

Topic: Advanced software development techniques

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Exercises: No7 Git

1. Create a new remote repository.
2. Push all commits from Exercise 6a/6b to the remote repository.

```
MINGW64:/c/Users/Pongoe/git_reset_test
Pongoe@Pongoe MINGW64 ~
$ cd ~/git_reset_test

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ gh repo create exercise7_git_reset_test --private --confirm
Flag --confirm has been deprecated, Pass any argument to skip confirmation prompt
✓ Created repository ndavembinga/exercise7_git_reset_test on github.com
https://github.com/ndavembinga/exercise7_git_reset_test

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git remote -v
origin https://github.com/ndavembinga/git_reset_test.git (fetch)
origin https://github.com/ndavembinga/git_reset_test.git (push)

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git push -u origin main --force
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 388 bytes | 194.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/ndavembinga/git_reset_test.git
+ 7645a29...eaacb68 main -> main (forced update)
branch 'main' set up to track 'origin/main'.

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$
```

3. Play with the git remote, git fetch, git push, git pull, git branch

```
MINGW64:/c/Users/Pongoe/git_reset_test
$ git push -u origin main --force
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 388 bytes | 194.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/ndavembinga/git_reset_test.git
+ 7645a29...eaacb68 main -> main (forced update)
branch 'main' set up to track 'origin/main'.

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git remote -v
origin https://github.com/ndavembinga/git_reset_test.git (fetch)
origin https://github.com/ndavembinga/git_reset_test.git (push)

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git fetch origin

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git pull origin main
From https://github.com/ndavembinga/git_reset_test
* branch      main      -> FETCH_HEAD
Already up to date.

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git branch
* main
```

4. Execute fast-forward merge.

```
MINGW64/c/Users/Pongoe/git_reset_test
* main

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git checkout -b fast_forward_branch
Switched to a new branch 'fast_forward_branch'

Pongoe@Pongoe MINGW64 ~/git_reset_test (fast_forward_branch)
$ echo "fast forward line" >> reset_lifecycle_file
git add reset_lifecycle_file
git commit -m "Fast forward commit"
warning: in the working copy of 'reset_lifecycle_file', LF will be replaced by CRLF the next time Git touches it
[fast_forward_branch caa4e8c] Fast forward commit
1 file changed, 1 insertion(+)

Pongoe@Pongoe MINGW64 ~/git_reset_test (fast_forward_branch)
$ git add reset_lifecycle_file

Pongoe@Pongoe MINGW64 ~/git_reset_test (fast_forward_branch)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git merge fast_forward_branch
Updating eaacb68..caa4e8c
Fast-forward
 reset_lifecycle_file | 1 +
1 file changed, 1 insertion(+)
```

5. Execute a 3-way merge.

```
MINGW64/c/Users/Pongoe/git_reset_test

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git checkout -b three_way_branch
Switched to a new branch 'three_way_branch'

Pongoe@Pongoe MINGW64 ~/git_reset_test (three_way_branch)
$ echo "line from three-way branch" >> reset_lifecycle_file
git add reset_lifecycle_file
git commit -m "Three-way branch change"
warning: in the working copy of 'reset_lifecycle_file', LF will be replaced by CRLF the next time Git touches it
[three_way_branch 37b485c] Three-way branch change
1 file changed, 1 insertion(+)

Pongoe@Pongoe MINGW64 ~/git_reset_test (three_way_branch)
$ git checkout main
echo "line from main branch" >> reset_lifecycle_file
git add reset_lifecycle_file
git commit -m "Main branch change"
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)
warning: in the working copy of 'reset_lifecycle_file', LF will be replaced by CRLF the next time Git touches it
[main f8e99d2] Main branch change
1 file changed, 1 insertion(+)

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git merge three_way_branch
```

6. Resolve conflict.

7. Add to the remote repository and to the Tasks in MS Teams a report showing results of the Exercise 7.

```
MINGW64:/c/Users/Pongoe/git_reset_test
Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git merge three_way_branch
Auto-merging reset_lifecycle_file
CONFLICT (content): Merge conflict in reset_lifecycle_file
Automatic merge failed; fix conflicts and then commit the result.

Pongoe@Pongoe MINGW64 ~/git_reset_test (main|MERGING)
$ git checkout --ours reset_lifecycle_file
git add reset_lifecycle_file
git commit -m "Resolve conflict by keeping MAIN version"
Updated 1 path from the index
[main c696b55] Resolve conflict by keeping MAIN version

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ git push --all
git push --tags
Enumerating objects: 12, done.
Counting objects: 100% (12/12), done.
Delta compression using up to 4 threads
Compressing objects: 100% (9/9), done.
Writing objects: 100% (10/10), 1012 bytes | 253.00 KiB/s, done.
Total 10 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 1 local object.
To https://github.com/ndavembinga/git_reset_test.git
   eaacb68..c696b55  main -> main
* [new branch]      fast_forward_branch -> fast_forward_branch
* [new branch]      three_way_branch -> three_way_branch
Everything up-to-date

Pongoe@Pongoe MINGW64 ~/git_reset_test (main)
$ |
```