

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"

```
:\\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
```

```
:\\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(-)
```

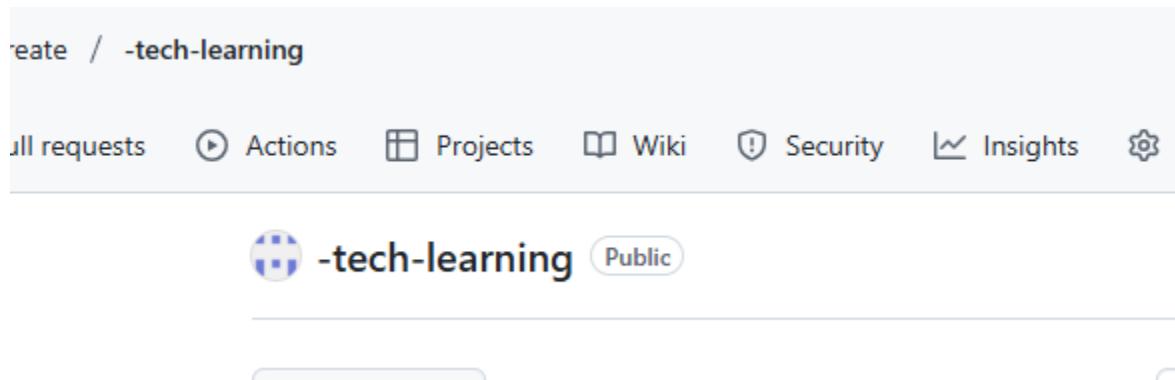
- View log – 5 commits

```
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



- 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

```
I:\Users\aliya\OneDrive\Desktop\tech-learning>git push origin  
Everything up-to-date  
  
I:\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	424287c	424287c
aliyarashidsarhan-create committed 24 minutes ago		
Add Desktop Applications section	6515f42	6515f42
aliyarashidsarhan-create committed 45 minutes ago		
Add Mobile Applications section	c758309	c758309
aliyarashidsarhan-create committed 46 minutes ago		
Add web applications section	2dfd2f4	2dfd2f4
aliyarashidsarhan-create committed 49 minutes ago		
Add introduction to tech journal	870316d	870316d
aliyarashidsarhan-create committed 1 hour ago		

master 1 Branch 0 Tags

Go to file t 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

The screenshot shows a GitHub commit history for the 'master' branch. There is one commit from 'aliyarashidharhan-create' titled 'git commands' made 22 minutes ago. The commit message is 'git commands'. The commit has 424287 views. There is also a link to '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"

```
::\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

```
::\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, etc.

