

Lab Exercise 1- Working with Git Revert

Lab Exercise: Git Revert

This exercise will guide you through reverting changes in Git. The git revert command is used to create a new commit that undoes the changes introduced by a previous commit without modifying the history.

Objective

- Learn how to use git revert to undo changes from specific commits.
 - Practice handling merge conflicts during a revert.
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Prerequisites

1. Install Git on your system.
2. Set up a Git repository:

```
git init git-revert-lab
```

```
cd git-revert-lab
```

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories  
$ git init git-revert-lab && cd git-revert-lab  
Initialized empty Git repository in D:/Repositories/git-revert-lab/.git/
```

Steps

1. Set Up the Repository

1. Create a file:

```
echo "Line 1" > file.txt
```

2. Stage and commit the file:

```
git add file.txt
```

```
git commit -m "Initial commit: Add file.txt with Line 1"
```

3. Add more changes:

```
echo "Line 2" >> file.txt
```

```
git commit -am "Add Line 2 to file.txt"
```

4. Add another change:

```
echo "Line 3" >> file.txt
```

```
git commit -am "Add Line 3 to file.txt"
```

```
Pranav Akshit@Pranav-LQ0 MINGW64 /d/Repositories/git-revert-lab (main)
$ echo "Line 1" > file.txt

Pranav Akshit@Pranav-LQ0 MINGW64 /d/Repositories/git-revert-lab (main)
$ git add file.txt && git commit -m "Initial commit: Add file.txt with Line 1"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main (root-commit) f662065] Initial commit: Add file.txt with Line 1
1 file changed, 1 insertion(+)
create mode 100644 file.txt

Pranav Akshit@Pranav-LQ0 MINGW64 /d/Repositories/git-revert-lab (main)
$ echo "Line 2" >> file.txt && git commit -am "Add Line 2 to file.txt"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main 0bdce2c] Add Line 2 to file.txt
1 file changed, 1 insertion(+)

Pranav Akshit@Pranav-LQ0 MINGW64 /d/Repositories/git-revert-lab (main)
$ echo "Line 3" >> file.txt && git commit -am "Add Line 3 to file.txt"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main 7c4686e] Add Line 3 to file.txt
1 file changed, 1 insertion(+)
```

5. Verify the commit history:

```
git log --oneline
```

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ git log --oneline
7c4686e (HEAD -> main) Add Line 3 to file.txt
0bdce2c Add Line 2 to file.txt
f662065 Initial commit: Add file.txt with Line 1
```

2. Revert the Last Commit

1. Revert the most recent commit:

```
git revert HEAD
```

2. Git will open a text editor for the commit message. Save and close the editor to complete the revert.

3. Verify the contents of file.txt:

```
cat file.txt
```

Output:

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ git revert HEAD
[main e6afc49] Revert "Add Line 3 to file.txt"
 1 file changed, 1 deletion(-)

Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ cat file.txt
Line 1
Line 2
```

4. Check the commit history:

```
git log --oneline
```

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ git log --oneline
e6afc49 (HEAD -> main) Revert "Add Line 3 to file.txt"
7c4686e Add Line 3 to file.txt
0bdce2c Add Line 2 to file.txt
f662065 Initial commit: Add file.txt with Line 1
```

3. Handle Merge Conflicts During Revert

1. Modify file.txt:

```
echo "Conflict Line" >> file.txt
```

```
git commit -am "Add Conflict Line"
```

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ echo "Conflict Line" >> file.txt && git commit -am "Add Conflict Line"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main 0c8f4de] Add Conflict Line
1 file changed, 1 insertion(+)
```

2. Revert the second commit (8b2a1c1 again) to trigger a conflict:

```
git revert 8b2a1c1
```

3. Git will indicate a conflict. Resolve it:

- Open file.txt and remove conflict markers.
- Keep the desired lines.

4. Stage the resolved file:

```
git add file.txt
```

5. Complete the revert:

```
git revert --continue
```

```
Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$ git revert 0bdce2c
Auto-merging file.txt
CONFLICT (content): Merge conflict in file.txt
error: could not revert 0bdce2c... Add Line 2 to file.txt
hint: After resolving the conflicts, mark them with
hint: "git add/rm <pathspec>", then run
hint: "git revert --continue".
hint: You can instead skip this commit with "git revert --skip".
hint: To abort and get back to the state before "git revert",
hint: run "git revert --abort".
hint: Disable this message with "git config set advice.mergeConflict false"

Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main|REVERTING)
$ git add file.txt

Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main|REVERTING)
$ git revert --continue
[main a5c4f63] Revert "Add Line 2 to file.txt"
 1 file changed, 3 insertions(+), 1 deletion(-)

Pranav Akshit@Pranav-LOQ MINGW64 /d/Repositories/git-revert-lab (main)
$
```