

# Git Hands-On Activity

## Learning Objectives

By the end of this activity, students will:

- Track files with Git
  - Understand staging and commits
  - Create and switch branches
  - Merge branches
  - Resolve merge conflicts
- 

### Step 0: Clone the Repository

```
git clone <your-github-classroom-repo-url>
cd <repo-name>
```

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### Step 1: Check Repository Status

```
git status
```

Expected:

```
On branch main
nothing to commit, working tree clean
```

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### Step 2: Create a New File

Create a file named `notes.txt`:

```
touch notes.txt
```

Add the following content:

```
This line was written first.
```

---

### Step 3: Check Status Again

```
git status
```

Expected:

```
Untracked files:
  notes.txt
```

---

#### **Step 4: Stage the File**

```
git add notes.txt
```

Check status:

```
git status
```

Expected:

```
Changes to be committed:  
  new file: notes.txt
```

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#### **Step 5: Commit the File**

```
git commit -m "Add notes.txt"
```

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#### **Step 6: Push to GitHub**

```
git push origin main
```

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#### **Step 7: Create and Switch to a New Branch**

```
git checkout -b feature/edit-notes
```

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#### **Step 8: Modify the SAME Line in the Branch**

Edit notes.txt:

This line is edited in the feature branch.

```
git add notes.txt  
git commit -m "Edit notes.txt in feature branch"
```

---

#### **Step 9: Switch Back to `main`**

```
git checkout main
```

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## **Step 10: Modify the SAME Line in main**

Edit notes.txt:

```
This line is edited in the main branch.
```

```
git add notes.txt  
git commit -m "Edit notes.txt in main branch"  
git push origin main
```

---

## **Step 11: Pull main into Feature Branch (Conflict Guaranteed )**

First, set pull behavior (run once):

```
git config pull.rebase false
```

Now pull:

```
git checkout feature/edit-notes  
git pull --no-rebase origin main
```

Expected:

```
CONFLICT (content): Merge conflict in notes.txt
```

---

## **Step 12: Inspect the Conflict**

Open notes.txt:

```
<<<<< HEAD  
This line is edited in the feature branch.  
=====  
This line is edited in the main branch.  
>>>>> main
```

---

## **Step 13: Resolve the Conflict**

Edit notes.txt to:

```
This line is resolved after a merge conflict.
```

Save the file.

```
git add notes.txt  
git commit -m "Resolve merge conflict"
```

---

## **Step 14: Merge Feature Branch into Main**

```
git checkout main  
git merge feature/edit-notes  
git push origin main
```

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## **Step 15: View Commit History**

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

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## **Commands Covered**

```
git clone git status git add git commit git push git checkout  
-b git pull --no-rebase git merge git log
```

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