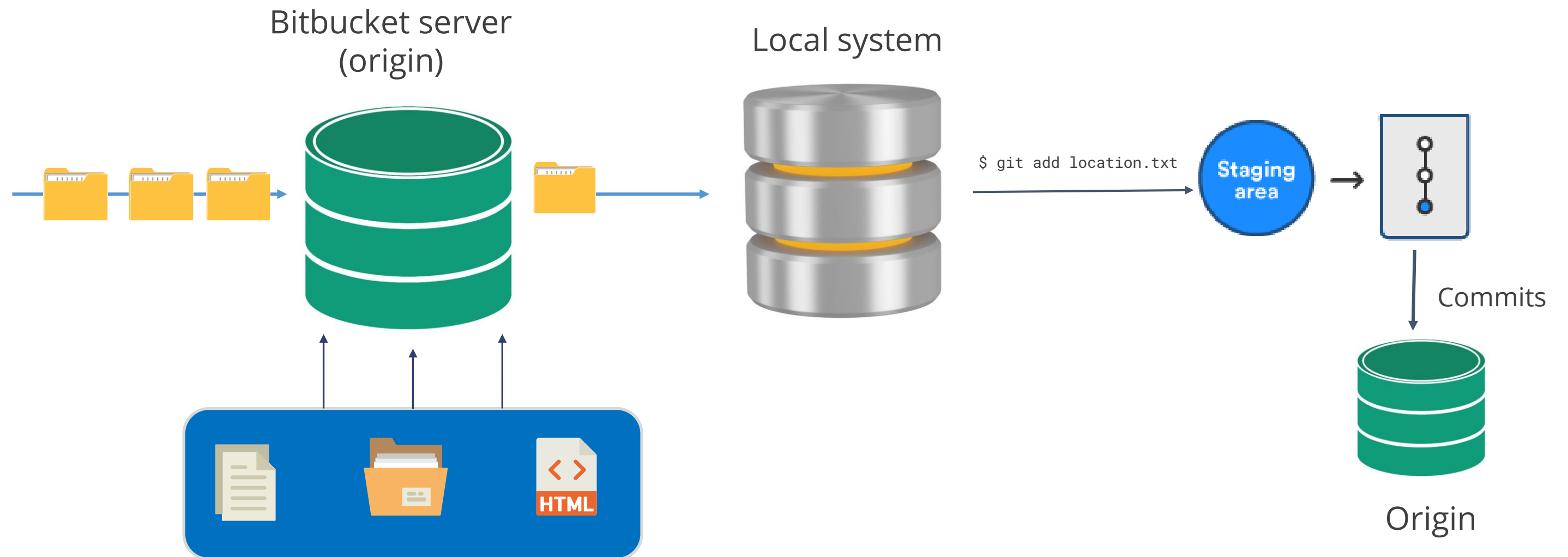
Pull Changes from Repository on Bitbucket

In order to have more details about the file location, pull changes from the Git repository to the bitbucket cloud.

Create a file in Bitbucket

Pull changes from a remote repository
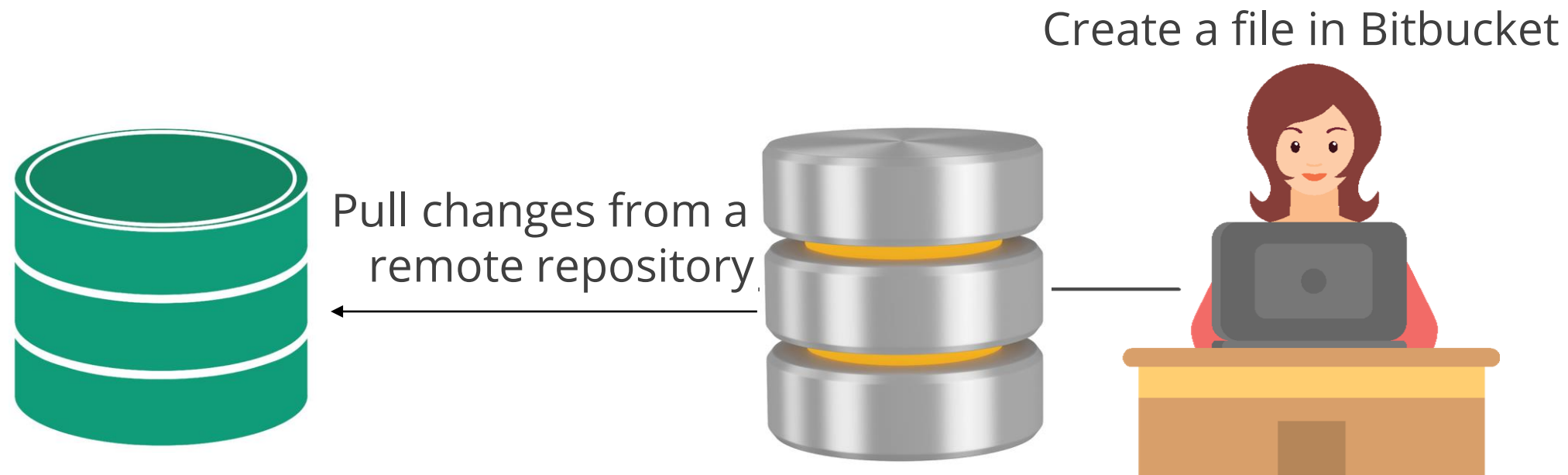
Use a Git Branch to Merge a File

