

# Git Exercise

- Create a new repository with a template

```
PS C:\Users\Shakshi> git version
git version 2.47.1.windows.1
PS C:\Users\Shakshi> git config --global user.name "Shakshi Likhia"
PS C:\Users\Shakshi> git config --global user.email "shakshilikhia@gmail.com"
PS C:\Users\Shakshi> mkdir gittask

Directory: C:\Users\Shakshi

Mode                LastWriteTime         Length Name
----                -
d-----          12-01-2025     11:14         gittask

PS C:\Users\Shakshi> cd gittask
PS C:\Users\Shakshi\gittask> git init
Initialized empty Git repository in C:/Users/Shakshi/gittask/.git/
PS C:\Users\Shakshi\gittask> git clone https://github.com/ShakshiLikhia/gitexercise.git
Cloning into 'gitexercise'...
warning: You appear to have cloned an empty repository.
```

- Initialize git-flow

```
PS C:\Users\Shakshi\gittask> git flow init
No branches exist yet. Base branches must be created now.
Branch name for production releases: [master]
Branch name for "next release" development: [develop]

How to name your supporting branch prefixes?
Feature branches? [feature/]
Bugfix branches? [bugfix/]
Release branches? [release/]
Hotfix branches? [hotfix/]
Support branches? [support/]
Version tag prefix? []
Hooks and filters directory? [C:/Users/Shakshi/gittask/.git/hooks]
```

- Create a feature branch for project setup with the proper Zoho task ID (example: TP2-T1299\_Project\_Setup)
- Create a sub-branch from the project setup branch and perform squash, reset, rebase and cherry-pick .

```

PS C:\Users\Shakshi\gittask> git flow feature start TE-T147_task
Switched to a new branch 'feature/TE-T147_task'

Summary of actions:
- A new branch 'feature/TE-T147_task' was created, based on 'develop'
- You are now on branch 'feature/TE-T147_task'

Now, start committing on your feature. When done, use:

    git flow feature finish TE-T147_task

PS C:\Users\Shakshi\gittask> git branch
  develop
* feature/TE-T147_task
  master
PS C:\Users\Shakshi\gittask> git checkout -b sub_branch
Switched to a new branch 'sub_branch'
PS C:\Users\Shakshi\gittask> git branch
  develop
  feature/TE-T147_task
  master
* sub_branch
PS C:\Users\Shakshi\gittask>

```

```

PS C:\Users\Shakshi\gittask> git push -u origin feature/TE-T147_task
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'feature/TE-T147_task' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/feature/TE-T147_task
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new branch]      feature/TE-T147_task -> feature/TE-T147_task
branch 'feature/TE-T147_task' set up to track 'origin/feature/TE-T147_task'.

```

```

PS C:\Users\Shakshi\gittask> git push -u origin sub_branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'sub_branch' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/sub_branch
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new branch]      sub_branch -> sub_branch
branch 'sub_branch' set up to track 'origin/sub_branch'.

```

Practice the below mentioned scenario and decide which one to use from rebase, cherry-pick, reset, or squash and how,

1. Create a branch from the develop

```

PS C:\Users\Shakshi\gittask> git checkout develop
Switched to branch 'develop'
PS C:\Users\Shakshi\gittask> git checkout -b Shakshi_GitTask
Switched to a new branch 'Shakshi_GitTask'

```

```
PS C:\Users\Shakshi\gittask> git push -u origin Shakshi_GitTask
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'Shakshi_GitTask' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/Shakshi_GitTask
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new branch]      Shakshi_GitTask -> Shakshi_GitTask
branch 'Shakshi_GitTask' set up to track 'origin/Shakshi_GitTask'.
```

2. Add a commit message hook to the repo

```
PS C:\Users\Shakshi\gittask\.git> New-Item -Path hooks/commit-msg -ItemType File

Directory: C:\Users\Shakshi\gittask\.git\hooks

Mode                LastWriteTime         Length Name
----                -
-a-----         12-01-2025      11:38             0 commit-msg

PS C:\Users\Shakshi\gittask\.git> code hooks/commit-msg
```

```

Welcome  $ commit-msg X
C: > Users > Shakshi > gittask > .git > hooks > $ commit-msg
1  #!/bin/bash
2  commit_msg_file=$1
3  commit_msg=$(cat "$commit_msg_file")
4
5  # Regex to validate commit message format
6  if ! [[ "$commit_msg" =~ ^TP2-[A-Za-z0-9]+ ]]; then
7      echo "Error: Commit message must start with a valid Zoho task ID (e.g., TP2-T1299_Project_Setup)."
8      exit 1
9  fi
10
```

```
PS C:\Users\Shakshi\gittask> echo "Feature 1" >> feature.txt
PS C:\Users\Shakshi\gittask> git add feature.txt
PS C:\Users\Shakshi\gittask> git commit -m "T147: Feature 1"
Error: Commit message must start with a valid Zoho task ID (e.g., TP2-T1299_Project_Setup).
```

