PURBANCHAL UNIVERSITY

KHWOPA ENGINEERING COLLEGE

LIBALI-08, BHAKTAPUR

LAB REPORT ON .NET

LAB NO. 01

SUBMITTED BY:

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GitHub Link

SUBMITTED TO:

Department of Computer Engineering

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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

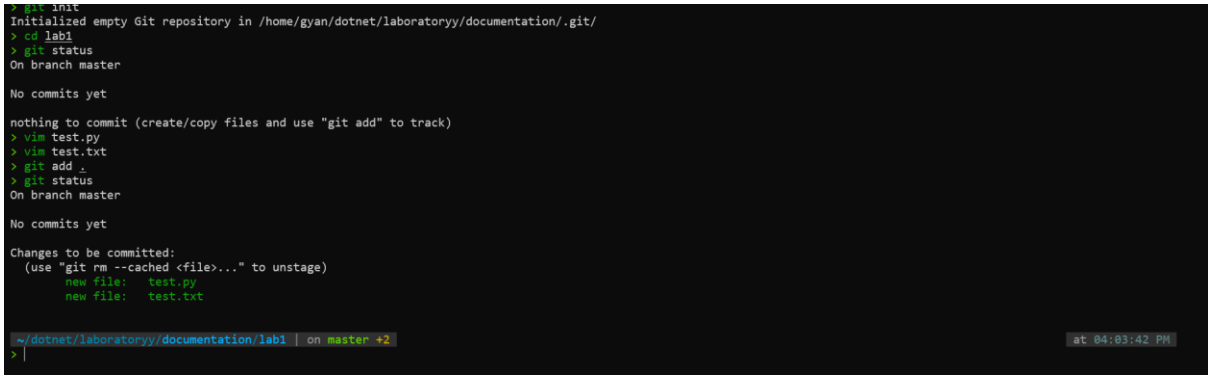
First set the global username and email of the GitHub.

```
Admin@DESKTOP-03D4EFJ MINGW64 /d/8th/.net/lab1 (master)
$ git config --global user.name "Surag-Basukala"

Admin@DESKTOP-03D4EFJ MINGW64 /d/8th/.net/lab1 (master)
$ git config --global user.email "basukalasurag45@gmail.com"
```

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.



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

```
> git commit -m "Initial Commit"
[master (root-commit) 79a221b] Initial Commit
 2 files changed, 2 insertions(+)
 create mode 100644 lab1/test.py
 create mode 100644 lab1/test.txt
```

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

```
> 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:   test.py

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

After changing the contents in the file **"test.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.

```
> git remote add origin git@github.com:Gyanhari/dotnet-lab.git

 ~/dotnet/laboratoryy/documentation/lab1 | on master !1
```

Now push the files in the repository created.

```
> git push -u origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 333 bytes | 333.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0)
To github.com:Gyanhari/dotnet-lab.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.

 ~/dotnet/laboratoryy/documentation/lab1 | on master !1
```

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

```
  devel
* master
(END)
```

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

```
> git checkout devel
M       lab1/test.py
Switched to branch 'devel'
> vim devel.py
> git add .
> git status
On branch devel
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   devel.py
        modified:   test.py


 ~/dotnet/laboratoryy/documentation/lab1 | on devel +2
>
```

```
> git commit -m "Devel Branch Commit"
[devel 1647e55] Devel Branch Commit
 2 files changed, 2 insertions(+)
 create mode 100644 lab1/devel.py

 ~/dotnet/laboratoryy/documentation/lab1 | on devel
>
```

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.

```
> git push -u origin devel
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (5/5), 438 bytes | 219.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0)
remote:
remote: Create a pull request for 'devel' on GitHub by visiting:
remote:      https://github.com/Gyanhari/dotnet-lab/pull/new/devel
remote:
To github.com:Gyanhari/dotnet-lab.git
 * [new branch]      devel -> devel
Branch 'devel' set up to track remote branch 'devel' from 'origin'.