Branch represents an independent line of development for the repository.
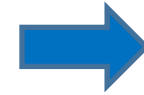
Code Review in Bitbucket Cloud

Create a Repository and Add Teammate

The process involves creating a team repository with some content and giving someone access.
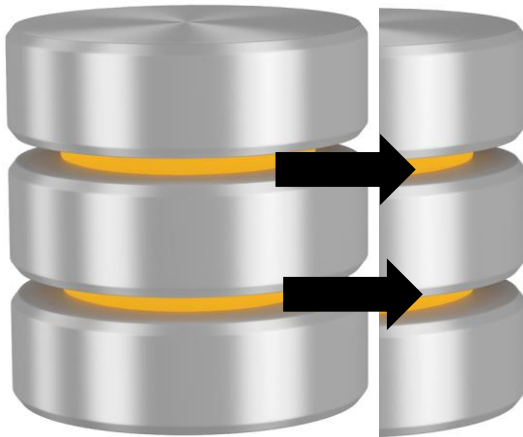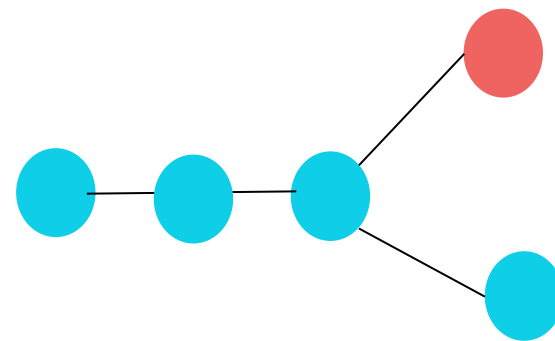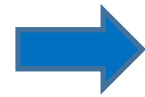

Create a team

Add teammate

Create a repository

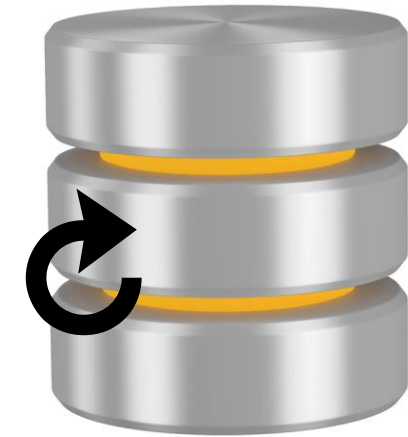# Clone and Make a Change on a New Branch

- The repository must be cloned before creating a branch.
- There are two ways:
  - Using command line
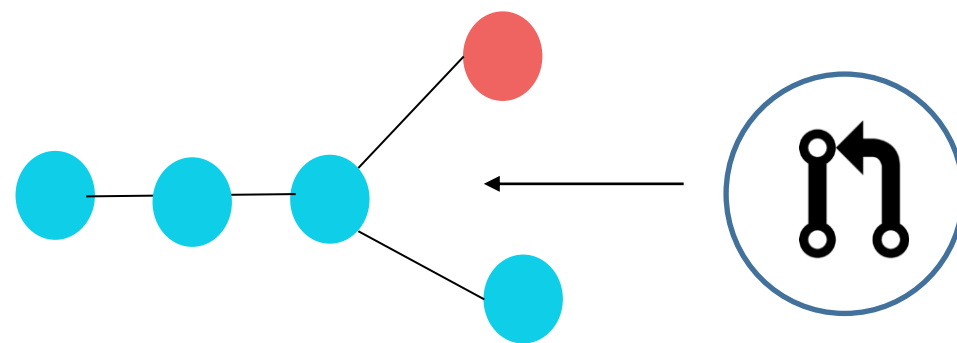 - Using source tree

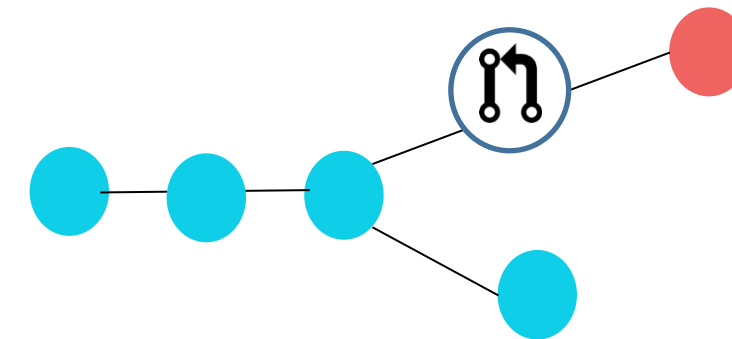**Clone the repository**

Create a branch

Make a change

Create a Pull Request to Merge Change

In order to alert your teammates about the updates and get their approval, the next step is to create a pull request.

