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(/rol/app/courses/do101-4.2/pages/pr01)
(/rol/app/courses/do101-4.2/pages/pr01s02)
1 (/rol/app/courses/do101-4.2/pages/ch01)
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(/rol/app/courses/do101-4.2/pages/ch01s02)
(/rol/app/courses/do101-4.2/pages/ch01s03)
(/rol/app/courses/do101-4.2/pages/ch01s04)
(/rol/app/courses/do101-4.2/pages/ch01s05)
(/rol/app/courses/do101-4.2/pages/ch01s06)
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2 (/rol/app/courses/do101-4.2/pages/ch02)
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4 (/rol/app/courses/do101-4.2/pages/ch04)
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5 (/rol/app/courses/do101-4.2/pages/ch05)
(/rol/app/courses/do101-4.2/pages/ch05)
(/rol/app/courses/do101-4.2/pages/ch05s02)
(/rol/app/courses/do101-4.2/pages/ch05s03)

← PREVIOUS (/ROL/APP/COURSES/DO101-4.2/PAGES/CH01S03)
→ NEXT (/ROL/APP/COURSES/DO101-4.2/PAGES/CH01S05)

Guided Exercise: Initializing a Git Repository

☆

In this exercise, you will use VS Code to push your project source code to a remote Git repository.

Outcomes

You should be able to:

- Install Git.
- Initialize a local folder as a Git repository.
- Stage a file in a Git repository.
- Commit staged files to a local Git repository.
- Push commits in a local Git repository to a remote repository.
- You have access to a Linux (Debian or Fedora-based), macOS, or Windows system and the required permissions to install software on that system.
- Visual Studio Code (VS Code) is installed on your system.

Procedure 1.2. Steps

1. Download and install `Git`.
    - Linux Installation.
        - Open a new command line terminal.
        - To install `Git` on Ubuntu and Debian systems, use the following command:

          ```
          yourname@yourhost:~$ sudo apt install git
          ```

          The command may prompt for your password to install the package.
        - To install `Git` on Fedora and Red Hat Enterprise Linux 8 systems, use the following command:

          ```
          [yourname@yourhost ~]$ sudo dnf install git
          ```

          The command may prompt for your password to install the package.
    - macOS Installation.
        - Git is installed by default on the latest macOS versions. To verify the Git installation, open a new command line terminal and enter the following command:

          ```
          $ git --version
          git version 2.22.0
          ```
    - Windows Installation.
        - In a browser on your Windows system, navigate to https://git-scm.com/download/win (https://git-scm.com/download/win) and save the executable file to your system.
        - In Windows Explorer, navigate to the downloaded file. Double-click the file to start the setup wizard. If prompted, click **Yes** to allow the installer to make changes to your system.
        - Click **Next** to accept the license agreement.
        - Click **Next** to accept the default installation location for Git. If a window displays a warning about the installation location, click **Yes** to continue the installation of Git to that location.

- Click **Next** to accept the installation of the default set of components.
- Click **Next** to accept the default Start Menu Folder.
- Select `Use Visual Studio Code as Git’s default editor` from the editor list to use VS Code as the default editor. Click **Next**.
- At the `Adjusting your PATH environment` prompt, click **Next**.
- Make an appropriate choice for the HTTPS transport back-end. If you are unsure of which option to select, then accept the default selection. Click **Next**.
- At the `Configuring the line-ending conversions` prompt, accept the default selection and click **Next**.
- Click **Next** to accept the default terminal emulator settings.
- At the `Configuring extra options` prompt, click **Next** to accept the defaults.
- Click **Install** to accept the default experimental features and begin installation. Wait for installation to complete, and then proceed to the next step.
- Click **Finish** to exit the setup wizard.

2. Use VS Code to test your Git installation. Configure your Git installation identity with your GitHub credentials.

2.1. Open VS Code.

2.2. Click **Terminal** → **New Terminal** to open an integrated terminal.

2.3. Execute `git --version` in the integrated terminal to test the installation of Git. The command prints the version of the Git installation on your system.

> **NOTE**
>
> VS Code depends on the configuration options selected during the Git installation process. If the `git --version` command fails in the integrated terminal, try restarting VS Code. Then, repeat this step to check the installation of Git.

2.4. In a browser, navigate to https://github.com (https://github.com). If you do not have a GitHub account, then create one. Log in to GitHub.

2.5. In the VS Code integrated terminal, execute `git config --global user.name` *`yourgituser`*, replacing *`yourgituser`* with your GitHub user name.

2.6. In the VS Code integrated terminal, execute `git config --global user.email` *`user@example.com`*, replacing *`user@example.com`* with the email address associated with your GitHub account.

Figure 1.22: The VS Code integrated terminal.

