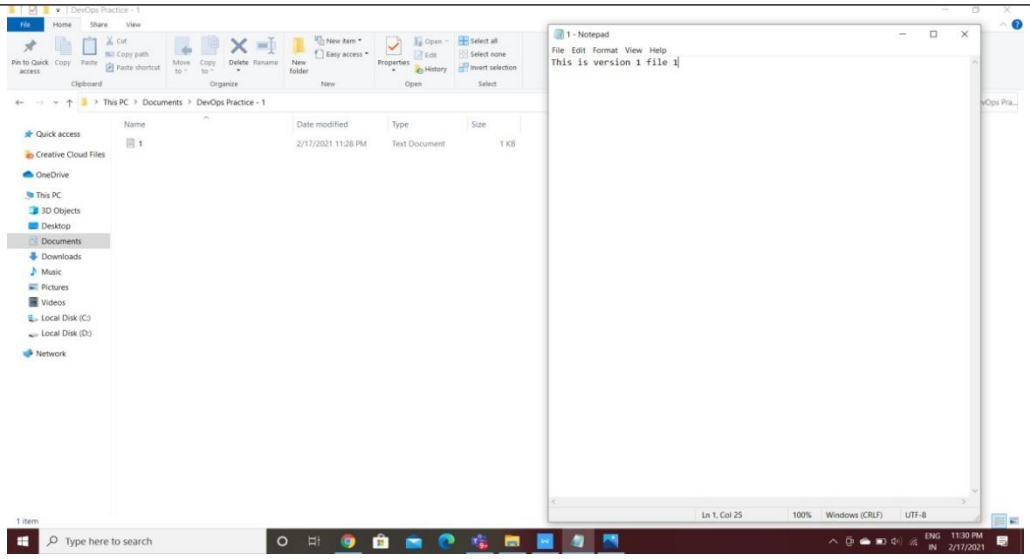
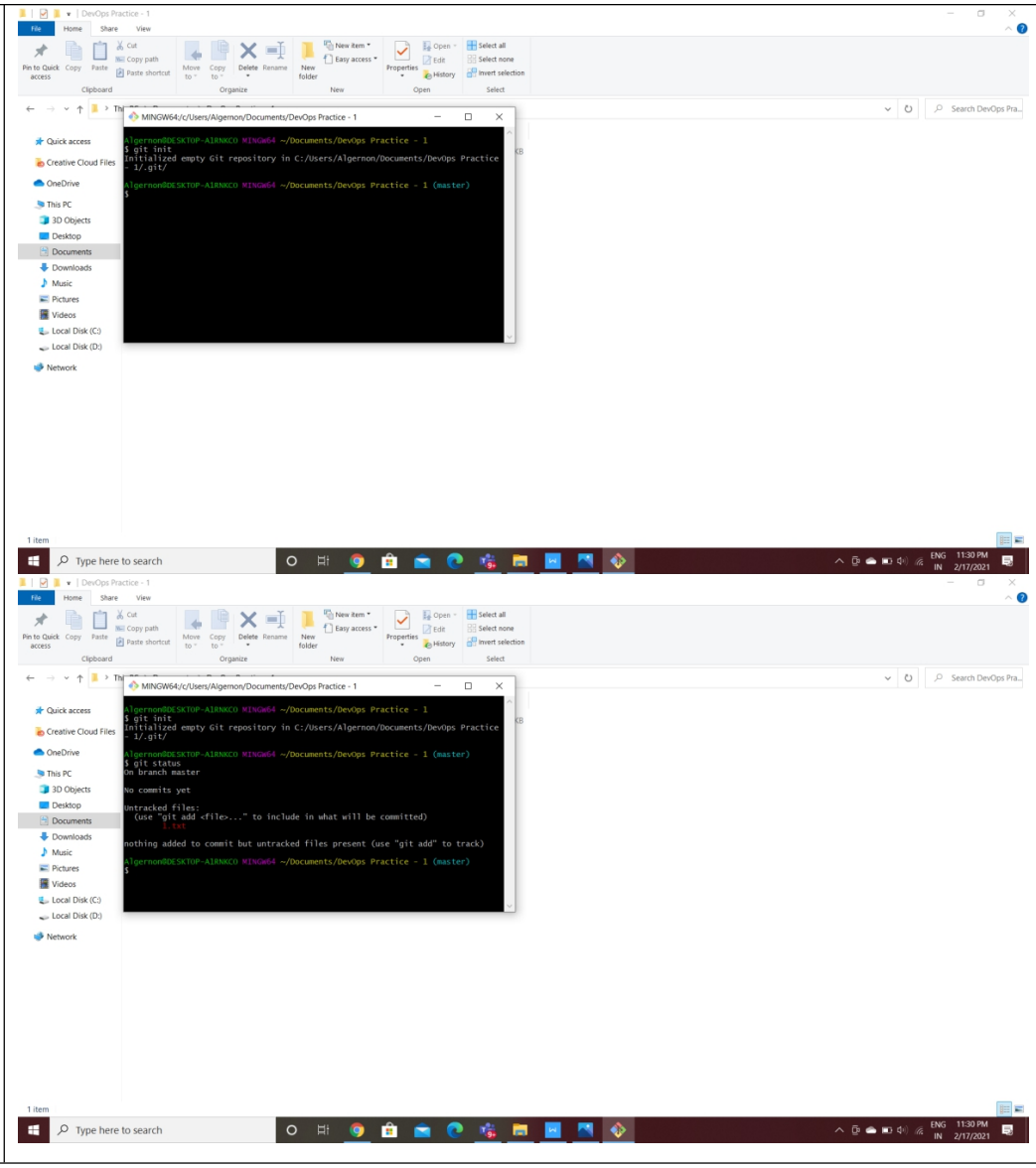
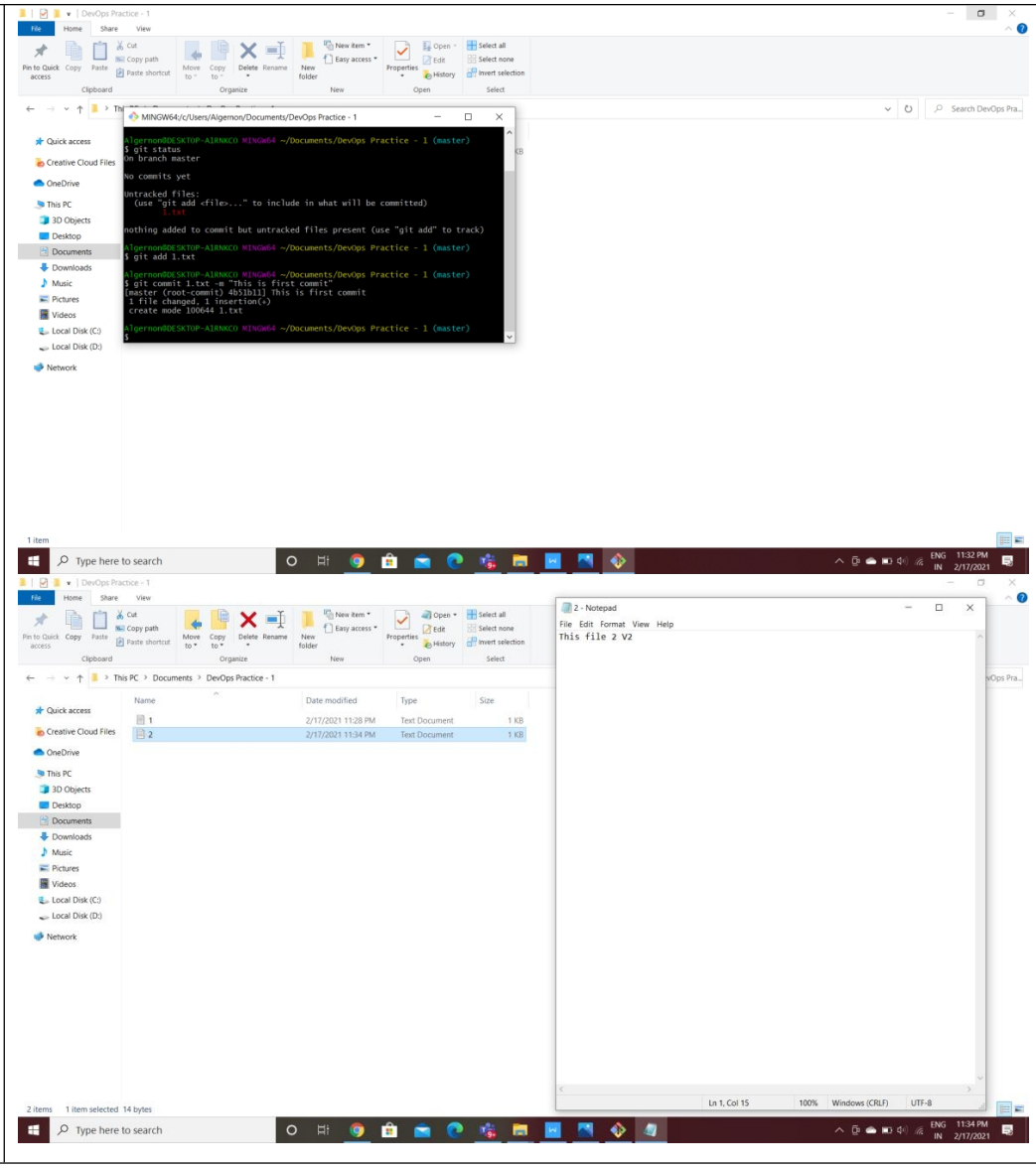
Semester	Semester VIII	
Subject	DevOps Lab	
Subject Professor In-charge	Prof. Yash Shah	
Laboratory	L11B	
Student Name	Ashwini Jadhav	
Roll Number	17101B0038	
Grade and Subject Teacher's Signature		

