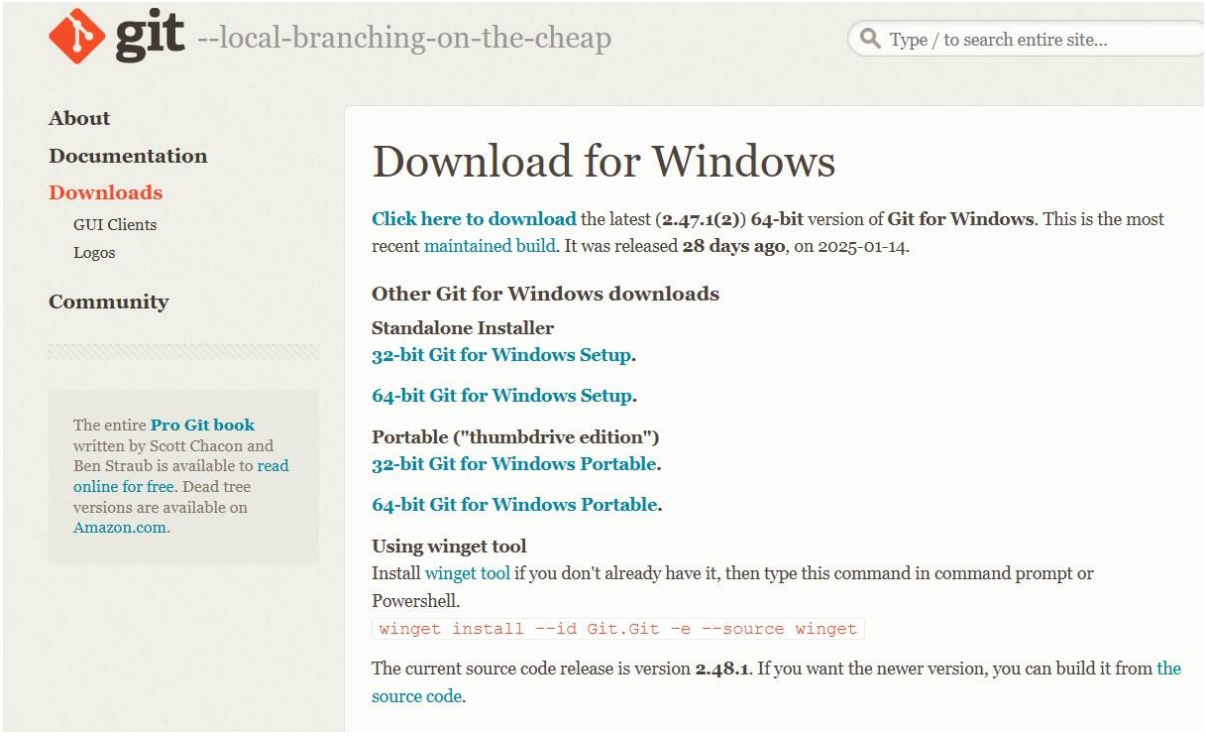
# Source code Management

## Lab Practical 1

### 1. Installing Git in Windows

Step 1: Visit section 1.5 of pro git document and navigate to Windows section




Step 2: Verify Git Installation:

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$ git --version
git version 2.49.0.windows.1
```
p

# 2. Basic CLI Commands

## 1) Command: pwd

**Description:** Prints the directory the user is working in.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$ pwd
/c/source_project/kushal
```

