Placement Empowerment Program

Cloud Computing and DevOps Centre

60 Days of DevOps Challenge

Day 3: Git & GitHub - Basics, Branching, Merging, PRs

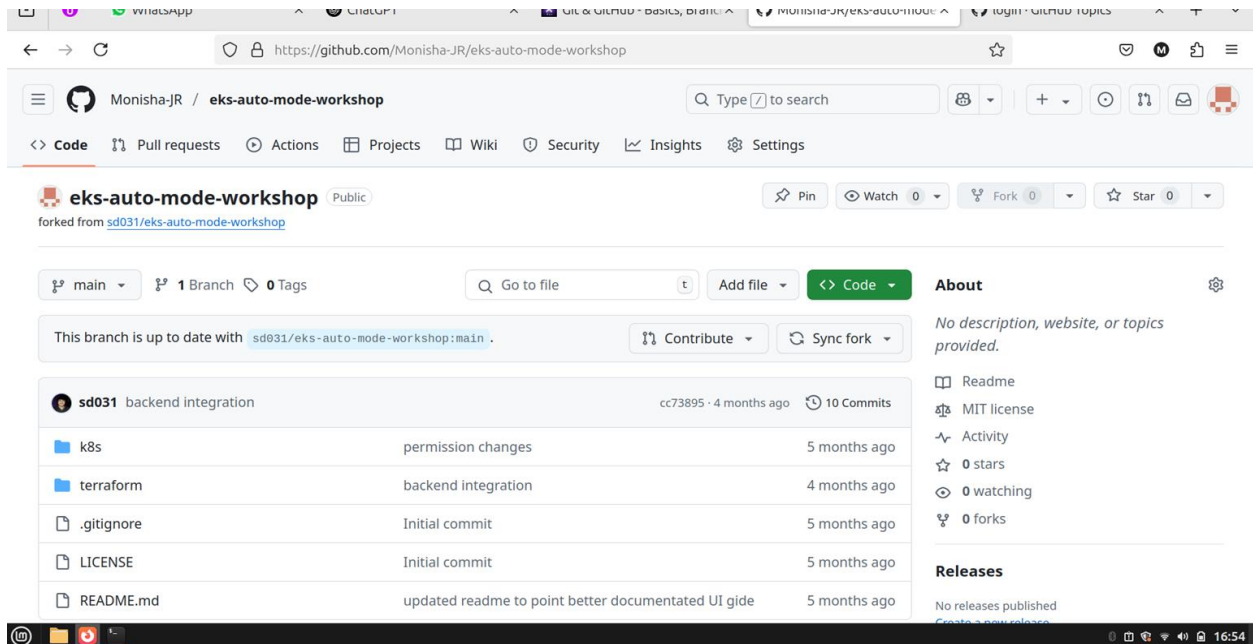*Name: MONISHA J R*   *Department: CSE*

This PoC will showcase **how to automatically provision and manage EKS (Elastic Kubernetes Service) clusters on AWS** using Infrastructure-as-Code and automation tools.
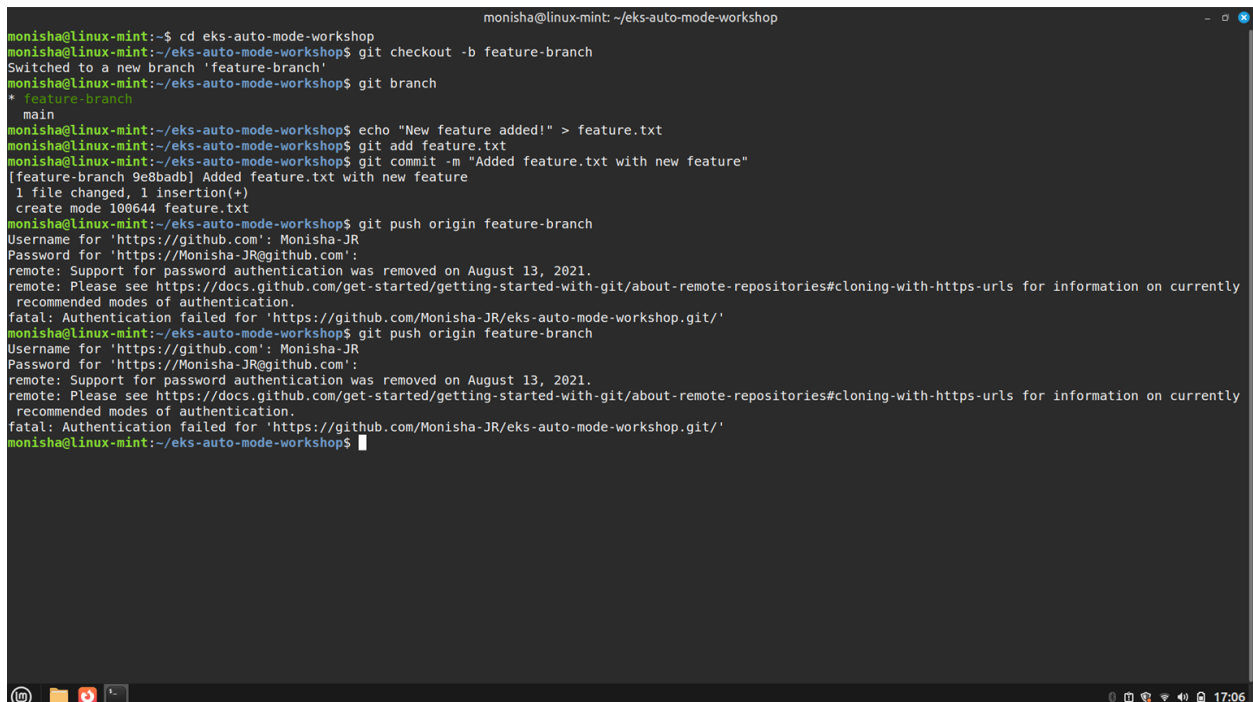
Challenge 1: Fork and clone an open-source project (Sample Project Link)