Create the pull request

Merge the pull request

Branching with Bitbucket Cloud

Importance of Branching

Branching in git allows to:
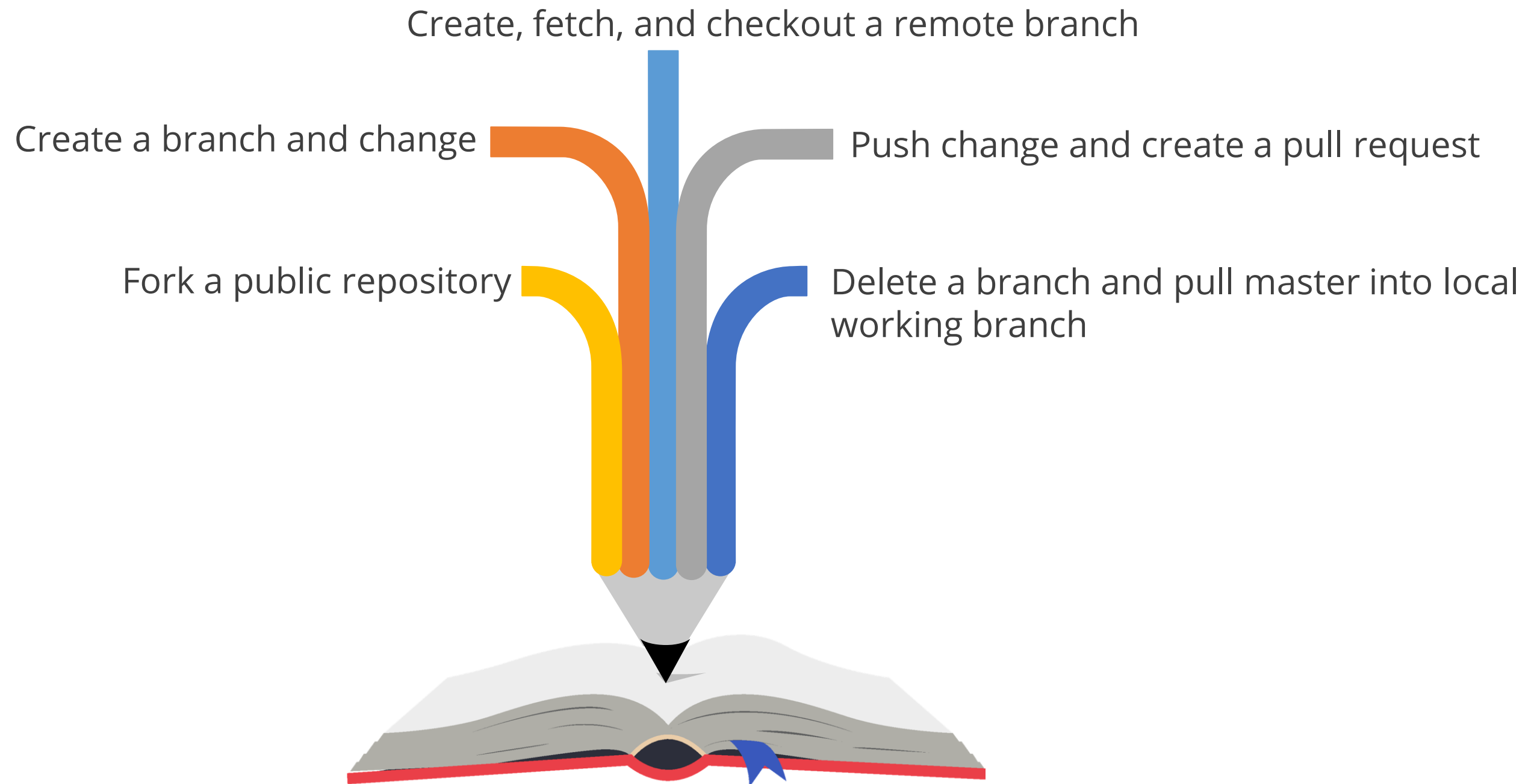

Use the same bitbucket cloud

Collaborate between team members from anywhere

Have multiple lines of development running at the same time

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Create Branch Using Branching Workflow

In order to work on a team, you will have to:

Create, fetch, and checkout a remote branch

Create a branch and change

Push change and create a pull request

Fork a public repository

Delete a branch and pull master into local working branch

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Review the Branching Workflow

The Git Feature Branch Workflow is an efficient way to work with your team in Bitbucket.

