

Level 1: Single File Basics

Task 1.1: First Report

- Create a new folder called tech-learning
- Initialize it as a Git repository

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git init
Initialized empty Git repository in C:/Users/aliya/OneDrive/Desktop/tech-learning/.git/
```

- Create a file introduction.txt and write 3–4 sentences about what you learned today about software
- Check the status

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    introduction.txt

nothing added to commit but untracked files present (use "git add" to track)
```

- Add the file to staging area

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add .
```

- Commit with message "Add introduction to tech journal"

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add introduction to tech journal"
[master (root-commit) 870316d] Add introduction to tech journal
 1 file changed, 4 insertions(+)
 create mode 100644 introduction.txt
```

- View your commit log in one-line format

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git log --oneline
870316d (HEAD -> master) Add introduction to tech journal
```

Task 1.2: Software Types Overview

- Create a file software-types.txt and write 2–3 lines about software types
- Check status (untracked file)

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git status
On branch master

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    software-types.txt
```

- Add and commit with message "Add software types overview"

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add software types overview"
On branch master
Untracked files:
  (use "git add <file>..." to include in what will be committed)
       software-types.txt

nothing added to commit but untracked files present (use "git add" to track)
```

- View log – should see 2 commits

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git log --oneline
870316d (HEAD -> master) Add introduction to tech journal
```

Level 2: Building Content Gradually

Task 2.1: Expanding Software Types

- Add a section about Web Applications (3–4 sentences)
- Check status, add, commit with "Add web applications section"

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
       new file:   software-types.txt

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
       modified:   software-types.txt
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add web applications section"
[master 2dfd2f4] Add web applications section
1 file changed, 2 insertions(+)
create mode 100644 software-types.txt
```

- View log – 3 commits

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git log --oneline
2dfd2f4 (HEAD -> master) Add web applications section
870316d Add introduction to tech journal
```

Task 2.2: Adding More Software Types

- Add Mobile Applications section (3–4 sentences), add & commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add .

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add Mobile Applications section"
[master c758309] Add Mobile Applications section
1 file changed, 7 insertions(+), 1 deletion(-)
```

- Add Desktop Applications section, add & commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m "Add Desktop Applications section"
[master 6515f42] Add Desktop Applications section
1 file changed, 5 insertions(+), 1 deletion(-)
```

- View log – 5 commits

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git log --oneline
6515f42 (HEAD -> master) Add Desktop Applications section
c758309 Add Mobile Applications section
2dfd2f4 Add web applications section
870316d Add introduction to tech journal
```


Level 3: Connect to GitHub

Task 3.1: Publishing Your Work

- Create GitHub repo tech-learning

create / -tech-learning

all requests Actions Projects Wiki Security Insights

 -tech-learning Public

- Add remote origin

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git remote add origin https://github.com/aliyarashidsarhan-create/-tech-learning.git
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push --set-upstream origin master
fatal: 'origin' does not appear to be a git repository
fatal: Could not read from remote repository.
```

Please make sure you have the correct access rights
and the repository exists.

- Push commits

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push origin
Everything up-to-date

C:\Users\aliya\OneDrive\Desktop\tech-learning>git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean
```

- Verify files and commits on GitHub

Commits on Nov 18, 2025

git commands aliyarashidsarhan-create committed 24 minutes ago	424287c	<>
Add Desktop Applications section aliyarashidsarhan-create committed 45 minutes ago	6515f42	<>
Add Mobile Applications section aliyarashidsarhan-create committed 46 minutes ago	c758309	<>
Add web applications section aliyarashidsarhan-create committed 49 minutes ago	2dfd2f4	<>
Add introduction to tech journal aliyarashidsarhan-create committed 1 hour ago	870316d	<>


master
1 Branch
0 Tags

Add file
Code

aliyarashidsarhan-create Add Database fabb005 · 14 minutes ago 9 Commits	
introduction.txt	Add introduction to tech journal 1 hour ago
my-learning-notes.txt	git commands 26 minutes ago
software-types.txt	Add Desktop Applications section 47 minutes ago
web-development.txt	Add Database 14 minutes ago

Task 3.2: Continuing Work After Push

- Create my-learning-notes.txt

 **my-learning-notes**

- Write what you learned about Git commands

Git commands:

1. Setup & Configuration

```
git config --global user.name "Your Name"  
git config --global user.email "your@email.com"
```

2. Starting a Repository