3. Perform multiple commits in the new branch
4. Create PR to develop.

```

PS C:\Users\Shakshi\gittask> git checkout -b new_branch
fatal: a branch named 'new_branch' already exists
PS C:\Users\Shakshi\gittask> echo "Feature 1" >> feature.txt
PS C:\Users\Shakshi\gittask> git add feature.txt
PS C:\Users\Shakshi\gittask> git commit -m "T147: Feature 1"
[new_branch bfeed19] T147: Feature 1
1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\Shakshi\gittask> echo "Feature 2" >> feature.txt
PS C:\Users\Shakshi\gittask> git add feature.txt
PS C:\Users\Shakshi\gittask> git commit -m "T147: Feature 2"
[new_branch 158afa7] T147: Feature 2
1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\Shakshi\gittask> git push origin new_branch
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (9/9), 775 bytes | 77.00 KiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'new_branch' on GitHub by visiting:
remote:      https://github.com/ShakshiLikhia/gitexercise/pull/new/new_branch
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new branch]      new_branch -> new_branch

```

5. PR should be small in size, It's recommended to do one commit per PR. However, based on the situation we can have multiple commits in PR. e.g. if someone is doing 10 bug fixes which are one-liner fixes in such cases instead of 10 different PRs you can do 10 commits in a single PR.

```

PS C:\Users\Shakshi\gittask> echo "First change" > file1.txt
PS C:\Users\Shakshi\gittask> git add file1.txt
PS C:\Users\Shakshi\gittask> git commit -m "First commit"
# f, fixup [-C | -c] <commit> = like "squash" but keep only the previous
[detached HEAD 079b836] First commit
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file1.txt
PS C:\Users\Shakshi\gittask> echo "Second change" > file2.txt
PS C:\Users\Shakshi\gittask> git add file2.txt
PS C:\Users\Shakshi\gittask> git commit -m "Second commit"
[detached HEAD 4ded9ec] Second commit
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file2.txt

```

```

PS C:\Users\Shakshi\gittask> git rebase -i HEAD~2
fatal: It seems that there is already a rebase-merge directory, and
I wonder if you are in the middle of another rebase. If that is the
case, please try
    git rebase (--continue | --abort | --skip)
If that is not the case, please
    rm -fr ".git/rebase-merge"
and run me again. I am stopping in case you still have something
valuable there.

PS C:\Users\Shakshi\gittask> git rebase --continue
error: invalid command 'squash'
error: invalid line 2: squash 97e0f19 Second commit
error: please fix this using 'git rebase --edit-todo'.
PS C:\Users\Shakshi\gittask> git rebase --edit-todo
error: invalid command 'squash'
error: invalid line 2: squash 97e0f19 Second commit
PS C:\Users\Shakshi\gittask> git log --oneline
4ded9ec (HEAD) Second commit
079b836 First commit
0a2f3e7 (origin/another_branch, another_branch) T147: New Feature
aa47022 (origin/sub_branch, origin/feature/TE-T147_task, origin/Shakshi_GitTask, sub_branch, main, feature/TE-T147_task,
develop, Shakshi_GitTask) Initial commit

```

6. Create another branch from develop given your previous PR is still in review state
7. Now commit something in your current branch and push it
8. In the meantime, your previous PR has been merged to develop

```
PS C:\Users\Shakshi\gittask> git checkout develop
Switched to branch 'develop'
PS C:\Users\Shakshi\gittask> git checkout -b another_branch
>>
Switched to a new branch 'another_branch'
PS C:\Users\Shakshi\gittask> echo "New Feature" >> new_feature.txt
PS C:\Users\Shakshi\gittask> git add new_feature.txt
PS C:\Users\Shakshi\gittask> git commit -m "T147: New Feature"
[another_branch 0a2f3e7] T147: New Feature
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 new_feature.txt
PS C:\Users\Shakshi\gittask> git push origin another_branch
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Writing objects: 100% (3/3), 288 bytes | 96.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'another_branch' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/another_branch
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new branch]      another_branch -> another_branch
```

9. Create a PR for the current branch given your branch should be up to date with develop branch

```
PS C:\Users\Shakshi\gittask> git fetch origin
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (1/1), 907 bytes | 64.00 KiB/s, done.
From https://github.com/ShakshiLikhia/gitexercise
 aa47022..509f337  main      -> origin/main
```

```
PS C:\Users\Shakshi\gittask> git rebase develop
Current branch another_branch is up to date.
```

10. For any new build release add a version tag to that specific commit to keep track of each version.

```
PS C:\Users\Shakshi\gittask> git tag -a v1.0.0 -m "Release version 1.0.0"
PS C:\Users\Shakshi\gittask> git push origin v1.0.0
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (7/7), 694 bytes | 57.00 KiB/s, done.
Total 7 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/ShakshiLikhia/gitexercise.git
 * [new tag]         v1.0.0 -> v1.0.0
```