Start with the master branch

Create a new branch

Update, add, commit, and push changes

Get your code reviewed

Resolve feedback

Merge your branch

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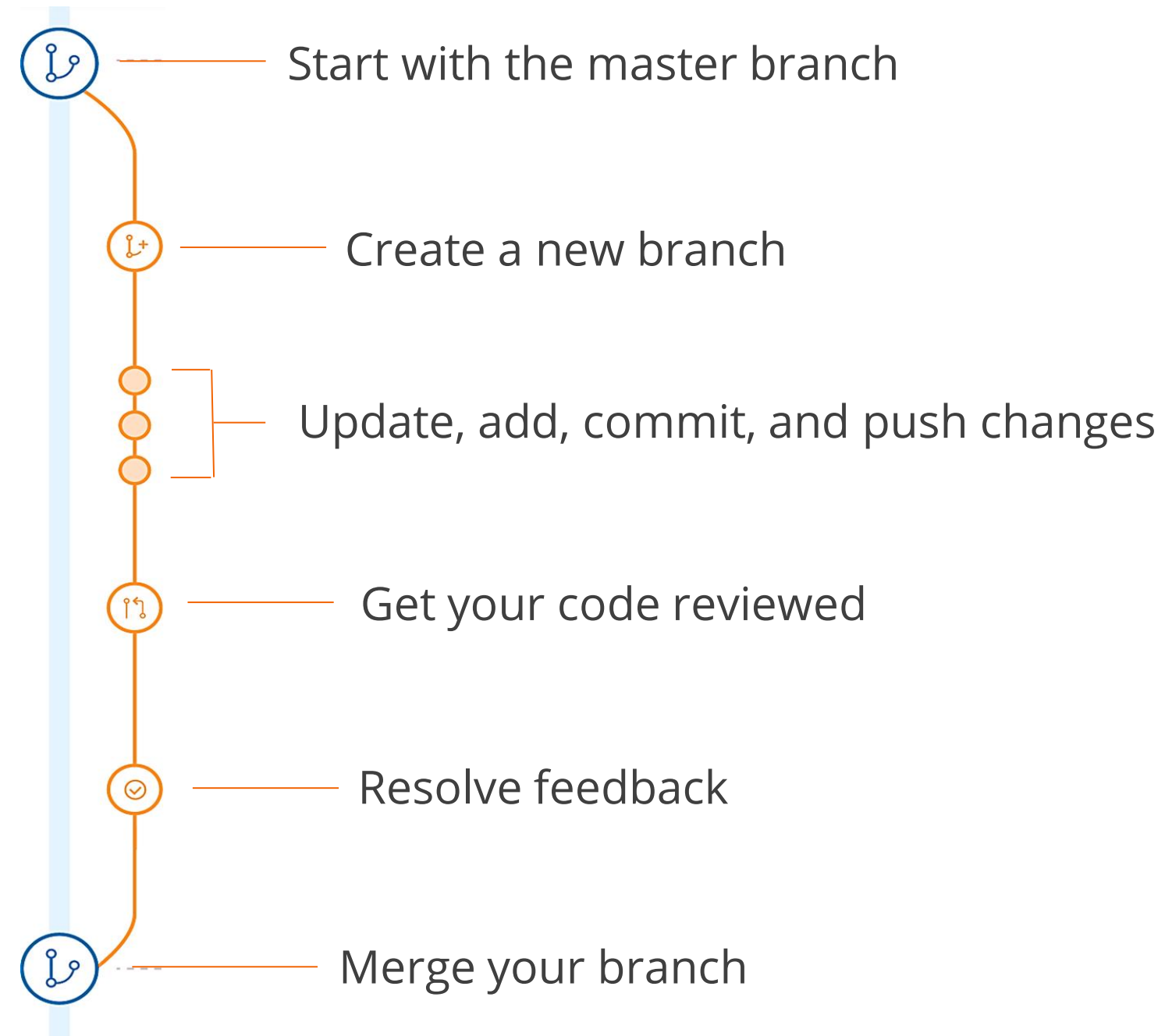
Undo Changes in Git Using Bitbucket Cloud

Git Commands

The most common git functions to undo a change or changes safely:

Command	Example	Explanation
git log	$ git status On branch master Your branch is up-to-date with 'origin/master'. nothing to commit, working tree clean	Returns working directory, staging area, and updated files
git reset	$ git log commit 1f08a70e28d84d5034a8076db9103f22ec2e982c	Lists the project history and search
git revert	$ git revert 035lf	Creates new commit
git status	$ git status On branch master Your branch is up-to-date with 'origin/master'.	Inspects the working directory and staging area

Introduction to GitLab

What Is GitLab?

GitLab is a service that provides remote access to Git repositories.

Features of GitLab:

Manages git repository on centralized server

Keeps the user code private

Deploys the change on the user code

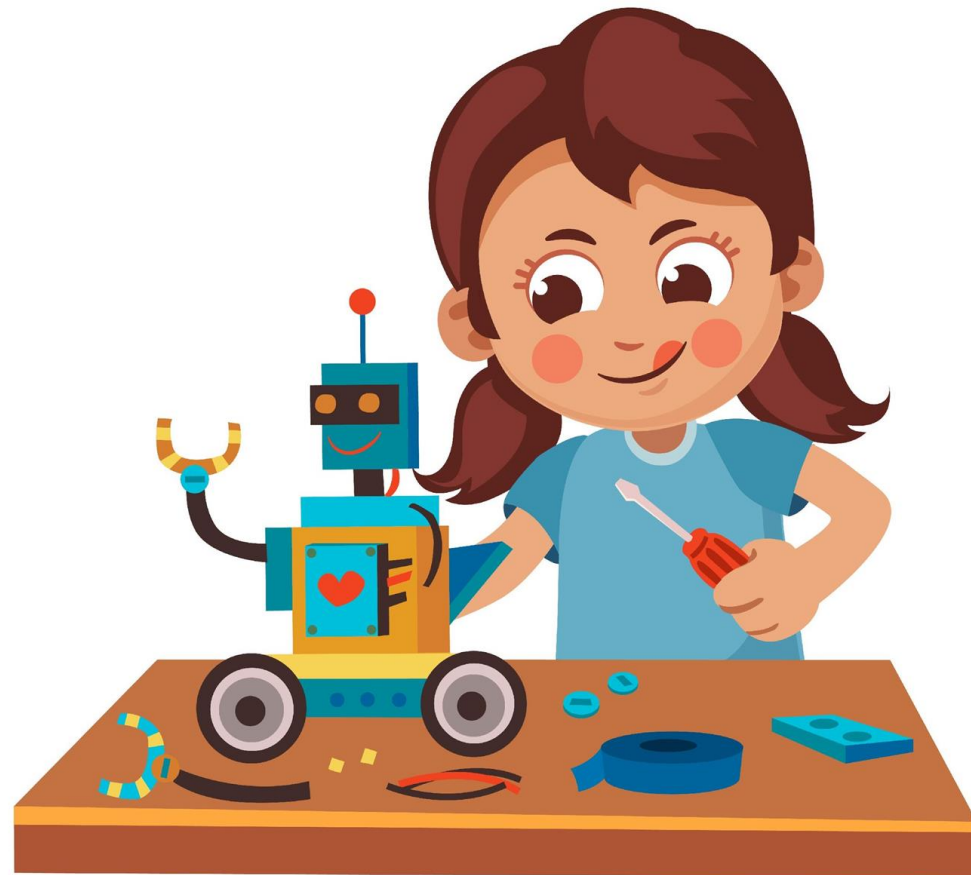Provides user-friendly web interface layer