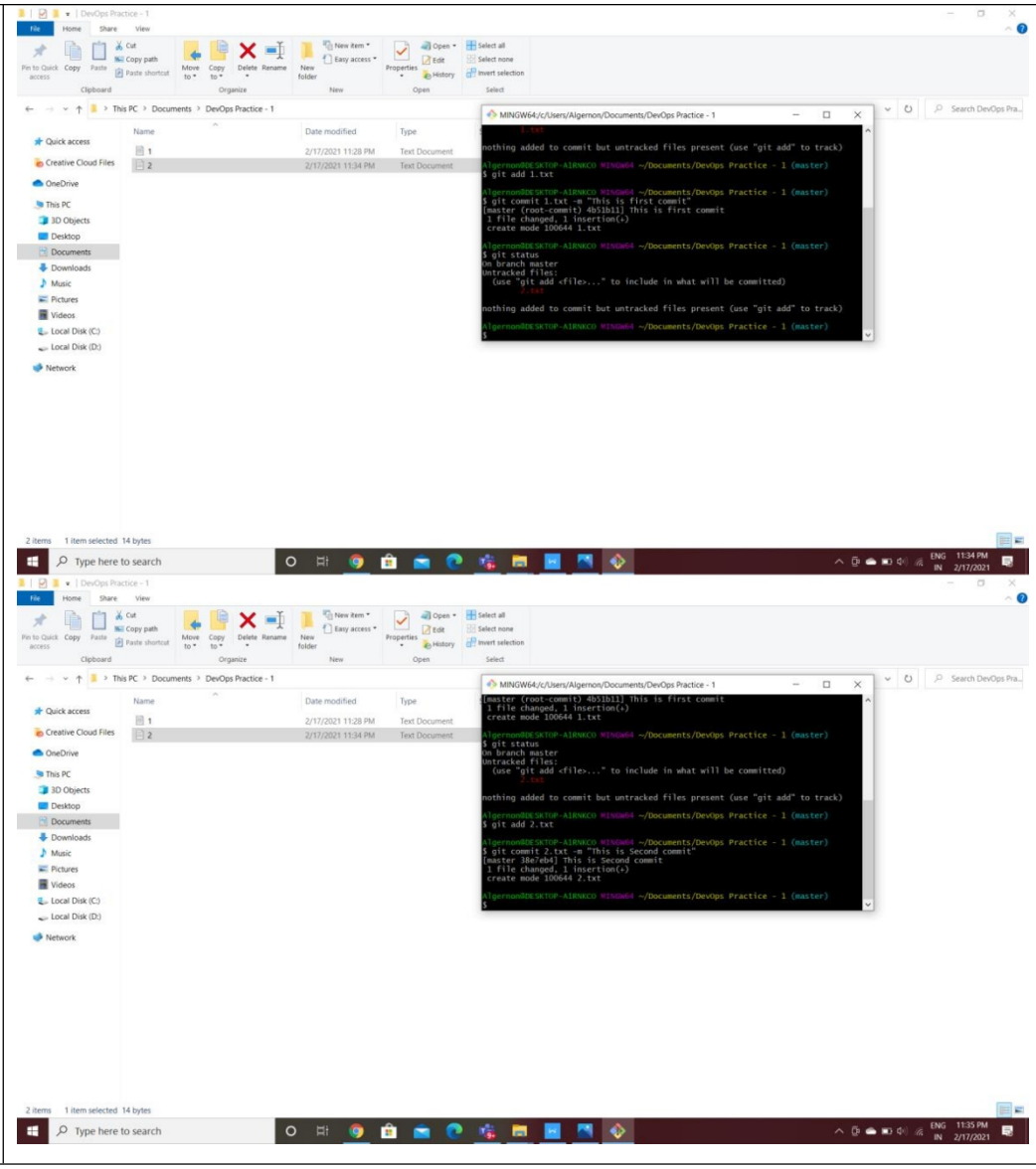
Experiment Number	1	
Experiment Title	To Perform Version Control using Version control tool GIT	
Resources / Apparatus Required	Hardware: Compatible Computer System	Git, GitHub
Objectives	Learn and explore Version Control using GIT	
Theory	**What is Version Control?** Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later. Version control software keeps track of every modification to the code in a special kind of database. If a mistake is made, developers can turn back the clock and compare earlier versions of the code to help fix the mistake while minimizing disruption to all team members. **Why is Version Control needed?** As development environments have accelerated, version control systems help software teams work faster and smarter. They are especially useful for DevOps teams since they help them to reduce development time and increase successful deployments. For most software teams, the source code is a repository of the invaluable knowledge and understanding about the problem domain that the developers have collected and refined through careful effort. Version control protects source code from both catastrophe and the casual degradation of human error and unintended consequences. Software developers working in teams are continually writing new source code and changing existing source code. The code for a project, app or software component is typically organized in a folder structure or "file tree". One developer on the team may be working on a new feature while another	