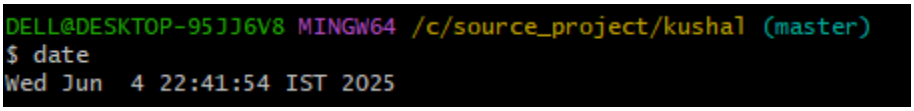
## 2) Command: ls

**Description:** Lists all files and directories in the current directory

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ ls
'$AV_ASW'/      AiOLog.txt              DumpStack.log      Intel/      MagiPacks/      'Program Files (x86)'/  Recovery/                'System Volume Information'/  Windows/      pagefile.sys
'$Recycle.Bin'/  Config.Msi/             DumpStack.log.tmp  KMPlayer/   PerfLogs/       ProgramData/            Users/                   hiberfil.sys                  source_project/
'$WinREAgent'/  'Documents and Settings'@ 'GOG Games'/       MSOCache/  'Program Files'/ 'R.G. Catalyst'/       inetpub/                 swapfile.sys
```

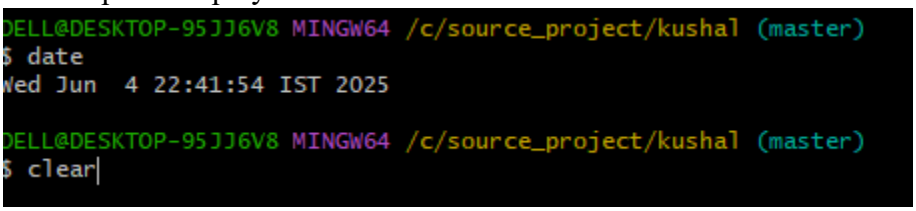
## 3. Command: date

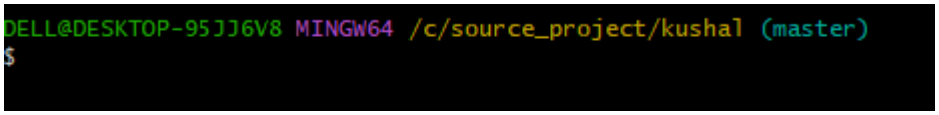
Description: shows the current date and time in a standard format




## 4. Command: clear

Description: The `clear` command in the CLI is used to clear all the current text and output displayed in the terminal window.



## 5. Command: time

Description: The `time` command in the CLI is used to measure the execution time of a command or program.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$ time

real    0m0.003s
user    0m0.000s
sys     0m0.000s
```

## 6. Command: cd 'Directory'

**Description:** Changes the current working directory to the desired directory.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ cd source_project

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project
$ cd kushal

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$
```

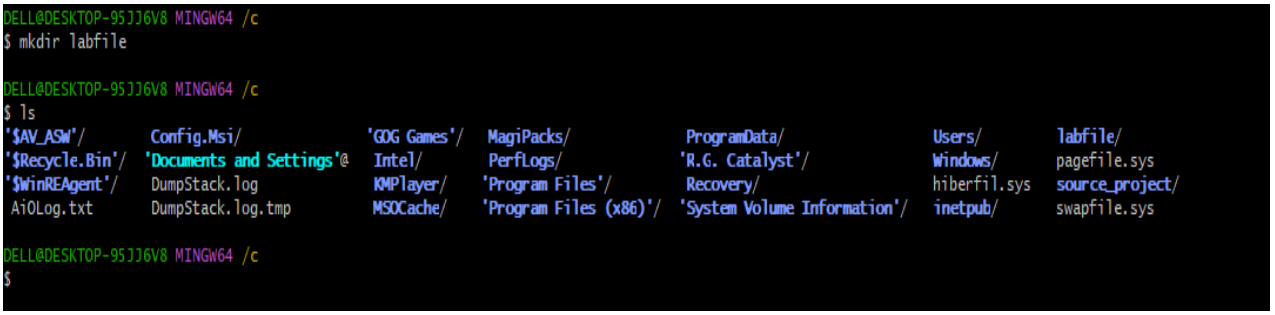
## 7. Command: cd ..

Description: Goes back to the previous directory.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ cd source_project

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project
$ cd kushal

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$ cd ..

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project
$
```

## 8. Command: mkdir

**Description:** To create a new directory.




## 9. Command: rmdir

**Description: To delete a directory**

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ mkdir labfile

DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ ls
'$AV_ASW'/       Config.Msi/             'GOG Games'/   MagiPacks/            ProgramData/              Users/       labfile/
'$Recycle.Bin'/  'Documents and Settings'@  Intel/       PerfLogs/            'R.G. Catalyst'/          Windows/     pagefile.sys
'$WinREAgent'/   DumpStack.log           KMPlayer/     'Program Files'/      Recovery/                 hiberfil.sys source_project/
 AiOLog.txt      DumpStack.log.tmp       MSOCache/     'Program Files (x86)'/ 'System Volume Information'/ inetpub/     swapfile.sys

DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ rmdir labfile

DELL@DESKTOP-95JJ6V8 MINGW64 /c
$ ls
'$AV_ASW'/       AiOLog.txt              DumpStack.log      Intel/      MagiPacks/       'Program Files (x86)'/   Recovery/                 Windows/     pagefile.sys
'$Recycle.Bin'/  Config.Msi/             DumpStack.log.tmp  KMPlayer/   PerfLogs/         ProgramData/            'System Volume Information'/ hiberfil.sys source_project/
'$WinREAgent'/   'Documents and Settings'@ 'GOG Games'/      MSOCache/  'Program Files'/  'R.G. Catalyst'/        Users/                    inetpub/     swapfile.sys