GitLab Basics

SSH Key Setup

- Stands for Secure Shell or Secure Socket Shell
- Authenticates GitLab server

Create SSH key

Login to your GitLab account

Copy the SSH key

Open the command prompt

Steps to setup SSH key

Add SSH key

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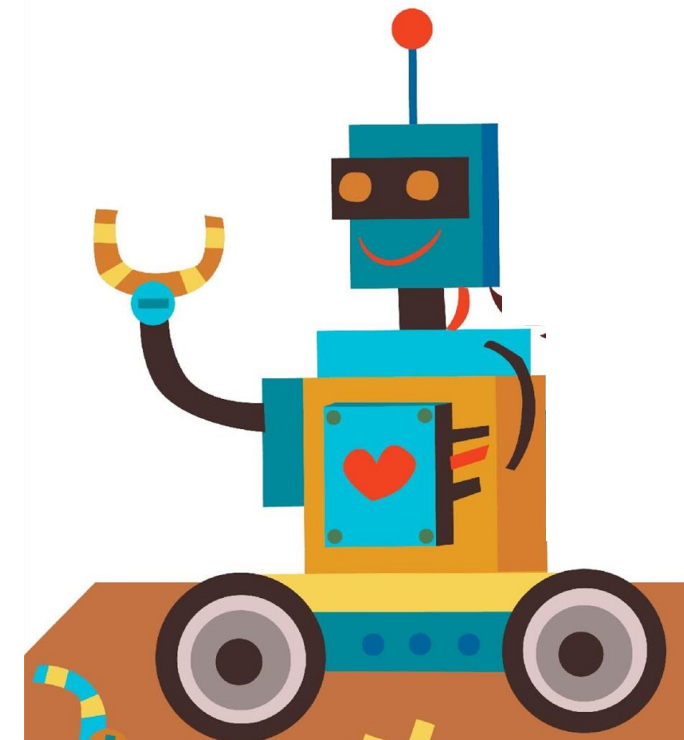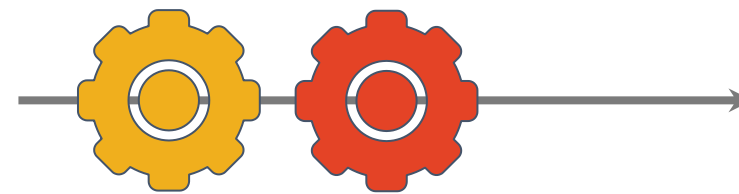
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Create a Project

In order to create a new project, the user must follow the instructions given below:
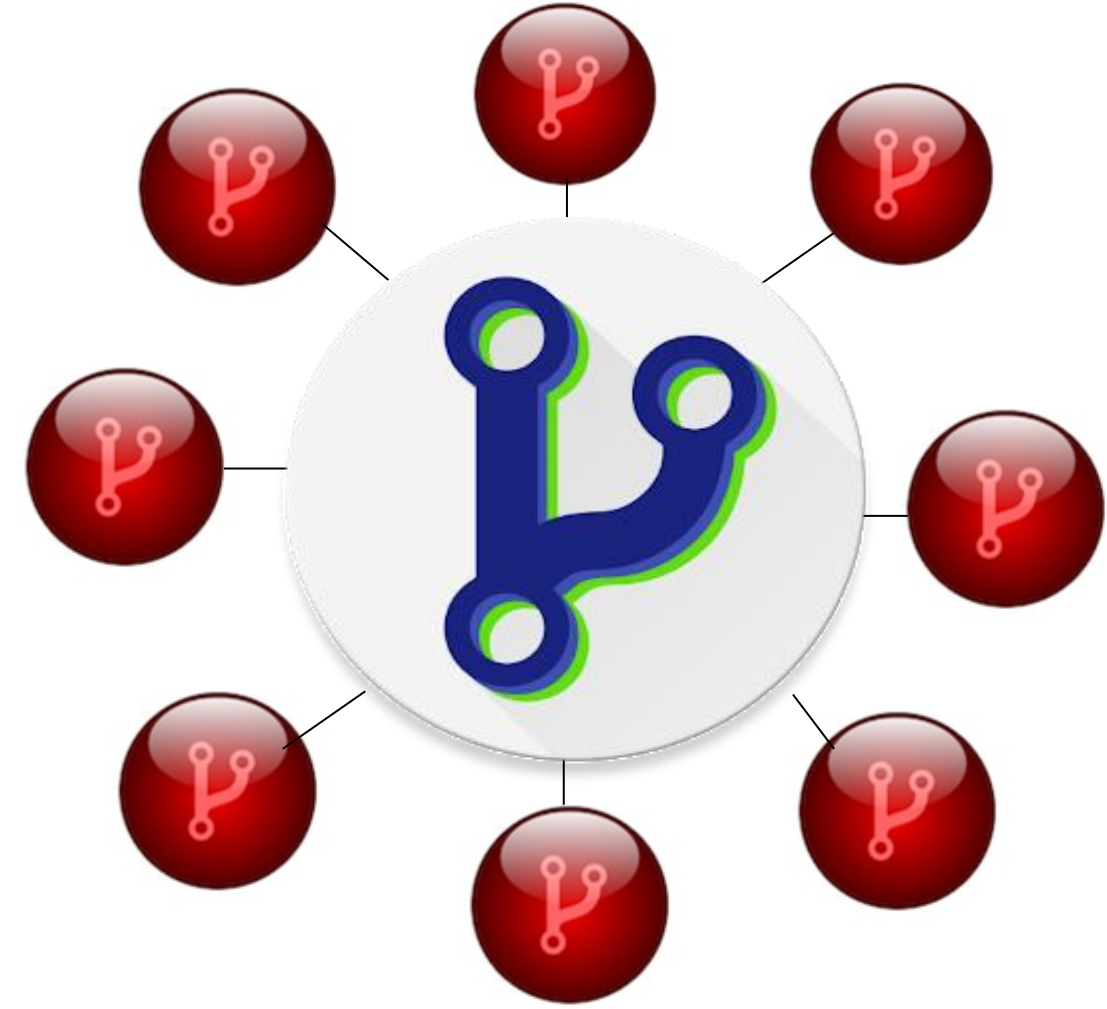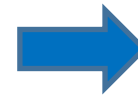

