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Batch – B2 DevOps

Lab Exercise 3- Working with Git Rebase

Lab Exercise: Git Rebase

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

1. Install Git on your system.

2. Initialize a Git repository:

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

```
cd 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
```

git commit -m "Initial commit: Add Line 1 from main branch"

2. Create a new branch feature-branch:

```
git checkout -b 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"
```

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"
```

```
MINGW64:/c/Users/namit/git-rebase-lab

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ git rebase main
fatal: invalid upstream 'main'

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ git log --oneline
git log --oneline --graph
1a67af9 (HEAD -> feature-branch) Add Line 3 from main branch
6a31076 Add Line 2 from feature branch
* 1a67af9 (HEAD -> feature-branch) Add Line 3 from main branch
* 6a31076 Add Line 2 from feature branch

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ cd ..

namit@ThinkPadE15 MINGW64 ~ (main)
$ rm -rf git-rebase-lab

namit@ThinkPadE15 MINGW64 ~ (main)
$ git init git-rebase-lab
cd git-rebase-lab
_____
Initialized empty Git repository in C:/Users/namit/git-rebase-lab/.git/
bash: _____: command not found

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (main)
$ echo "Line 1 from main branch" > file.txt
git add file.txt
git commit -m "Initial commit: Add Line 1 from main branch"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main (root-commit) d2a5be0] Initial commit: Add Line 1 from main branch
 1 file changed, 1 insertion(+)
 create mode 100644 file.txt

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (main)
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ echo "Line 2 from feature branch" >> file.txt
git add file.txt
git commit -m "Add Line 2 from feature branch"
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[feature-branch f2b4f33] Add Line 2 from feature branch
 1 file changed, 1 insertion(+)

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ git checkout main
echo "Line 3 from main branch" >> file.txt
git add file.txt
git commit -m "Add Line 3 from main branch"
Switched to branch 'main'
warning: in the working copy of 'file.txt', LF will be replaced by CRLF the next time Git touches it
[main a353d82] Add Line 3 from main branch
 1 file changed, 1 insertion(+)

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (main)
$
```

2. Rebase feature-branch onto main

1. Switch to feature-branch:

```
git checkout feature-branch
```

2. Rebase feature-branch onto main:

```
git rebase main
```

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

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3. Verify the Rebase

1. View the commit history:

```
git log --oneline

git log --oneline --graph
```

Output:

```
namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ git log --oneline
git log --oneline --graph
bcaf808 (HEAD -> feature-branch) Add Line 2 from feature branch
a353d82 (main) Add Line 3 from main branch
d2a5be0 Initial commit: Add Line 1 from main branch
* bcaf808 (HEAD -> feature-branch) Add Line 2 from feature branch
* a353d82 (main) Add Line 3 from main branch
* d2a5be0 Initial commit: Add Line 1 from main branch

namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$
```

2. Check the contents of file.txt:

```
cat file.txt
```

Output:

```
namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$ cat file.txt
Line 1 from main branch
Line 3 from main branch
Line 2 from feature branch


namit@ThinkPadE15 MINGW64 ~/git-rebase-lab (feature-branch)
$
```