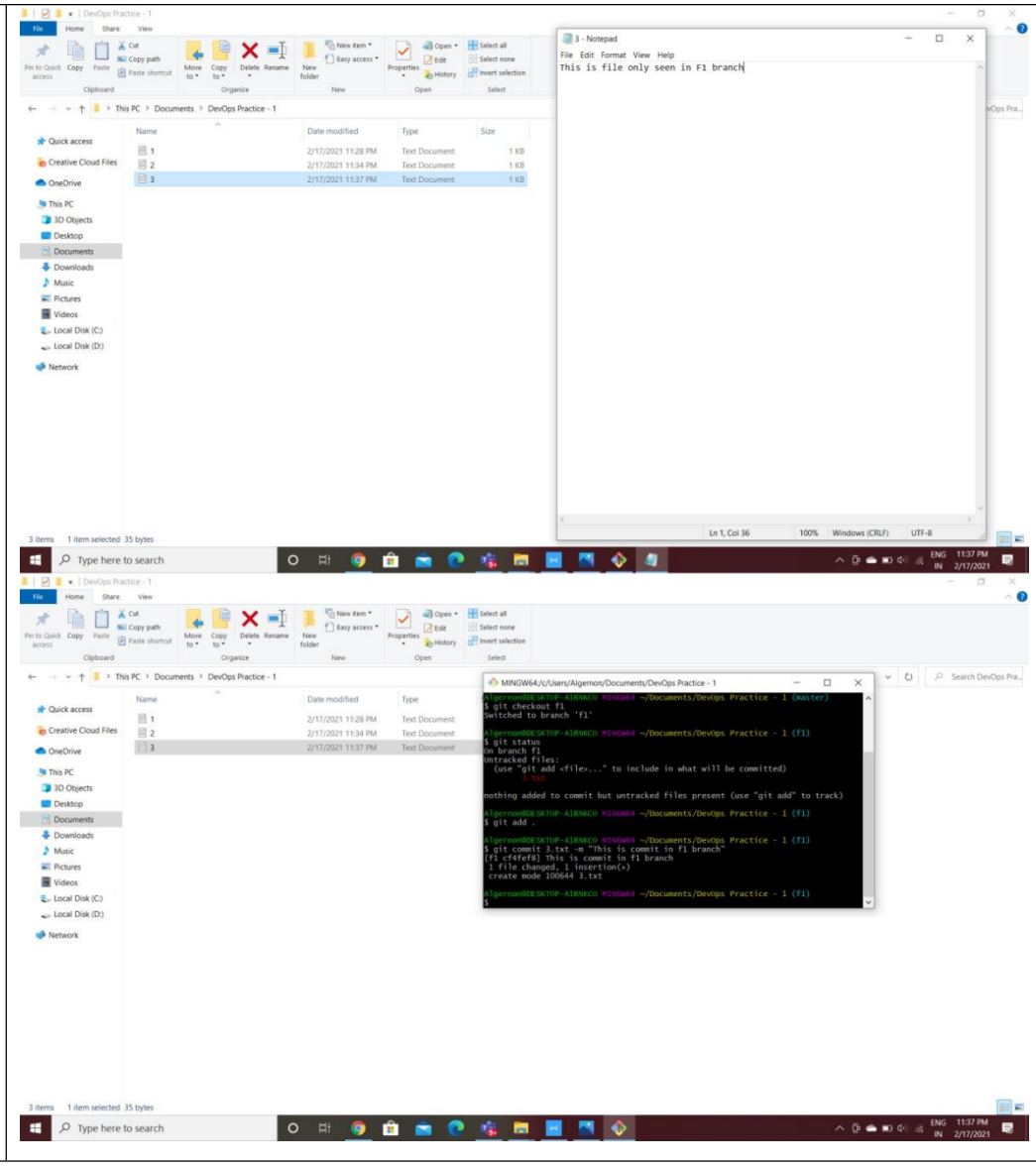
	developer fixes an unrelated bug by changing code, each developer may make their changes in several parts of the file tree. Version control helps teams solve these kinds of problems, tracking every individual change by each contributor and helping prevent concurrent work from conflicting. Changes made in one part of the software can be incompatible with those made by another developer working at the same time. This problem should be discovered and solved in an orderly manner without blocking the work of the rest of the team. Further, in all software development, any change can introduce new bugs on its own and new software can't be trusted until it's tested. So testing and development proceed together until a new version is ready. **How to carry out Version Control?** **1. Initialize Git Repository** To initialize a Git repository in a project directory: git init This will create a .git directory in the project directory. **2. Check File Status** To check if any files were modified and not yet committed, git status This will return the current state of the repository **3. Stage File(s) Changes** You can selectively stage modified files, adding them to the 'staging area' to prepare them to be committed. Modified files that are not added to the staging area will subsequently not be committed. This allows for more refined and specific commits (ex: changes to part A of the project only), which is useful for future reference. #to stage specific modified files git add filename #to stage all modified files git add . **4. Commit File(s) Changes** All staged files are then committed, essentially creating a 'screenshot' of those particular files at that particular moment. This effectively records a new change to the repository. git commit -m 'describe change(s) made here' Each commit must be made with a message, describing the change(s) made. **5. To display a log of all commits made:** git log **Branching:** A branch is essentially a 'new' directory, on which you can work on a specific part or feature of a project, before you merge those changes to the main branch that contains all of your source code. The default branch that you always start with is always called the master

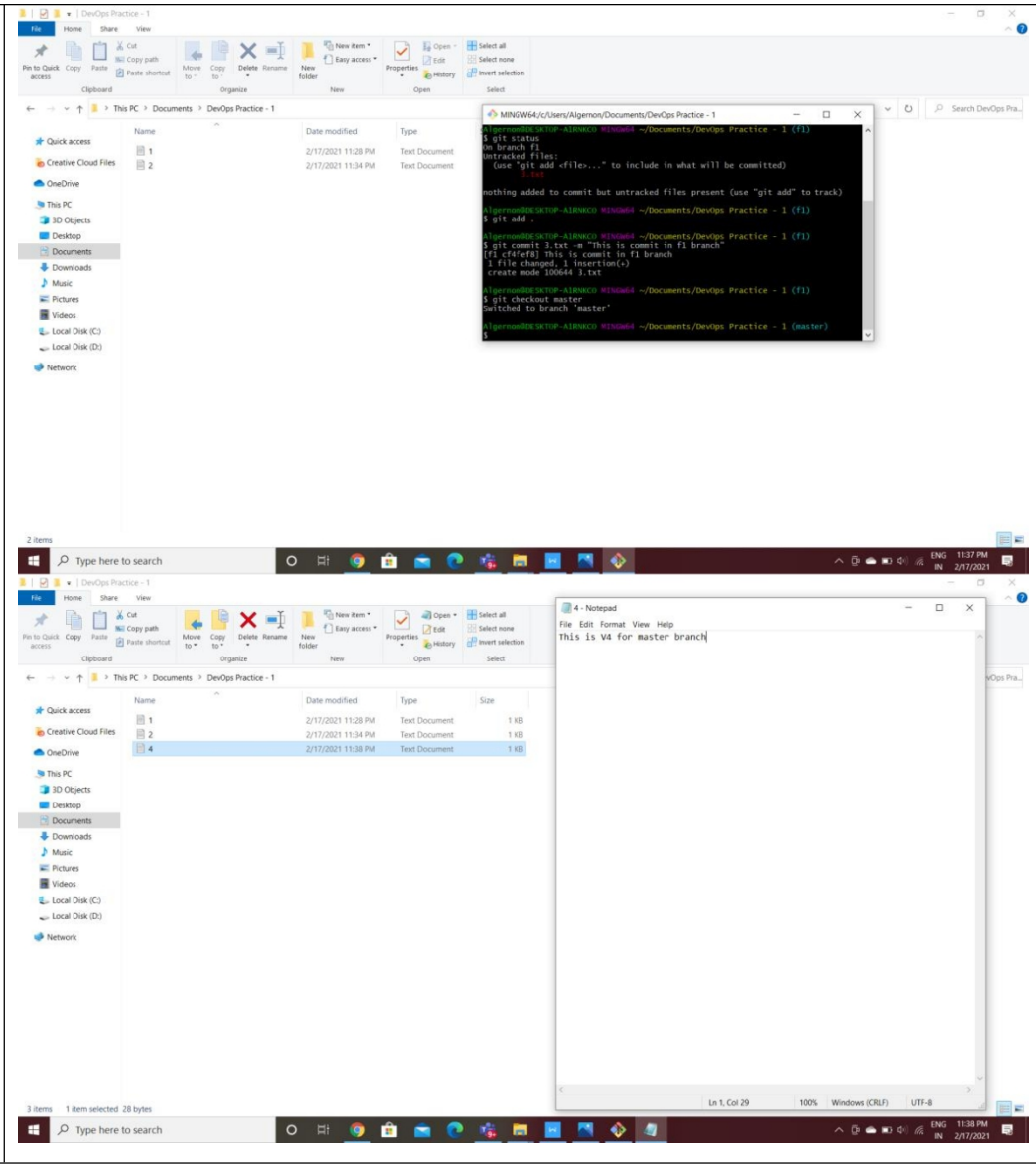
	branch. The master branch contains the most updated, available source code. Always assume that the master branch is ready to be deployed. All the experimentation and changes, big and small, are made on other branches to be merged in later. **To list all branches in the repository:** git branch **To create a new branch:** git branch new-branch-name **This will only create the branch. To switch to a specific branch and start working within it:** git checkout another-branch **Alternatively, if you want to create a new branch and immediately switch to it:** git checkout -b new-branch-name
Output	

