EXPERIMENT NO. :10

Date of Performance:

Date of Submission:

Aim: Version control of the project

Software Used: GitHub

Theory:-

Version control systems are a category of software tools that helps in recording changes made to files by keeping a track of modifications done to the code.

As we know that a software product is developed in collaboration by a group of developers they might be located at different locations and each one of them contributes in some specific kind of functionality/features. So in order to contribute to the product, they made modifications in the source code(either by adding or removing). A version control system is a kind of software that helps the developer team to efficiently communicate and manage(track) all the changes that have been made to the source code along with the information like who made and what change has been made. A separate branch is created for every contributor who made the changes and the changes aren't merged into the original source code unless all are analyzed as soon as the changes are green signaled they merged to the main source code. It not only keeps source code organized but also improves productivity by making the development process smooth.

Benefits of the version control system:

a) Enhances the project development speed by providing efficient collaboration,

b) Leverages the productivity, expedite product delivery, and skills of the employees through better communication and assistance,

c) Reduce possibilities of errors and conflicts meanwhile project development through traceability to every small change,

d) Employees or contributor of the project can contribute from anywhere irrespective of the different geographical locations through this **VCS, e)** For each different contributor of the project a different working copy is maintained and not merged to the main file unless the working copy is validated. A most popular example is **Git,**

Helix core, Microsoft TFS,

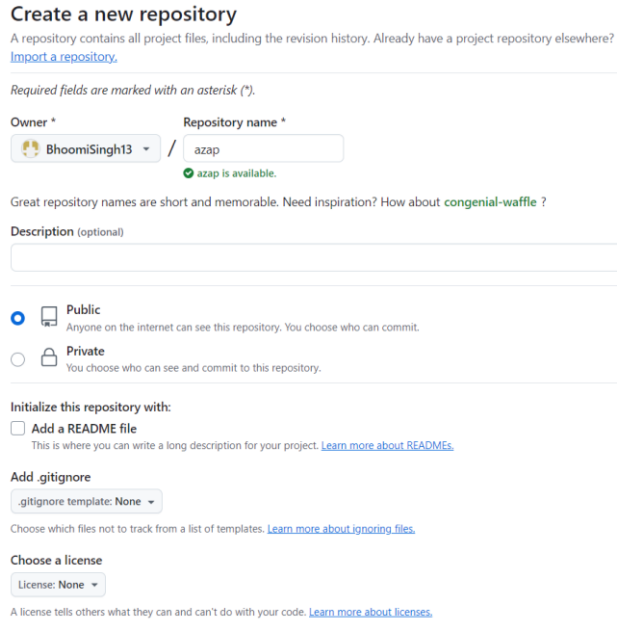
f) Helps in recovery in case of any disaster or contingent situation,

g) Informs us about Who, What, When, Why changes have been made.

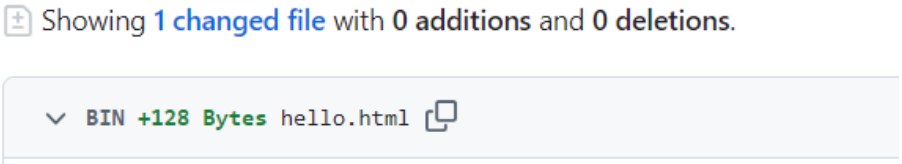
Use of Version Control System:

- **A repository:** It can be thought of as a database of changes. It contains all the edits and historical versions (snapshots) of the project.

- **Copy of Work (sometimes called as checkout):** It is the personal copy of all the files in a project. You can edit to this copy, without affecting the work of others and you can finally commit your changes to a repository when you are done making your changes.




```
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git --version
git version 2.46.1.windows.1
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> echo "<!DOCTYPE html><html><body><h1>Hello World</h1></body></html>" > hello.html
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git add hello.html
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git commit -m "Add hello.html to the azapp repository"
[master 3788eae] Add hello.html to the azapp repository
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 hello.html
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git push origin master
Enumerating objects: 19, done.
Counting objects: 100% (19/19), done.
Delta compression using up to 8 threads
Compressing objects: 100% (18/18), done.
Writing objects: 100% (19/19), 318.60 KiB | 11.38 MiB/s, done.
Total 19 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
remote:
remote: Create a pull request for 'master' on GitHub by visiting:
remote:      https://github.com/BhoomiSingh13/azapp/pull/new/master
remote:
To https://github.com/BhoomiSingh13/azapp.git
 * [new branch]      master -> master
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git ls-remote
From https://github.com/BhoomiSingh13/azapp.git
c596741554f78e5f27b2a39bbb51b49d24c8cd33        HEAD
c596741554f78e5f27b2a39bbb51b49d24c8cd33        refs/heads/main
3788eae524ab80e3d5e57f3d3c63e0d604a4c0ba        refs/heads/master
PS C:\Users\Bhoomi Singh\Desktop\PROJECT CLONE> git status
On branch master
nothing to commit, working tree clean
```



Conclusion:

In conclusion, we understand that implementing version control systems (VCS) like Git is essential for our collaborative software development process. It enables us to efficiently track changes, manage contributions from different team members, and maintain an organized codebase. By using VCS, we enhance project development speed, improve communication, reduce errors and conflicts, and ensure the ability to recover from potential issues. This structured approach fosters collaboration and innovation, ultimately leading to higher quality software products and making version control an indispensable practice in our software engineering endeavors.

Sign and Remark:

R1	R2	R3	Total Marks	Signature
(5)	(5)	(5)	(15)	