DELL@DESKTOP-95JJ6V8 MINGW64 /c
$
```

# 3. Vim Text Editor

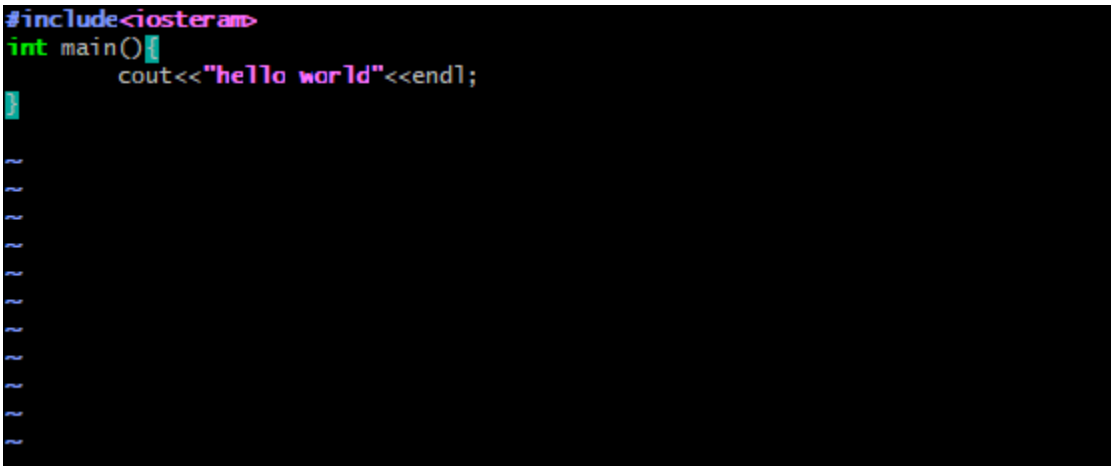
## 1) Command: vi hi.txt

**Description:** Opens (or creates) the file `hi.txt` in the Vim text editor.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile
$ vi hello.cpp
```

