

# GitHub Basics

## Objective

To equip beginners with the fundamental skills needed to use GitHub for version control, collaboration, and project management.

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## Agenda

1. **Introduction to Git & GitHub**
2. **Setting Up Git & GitHub**
3. **Basic Git Commands**
4. **GitHub Workflow**
5. **Working with Branches**
6. **Pull Requests & Code Reviews**
7. **Best Practices**

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## 1. Introduction to Git & GitHub

- **Git:** A distributed version control system for tracking changes in source code.
- **GitHub:** A cloud-based hosting platform for Git repositories.
- Use cases:
  - Collaborating on code
  - Version control
  - Issue tracking

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## 2. Setting Up Git & GitHub

- **Install Git:** <https://git-scm.com/downloads>
- **Create GitHub Account:** <https://github.com/>
- **Configure Git:**

None

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

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## 3. Basic Git Commands

- Initialize Repository: `git init`
- Clone Repository: `git clone <url>`

- Check Status: `git status`
  - Stage Changes: `git add <file>`
  - Commit Changes: `git commit -m "message"`
  - Branch List : `git branch`
  - Push Changes: `git push origin main`
  - Pull Changes: `git pull origin main`
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## 4. GitHub Workflow

1. Clone the repository
  2. Create a new branch
  3. Make changes and commit
  4. Push the branch to GitHub
  5. Create a pull request
  6. Review and merge
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## 5. Working with Branches

- Create Branch: `git checkout -b feature-branch`
- Switch Branch: `git checkout main`
- Merge Branch: `git merge feature-branch`

- Delete Branch: `git branch -d feature-branch`
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## 6. Pull Requests & Code Reviews

- Go to repository > Pull Requests > New Pull Request
  - Review code changes
  - Leave comments
  - Approve and merge or request changes
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## 7. Best Practices

- Write clear commit messages
  - Pull before pushing
  - Use branches for features/fixes
  - Review code thoroughly
  - Keep the main branch clean
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## Resources

- GitHub Docs: <https://docs.github.com/>
  - GitHub Skills: <https://skills.github.com/>
  - Git Cheat Sheet: <https://education.github.com/git-cheat-sheet-education.pdf>
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