

GIT Practice Sheet 3

Merge-Advanced Concepts

Instructions:

1. Repository Setup

1. Create a new GitHub repository named git-merge-practice.
2. Clone the repository to your local machine.

git clone <your-repository-url>

3. Navigate to the repository directory and create a README.md file with the content:
"This is the Git Merge Practice Repository!"

echo "This is the Git Merge Practice Repository!" > README.md

4. Stage and commit the file:

git add README.md

git commit -m "Initial commit: Added README.md"

2. Fast-Forward Merge

1. Create a new branch named feature-fast-forward.

git checkout -b feature-fast-forward

2. Add a file named hello.txt with the content: **"Hello from the fast-forward branch!"**

echo "Hello from the fast-forward branch!" > hello.txt

git add hello.txt

git commit -m "Added hello.txt to feature-fast-forward branch"

3. Switch back to the main branch and merge feature-fast-forward into main:

git checkout main

git merge feature-fast-forward

4. Verify that hello.txt is now part of the main branch.
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3. Non-Fast-Forward Merge

1. Create a new branch named feature-non-fast-forward:

git checkout -b feature-non-fast-forward

2. Add a file named info.txt with the content: "Information from the non-fast-forward branch."

```
echo "Information from the non-fast-forward branch." > info.txt
```

```
git add info.txt
```

```
git commit -m "Added info.txt to feature-non-fast-forward branch"
```

3. Switch back to the main branch and make a change to README.md by adding a new line:
"Updated README on the main branch!"

```
echo "Updated README on the main branch!" >> README.md
```

```
git add README.md
```

```
git commit -m "Updated README.md on main"
```

4. Merge feature-non-fast-forward into main (non-fast-forward merge):

```
git merge feature-non-fast-forward
```

4. Merge Conflict Resolution

1. Create a new branch named feature-conflict-branch:

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

2. Modify info.txt by adding a new line:
"This line is from feature-conflict-branch!"

```
echo "This line is from feature-conflict-branch!" >> info.txt
```

```
git add info.txt
```

```
git commit -m "Modified info.txt on feature-conflict-branch"
```

3. Switch to the main branch and modify info.txt by adding a different line:
"This line is from the main branch!"

```
echo "This line is from the main branch!" >> info.txt
```

```
git add info.txt
```

```
git commit -m "Modified info.txt on main"
```

4. Attempt to merge feature-conflict-branch into main:

```
git merge feature-conflict-branch
```

5. Resolve the merge conflict manually by editing info.txt to keep both changes: Information from the non-fast-forward branch.

```
This line is from feature-conflict-branch!
```

This line is from the main branch!

6. Stage the resolved file and commit the merge:

```
git add info.txt
```

```
git commit -m "Resolved merge conflict in info.txt"
```

5. Verify the Merged Branches

1. Check the commit history to verify all merges:

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

Deliverables:

1. Provide Screenshots or outputs of the following:
 - The successful fast-forward and non-fast-forward merges.
 - The merge conflict resolution process.
 - The final content of info.txt.
 - The git log --oneline --graph output showing the merge history.