```
git init  
git clone <repo-url>
```

3. Checking Status & History

```
git status  
git log --oneline
```

4. Staging & Committing

```
git add .  
  
git commit -m "message"
```

5. Working With GitHub (Remote)


```
git remote add origin <url>  
git push  
git pull
```

- Add, commit, push, verify on GitHub

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"git commands"  
[master 424287c] git commands  
1 file changed, 24 insertions(+)  
create mode 100644 my-learning-notes.txt
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push  
Enumerating objects: 4, done.  
Counting objects: 100% (4/4), done.  
Delta compression using up to 12 threads  
Compressing objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 572 bytes | 95.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To https://github.com/aliyarashidsarhan-create/-tech-learning.git  
6515f42..424287c master -> master
```

Commits

 master

🔍 All users

Commits on Nov 18, 2025

git commands

aliyarashidsarhan-create committed 22 minutes ago

424287

Add Desktop Applications section

Level 4: Web Development Basics:

Create web-development.txt, write title & intro:

Web Development:
refers to the process of building, creating, and maintaining websites and web applications that run on the internet.

- Commit "Add web development introduction

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add web development introduction"
[master 030108c] Add web development introduction
1 file changed, 2 insertions(+)
create mode 100644 web-development.txt
```

Add Frontend section (4-5 sentences), commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"frontend "
[master e4ecef6] frontend
1 file changed, 12 insertions(+), 1 deletion(-)
```

Add Backend section, commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"backend development"
[master b6cdf41] backend development
1 file changed, 23 insertions(+), 1 deletion(-)
```

Add Database section, commit:

Web Development - Databases (Database Basics)

A database is a system used to store, organize, and manage data so web applications can retrieve and update information efficiently. Almost every modern website uses a database – for example, to store user accounts, product details, orders, messages, posts, etc.

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"Add Database"
[master fabb005] Add Database
1 file changed, 5 insertions(+), 1 deletion(-)

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

Push to GitHub

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 12 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (12/12), 1.44 KiB | 1.44 MiB/s, done.
Total 12 (delta 7), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (7/7), completed with 1 local object.
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
  424287c..fabb005  master -> master
```

Task 4.2: Remote Edit Practice

- Edit web-development.txt on GitHub, add conclusion, commit

```
}
. Conclusion: Web Development
!
| Web development is a dynamic and essential field that focuses on building and maintaining websites a
| functional, and user-friendly digital experiences. As technology continues to grow, modern tools, fr
| education, entertainment, or e-commerce, web development plays a central role in connecting people a
|
```

Commit message

conclusion web-development.txt

Extended description

Add an optional extended description...

- ☒ Commit directly to the master branch
- ☐ Create a **new branch** for this commit and start a pull request [Learn more about pull requests](#)

Cancel

Commit changes

- Pull changes locally and verify

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 1.26 KiB | 258.00 KiB/s, done.
From https://github.com/aliyarashidsarhan-create/-tech-learning
   fabb005..e5f1347  master    -> origin/master
Updating fabb005..e5f1347
Fast-forward
 web-development.txt | 4 ++++
 1 file changed, 4 insertions(+)

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

Level 5: Multiple Files Project

Task 5.1: Technology Stacks Research

- Create frontend-technologies.txt (HTML, CSS, JS), commit


```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit"frontend-technologies.txt (HTML, CSS, JS)"
git: 'commitfrontend-technologies.txt (HTML, CSS, JS)' is not a git command. See 'git --help'.

C:\Users\aliya\OneDrive\Desktop\tech-learning>|
```