 ~/dotnet/laboratoryy/documentation/lab1 | on devel
```

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

```
> git merge devel
Updating 79a221b..1647e55
Fast-forward
 lab1/devel.py | 1 +
 lab1/test.py  | 1 +
 2 files changed, 2 insertions(+)
 create mode 100644 lab1/devel.py

 ~/dotnet/laboratoryy/documentation/lab1 | on master >1
>
```

To check the commits performed in the past

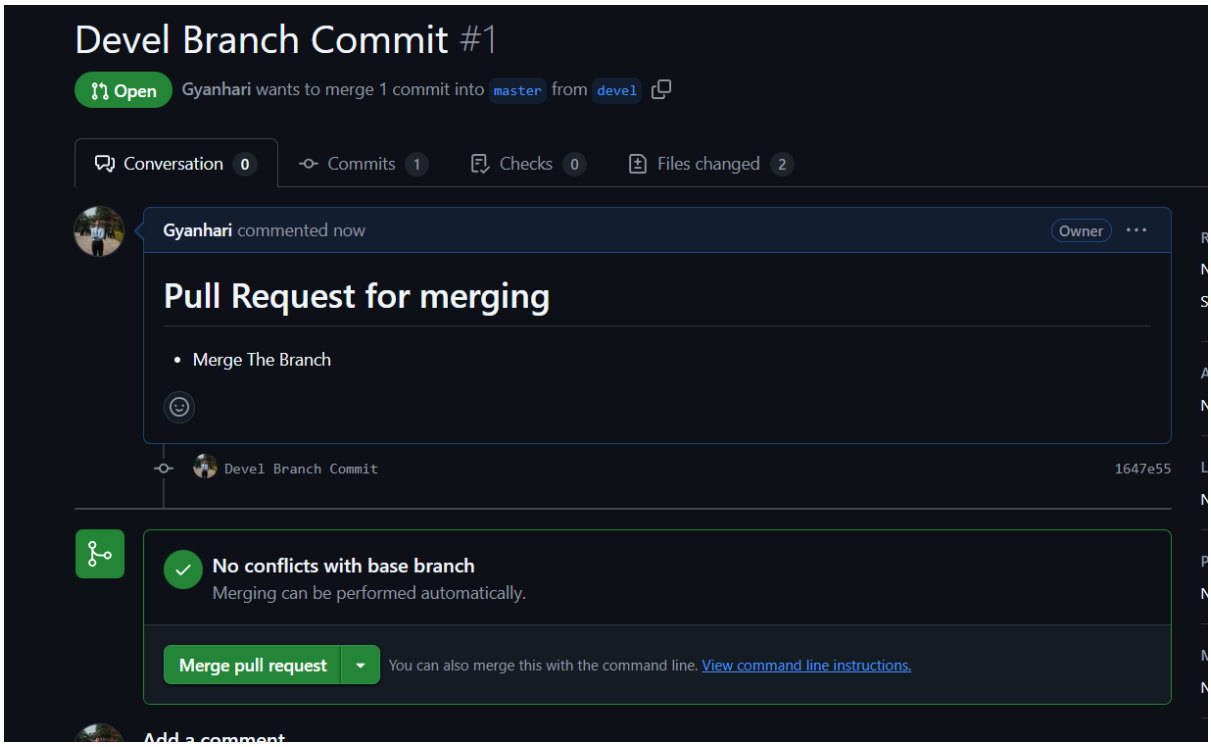
```
commit 1647e55e07bf55ad78737780816e4ebf7d712623 (HEAD -> master, origin/devel, devel)
Author: Gyan Hari Dahal <dgyanhari@gmail.com>
Date:   Fri Mar 21 16:30:04 2025 +0545

    Devel Branch Commit

commit 79a221bd16bef579e8b265c809fa3d861052159b (origin/master)
Author: Gyan Hari Dahal <dgyanhari@gmail.com>
Date:   Fri Mar 21 16:06:07 2025 +0545

    Initial Commit
(END)
```

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.