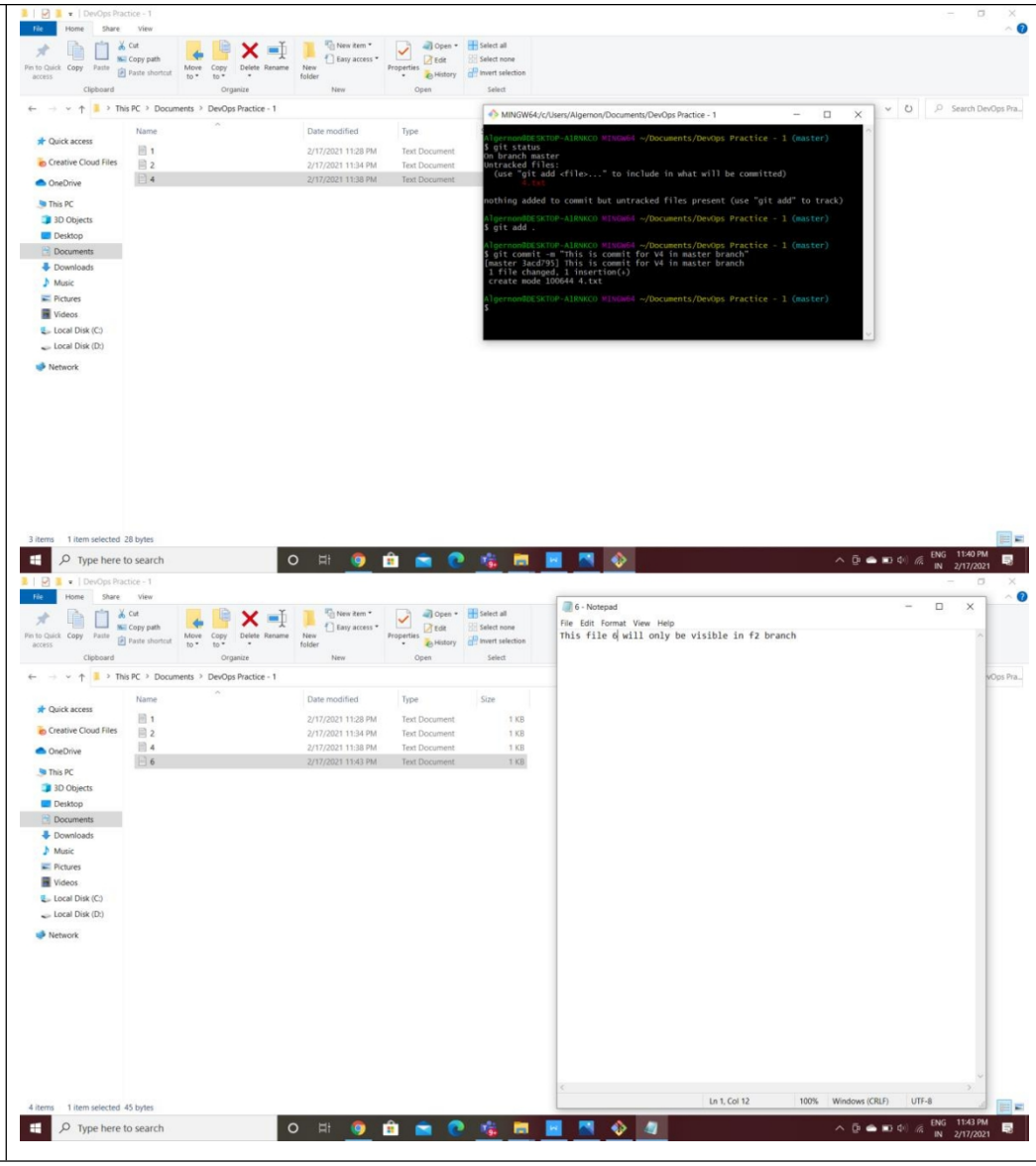

DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1
$ git init
Initialized empty Git repository in C:/Users/Algernon/Documents/DevOps Practice - 1/.git/
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$
1 item
Type here to search
ENG IN 11:30 PM 2/17/2021
DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1
$ git init
Initialized empty Git repository in C:/Users/Algernon/Documents/DevOps Practice - 1/.git/
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git status
On branch master
No commits yet
Untracked files:
(use "git add <file>..." to include in what will be committed)
1.txt
nothing added to commit but untracked files present (use "git add" to track)
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$
1 item
Type here to search
ENG IN 11:30 PM 2/17/2021

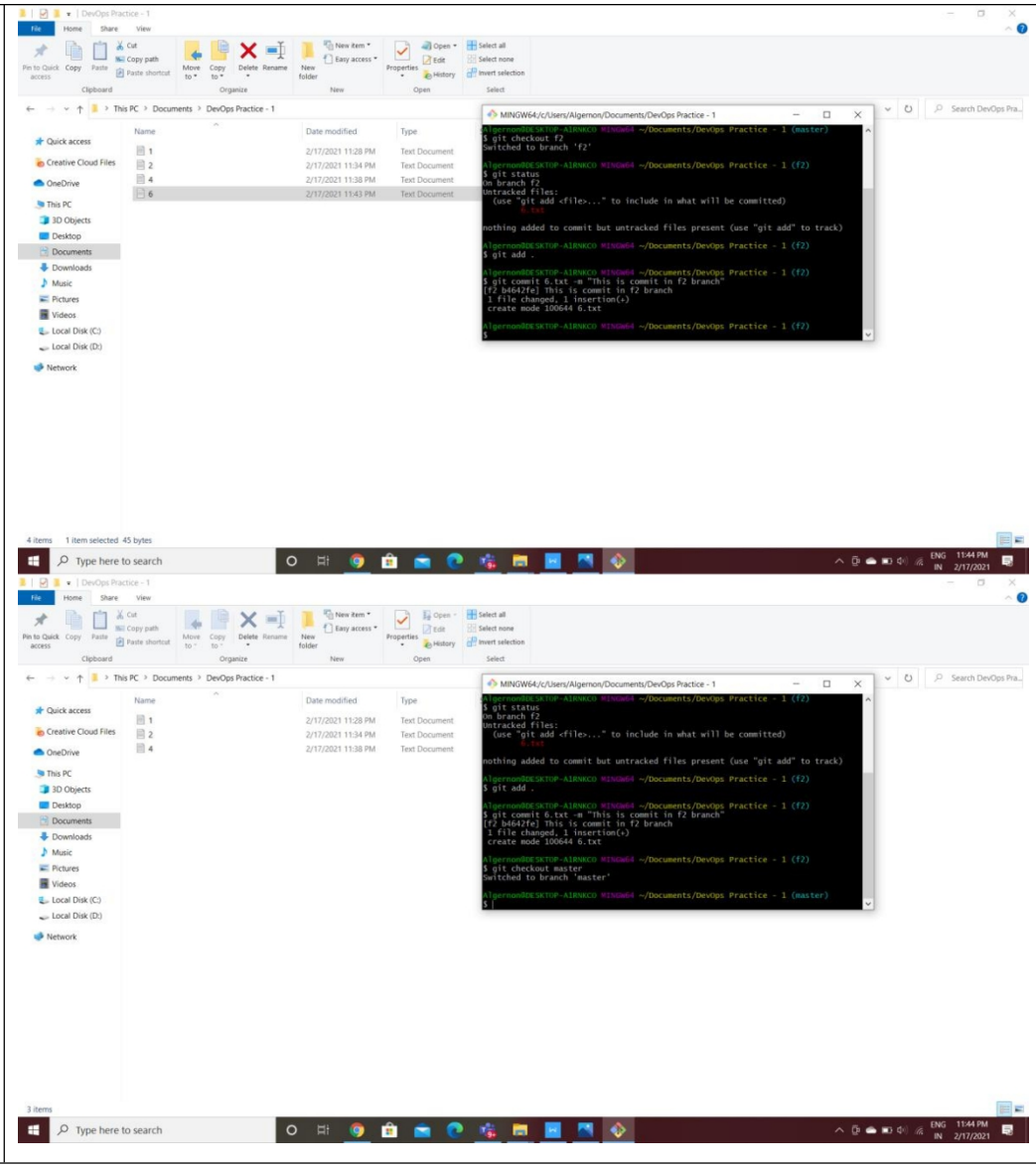

DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
Algernon@DESKTOP-AIRNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git status
On branch master
No commits yet
Untracked files:
(use "git add <file>..." to include in what will be committed)
1.txt
nothing added to commit but untracked files present (use "git add" to track)
$ git add 1.txt
$ git commit 1.txt -m "this is first commit"
[master (root-commit) 4b51b11] This is first commit
1 file changed, 1 insertion(+)
create mode 100644 1.txt
1 item
Type here to search
2 - Notepad
File Edit Format View Help
This file 2 V2
Name
Date modified
Type
Size
1
2/17/2021 11:28 PM
Text Document
1 KB
2
2/17/2021 11:34 PM
Text Document
1 KB
2 items
1 item selected 14 bytes
Ln 1, Col 15
100%
Windows (CRLF)
UTF-8

