Placement Empowerment Program

Cloud Computing and DevOps Centre

Create a new branch in your Git repository for testing .
Add a new feature and merge it

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Introduction:

In this Proof of Concept (POC), Git is utilized for version control to streamline the development process. Git enables developers to create separate branches for new features, keeping them isolated from the main branch. Once the new features are completed, they can be merged back into the main branch. This approach fosters organized, collaborative development and maintains a clean, stable codebase throughout the project's lifecycle.

Objectives:

1. To initialize and set up a Git repository.
2. To create and manage feature branches (e.g., testing-feature).
3. To demonstrate adding, committing, and merging code.
4. To showcase how to delete branches after their purpose is served.
5. To learn how to resolve merge conflicts if any arise during the process.

Importance:

1. **Version Control:** Helps track changes, revert to previous versions, and avoid conflicts in the codebase.

2. **Collaboration:** Different team members can work on separate features simultaneously without interfering with each other's work.

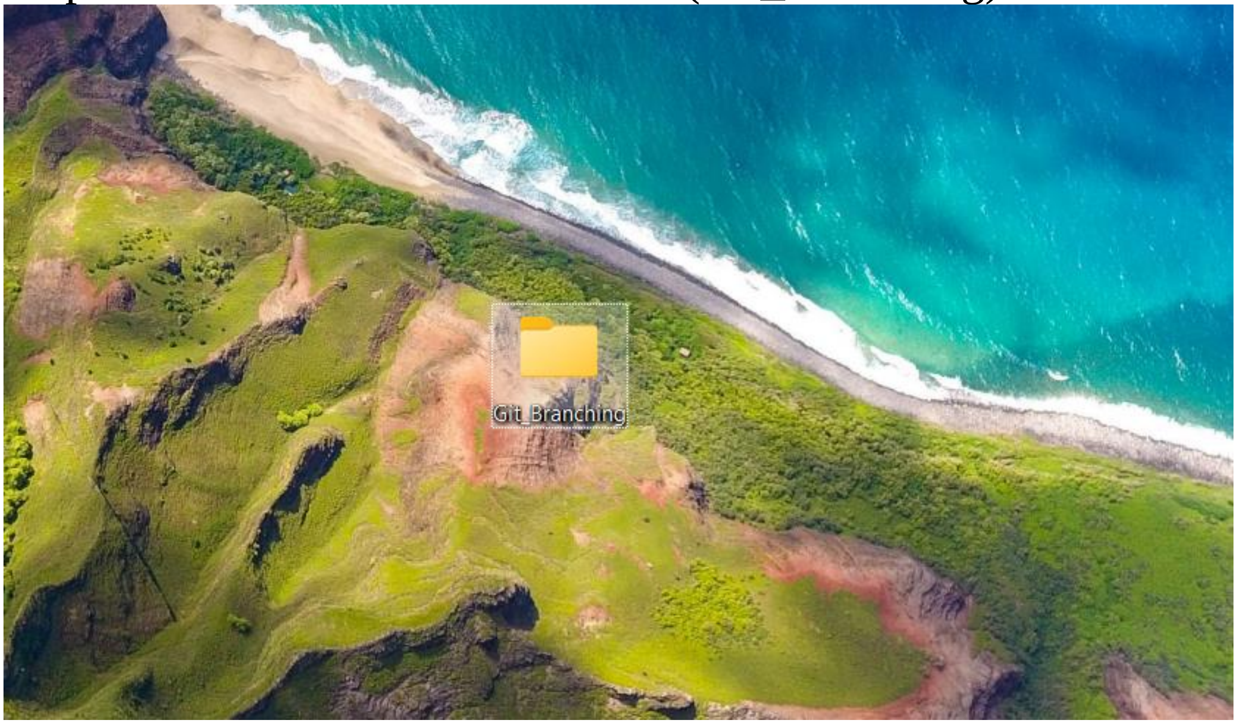
3. **Branching:** Isolates new features or bug fixes, ensuring stability in the main branch (master or main).

4. **Efficiency:** Merging branches allows rapid integration of new features without disrupting ongoing work.