Create a project

Push the repository to Project

Fork a Project

Fork is a duplicate of your original repository.

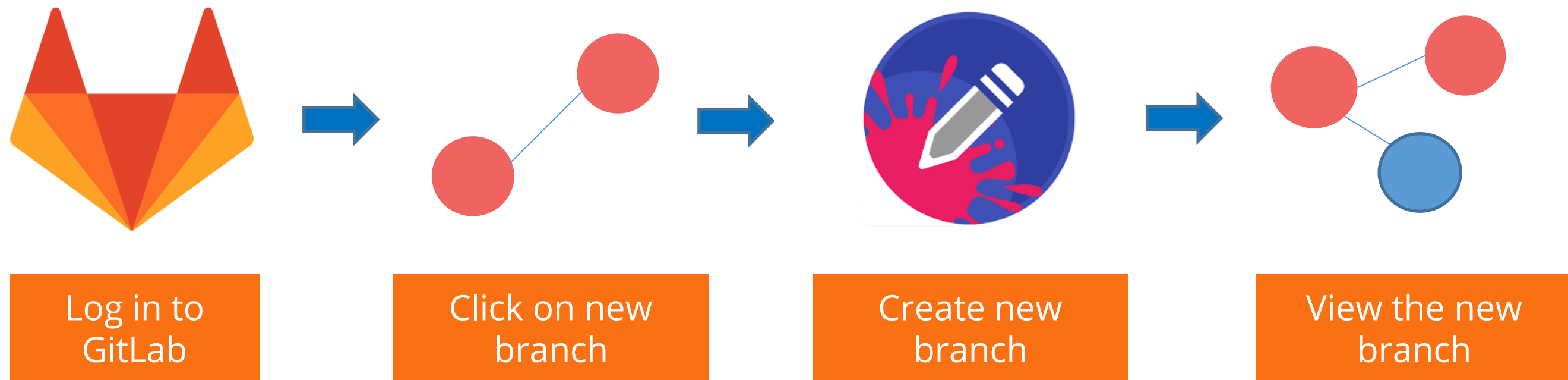Click on Fork to fork a project

Add the forked project to a fork group

Create a Branch

Branch is an independent line and part of the development process.

The creation of branch involves the following steps:

| Log in to GitLab | Click on new branch | Create new branch | View the new branch |

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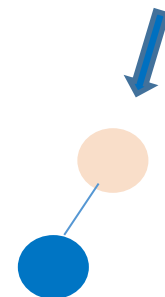
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Add a File

We can add files in two ways:

