

Lab Exercise 3- Working with Git Rebase

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This exercise demonstrates the use of git rebase in a scenario where no conflicts occur.

Objective

1. Learn how to rebase branches when there are no conflicting changes.
 2. Understand the clean, linear history created by git rebase.
-

Prerequisites

```
git init git-rebase-lab
```

```
cd git-rebase-lab
```

```
PS C:\Users\Misha\git-revert-lab\git-reset-lab> git init git-rebase-lab
Initialized empty Git repository in C:/Users/Misha/git-revert-lab/git-reset-lab/git-rebase-lab/.git/
PS C:\Users\Misha\git-revert-lab\git-reset-lab> cd git-rebase-lab
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> |
```

Step-by-Step Instructions

1. Set Up the Repository

1. Create the main branch and make the initial commit:

```
echo "Line 1 from main branch" > file.txt
```

```
git add file.txt
```

```
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> echo "line1 from main branch" > file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git add file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git commit -m "initial commit add line1 from main branch"
[master (root-commit) c23c04b] initial commit add line1 from main branch
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 file.txt
```

2. Create a new branch feature-branch:

```
git checkout -b feature-branch
```

```
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git checkout -b feature-branch
Switched to a new branch 'feature-branch'
```

3. Add a new line to file.txt in feature-branch:

```
echo "Line 2 from feature branch" >> file.txt
```

```
git add file.txt
```

```
git commit -m "Add Line 2 from feature branch"
```

```

Switched to a new branch 'feature-branch'
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> echo "line2 from feature branch" >> file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git add file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git commit -m "add line 2 from feature branch"
[feature-branch 264eb1f] add line 2 from feature branch
1 file changed, 0 insertions(+), 0 deletions(-)

```

4. Switch back to the main branch and add another line:

git checkout main

echo "Line 3 from main branch" >> file.txt

git add file.txt

git commit -m "Add Line 3 from main branch"

```

PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git checkout main
Already on 'main'
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> echo "line3 from main branch" >> file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git add file.txt
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git commit -m "add line3 from main branch"
[main cfe9e00] add line3 from main branch
1 file changed, 0 insertions(+), 0 deletions(-)

```

2. Rebase feature-branch onto main

1. Switch to feature-branch:

git checkout feature-branch

```

1 file changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git checkout feature-branch
Switched to branch 'feature-branch'

```

2. Rebase feature-branch onto main:

```
git rebase main
```

```
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git rebase main  
Successfully rebased and updated refs/heads/feature-branch.
```

3. Git will replay the commit from feature-branch onto the main branch. Since there are no conflicts, the rebase completes automatically.

3. Verify the Rebase

1. View the commit history:

```
git log --oneline
```

```
git log --oneline --graph
```

```
Successfully rebased and updated refs/heads/feature-branch.  
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git log --oneline  
cfe9e00 (HEAD -> feature-branch, main) add line3 from main branch  
264eb1f add line 2 from feature branch  
c23c04b (master) initial commit add line1 from main branch  
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> git log --oneline --graph  
* cfe9e00 (HEAD -> feature-branch, main) add line3 from main branch  
* 264eb1f add line 2 from feature branch  
* c23c04b (master) initial commit add line1 from main branch
```

2. Check the contents of file.txt:

```
cat file.txt
```

```
PS C:\Users\Misha\git-revert-lab\git-reset-lab\git-rebase-lab> cat file.txt  
line1 from main branch  
line2 from feature branch  
line3 from main branch
```