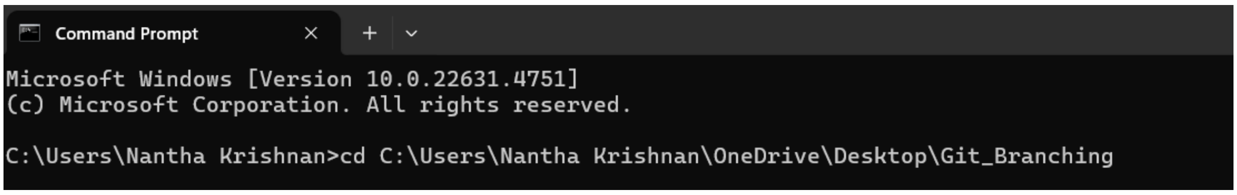
5. **Clean Workflow:** Deleting feature branches after merging keeps the repository clean and manageable.

Step-by-Step Overview

Step 1: Create a folder and name it (Git_Branching).

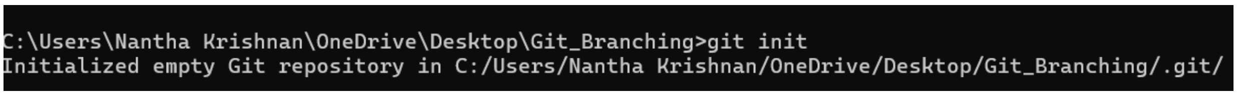


Step 2: Set the path to the folder created in first step (Git_Branching).



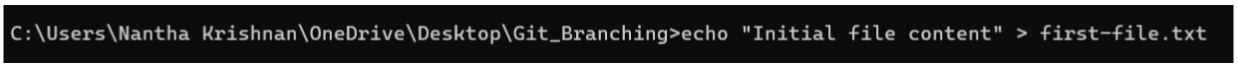
```
Microsoft Windows [Version 10.0.22631.4751]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Nantha Krishnan>cd C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching
```

Step 3: Initialize Git by typing this command: git init This command will create a .git folder inside your folder, which tells Git to start tracking your files.



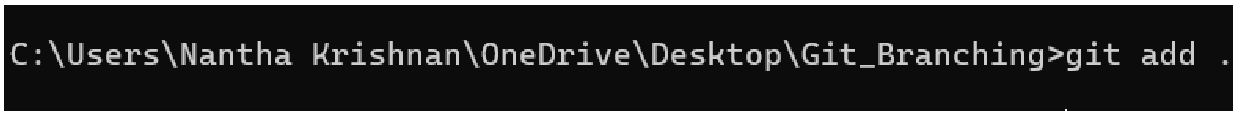
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git init
Initialized empty Git repository in C:/Users/Nantha Krishnan/OneDrive/Desktop/Git_Branching/.git/
```

Step 4: Create a simple file to start the repository.



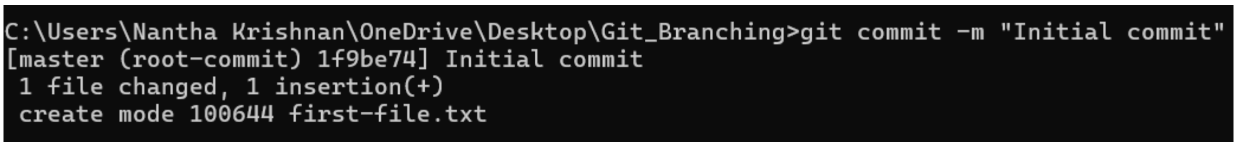
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>echo "Initial file content" > first-file.txt
```

Step 5: Add the File to Git Tell Git to track this file.



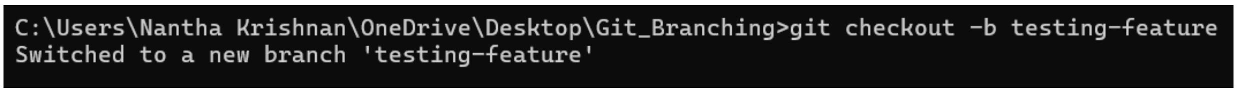
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git add .
```

Step 6: Save this change in Git with a commit message.



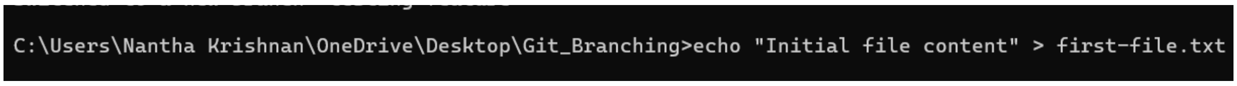
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git commit -m "Initial commit"
[master (root-commit) 1f9be74] Initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 first-file.txt
```

Step 7: Create and switch to a new branch called testing-feature.



