PURBANCHAL UNIVERSITY

KHWOPA ENGINEERING COLLEGE

LIBALI-08, BHAKTAPUR

LAB REPORT ON: .NET

LAB NO: 01

SUBMITTED BY:

Name: Prajens shrestha

Roll No.: 770327

SUBMITTED TO:

Department of Computer Engineering

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.

```
PS C:\Users\user\Desktop\dotnet lab> git config --global user.name "prajens32"
PS C:\Users\user\Desktop\dotnet lab> git config --global user.email "prajens.stha32@gmail.com"
PS C:\Users\user\Desktop\dotnet lab>
```

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.

```
PS C:\Users\user\Desktop\dotnet lab> git status
On branch master

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)
PS C:\Users\user\Desktop\dotnet lab>
```

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

```
PS C:\Users\user\Desktop\dotnet lab> git add .
PS C:\Users\user\Desktop\dotnet lab> git commit -m "initial commit"
[master (root-commit) 1a23832] initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 lab1/add.py
PS C:\Users\user\Desktop\dotnet lab>
```

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

```
PS C:\Users\user\Desktop\dotnet lab> git status
On branch master
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:   lab1/add.py

no changes added to commit (use "git add" and/or "git commit -a")
PS C:\Users\user\Desktop\dotnet lab>
```

After changing the contents in the file **"add.py"** 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.

```
PS C:\Users\user\Desktop\dotnet lab> git remote add origin https://github.com/prajens32/dotnet-lab.git
PS C:\Users\user\Desktop\dotnet lab>
```

Now push the files in the repository created.

```
PS C:\Users\user\Desktop\dotnet lab> git push -u origin master
branch 'master' set up to track 'origin/master'.
Everything up-to-date
PS C:\Users\user\Desktop\dotnet lab>
```

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

```
PS C:\Users\user\Desktop\dotnet lab> git branch feature
PS C:\Users\user\Desktop\dotnet lab> git branch
  feature
* master
PS C:\Users\user\Desktop\dotnet lab>
```

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

```
PS C:\Users\user\Desktop\dotnet lab> git checkout feature
Switched to branch 'feature'
PS C:\Users\user\Desktop\dotnet lab> 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:   lab1/add.py

no changes added to commit (use "git add" and/or "git commit -a")
PS C:\Users\user\Desktop\dotnet lab>
```

```
PS C:\Users\user\Desktop\dotnet lab> git add .
PS C:\Users\user\Desktop\dotnet lab> git commit -m "subtraction added"
[feature ea7a186] subtraction added
 1 file changed, 2 insertions(+), 1 deletion(-)
PS C:\Users\user\Desktop\dotnet lab>
```

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

```
PS C:\Users\user\Desktop\dotnet lab> git push -u origin feature
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Writing objects: 100% (4/4), 300 bytes | 300.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'feature' on GitHub by visiting:
remote:      https://github.com/prajens32/dotnet-lab/pull/new/feature
remote:
To https://github.com/prajens32/dotnet-lab.git
 * [new branch]      feature -> feature
branch 'feature' set up to track 'origin/feature'.
PS C:\Users\user\Desktop\dotnet lab>
```

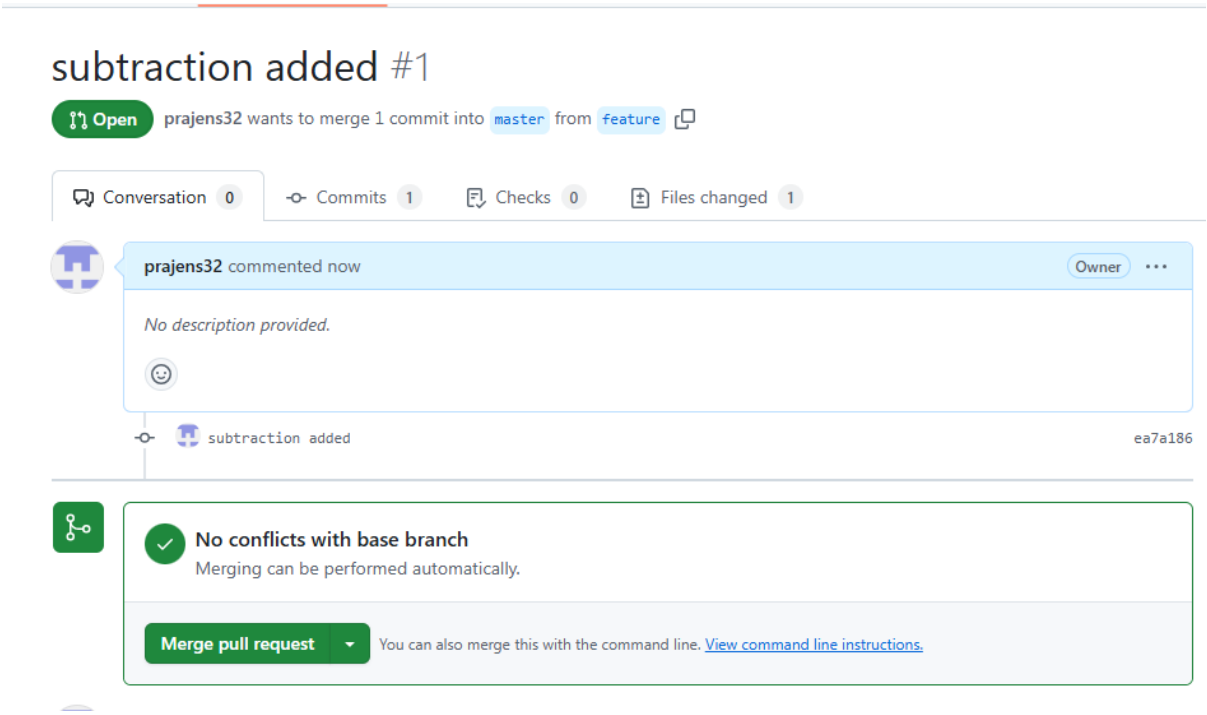
Merging the branches such that the changes in the new branch is added to the main code base.

```
PS C:\Users\user\Desktop\dotnet lab> git merge feature
Updating 20b196e..ea7a186
Fast-forward
 lab1/add.py | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
PS C:\Users\user\Desktop\dotnet lab>
```

To check the commits performed in the past

```
PS C:\Users\user\Desktop\dotnet lab> git log
commit ea7a18632ffd842d0e0303198d8d0945a4398cce (HEAD -> master, origin/feature, feature)
Author: prajens32 <prajens.stha32@gmail.com>
Date:   Sat Mar 22 22:11:41 2025 +0545

    subtraction added

commit 20b196e7c2c52ac6304bbd7595e7e0cfcb21a5be (origin/master)
Author: prajens32 <prajens.stha32@gmail.com>
Date:   Sat Mar 22 22:04:47 2025 +0545

    added another line

commit 1a23832aa9d2f626f04c1a19a39f3eff70b99caa
Author: prajens32 <prajens.stha32@gmail.com>
Date:   Sat Mar 22 22:02:40 2025 +0545
```

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 to remote repo.