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

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

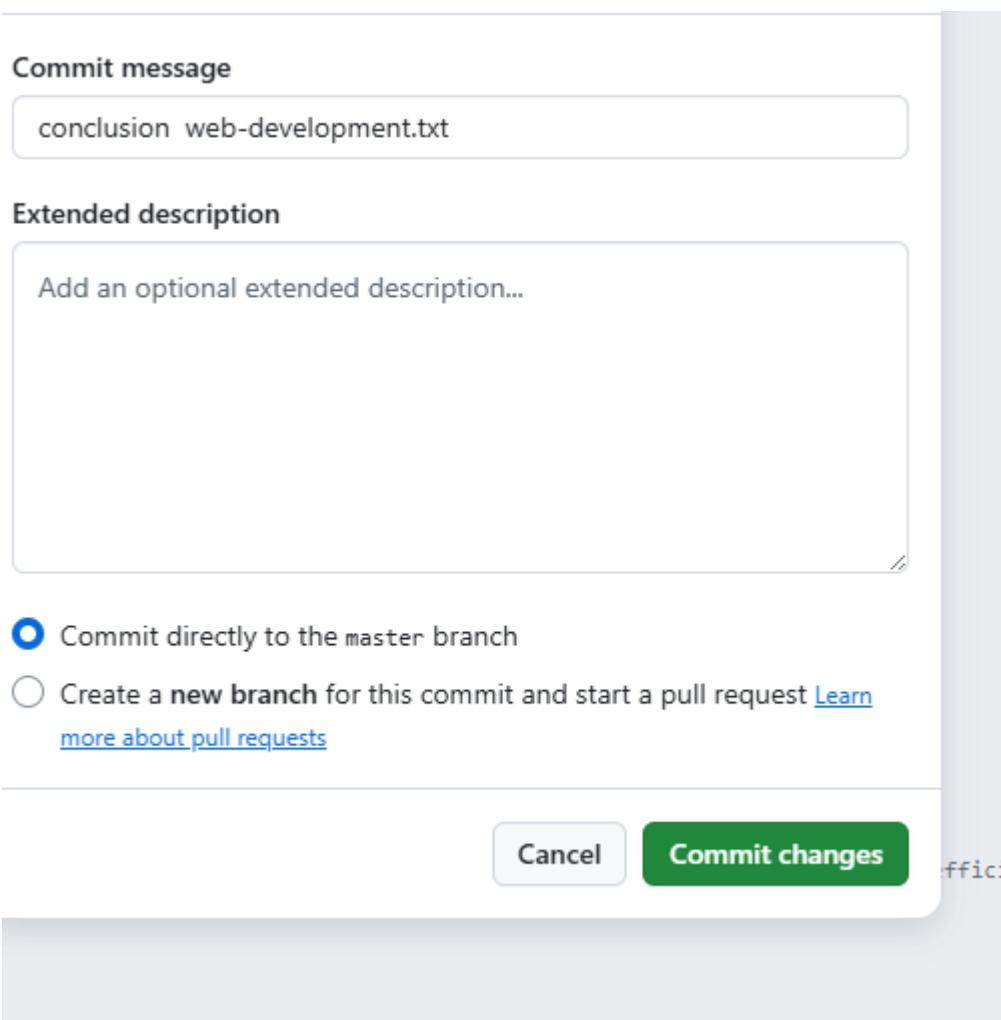
Push to GitHub

```
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
!
```



- 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 .

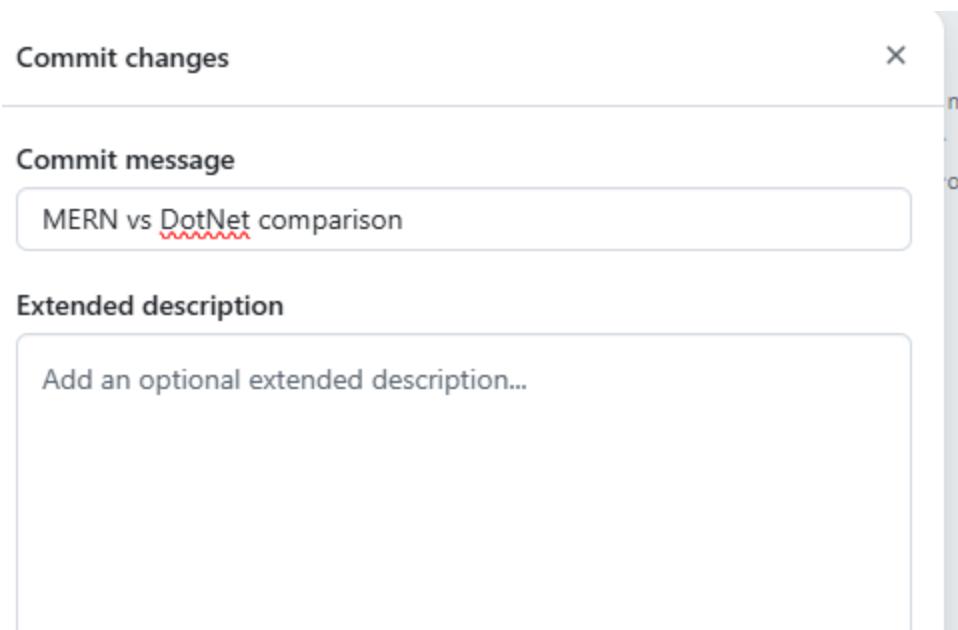
C:\Users\aliya\OneDrive\Desktop\tech-learning>git commit -m"stack-comparison"
[master 6fbeb3c] stack-comparison
 1 file changed, 3 insertions(+)
 create mode 100644 stack-comparison.txt

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)
```



- 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>
```