Experiment No. 10

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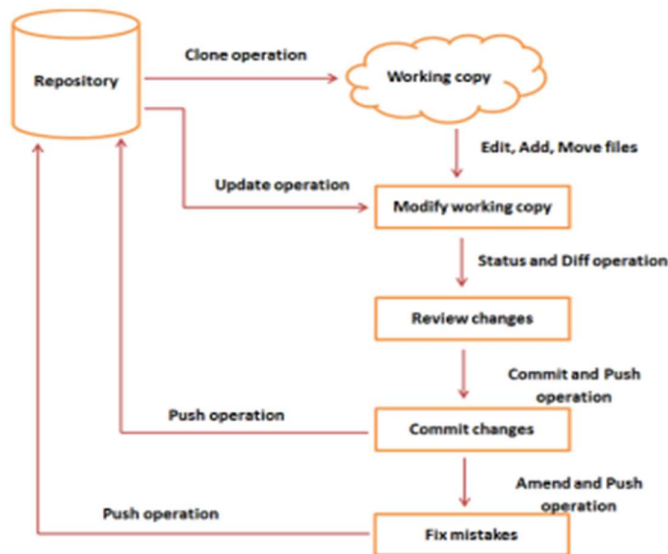
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Aim: Study of Configuration Management using GitHub

Theory: Git is a distributed revision control and source code management system with an emphasis on speed. Git was initially designed and developed by Linus Torvalds for Linux kernel development. Git is a free software distributed under the terms of the GNU General Public License version 2.

Git Life Cycle General workflow is as follows –
     1. Clone the Git repository as a working copy.
     2. Modify the working copy by adding/editing files.
     3. If necessary, update the working copy by taking other developer's changes.
     4. Review the changes before committing.
     5. Commit changes. If everything is fine, then push the changes to the repository.
     6. After committing, if something is wrong, then correct the last commit and push the changes to the repository.

Git Life Cycle

1. Git command to create an empty repository and add a text file into it.

```
C:\Users\Admin>cd ../..

C:\>cd .vscode

C:\.vscode>cd college

C:\.vscode\college>cd experiments

C:\.vscode\college\experiments>git clone https://github.com/Greninja28/SE-10.git
Cloning into 'SE-10'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.

C:\.vscode\college\experiments>cd SE-10

C:\.vscode\college\experiments\SE-10>code .

C:\.vscode\college\experiments\SE-10>_
```

2. Add and commit the new file into GitHub and check git status and git log

```
PS C:\.vscode\college\experiments\SE-10> git add .
PS C:\.vscode\college\experiments\SE-10> git status -s
M  start.py
PS C:\.vscode\college\experiments\SE-10> git commit -m 'file changed'
[main 8992e87] file changed
 1 file changed, 1 insertion(+)
PS C:\.vscode\college\experiments\SE-10> git status -s
PS C:\.vscode\college\experiments\SE-10> git log
commit 8992e871e8f52ea791ea992f0dcd717ec04516fb (HEAD -> main)
Author: Sahej Jain <89766122+Greninja28@users.noreply.github.com>
Date:   Wed May 3 09:20:21 2023 +0530

    file changed

commit 2accd86c64e87864ffb442b5e68bb33432cb82bc (origin/main, origin/HEAD)
Author: Sahej Jain <89766122+Greninja28@users.noreply.github.com>
Date:   Wed May 3 09:16:49 2023 +0530

    Initail commit
```

3. Git push and change the content and pull from git

```
PS C:\.vscode\college\experiments\SE-10> git pull origin main
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused
Unpacking objects: 100% (3/3), 665 bytes | 41.00 KiB/s, done.
From https://github.com/Greninja28/SE-10
 * branch            main        -> FETCH_HEAD
   8992e87..7ff546c  main        -> origin/main
Updating 8992e87..7ff546c
Fast-forward
 README.md | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
PS C:\.vscode\college\experiments\SE-10> git add .
PS C:\.vscode\college\experiments\SE-10> git commit -m 'Added a sum program'
[main f20de92] Added a sum program
 1 file changed, 3 insertions(+), 2 deletions(-)
PS C:\.vscode\college\experiments\SE-10> git push origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 343 bytes | 171.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Greninja28/SE-10.git
   7ff546c..f20de92  main -> main
PS C:\.vscode\college\experiments\SE-10>
```

Conclusion: Thus, we have created a repository on GitHub and added files onto it.