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Subject : LOS (Git)   **Assignment - 2**

Assignment 2: Version Control with Git - Initialize a new Git repository, simulate making changes to a project by adding text files, and commit those changes. Create a new branch, make further changes in this branch, and merge it back to the main branch, resolving a simulated merge conflict.

Solution:

➢ Making a directory

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop
$ mkdir GitAssignment2

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop
$
```

➢ Changing director to GitAssignment2

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop
$ cd GitAssignment2

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2
$
```

➢ Initializing a new Git repository

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2
$ git init
Initialized empty Git repository in C:/Users/nirup/Desktop/GitAssignment2/.git/

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$
```

➢ Setting Git user name

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git config --global user.name "Nirupom Saha"

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Setting email address in Git

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git config --global user.email "nirupomsaha007@gmail.com"

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$
```

➢ Creating a new text file in the master branch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ echo "Hello, this is file 1" >> file1.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Checking the status of the repository

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file1.txt

nothing added to commit but untracked files present (use "git add" to track)

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Adding the file1.txt to Git's staging area

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git add file1.txt
warning: in the working copy of 'file1.txt', LF will be replaced by CRLF the next time Git touches it

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Committing the changes to the repository

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git commit -m "Added file1.txt with initial content"
[master (root-commit) 8c4e45c] Added file1.txt with initial content
 1 file changed, 1 insertion(+)
 create mode 100644 file1.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Creating and switching to a new branch named newbranch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git checkout -b newbranch
Switched to a new branch 'newbranch'

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$
```

➢ Making changes to file1.txt in the new branch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ echo "Adding more content in new branch" >> file1.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ |
```

➢ Creating a new file named file2.txt in the new branch

```
nirup@DESKTOP-OBQE6SK MINGW64 /f/GitAssignment2 (newbranch)
$ echo "This is file2 in the new branch" >> file2.txt

nirup@DESKTOP-OBQE6SK MINGW64 /f/GitAssignment2 (newbranch)
$
```

➢ Adding these changes to Git's staging area

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ git add file1.txt file2.txt
warning: in the working copy of 'file1.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'file2.txt', LF will be replaced by CRLF the next time Git touches it

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$
```

➢ Committing the changes

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ git commit -m "Added file2.txt and modified file1.txt in new branch"
[newbranch 5c04bd3] Added file2.txt and modified file1.txt in new branch
 2 files changed, 2 insertions(+)
 create mode 100644 file2.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ |
```

➢ Switching back to the master branch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (newbranch)
$ git checkout master
Switched to branch 'master'

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$
```

➢ Making conflicting changes in the main branch by modifying file1.txt in the master branch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ echo "This content is added to file1 on the main branch" >> file1.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Adding these changes to Git's staging area

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git add file1.txt
warning: in the working copy of 'file1.txt', LF will be replaced by CRLF the next time Git touches it

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Committing the changes

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git commit -m "Modified file1.txt on the main branch"
[master 074d750] Modified file1.txt on the main branch
 1 file changed, 1 insertion(+)

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Attempt to merging newbranch into the master branch

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git merge newbranch
Auto-merging file1.txt
CONFLICT (content): Merge conflict in file1.txt
Automatic merge failed; fix conflicts and then commit the result.

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master|MERGING)
$
```

This will result in a merge conflict because file1.txt was modified in both branches in different ways.

➢ Resolving the merge conflict by Opening file1.txt in a text editor and by removing the conflict markers and saving the file

file1 - Notepad

File   Edit   Format   View   Help

Hello, this is file 1
<<<<<<< HEAD
This content is added to file1 on the main branch
=======
Adding more content in feature branch
>>>>>>> newbranch

file1 - Notepad

File   Edit   Format   View   Help

Hello, this is file 1
This content is added to file1 on the main branch
Adding more content in new branch

➢ Adding the resolved file to the staging area of Git

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master|MERGING)
$ git add file1.txt

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master|MERGING)
$ |
```

➢ Completing the merge commit

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master|MERGING)
$ git commit -m "Resolved merge conflict between master and new branch"
[master 58dc580] Resolved merge conflict between master and new branch

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➢ Checking the status to ensure everything is merged properly

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git status
On branch master
nothing to commit, working tree clean

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

➤ Checking at the history of commits to see the merge

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git log
commit 58dc580b42462d4271999c83df99e796b0660c50 (HEAD -> master)
Merge: 074d750 5c04bd3
Author: Nirupom Saha <nirupomsaha007@gmail.com>
Date:   Thu Apr 3 03:13:06 2025 +0530

    Resolved merge conflict between master and new branch

commit 074d7508b42679c80bc5180ee235fb02ee00f630
Author: Nirupom Saha <nirupomsaha007@gmail.com>
Date:   Thu Apr 3 02:51:10 2025 +0530

    Modified file1.txt on the main branch

commit 5c04bd3bfd55c91bbcc974f5ede08223224c1096 (newbranch)
Author: Nirupom Saha <nirupomsaha007@gmail.com>
Date:   Thu Apr 3 02:46:17 2025 +0530

    Added file2.txt and modified file1.txt in new branch

commit 8c4e45c2b9f8a83359282e448d8a8d2c625a95b9
Author: Nirupom Saha <nirupomsaha007@gmail.com>
Date:   Thu Apr 3 02:41:02 2025 +0530

    Added file1.txt with initial content

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ |
```

```
nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$ git log --oneline
58dc580 (HEAD -> master) Resolved merge conflict between master and new branch
074d750 Modified file1.txt on the main branch
5c04bd3 (newbranch) Added file2.txt and modified file1.txt in new branch
8c4e45c Added file1.txt with initial content

nirup@DESKTOP-OBQE6SK MINGW64 ~/Desktop/GitAssignment2 (master)
$
```

And at this point the assignment 2 is completed .