Challenge 2: Create a new branch (feature-branch), switch, and commit changes.

Challenge 3: Merge feature-branch into main and push the changes.

```
monisha@linux-mint:~/eks-auto-mode-workshop$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
monisha@linux-mint:~/eks-auto-mode-workshop$ git pull origin main
From https://github.com/Monisha-JR/eks-auto-mode-workshop
 * branch            main         -> FETCH_HEAD
Already up to date.
monisha@linux-mint:~/eks-auto-mode-workshop$ git merge feature-branch
Updating cc73895..9e8badb
Fast-forward
 feature.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 feature.txt
monisha@linux-mint:~/eks-auto-mode-workshop$ git push origin main
Username for 'https://github.com': Monisha-JR
Password for 'https://Monisha-JR@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently
 recommended modes of authentication.
fatal: Authentication failed for 'https://github.com/Monisha-JR/eks-auto-mode-workshop.git/'
monisha@linux-mint:~/eks-auto-mode-workshop$ git push origin --delete feature-branch
Username for 'https://github.com': Monisha-JR
Password for 'https://Monisha-JR@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently
 recommended modes of authentication.
fatal: Authentication failed for 'https://github.com/Monisha-JR/eks-auto-mode-workshop.git/'
monisha@linux-mint:~/eks-auto-mode-workshop$
```

Challenge 4: Use git reset or git revert to undo a commit.

```
monisha@linux-mint:~/eks-auto-mode-workshop$ git reset --hard HEAD~1
HEAD is now at 0292501 updated readme to point better documented UI gide
monisha@linux-mint:~/eks-auto-mode-workshop$ git reset --soft HEAD~1
monisha@linux-mint:~/eks-auto-mode-workshop$ git reset --soft HEAD~1
monisha@linux-mint:~/eks-auto-mode-workshop$ git log --oneline
13c75d6 (HEAD -> main) removed required provider version not needed
5c6503e updated read me
25cde1a updated codes
3926ccf disabing the rds output
cc19a6f initial commit
fc2c86c Initial commit
monisha@linux-mint:~/eks-auto-mode-workshop$
```

Challenge 5: Rebase feature-branch onto main and understand the difference.

```
monisha@linux-mint:~/eks-auto-mode-workshop$ git checkout feature-branch
Switched to branch 'feature-branch'
monisha@linux-mint:~/eks-auto-mode-workshop$ git rebase main
Current branch feature-branch is up to date.
monisha@linux-mint:~/eks-auto-mode-workshop$ git rebase --abort
fatal: No rebase in progress?
monisha@linux-mint:~/eks-auto-mode-workshop$ git add <file>
bash: syntax error near unexpected token `newline'
monisha@linux-mint:~/eks-auto-mode-workshop$ git rebase --continue
fatal: No rebase in progress?
monisha@linux-mint:~/eks-auto-mode-workshop$
```