Tags

v1.0.0

now 4ded9ec zip tar.gz

11. Create 2 another branch (3rd and 4th) from develop, push read me changes to 3rd branch.

```
PS C:\Users\Shakshi\gittask> git checkout develop
Previous HEAD position was 4ded9ec Second commit
Switched to branch 'develop'
PS C:\Users\Shakshi\gittask> git checkout -b 3rd_branch
Switched to a new branch '3rd_branch'
PS C:\Users\Shakshi\gittask> git checkout develop
Switched to branch 'develop'
PS C:\Users\Shakshi\gittask> git checkout -b 4th_branch
Switched to a new branch '4th_branch'
PS C:\Users\Shakshi\gittask> git push origin 3rd_branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for '3rd_branch' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/3rd_branch
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
* [new branch]      3rd_branch -> 3rd_branch
PS C:\Users\Shakshi\gittask> git push origin 4th_branch
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for '4th_branch' on GitHub by visiting:
remote:   https://github.com/ShakshiLikhia/gitexercise/pull/new/4th_branch
remote:
To https://github.com/ShakshiLikhia/gitexercise.git
* [new branch]      4th_branch -> 4th_branch
```

```
PS C:\Users\Shakshi\gittask> git add README.md
PS C:\Users\Shakshi\gittask> git commit -m "Update README in 3rd branch"
[4th_branch 69fef83] Update README in 3rd branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 README.md
PS C:\Users\Shakshi\gittask> git push origin 3rd_branch
Everything up-to-date
```

12. Cherry pick 3rd branch's commit to 4th branch.

```
PS C:\Users\Shakshi\gittask> git checkout 4th_branch
Switched to branch '4th_branch'
PS C:\Users\Shakshi\gittask> git log 3rd_branch
commit c5ad13ed681892fc9b3576d864126335dbbc12dc (3rd_branch)
Author: Shakshi Likhia <shakshilikhia@gmail.com>
Date: Mon Jan 13 01:10:49 2025 +0530

    Update README in 3rd branch

commit aa470222f2c146913e8ac0d099d254af2f7f174a (origin/sub_branch, origin/feature/TE-T147_task, origin/Shakshi_GitTask, origin/4th_branch, origin/3rd_branch, sub_branch, main, feature/TE-T147_task, develop, Shakshi_GitTask)
Author: Shakshi Likhia <shakshilikhia@gmail.com>
Date: Sun Jan 12 11:16:03 2025 +0530

    Initial commit
PS C:\Users\Shakshi\gittask> git cherry-pick commit c5ad13ed681892fc9b3576d864126335dbbc12dc
```

```
PS C:\Users\Shakshi\gittask> git push origin 4th_branch
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Writing objects: 100% (3/3), 292 bytes | 97.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/ShakshiLikhia/gitexercise.git
aa47022..69fef83 4th_branch -> 4th_branch
```

13. Change commit message in 4th branch

```
PS C:\Users\Shakshi\gittask> git commit --amend
[4th_branch c2864f9] Update README in 3rd branch Shakshi
Date: Mon Jan 13 00:52:28 2025 +0530
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 README.md
```

14. Add 3 commit to 4th branch and delete last commit.

```
PS C:\Users\Shakshi\gittask> echo "First change" >> file1.txt
PS C:\Users\Shakshi\gittask> git add file1.txt
PS C:\Users\Shakshi\gittask> git commit -m "First commit in 4th branch"
[4th_branch ca8bbd2] First commit in 4th branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file1.txt
PS C:\Users\Shakshi\gittask> echo "Second change" >> file2.txt
PS C:\Users\Shakshi\gittask> git add file2.txt
PS C:\Users\Shakshi\gittask> git commit -m "Second commit in 4th branch"
[4th_branch 25ed320] Second commit in 4th branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file2.txt
PS C:\Users\Shakshi\gittask> echo "Third change" >> file3.txt
PS C:\Users\Shakshi\gittask> git add file3.txt
PS C:\Users\Shakshi\gittask> git commit -m "Third commit in 4th branch"
[4th_branch 0097b6d] Third commit in 4th branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file3.txt
PS C:\Users\Shakshi\gittask> git reset --hard HEAD~1
HEAD is now at 25ed320 Second commit in 4th branch
PS C:\Users\Shakshi\gittask> git log --oneline
25ed320 (HEAD -> 4th_branch) Second commit in 4th branch
ca8bbd2 First commit in 4th branch
c2864f9 Update README in 3rd branch Shakshi
aa47022 (origin/sub_branch, origin/feature/TE-T147_task, origin/Shakshi_GitTask, origin/3rd_branch, sub_branch, main, feature/TE-T147_task, develop, Shakshi_GitTask) Initial commit
```