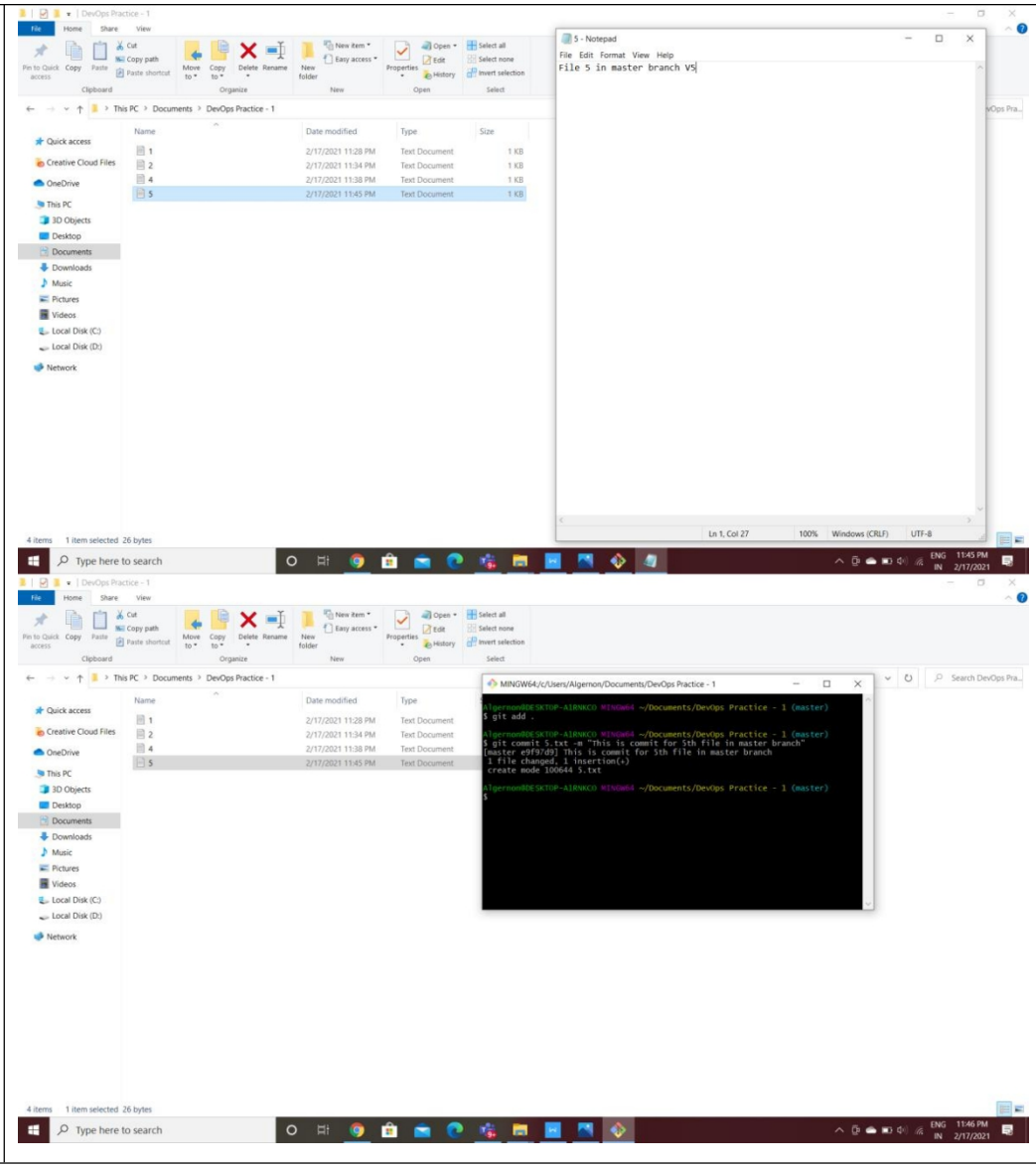

DevOps Practice - 1
File Home Share View
This PC > Documents > DevOps Practice - 1
Quick access
Creative Cloud Files
OneDrive
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Network
Name
Date modified
Type
1
2/17/2021 11:28 PM
Text Document
2
2/17/2021 11:34 PM
Text Document
2 items
1 item selected 14 bytes
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
nothing added to commit but untracked files present (use "git add" to track)
Algernon@DESKTOP-A1RNKC0 MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git add 1.txt
$ git commit 1.txt -m "This is first commit"
[master (root-commit) 4b51b11] This is first commit
1 file changed, 1 insertion(+)
create mode 100644 1.txt
$ git status
On branch master
Untracked files:
(use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
Type here to search
ENG
IN
11:34 PM
2/17/2021
DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
[master (root-commit) 4b51b11] This is first commit
1 file changed, 1 insertion(+)
create mode 100644 1.txt
$ git status
On branch master
Untracked files:
(use "git add <file>..." to include in what will be committed)
nothing added to commit but untracked files present (use "git add" to track)
$ git add 2.txt
$ git commit 2.txt -m "This is Second commit"
[master 18e7eb4] This is Second commit
1 file changed, 1 insertion(+)
create mode 100644 2.txt
2 items
1 item selected 14 bytes
Type here to search
ENG
IN
11:35 PM
2/17/2021