Using command line

Enter the below command

```
C:\project>touch project2.html
C:\project>
```

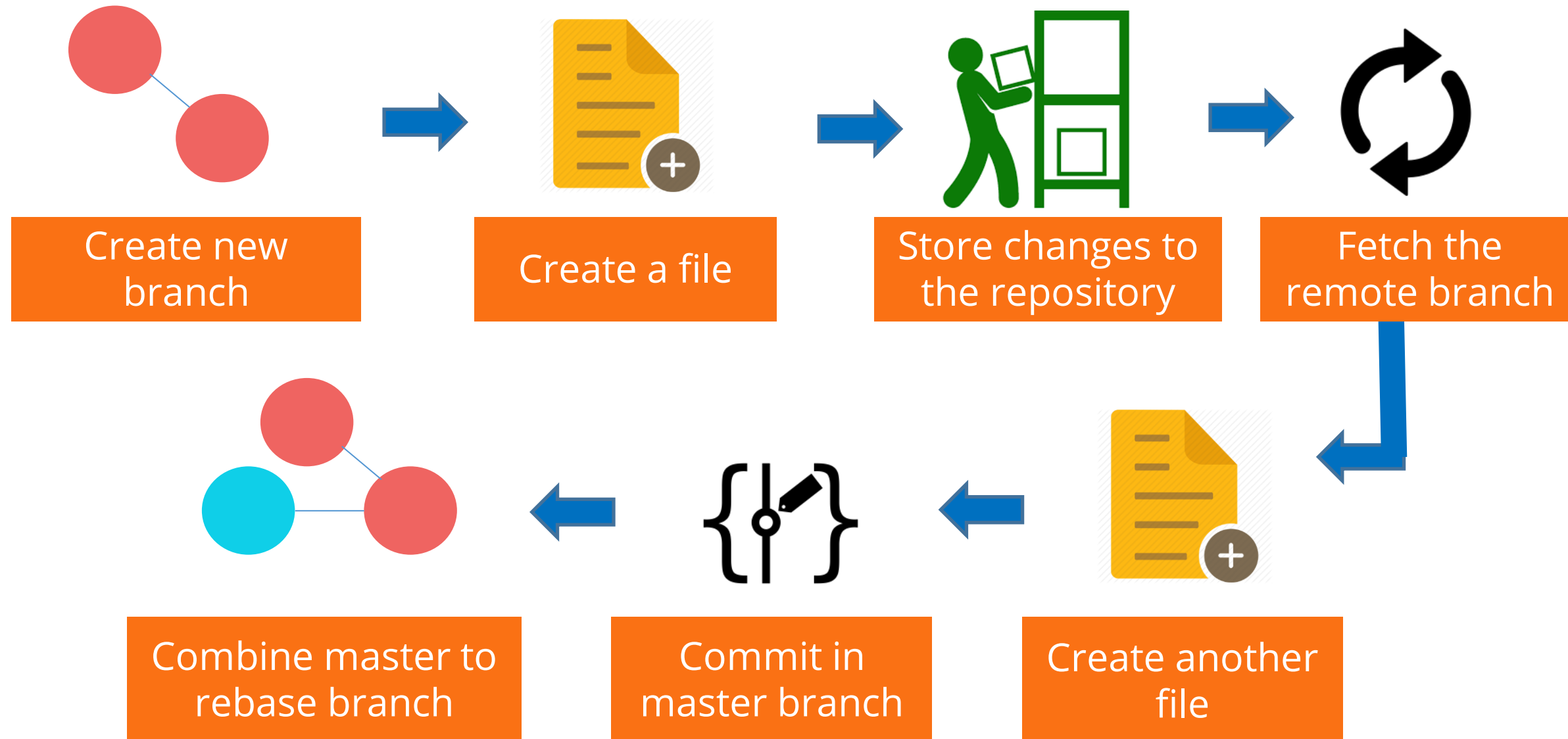Check the project directory

Using web interface

Click on the **+** button

Enter the details

View file

Rebase Operation

Rebase is a way of merging master to your branch with long running branches.

Create new branch

Create a file

Store changes to the repository

Fetch the remote branch

Combine master to rebase branch

Commit in master branch

Create another file

Squashing Commits

Squashing is a way of combining all commits into one during a merge request.

$ git rebase -i

Check the new branch

Create a file

Squash two commits into one commit

Push the branch

Change the word to squash
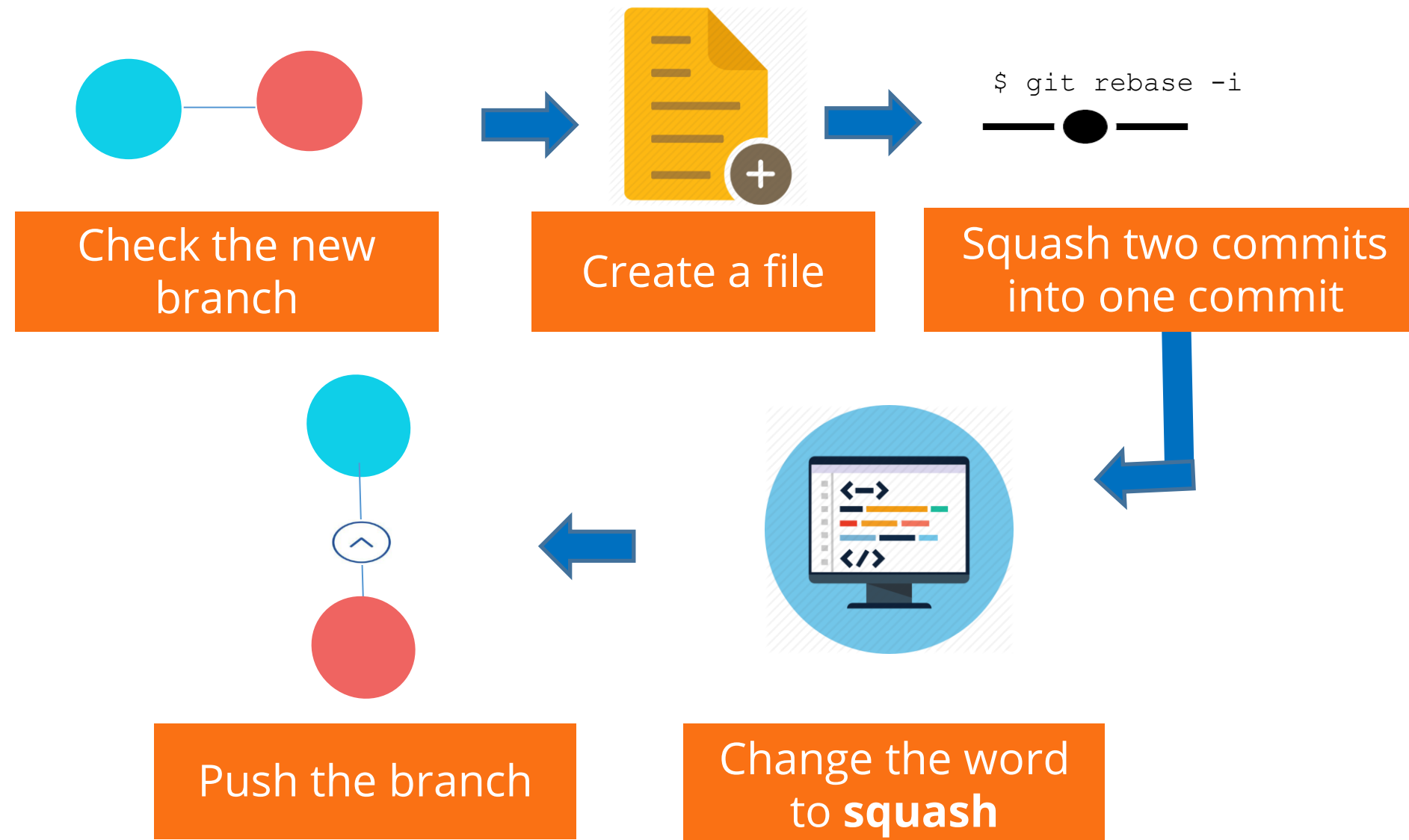
Overview of GitLab Users and Groups