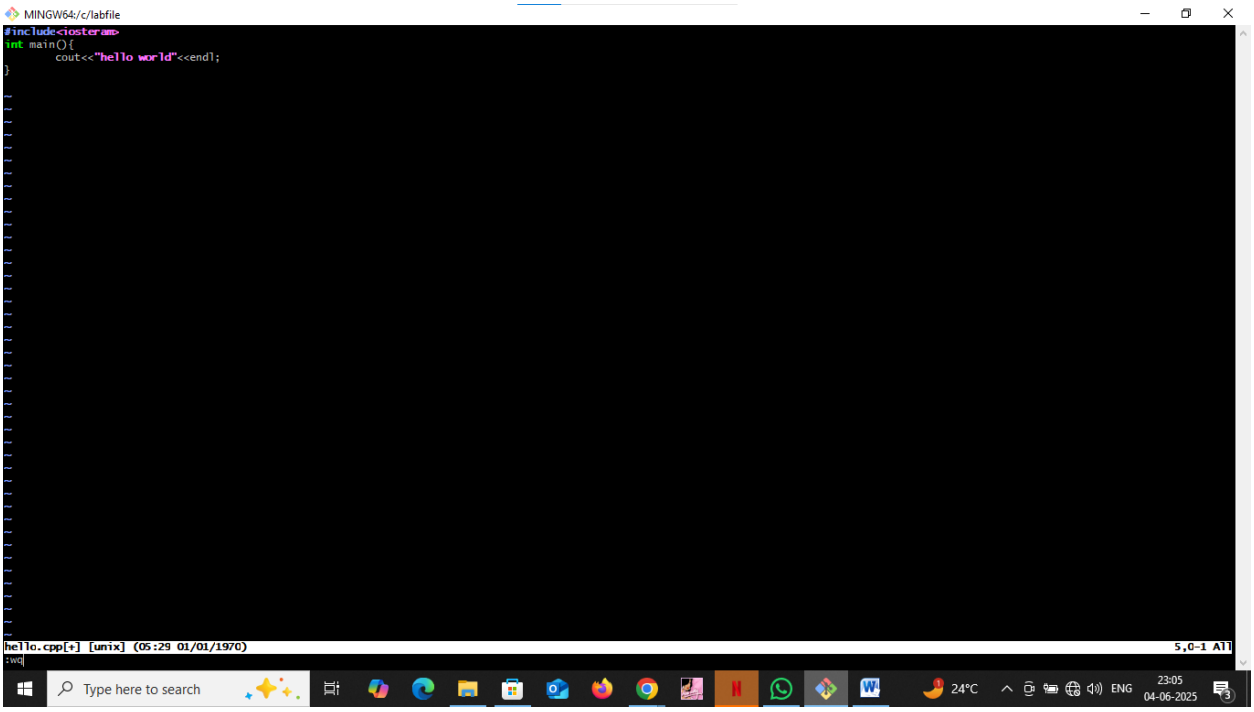

## 2) Command: `i` (Insert Mode)

**Description:** Enters insert mode in Vim to allow text input.



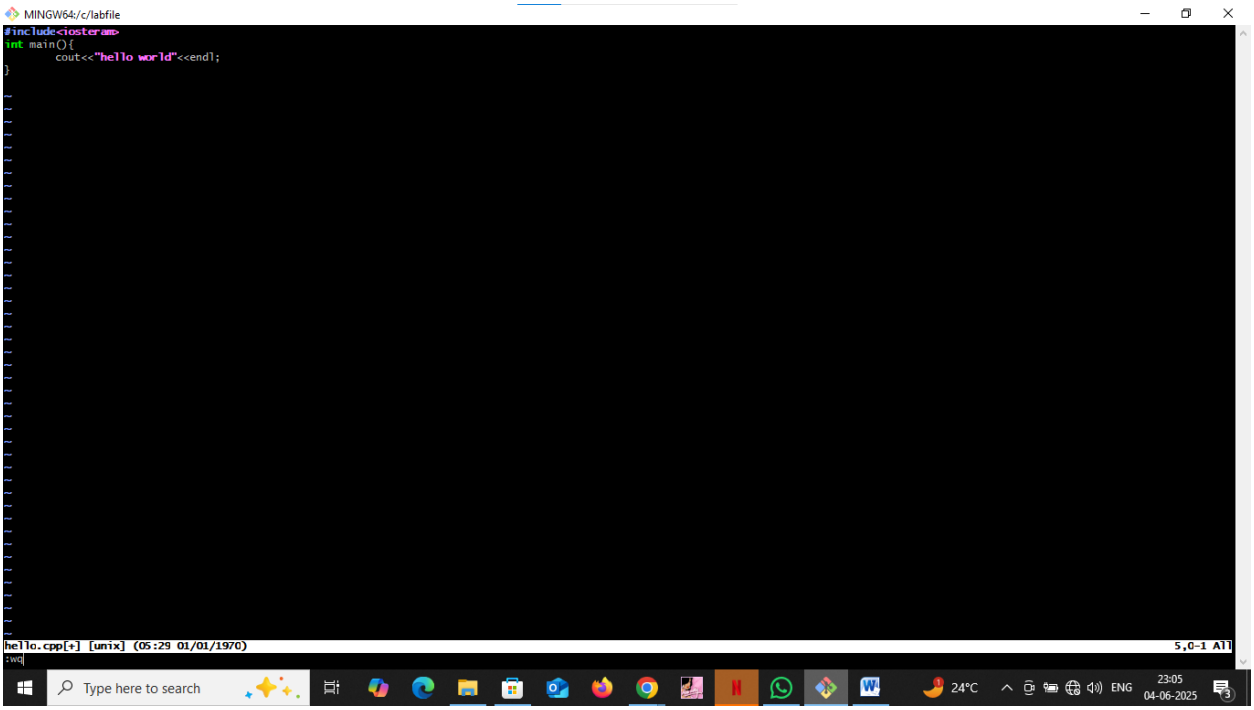
## 3) Command: esc

Description: Used to exit insert mode




## 4) Command: `:wq`

**Description:** Saves the changes and exits the Vim editor.




## 5. Command: git init

**Description:** Initializes a new Git repository in the current directory.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile
$ vi hello.cpp

DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile
$ git init
Initialized empty Git repository in C:/labfile/.git/

DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$
```

## 3. Command: git status

**Description:** Displays the current status of the working directory and staging area.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

DELL@DESKTOP-95JJ6V8 MINGW64 /c/source_project/kushal (master)
$
```