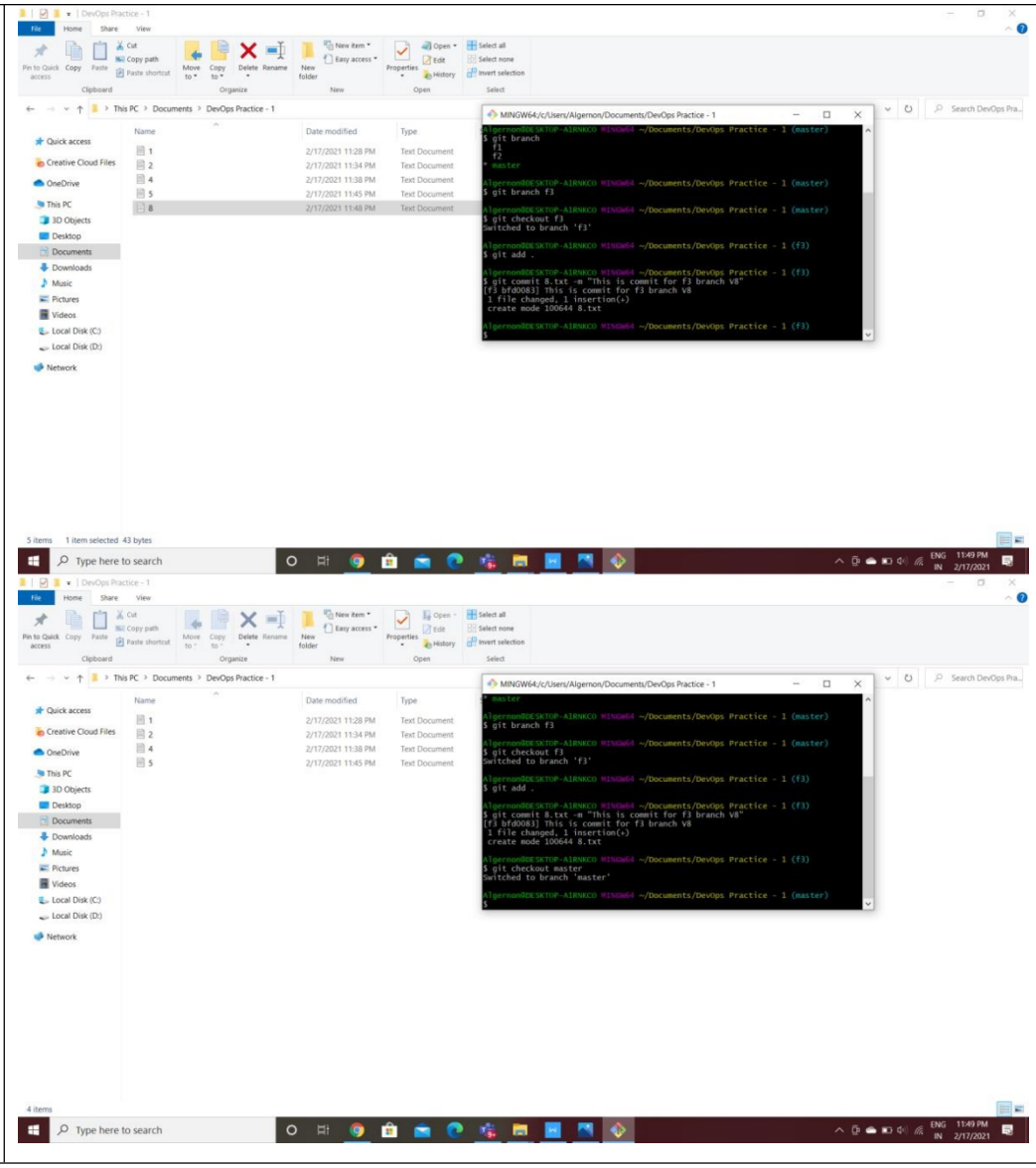

DevOps Practice - 1
File Home Share View
This PC > Documents > DevOps Practice - 1
Quick access
Creative Cloud Files
OneDrive
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Network
Name
Date modified
Type
Size
1
2
3
2/17/2021 11:28 PM
2/17/2021 11:34 PM
2/17/2021 11:37 PM
Text Document
1 KB
3 items
1 item selected 35 bytes
3 - Notepad
File Edit Format View Help
This is file only seen in F1 branch
Ln 1, Col 36
100%
Windows (CRLF)
UTF-8
Type here to search
ENG
IN
11:37 PM
2/17/2021
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git checkout f1
Switched to branch 'f1'
$ git status
On branch f1
Untracked files:
(use "git add <file>..." to include in what will be committed)
3.txt
nothing added to commit but untracked files present (use "git add" to track)
$ git add .
$ git commit 3.txt -m "This is commit in f1 branch"
[f1 cf4fef8] This is commit in f1 branch
1 file changed, 1 insertion(+)
create mode 100644 3.txt
$

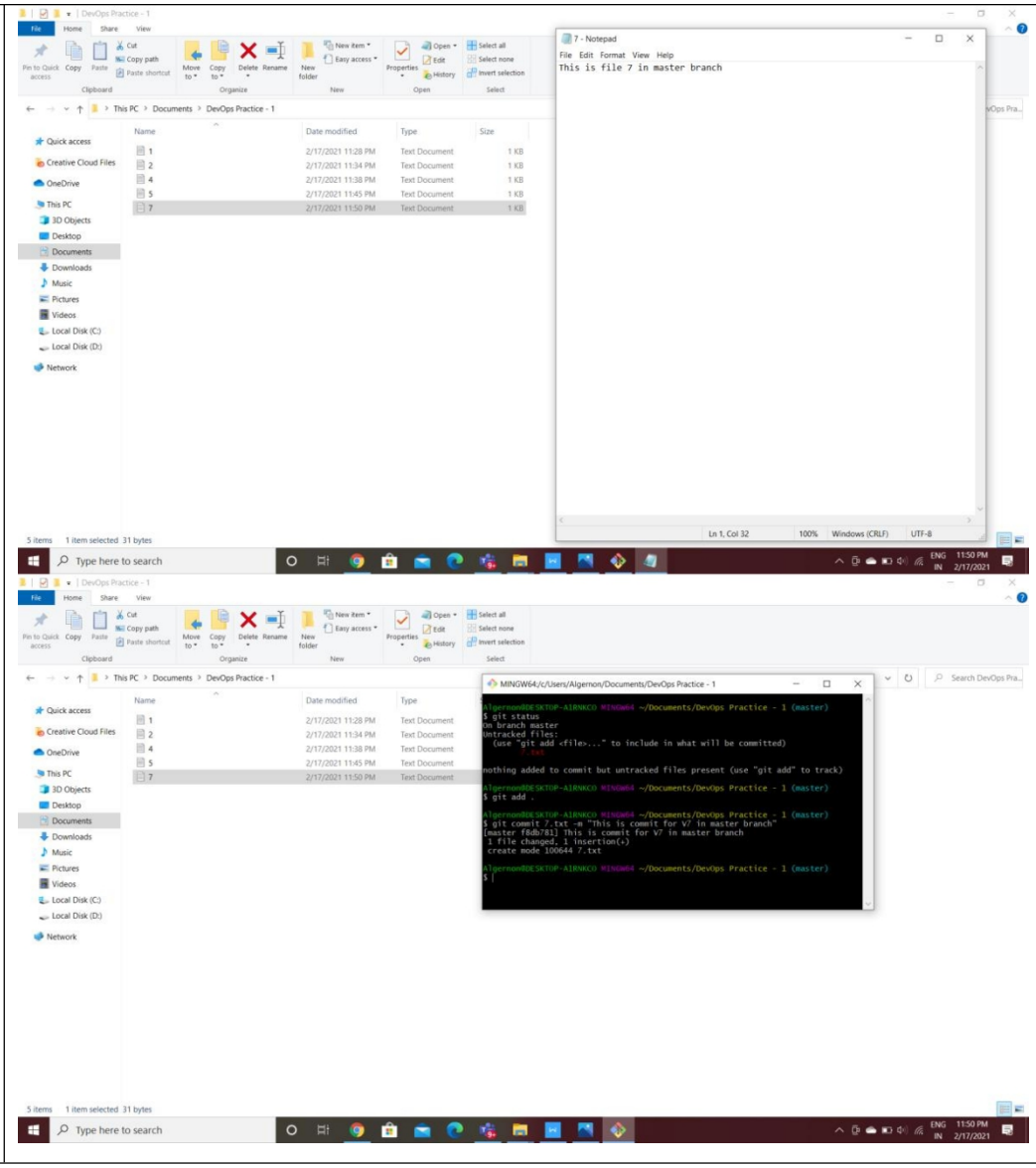

DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
Name
Date modified
Type
1
2/17/2021 11:28 PM
Text Document
2
2/17/2021 11:34 PM
Text Document
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git status
On branch f1
Untracked files:
(use "git add <file>..." to include in what will be committed)
3.txt
nothing added to commit but untracked files present (use "git add" to track)
$ git add .
$ git commit 3.txt -m "This is commit in f1 branch"
[f1 cf4fef8] This is commit in f1 branch
1 file changed, 1 insertion(+)
create mode 100644 3.txt
$ git checkout master
Switched to branch 'master'
2 items
Type here to search
4 - Notepad
File Edit Format View Help
This is V4 for master branch
Ln 1, Col 29
100%
Windows (CRLF)
UTF-8
4
2/17/2021 11:38 PM
Text Document
1 KB
3 items
1 item selected 28 bytes


DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git status
On branch master
Untracked files:
(use "git add <file>..." to include in what will be committed)
4.txt
nothing added to commit but untracked files present (use "git add" to track)
$ git add .
$ git commit -m "This is commit for V4 in master branch"
[master 3acd795] This is commit for V4 in master branch
1 file changed, 1 insertion(+)
create mode 100644 4.txt
3 items 1 item selected 28 bytes
Type here to search
6 - Notepad
File Edit Format View Help
This file 6 will only be visible in f2 branch
Ln 1, Col 12
100%
Windows (CRLF)
UTF-8
4 items 1 item selected 45 bytes


DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git checkout f2
Switched to branch 'f2'
$ git status
On branch f2
Untracked files:
(use "git add <file>..." to include in what will be committed)
6.txt
nothing added to commit but untracked files present (use "git add" to track)
$ git add .
$ git commit 6.txt -m "This is commit in f2 branch"
[f2 b4642fe] This is commit in f2 branch
1 file changed, 1 insertion(+)
create mode 100644 6.txt
$ git checkout master
Switched to branch 'master'
4 items
1 item selected 45 bytes
3 items
Type here to search