Users and Groups

GitLab provides the following features:

Add Users:
Adding users to the project

Create Groups:
Creating groups to connect multiple repositories

Remove Users:
Removing users from a project
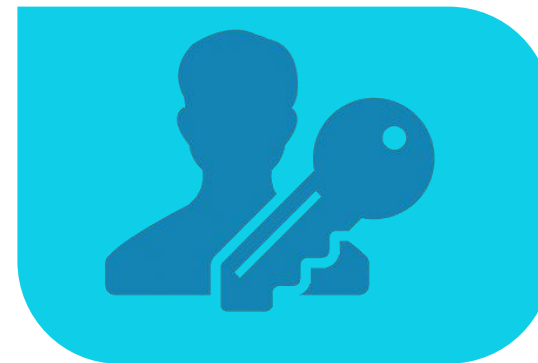
Adding User Permissions:
Adding permissions in the project

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Overview of GitLab Issue Tracker

Issue Tracker

GitLab issues are the fundamental medium for collaborating on ideas and planning work.

Create Issue:
Create an issue in a project

Merge Request:
Interchange the codes

Referencing Issue:
Resolve the specific issue from the commit message

Milestone:
Arrange and merge issues into groups

Wiki Page:
Maintain documentation for a project
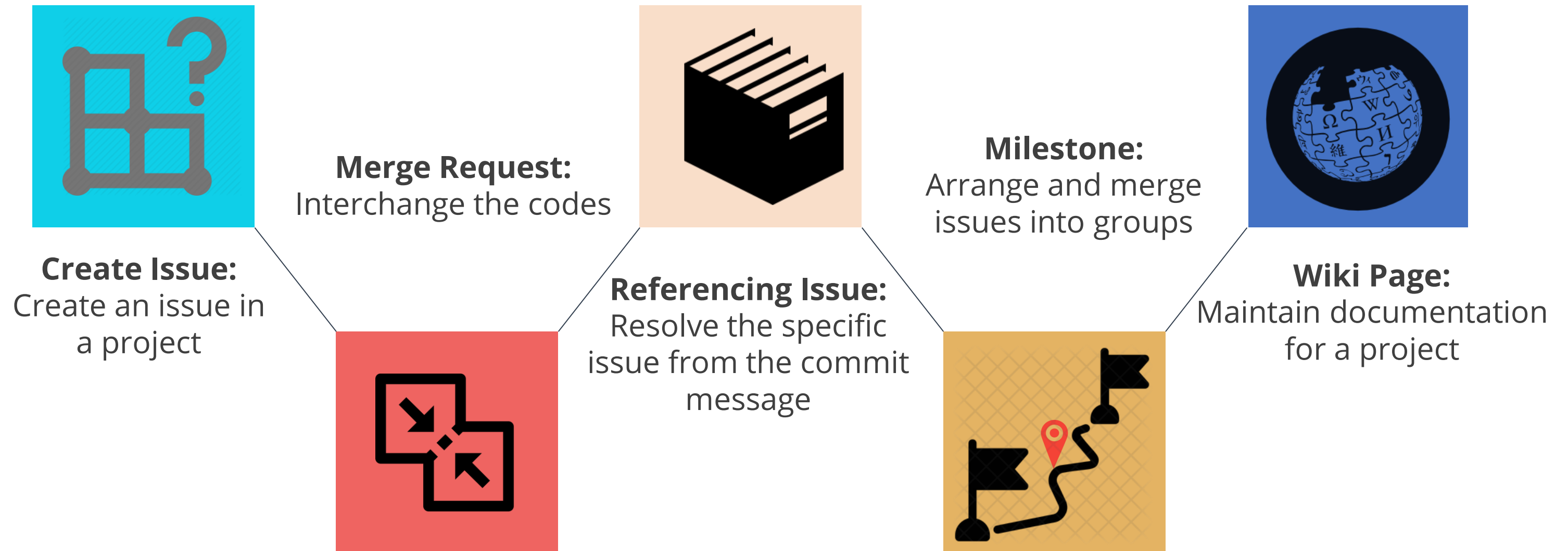
Key Takeaways

- Bitbucket is a web-based version control system.

- Bitbucket can create, copy, pull, and merge repo.

- Branching is one of the best ways to get the most out of Git for version control.

- GitLab is great way to manage git repositories on a centralized server.

- GitLab can fork, rebase, and squash a project.