## 4. Command: git add Test.c

**Description:** Add Test.c to the staging area in preparation for a commit.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git add .
warning: in the working copy of 'hello.cpp', LF will be replaced by CRLF the next time Git touches it
```

## 5. Command: git commit -m “add file one”

**Description:** Commits the stage changes with the message “add file one”.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git add .
warning: in the working copy of 'hello.cpp', LF will be replaced by CRLF the next time Git touches it

DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git commit -m "initial commit"
[master (root-commit) dc6f155] initial commit
 1 file changed, 5 insertions(+)
 create mode 100644 hello.cpp
```

## 6. Command: git log

**Description:** Display the commit history of the repository.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git log
commit dc6f15588f55a769fa6e7eee8d41180fc3d1eed8 (HEAD -> master)
Author: kushal-reddy19 <kushalreddy.ks@s.amity.edu>
Date:   Wed Jun 4 23:15:59 2025 +0530

    initial commit
```

## 7. Command: git clone

**Description:** To obtain a copy of an existing Git repository.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git clone https://github.com/kushal-reddy19/hello
Cloning into 'hello'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (10/10), done.
remote: Total 13 (delta 3), reused 10 (delta 2), pack-reused 0 (from 0)
Receiving objects: 100% (13/13), done.
Resolving deltas: 100% (3/3), done.
```

## 8. Command: git log --oneline

**Description:** For generating shorter commit ID.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git log --oneline
dc6f155 (HEAD -> master) initial commit
```

## 9. Command: git diff

**Description:** To compare two files.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git log --oneline
16a0963 (HEAD -> master) second commit
dc6f155 initial commit

DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git diff 16a0963 dc6f155
diff --git a/he.cpp b/he.cpp
deleted file mode 100644
index 8c9380f..0000000
--- a/he.cpp
+++ /dev/null
@@ -1,2 +0,0 @@
-hi
-iam kushal
diff --git a/hello b/hello
deleted file mode 160000
index 7521200..0000000
--- a/hello
+++ /dev/null
@@ -1 +0,0 @@
-Subproject commit 75212000c815cf726ef3b9e649bc7f6bf74a27c2
```

## 10. Command: git remote add “Variable”

**Description:** To connect with the Users GitHub account.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git remote add origin https://github.com/kushal-reddy19/sample
```

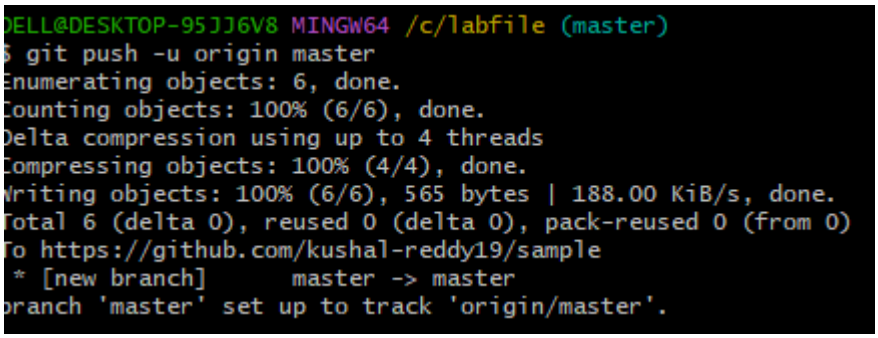
## 11. Command: git remote

**Description:** To check the status of the repositories connected with the Users account.

```
DELL@DESKTOP-95JJ6V8 MINGW64 /c/labfile (master)
$ git remote
origin
```

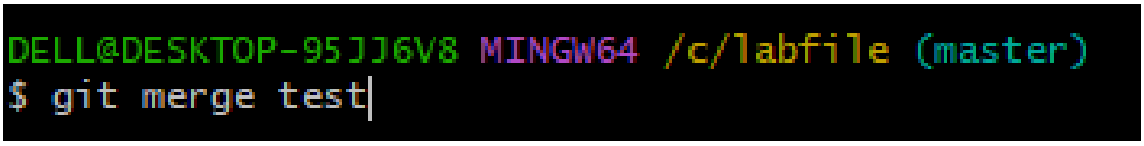
## 12. Command: git push -u “Variable” master

**Description:** To push all the files to the Users account.




## 13. Command: git merge “File_Name” -m “comment”

**Description:** To merge a branch with main branch.

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