GitHub cheat sheet

# Visual Studio

**1. Set Up Git in Visual Studio**

* **Install Git:**
  + Git must be installed on your system. Visual Studio will prompt you to install it if it's missing.
  + Go to **Tools** > **Options** > **Source Control** > **Git Global Settings** to configure Git.
* **Link to GitHub:**
  + Go to **Team Explorer** > **Manage Connections** > **Connect to GitHub** to sign into your GitHub account.

**2a. Clone a Repository**

* **Use:** To copy a repository from GitHub to your local machine.
* **Steps:**
  + Open Visual Studio
  + Select Clone a repository  
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    Description automatically generated
  + Either:
    - Paste the repository URL
    - Select GitHub (it will list your own repositories) and select one from there
  + Choose a local folder
* **Alternative steps:**
  + Open **Team Explorer**.
  + Select **Clone Repository**.
  + Paste your repository URL and choose a local folder.

**2b. Create a New Repository**

* **Use:** To initialize a new Git repository for a project in Visual Studio.
* **Steps:**
  + Right-click the solution in Solution Explorer.
  + Select **Add to Source Control**.
  + Choose **Git**.
  + If you want to publish it to GitHub, go to **Team Explorer** > **Sync** > **Publish to GitHub**.

**3. Checking Status (Git Changes Window)**

* **Use:** To see the status of tracked/untracked files and changes made.
* **Steps:**
  + Go to **View** > **Git Changes**.
  + This window shows you the files modified, untracked files, and staged changes.

**4. Commit Changes**

* **Use:** To save the staged changes to the local repository.
* **When to use:** After staging your changes and writing a description of what has changed.
* **Steps:**
  + In the **Git Changes** window, write a commit message.
  + Click the **Commit** button.

**5. Push Changes to GitHub**

* **Use:** To upload your commits to a remote repository like GitHub.
* **When to use:** After committing, and when you want to sync your changes with GitHub.
* **Steps:**
  + In **Git Changes**, after committing, click **Push**.
  + Visual Studio will push your changes to the remote repository.

**6. Pull Changes from GitHub**

* **Use:** To download the latest changes from the remote repository and integrate them into your local branch.
* **When to use:** Before pushing your changes or whenever you need to sync with GitHub.
* **Steps:**
  + In **Git Changes**, click **Pull** to download and merge the changes.

**7. Fetch Changes**

* **Use:** To download the latest changes from the remote repository without merging them into your local branch.
* **When to use:** If you want to see what changes are available on the remote without integrating them yet.
* **Steps:**
  + In **Git Changes**, click **Fetch**.

**8. Branching**

* **Use:** To work in a contained area in your repository without affecting the main codebase.
* **Create a New Branch:**
  + Go to **Git** > **New Branch**.
  + Give your new branch a name and click **Create**.
* **Switch Between Branches:**
  + In **Git Changes**, click the branch drop-down and select the branch you want to switch to.

**9. Merge Branches**

* **Use:** To combine the changes from one branch into another.
* **Steps:**
  + Go to **Git** > **Merge**.
  + Select the branch you want to merge into your current branch and click **Merge**.