PURBANCHAL UNIVERSITY

KHWOPA ENGINEERING COLLEGE

LIBALI-08, BHAKTAPUR
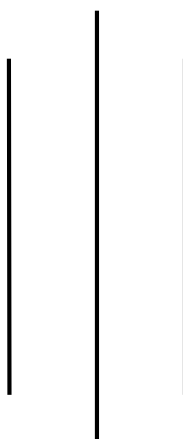
LAB REPORT ON: .NET

LAB NO: 01

SUBMITTED BY: **SUBMITTED TO:**

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Submission: 2081/12/10

Theory:

1. **Git:**

   Git is a distributed version control system used for tracking the changes in the source code during software development. It allows multiple developers to collaborate efficiently by managing different versions of projects. Git enables branching, merging and reverting changes, making code management easier. It is widely used in open-source and commercial projects. Popular platforms like GitHub, GitLab, and Bitbucket provide remote repositories for Git-based collaboration.

2. **GitHub**

   GitHub is a web-based platform for version control and collaboration using Git. It allows developers to store, manage, and share code repositories efficiently. GitHub supports features like branching, pull requests, issue tracking, and CI/CD integration. It is widely used for open-source and private projects, enabling seamless teamwork. GitHub also provides cloud-based hosting, making it accessible from anywhere.

Lab Works

First set the global username and email of the GitHub.

Create a folder and inside it files as per the user desire so that we can identify the changes inside the file using the version control (Git).

On creating the new files, initially the files are in the untracked stage so send the untracked files to the staging stage. To do so first initialize the directory and stage the files.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab
$ git init
Initialized empty Git repository in D:/code8thsem/dotnet-lab/.git/

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab (main)
$ git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        lab1/

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

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab (main)
$
```

Now commit the files such that the files are stored in the local repository.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git add .

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git commit -m "initial commit"
[main (root-commit) 451b314] initial commit
 3 files changed, 15 insertions(+)
 create mode 100644 lab1/add.js
 create mode 100644 lab1/combine.js
 create mode 100644 lab1/multiply.js

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$
```

Make certain changes inside the file to see the changes in the file status.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git status
On branch main
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   combine.js

no changes added to commit (use "git add" and/or "git commit -a")

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$
```

After changing the contents in the file **"combine.js"** add the file and commit it.

All these files are saved in the local repository. Now to add these files in the remote repository create the repository in the GitHub and copy the url of the repo and use the following code.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git remote add origin https://github.com/poudel-yubaraj/dotnet-lab.git
```

Now push the files in the repository created.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git push -u origin main
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 558 bytes | 139.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/poudel-yubaraj/dotnet-lab.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$
```

Now creating branches, allowing the work on different versions of a project without affecting the main codebase.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git branch feature

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git branch
  feature
* main
```

Moving on to the recently created branch to modify the contents in the file without affecting the main codebase.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$ git status
On branch feature
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   combine.js

no changes added to commit (use "git add" and/or "git commit -a")

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$
```

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$ git add .

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$ git commit -m "made a better output"
[feature 79d76e8] made a better output
 1 file changed, 1 insertion(+), 1 deletion(-)

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$
```

To change the branch, we can use the command *"git switch main"*. To make sure the branch is visible to other users of the repository push the branch into the GitHub.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$ git push -u origin feature
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 396 bytes | 198.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Creat  Follow link (ctrl + click)   'feature' on GitHub by visiting:
remote:         https://github.com/poudel-yubaraj/dotnet-lab/pull/new/feature
remote:
To https://github.com/poudel-yubaraj/dotnet-lab.git
 * [new branch]      feature -> feature
branch 'feature' set up to track 'origin/feature'.