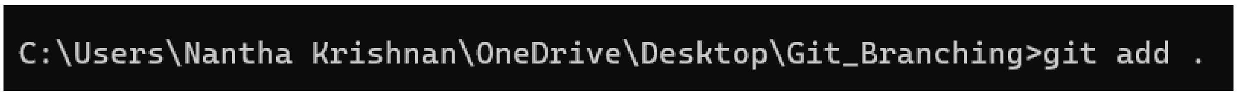
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git checkout -b testing-feature
Switched to a new branch 'testing-feature'
```

Step 8: Let’s add a new file for our feature.



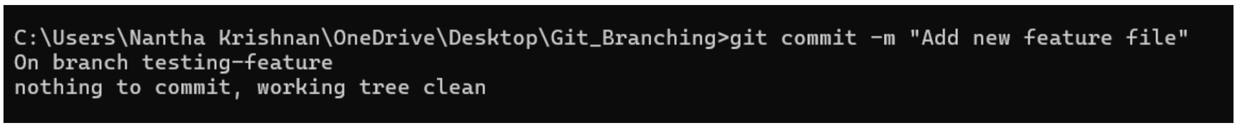
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>echo "Initial file content" > first-file.txt
```

Step 9: Now, stage the changes.



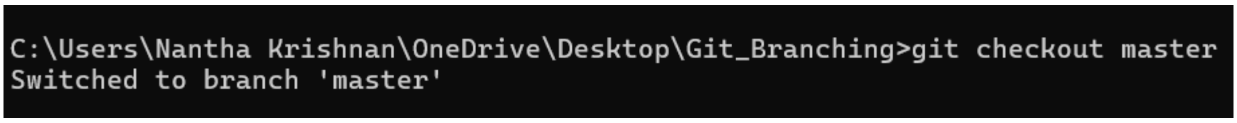
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git add .
```

Step 10: Commit the changes.



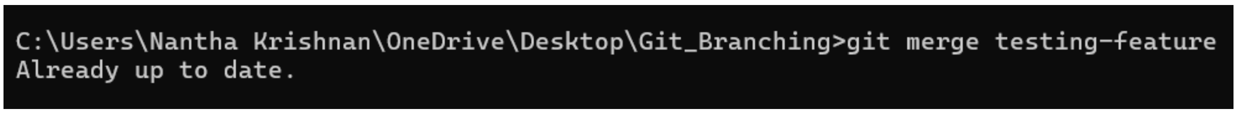
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git commit -m "Add new feature file"
On branch testing-feature
nothing to commit, working tree clean
```

Step 11: Switch to the master Branch.