DevOps Practice - 1
File Home Share View
This PC > Documents > DevOps Practice - 1
Name Date modified Type Size
1 2/17/2021 11:28 PM Text Document 1 KB
2 2/17/2021 11:34 PM Text Document 1 KB
4 2/17/2021 11:38 PM Text Document 1 KB
5 2/17/2021 11:45 PM Text Document 1 KB
4 items 1 item selected 26 bytes
5 - Notepad
File Edit Format View Help
File 5 in master branch V5
Ln 1, Col 27 100% Windows (CRLF) UTF-8
Type here to search
ENG IN 11:45 PM 2/17/2021
DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
Name Date modified Type
1 2/17/2021 11:28 PM Text Document
2 2/17/2021 11:34 PM Text Document
4 2/17/2021 11:38 PM Text Document
5 2/17/2021 11:45 PM Text Document
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git add .
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git commit 5.txt -m "This is commit for 5th file in master branch"
[master e9f97d9] This is commit for 5th file in master branch
1 file changed, 1 insertion(+)
create mode 100644 5.txt
Algernon@DESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$
4 items 1 item selected 26 bytes
Type here to search
ENG IN 11:46 PM 2/17/2021


DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git branch
f1
f2
* master
$ git branch f3
$ git checkout f3
Switched to branch 'f3'
$ git add .
$ git commit 8.txt -m "This is commit for f3 branch V8"
[f3 bfd0083] This is commit for f3 branch V8
1 file changed, 1 insertion(+)
create mode 100644 8.txt
$ git checkout master
Switched to branch 'master'
Type here to search


DevOps Practice - 1
File Home Share View
This PC > Documents > DevOps Practice - 1
Quick access
Creative Cloud Files
OneDrive
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Network
Name
Date modified
Type
Size
1
2
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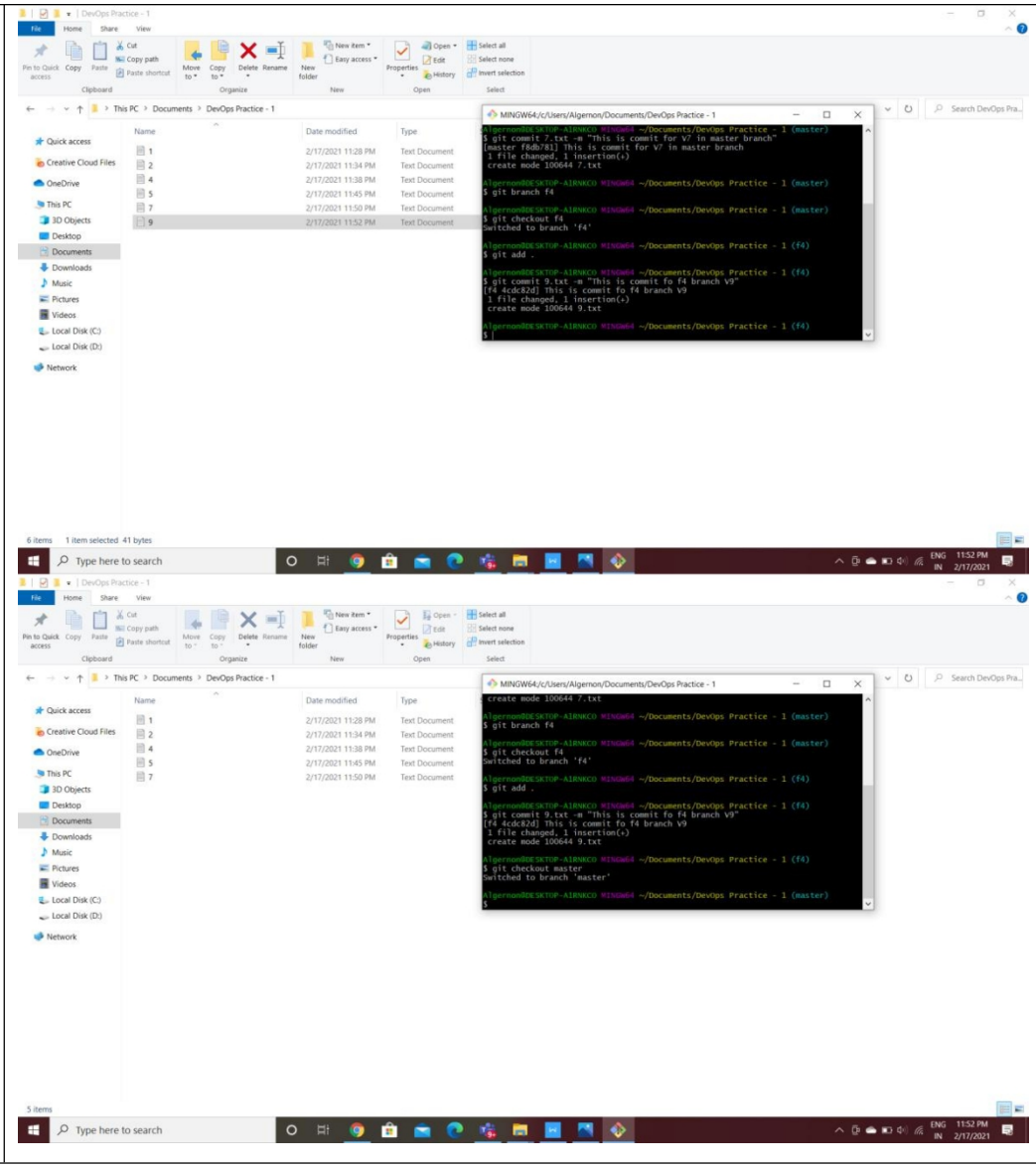
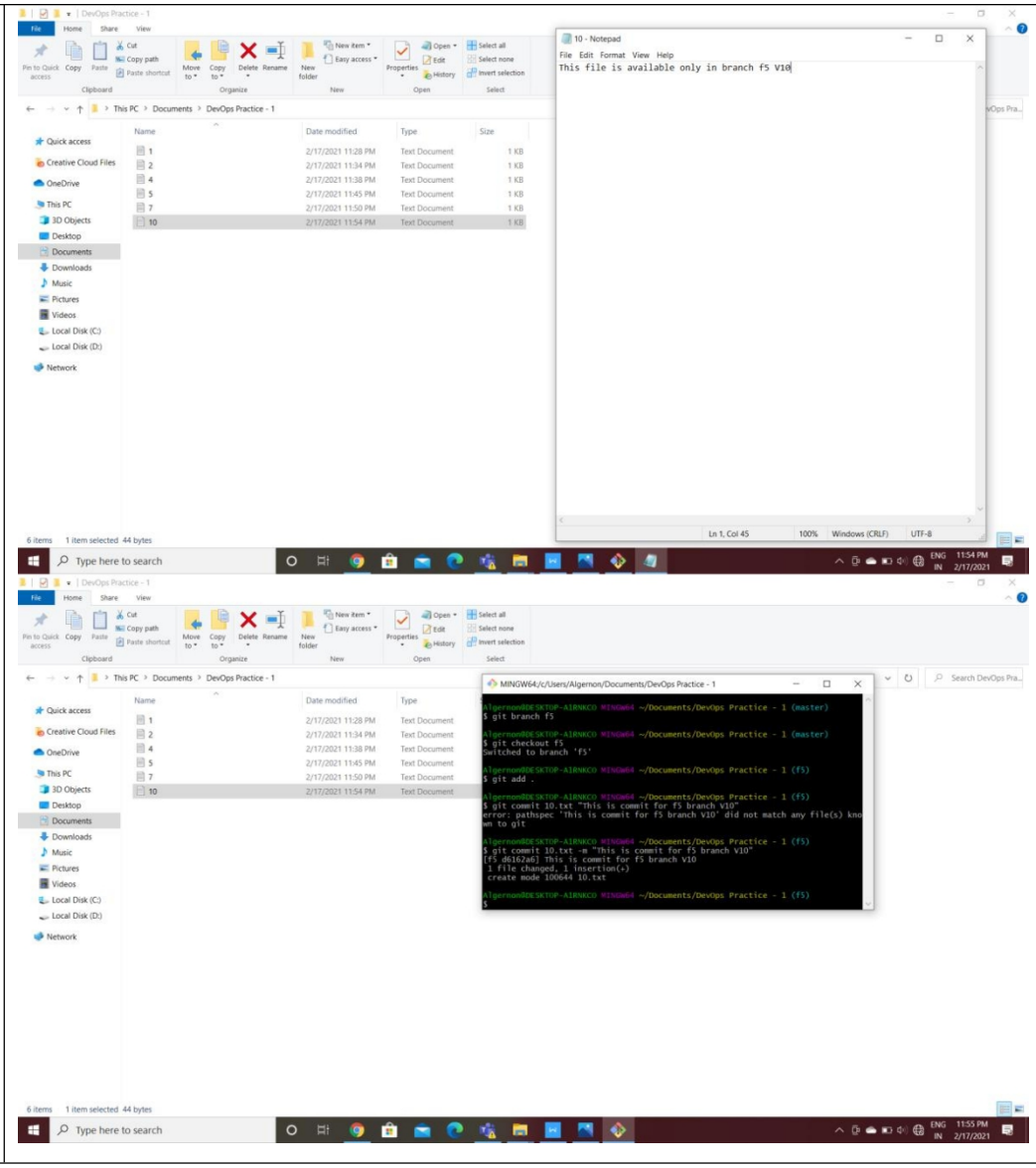
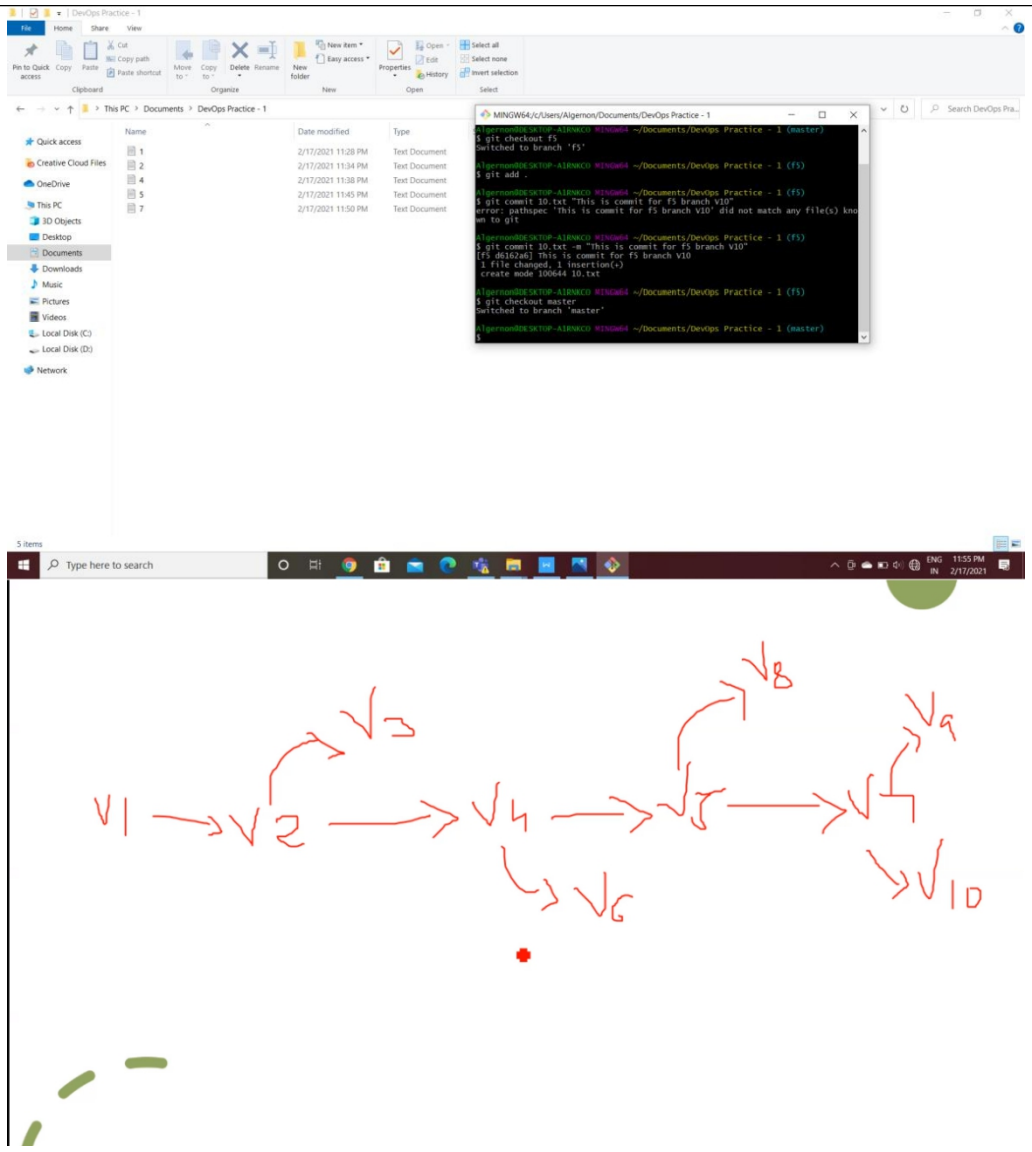
7
2/17/2021 11:28 PM Text Document 1 KB
2/17/2021 11:34 PM Text Document 1 KB
2/17/2021 11:38 PM Text Document 1 KB
2/17/2021 11:45 PM Text Document 1 KB
2/17/2021 11:50 PM Text Document 1 KB
5 items 1 item selected 31 bytes
7 - Notepad
File Edit Format View Help
This is file 7 in master branch
Ln 1, Col 32 100% Windows (CRLF) UTF-8
Type here to search
ENG IN 11:50 PM 2/17/2021
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
AlgernonDESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git status
On branch master
Untracked files:
(use "git add <file>..." to include in what will be committed)
7.txt
nothing added to commit but untracked files present (use "git add" to track)
AlgernonDESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git add .
AlgernonDESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$ git commit 7.txt -m "This is commit for V7 in master branch"
[master f8db781] This is commit for V7 in master branch
1 file changed, 1 insertion(+)
create mode 100644 7.txt
AlgernonDESKTOP-A1RNKCO MINGW64 ~/Documents/DevOps Practice - 1 (master)
$