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (feature)
$ 
```

Merging the branches such that the changes in the new branch is added to the main code base.

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git merge feature
Updating 2d98d80..79d76e8
Fast-forward
 combine.js | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ 
```

To check the commits performed in the past

```
Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ git log
commit 79d76e87d69c6f12ca797bba7f8341a68b4e2019 (HEAD -> main, origin/feature, feature)
Author: = <poudel.yubaraj42@gmail.com>
Date:   Sat Mar 22 18:42:29 2025 +0545

    made a better output

commit 2d98d803cdd9d71d64f6ff7c3aaedb7427cbcdde (origin/main)
Author: = <poudel.yubaraj42@gmail.com>
Date:   Sat Mar 22 18:28:57 2025 +0545

    initial commit

Dell@DESKTOP-SG9F80C MINGW64 /d/code8thsem/dotnet-lab/lab1 (main)
$ 
```
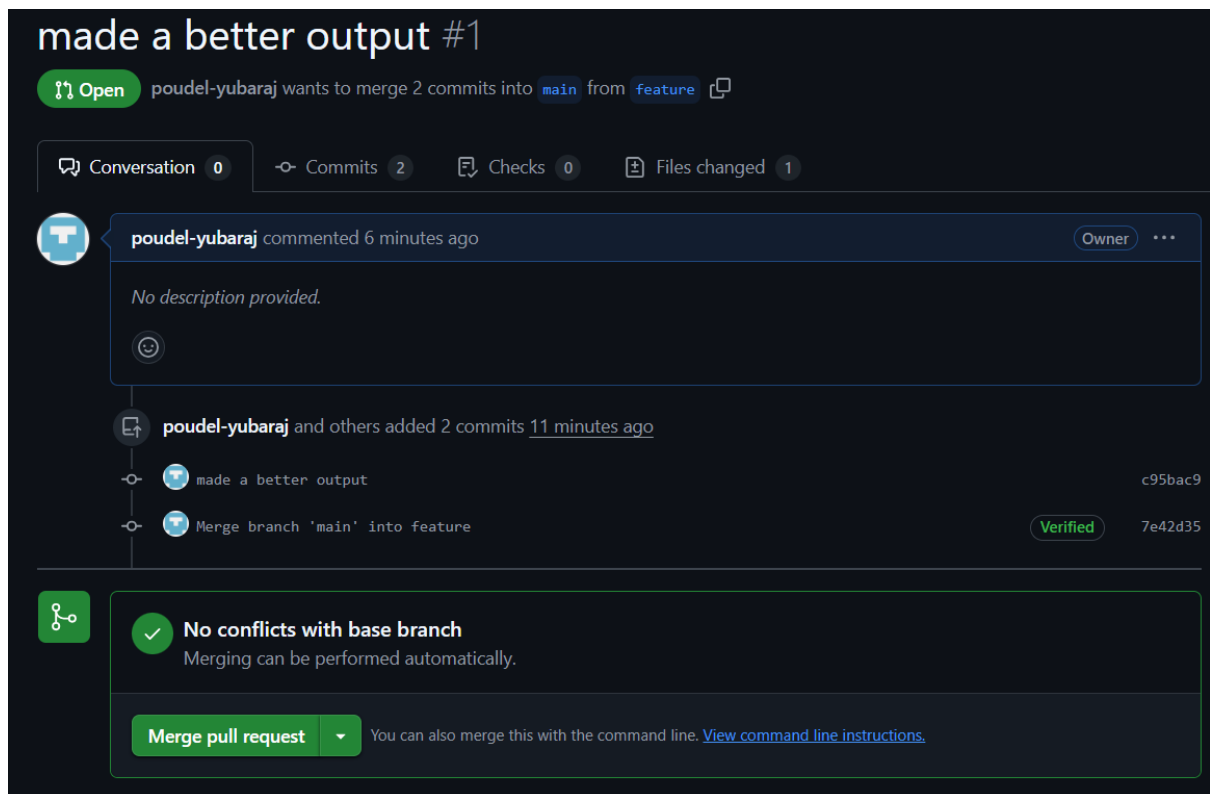
Merging the branch in the GUI GitHub (Web)

Conclusion:

In this lab, we learn about the basics of Git and GitHub. We perform initialization, branching, merging, pushing and committing and are hosted in this repo.