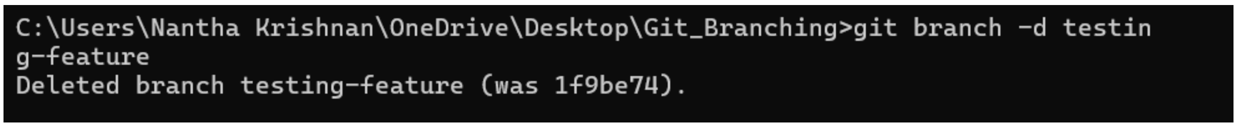
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git checkout master
Switched to branch 'master'
```

Step 12: Merge Changes from testing-feature to master.



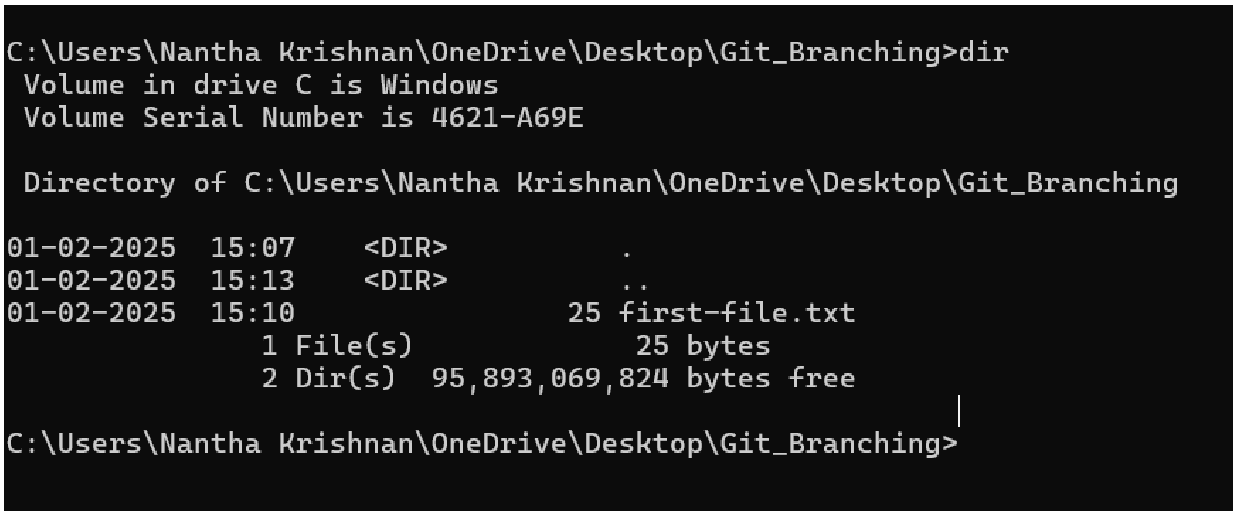
```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git merge testing-feature
Already up to date.
```

Step 13: Once the merge is done, you can delete the testing-feature branch.

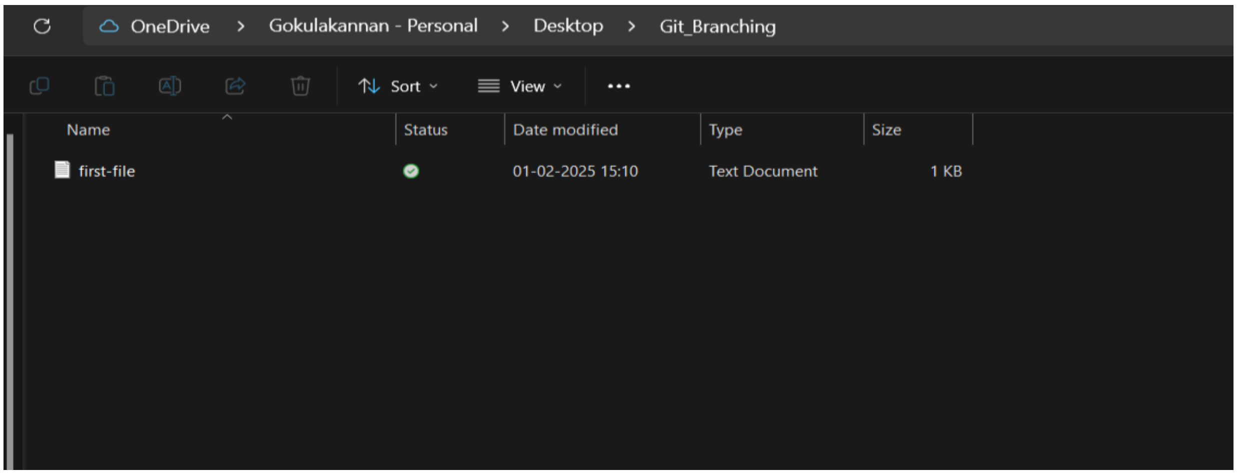


```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>git branch -d testin
g-feature
Deleted branch testing-feature (was 1f9be74).
```

Step 14: Now, check the files in the folder.



```
C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>dir
 Volume in drive C is Windows
 Volume Serial Number is 4621-A69E

 Directory of C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching

01-02-2025  15:07    <DIR>          .
01-02-2025  15:13    <DIR>          ..
01-02-2025  15:10                25 first-file.txt
               1 File(s)             25 bytes
               2 Dir(s)  95,893,069,824 bytes free

C:\Users\Nantha Krishnan\OneDrive\Desktop\Git_Branching>
```



OneDrive > Gokulakannan - Personal > Desktop > Git_Branching

Name	Status	Date modified	Type	Size
first-file	✓	01-02-2025 15:10	Text Document	1 KB

Outcome :

By completing this PoC of managing branches in Git for a local repository, you will:
1. Successfully initialize a Git repository in your local project folder.
 2. Create and manage multiple branches for feature development and experimentation.
3. Track and commit changes made to files in different branches.
 4. Merge feature branches back into the main branch while maintaining project integrity.
 5. Gain hands-on experience with key Git commands such as git init, git add, git commit, git checkout, and git merge.