

VTU 2025 Scheme
Project Management (with Git)
1BCSL307A – 3rd Semester

EXPERIMENT – 11
Git History and Commit Inspection
Displaying the Last Five Commits

Aim

To display the last five commits in a Git repository using the `git log` command.

Objectives

After completing this experiment, the student will be able to:

- Understand Git commit history.
- Display repository commit history.
- Limit the number of commits displayed.
- Display only the latest five commits.
- View commits in detailed format.
- View commits in compact one-line format.
- Identify recent commit IDs and messages.

Software Requirements

- Git
- Windows Command Prompt / PowerShell / Git Bash
- Text Editor such as Notepad or Visual Studio Code

Theory

Git maintains a complete history of the commits created in a repository.

The `git log` command is used to view this history.

By default:

```
git log
```

displays commit history starting from the most recent commit and continues toward older commits.

In large projects, the repository may contain hundreds or thousands of commits. Instead of viewing the complete history, Git allows us to limit the number of commits displayed.

For example:

```
git log -5
```

displays only the latest five commits.

What Information Does git log Display?

The standard `git log` output normally includes:

- Commit ID
- Author name
- Author email
- Commit date
- Commit message

Limiting Git Log Output

The general syntax is:

```
git log -n
```

where `n` represents the number of commits to display.

Examples:

```
git log -1  
git log -3  
git log -5  
git log -10
```

Therefore, for this experiment:

```
git log -5
```

is used.

Last Five Commits Concept

The following diagram represents a repository containing several commits. Only the latest five commits are selected.

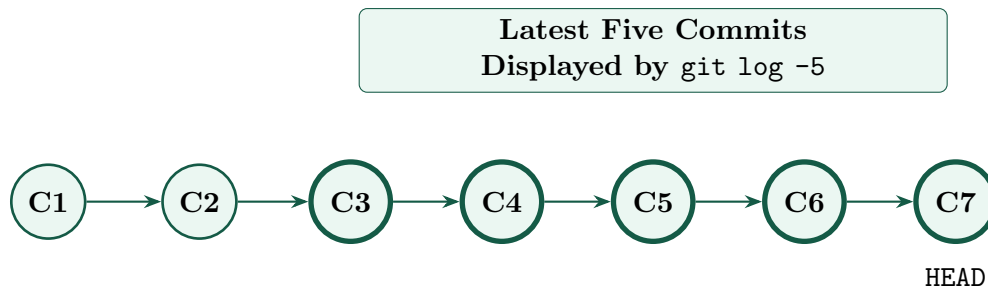


Diagram Explanation:

- C1 to C7 represent commits in the repository.
- C7 represents the latest commit in this example.
- C3, C4, C5, C6, and C7 are the latest five commits.
- `git log -5` displays these five recent commits.
- Older commits are not included in this limited output.

Important Commands

Command	Purpose
<code>git log</code>	Displays the commit history.
<code>git log -5</code>	Displays the latest five commits.
<code>git log -5 --oneline</code>	Displays the latest five commits in compact form.
<code>git log --oneline</code>	Displays the complete history in compact form.
<code>git log -1</code>	Displays only the latest commit.

Procedure

Step 1: Open Command Prompt, PowerShell, or Git Bash.

Step 2: Open an existing Git repository.

Step 3: Verify the repository using `git status`.

Step 4: Display the complete commit history.

Step 5: Observe the order of commits.

Step 6: Execute `git log -5`.

Step 7: Observe the latest five commits.

Step 8: Execute `git log -5 --oneline`.

Step 9: Verify that only five commits are displayed.

Execution

Step 1: Open Git Repository

Move into an existing Git repository.

Example:

```
cd git-project
```

Step 2: Verify Repository

Execute:

```
git status
```

Sample Output:

```
On branch master
nothing to commit, working tree clean
```

The branch may be named `main`, `master`, or another name depending on the repository.

Step 3: Display Complete Commit History

Execute:

```
git log
```

Sample Output:

```
commit f7a8b9c...
Author: Student <student@email.com>
Date:   ...

    Update documentation

commit e6f7a8b...
Author: Student <student@email.com>
Date:   ...

    Add login validation

commit d5e6f7a...
Author: Student <student@email.com>
Date:   ...

    Update user interface
```

The command continues displaying older commits.

Step 4: Display Last Five Commits

Execute:

```
git log -5
```

This is the main command required for Experiment 11.

Sample Output:

```
commit f7a8b9c...
Author: Student <student@email.com>
Date:   ...

    Update documentation

commit e6f7a8b...
Author: Student <student@email.com>
Date:   ...

    Add login validation

commit d5e6f7a...
Author: Student <student@email.com>
Date:   ...

    Update user interface

commit c4d5e6f...
Author: Student <student@email.com>
Date:   ...

    Add database connection

commit b3c4d5e...
Author: Student <student@email.com>
Date:   ...

    Create project structure
```

Only the latest five commits are displayed.