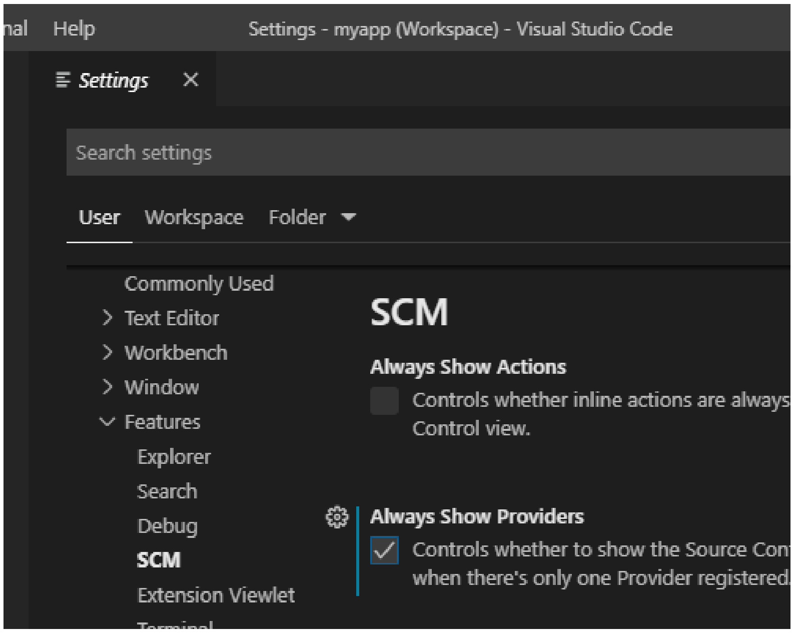
> **NOTE**
>
> Git requires your GitHub user name and password for certain transactions with remote repositories.
>
> On Windows systems, Git manages these credentials by default. You are only prompted for credentials the first time you connect to a remote repository.
>
> By default on Linux and macOS systems, Git does not manage your remote repository credentials. Git prompts for your credentials each time you connect to GitHub.
>
> To cache your credentials on Linux or macOS systems, execute the following command from a system terminal:
>
> ```
> $> git config --global credential.helper cache
> ```

3. Enable the `Always Show Providers` source control management option in VS Code.

   3.1. Access the Command Palette (**View** → **Command Palette...**) and type `settings`. Select `Preferences: Open Settings (UI)` from the list of options.

   3.2. When the `Settings` window displays, click **User** → **Features** → **SCM**.

   3.3. VS Code displays Source Control Management (SCM) options for VS Code. Select `Always Show Providers`.



SCM

Always Show Actions

☐ Controls whether inline actions are always
Control view.

Always Show Providers

☑ Controls whether to show the Source Con
when there's only one Provider registered.

Figure 1.23: Option to always show the Source Control Providers list in the Source Control view of VS Code.

   3.4. Close the `Settings` tab.

4. Ensure that you have a `hello-nodejs` project folder in your VS Code workspace. If you already have a `hello-nodejs` project folder in your VS Code workspace from a previous exercise, then skip this step.

   4.1. Download the following zip file to your system:

   https://github.com/RedHatTraining/DO101-apps/releases/download/v0.1/hello-nodejs.zip (https://github.com/RedHatTraining/DO101-apps/releases/download/v0.1/hello-nodejs.zip).

   Unzip the file, which creates a `hello-nodejs` folder on your system. The `hello-nodejs` folder contains a single file, `app.js`. Note the location of the `hello-nodejs` folder. You use this folder in a later step.

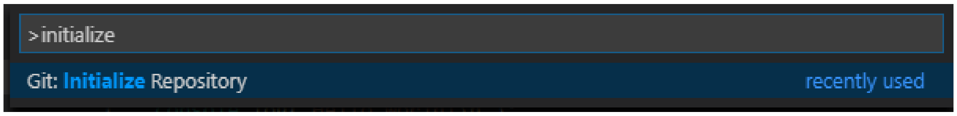
   4.2. Click **File** → **Add Folder to Workspace...**

   4.3. In the file window, navigate to the location of the unzipped `hello-nodejs` folder. Select the `hello-nodejs` folder and click **Add**.

5. Initialize the `hello-nodejs` project as a Git repository.

   5.1. Access the VS Code Command Palette (**View** → **Command Palette...**).

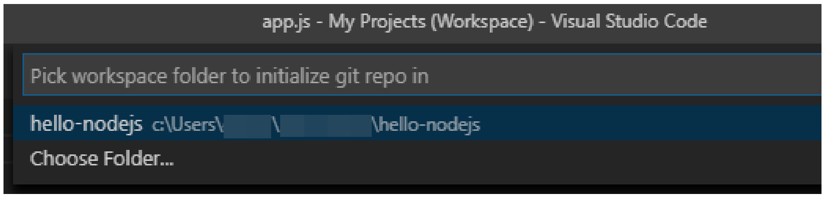
   5.2. Type `initialize`. VS Code provides a list of possible commands that match what you type. Select `Git: Initialize Repository` from the list of Command Palette options.



```
>initialize
Git: Initialize Repository                          recently used
```

Figure 1.24: Git repository initialization using the Command Palette.