DevOps Practice - 1
File Home Share View
This PC > Documents > DevOps Practice - 1
Quick access
Creative Cloud Files
OneDrive
This PC
3D Objects
Desktop
Documents
Downloads
Music
Pictures
Videos
Local Disk (C:)
Local Disk (D:)
Network
Name
Date modified
Type
1 2/17/2021 11:28 PM Text Document
2 2/17/2021 11:34 PM Text Document
4 2/17/2021 11:38 PM Text Document
5 2/17/2021 11:45 PM Text Document
7 2/17/2021 11:50 PM Text Document
9 2/17/2021 11:52 PM Text Document
6 items 1 item selected 41 bytes
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git commit 7.txt -m "This is commit for V7 in master branch"
[master f8db781] This is commit for V7 in master branch
1 file changed, 1 insertion(+)
create mode 100644 7.txt
$ git branch f4
$ git checkout f4
Switched to branch 'f4'
$ git add .
$ git commit 9.txt -m "This is commit fo f4 branch V9"
[f4 4cdc82d] This is commit fo f4 branch V9
1 file changed, 1 insertion(+)
create mode 100644 9.txt
Type here to search
ENG IN 11:52 PM 2/17/2021
DevOps Practice - 1
This PC > Documents > DevOps Practice - 1
5 items
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
create mode 100644 7.txt
$ git branch f4
$ git checkout f4
Switched to branch 'f4'
$ git add .
$ git commit 9.txt -m "This is commit fo f4 branch V9"
[f4 4cdc82d] This is commit fo f4 branch V9
1 file changed, 1 insertion(+)
create mode 100644 9.txt
$ git checkout master
Switched to branch 'master'
Type here to search
ENG IN 11:52 PM 2/17/2021


10 - Notepad
File Edit Format View Help
This file is available only in branch f5 V10
MINGW64:/c/Users/Algernon/Documents/DevOps Practice - 1
$ git branch f5
$ git checkout f5
Switched to branch 'f5'
$ git add .
$ git commit 10.txt "This is commit for f5 branch V10"
error: pathspec 'This is commit for f5 branch V10' did not match any file(s) known to git
$ git commit 10.txt -m "This is commit for f5 branch V10"
[f5 d6162a6] This is commit for f5 branch V10
1 file changed, 1 insertion(+)
create mode 100644 10.txt
Type here to search

	
Conclusion	Thus, we have implemented the above diagram of Version Control using the Git tool