Step 5: Display Last Five Commits in One-Line Format

Execute:

```
git log -5 --oneline
```

Sample Output:

```
f7a8b9c Update documentation
e6f7a8b Add login validation
```

```
d5e6f7a Update user interface
c4d5e6f Add database connection
b3c4d5e Create project structure
```

Explanation:

Each line contains:

- Short commit ID
- Commit message

This format is useful for quickly checking recent commit history.

Step 6: Verify the Number of Commits

Count the entries displayed by:

```
git log -5 --oneline
```

If the repository contains at least five commits, exactly five commit entries will be displayed.

Important Note:

If the repository contains fewer than five commits, Git displays only the commits that actually exist.

Step 7: Display Latest Commit Only

For comparison, execute:

```
git log -1
```

This displays only the most recent commit.

Step 8: Display Last Three Commits

Execute:

```
git log -3 --oneline
```

This displays only the latest three commits.

This demonstrates that the number after the hyphen controls how many commits Git displays.

Main Command for Experiment 11

The main command is:

```
git log -5
```

For a compact and easy-to-read result:

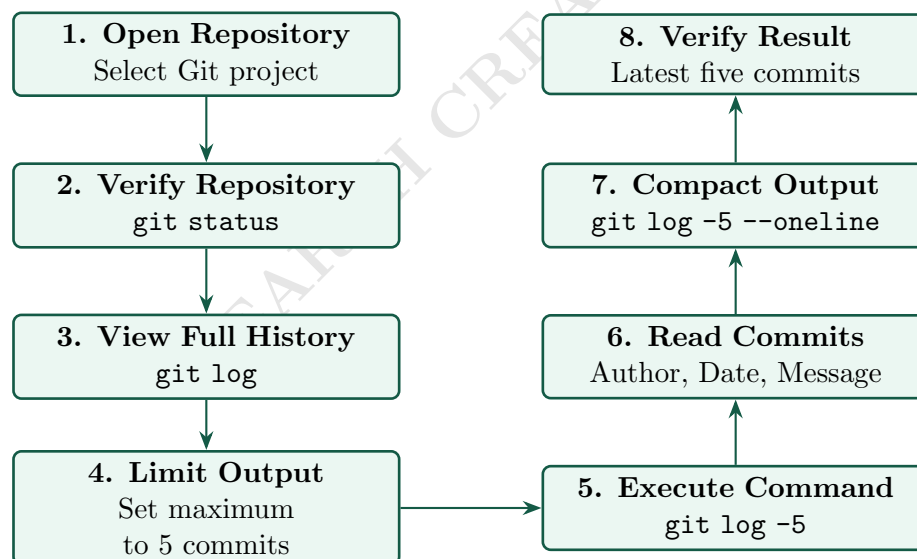
```
git log -5 --oneline
```

Complete Command Sequence

```
cd git-project  
  
git status  
  
git log  
  
git log -5  
  
git log -5 --oneline  
  
git log -1  
  
git log -3 --oneline
```

Experiment Workflow

The complete workflow of Experiment 11 is shown below.



Workflow Explanation:

1. Open the required Git repository.
2. Verify that it is a valid Git repository.
3. Display the complete commit history.
4. Limit the required output to five commits.
5. Execute `git log -5`.

6. Observe the details of the latest five commits.
7. Use `--oneline` for compact output.
8. Verify the final result.

Detailed Log vs One-Line Log

Feature	git log -5	git log -5 --oneline
Number of Commits	Maximum five	Maximum five
Commit ID	Full hash	Short hash
Author	Displayed	Not displayed by default
Date	Displayed	Not displayed by default
Commit Message	Displayed	Displayed
Output Style	Detailed	Compact

Result

Thus, the last five commits of the Git repository were successfully displayed using the `git log -5` command. The same five recent commits were also displayed in compact format using `git log -5 --oneline`.

Viva Questions and Answers

1. What is git log?

`git log` is a Git command used to display commit history.

2. Which command displays the last five commits?

```
git log -5
```

3. How can we display the last five commits in compact format?

```
git log -5 --oneline
```

4. What does -5 represent?

It limits the output to a maximum of five commits.

5. Which commit is normally displayed first by git log?

The most recent reachable commit is normally displayed first.

6. What information does normal git log display?

It normally displays commit ID, author, date, and commit message.

7. **What does `--oneline` do?**

It displays each commit in a compact single-line format.

8. **What information is shown in the default `--oneline` format?**

It shows the abbreviated commit ID and commit message.

9. **How do you display only the latest commit?**

```
git log -1
```

10. **How do you display the latest three commits?**

```
git log -3
```

11. **Can we change the number of commits displayed?**

Yes. The required number can be specified after the hyphen.

For example:

```
git log -10
```

12. **What happens if the repository contains only three commits and we execute `git log -5`?**

Git displays the three commits that exist in the repository.

13. **Why is `git log -5` useful?**

It provides a quick view of the most recent commit history without displaying the complete repository history.

14. **What is a commit ID?**

A commit ID is a unique hash used to identify a Git commit.

Conclusion

In this experiment, Git commit history was examined using the `git log` command. The output was limited to the latest five commits using `git log -5`. The same commits were also viewed in compact format using the `--oneline` option.

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