- Create backend-technologies.txt (Node.js, Python, PHP), commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"backend-technologies(Node.js, Python, PHP)"
[master 65f2f9f] backend-technologies(Node.js, Python, PHP)
 2 files changed, 2 insertions(+)
 create mode 100644 backend-technologies.txt
 create mode 100644 frontend-technologies.txt
```

- Create database-technologies.txt (MySQL, MongoDB, PostgreSQL), commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit" database-technologies(MySQL, MongoDB, PostgreSQL)"
git: 'commit database-technologies(MySQL, MongoDB, PostgreSQL)' is not a git command. See 'git --help'.

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

- Push commits

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 525 bytes | 525.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
 e5f1347..65f2f9f  master -> master

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

Task 5.2: Updating Multiple Files

- Modify frontend-technologies.txt (React/Vue), save
- Modify backend-technologies.txt (Java/Ruby), save

- Stage ONLY frontend file, commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add frontend-technologies.txt

C:\Users\aliya\OneDrive\Desktop\tech-learning>|

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"stage frontend"
[master c53dfcf] stage frontend
 1 file changed, 1 insertion(+)

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

- Stage backend file, commit

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add backend-technologies.txt
C:\Users\aliya\OneDrive\Desktop\tech-learning>
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"stage backend"
[master c9dd9d4] stage backend
 1 file changed, 1 insertion(+), 1 deletion(-)
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

- Push

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 549 bytes | 549.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
 65f2f9f..c9dd9d4  master -> master
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

Level 6: Development Stacks Deep Dive

Task 6.1: Popular Stacks Documentation

- Create mern-stack.txt, dotnet-stack.txt, springboot-stack.txt
- Explain stack components (frontend, backend, DB)
- Push commits

```

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"mern-stack"
[master dad5086] mern-stack
 4 files changed, 68 insertions(+)
 create mode 100644 database-technologies.txt
 create mode 100644 dotnet-stack.txt
 create mode 100644 mern-stack.txt
 create mode 100644 springboot-stack.txt

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"dotent-stack"
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"springboot-stack"
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

C:\Users\aliya\OneDrive\Desktop\tech-learning>
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 1.14 KiB | 1.14 MiB/s, done.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
   c9dd9d4..dad5086  master -> master

C:\Users\aliya\OneDrive\Desktop\tech-learning>

```

Task 6.2: Comparison Document

- Create stack-comparison.txt with intro, commit, push

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add .

C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"stack-comparison"
[master 6fbeb3c] stack-comparison
 1 file changed, 3 insertions(+)
 create mode 100644 stack-comparison.txt

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 635 bytes | 635.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
   dad5086..6fbeb3c  master -> master
```

C:\Users\aliya\OneDrive\Desktop\tech-learning>

- Edit on GitHub: add MERN vs DotNet comparison

```
4   MERN vs DotNet comparison:
5   MERN Stack
6
7   Technology: MongoDB, Express.js, React.js, Node.js
8
9   Language: JavaScript (full-stack)
10  .NET Stack
11
12  Technology: ASP.NET Core, C#, SQL Server / others
13
14  Language: C# (backend) + any frontend (e.g., Angular/React)
```

Commit changes



Commit message

MERN vs DotNet comparison

Extended description

Add an optional extended description...

- Locally add MERN vs Spring Boot comparison (without pulling)

MERN vs Spring Boot comparison:

MERN Stack

MongoDB, Express.js, React.js, Node.js

Best for: Full-stack JavaScript applications.

Spring Boot

Java-based backend framework

Best for: Enterprise, scalable, secure backend systems.

- Attempt push → conflict

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
! [rejected]        master -> master (fetch first)
error: failed to push some refs to 'https://github.com/aliyarashidsarhan-create/-tech-learning.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

- Pull, resolve, verify both comparisons

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 1.11 KiB | 126.00 KiB/s, done.
From https://github.com/aliyarashidsarhan-create/-tech-learning
   c53dfcf..8b292dd  master    -> origin/master
Updating c53dfcf..8b292dd
error: Your local changes to the following files would be overwritten by merge:
       stack-comparison.txt
Please commit your changes or stash them before you merge.
Aborting
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add stack-comparison.txt
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"mern vs spring "
[master fec4b4b] mern vs spring
 1 file changed, 14 insertions(+), 1 deletion(-)
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git diff
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 12 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 787 bytes | 787.00 KiB/s, done.
Total 6 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 2 local objects.
To https://github.com/aliyarashidsarhan-create/-tech-learning.git
   8b292dd..2f1dc94  master -> master
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

- Add conclusion locally, commit, push

Conclusion: MERN vs .NET Stack Comparison

Both MERN and .NET are powerful technology stacks, but each suits different types of projects and development preferences:

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git add .  
  
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"add conclusion "  
On branch master  
Your branch is up to date with 'origin/master'.  
  
nothing to commit, working tree clean  
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```

```
C:\Users\aliya\OneDrive\Desktop\tech-learning>git push  
Everything up-to-date  
  
C:\Users\aliya\OneDrive\Desktop\tech-learning>
```