GIT and GITHUB Ramyak

#### **GIT and GITHIUB**

# **GIT Commands:**

```
git init
git remote add origin <repository-URL>
git status
git add.
git commit -m "Commit message"
git branch -M main
git push -u origin main
git push
If you're starting with a cloned repository, skip git init and git remote add.
git pull <repository-URL>
git pull origin main
git pull
cd path/to/your/local/repository
mv /path/to/my_project ./ # Move the folder into the repo
git add my_project
                        # Stage the folder
git commit -m "Added my project folder"
git push origin main # Push the changes to the main branch
```

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Git is a distributed version control system (VCS) widely used by developers and organizations to manage code and collaborate on software development projects. Here's why Git is important and how it benefits organizations:

## Why Do We Need Git?

#### 1. Version Control:

- o Git allows developers to track changes in the codebase over time.
- You can view, revert, or analyze historical changes and understand how a project evolved.

#### 2. Collaboration:

- Teams can work simultaneously on the same codebase without overwriting each other's work.
- Git provides mechanisms to merge changes, resolve conflicts, and manage contributions from multiple developers.

### 3. Branching and Merging:

- o Git enables branching, which allows developers to work on new features, bug fixes, or experiments in isolation.
- o These branches can later be merged back into the main codebase when the work is complete and reviewed.

### 4. Backup and Safety:

- As a distributed system, every developer has a full copy of the repository, making it inherently resilient to data loss.
- o This ensures the project is not dependent on a central server's availability.

### 5. Automation and Integration:

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o Git integrates with Continuous Integration/Continuous Deployment (CI/CD) pipelines, enabling automated testing, deployment, and code quality checks.

## **How Git Helps Organizations**

### 1. Improves Productivity:

- By streamlining collaboration and version tracking, teams can focus on coding instead of managing versions manually.
- o Git's powerful tools for managing conflicts and merging code simplify teamwork.

### 2. Enhances Collaboration:

- o Developers, designers, and other stakeholders can collaborate efficiently using platforms like GitHub, GitLab, or Bitbucket.
- o Code reviews, comments, and issue tracking improve team communication.

## 3. Supports Agile Development:

o Git is well-suited for iterative development methodologies like Agile, as it allows frequent updates and deployment of code.

### 4. Facilitates Code Quality and Accountability:

- Code review processes integrated with Git (via pull requests or merge requests)
   ensure that every change is scrutinized for quality.
- Git logs provide transparency and accountability by showing who made which changes.

### 5. Simplifies Rollbacks:

o If a bug or issue arises, Git allows the team to revert to a stable version quickly without affecting the ongoing work.

#### 6. Encourages Experimentation:

 Developers can create branches to try out new features or ideas without risking the stability of the main project.

### 7. Scalability:

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	0	Git can manage projects of all sizes, from small teams to large organization hundreds of contributors.	ons with
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