Challenge 6: Create a PR on GitHub from a feature branch.

```
monisha@linux-mint:~/eks-auto-mode-workshop$ git push origin feature-branch
Username for 'https://github.com': Monisha-JR
Password for 'https://Monisha-JR@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently
recommended modes of authentication.
fatal: Authentication failed for 'https://github.com/Monisha-JR/eks-auto-mode-workshop.git/'
monisha@linux-mint:~/eks-auto-mode-workshop$
```

Challenge 7: Create conflicting changes in different branches and resolve them.

```
monisha@linux-mint:~/eks-auto-mode-workshop$ git init conflict-demo && cd conflict-demo
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/monisha/eks-auto-mode-workshop/conflict-demo/.git/
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ echo "Hello, DevOps!" > file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git add file.txt && git commit -m "Initial commit"
[master (root-commit) 11c4cab] Initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ echo "Feature branch change" > file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git add file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git commit -m "feature-branch edit"
[feature-branch b1b2751] feature-branch edit
 1 file changed, 1 insertion(+), 1 deletion(-)
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git checkout main
error: pathspec 'main' did not match any file(s) known to git
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ echo "Main branch change" > file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git add file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git commit -m "main branch edit"
[feature-branch 5344645] main branch edit
 1 file changed, 1 insertion(+), 1 deletion(-)
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git merge feature-branch
Already up to date.
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git add file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git commit -m "Resolved merge conflict"
On branch feature-branch
nothing to commit, working tree clean
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git push origin main
error: src refspec main does not match any
error: failed to push some refs to 'origin'
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$
```

Challenge 8 : git stash to save and restore uncommitted changes.

```
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ echo "Some temporary change" >> file.txt
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git status
On branch feature-branch
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   file.txt

no changes added to commit (use "git add" and/or "git commit -a")
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git stash
Saved working directory and index state WIP on feature-branch: 5344645 main branch edit
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git stash pop  # or git stash apply
On branch feature-branch
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   file.txt

no changes added to commit (use "git add" and/or "git commit -a")
Dropped refs/stash@{0} (e8be9b6bcd2cd206ced36b9a7ee703524c7ac3fd)
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git stash list
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git stash drop stash@{0}
error: stash@{0} is not a valid reference
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$ git stash clear
monisha@linux-mint:~/eks-auto-mode-workshop/conflict-demo$
```

Challenge 9 : Add version tags to commits and push them.

```
                              monisha@linux-mint: ~/eks-auto-mode-workshop                                    _ □ ✕
monisha@linux-mint:~/eks-auto-mode-workshop$ git tag v1.0.0
monisha@linux-mint:~/eks-auto-mode-workshop$ git tag -a v1.0.0 -m "Version 1.0.0 release"
fatal: tag 'v1.0.0' already exists
monisha@linux-mint:~/eks-auto-mode-workshop$ git push origin v1.0.0
Username for 'https://github.com': Monisha-JR
Password for 'https://Monisha-JR@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently
 recommended modes of authentication.
fatal: Authentication failed for 'https://github.com/Monisha-JR/eks-auto-mode-workshop.git/'
monisha@linux-mint:~/eks-auto-mode-workshop$ git push --tags
Username for 'https://github.com': Monisha-JR
Password for 'https://Monisha-JR@github.com':
remote: Support for password authentication was removed on August 13, 2021.
remote: Please see https://docs.github.com/get-started/getting-started-with-git/about-remote-repositories#cloning-with-https-urls for information on currently
 recommended modes of authentication.
fatal: Authentication failed for 'https://github.com/Monisha-JR/eks-auto-mode-workshop.git/'
monisha@linux-mint:~/eks-auto-mode-workshop$ git tag -d v1.0.0
Deleted tag 'v1.0.0' (was 9e8badb)
monisha@linux-mint:~/eks-auto-mode-workshop$
```

Challenge 10 : Use git commit --amend and git rebase -i to edit past commits.

```
                              monisha@linux-mint: ~/eks-auto-mode-workshop                                    _ □ ✕
monisha@linux-mint:~/eks-auto-mode-workshop$ echo "Edit line" >> file.txt
monisha@linux-mint:~/eks-auto-mode-workshop$ git add file.txt
monisha@linux-mint:~/eks-auto-mode-workshop$ git commit --amend -m "Updated last commit"
[feature-branch b73fe99] Updated last commit
 Date: Mon Jul 14 17:03:11 2025 +0530
 2 files changed, 2 insertions(+)
 create mode 100644 feature.txt
 create mode 100644 file.txt
monisha@linux-mint:~/eks-auto-mode-workshop$ git push --force
fatal: The current branch feature-branch has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin feature-branch

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.
monisha@linux-mint:~/eks-auto-mode-workshop$
```