5.3. Select `hello-nodejs` from the list of workspace folders.



app.js - My Projects (Workspace) - Visual Studio Code

Pick workspace folder to initialize git repo in

hello-nodejs c:\Users\[redacted]\[redacted]\hello-nodejs

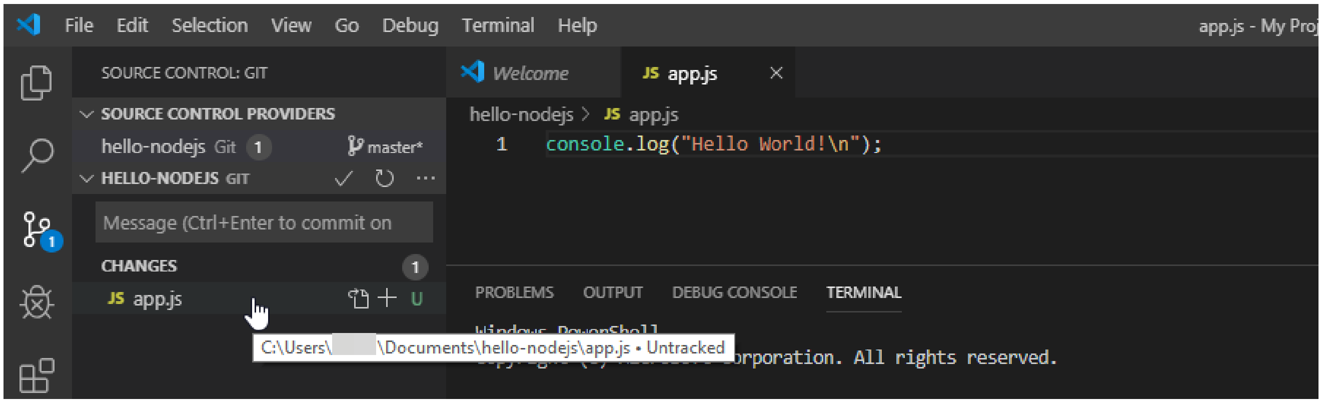
Choose Folder...

Figure 1.25: Selection prompt to initialize a local Git repository.

6. Create a commit from the `app.js` file.

   6.1. Click **View** → **SCM** to access the `Source Control` view in the Activity Bar.

   6.2. Hover over the `app.js` entry under `CHANGES`. VS Code displays a message that the `app.js` file is untracked. Click the plus sign for the `app.js` entry to add the file to the repository.



```
1    console.log("Hello World!\n");
```

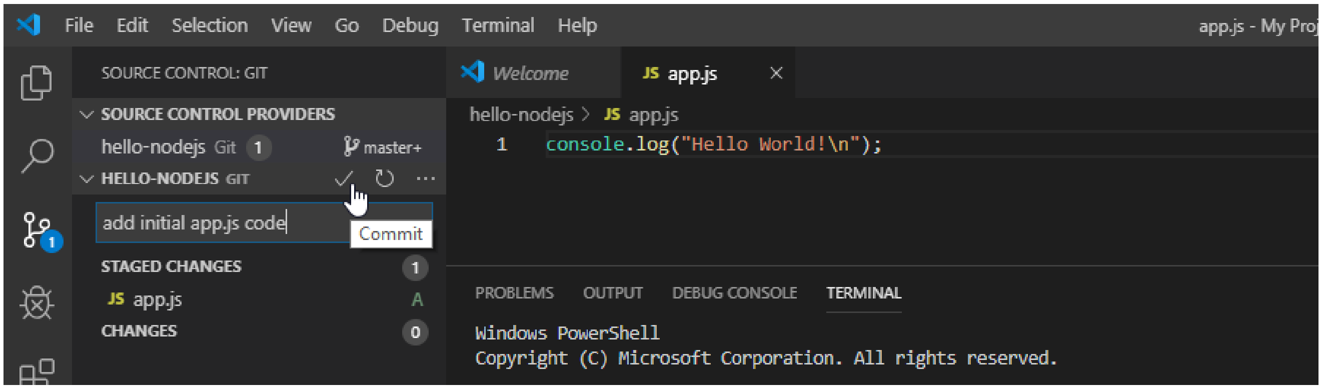
C:\Users\[redacted]\Documents\hello-nodejs\app.js • Untracked

```
Windows PowerShell
...orporation. All rights reserved.
```

Figure 1.26: List of changed files.

This stages the `app.js` file for the next commit. The file now appears under the `STAGED CHANGES` heading.

   6.3. Click in the `Message (press Ctrl+Enter to commit)` field. Type `add initial app.js code` in the message field. Click the check mark icon to commit the changes.



add initial app.js code

```
1    console.log("Hello World!\n");
```

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.
```

Figure 1.27: VS Code commit message box.

7. Create a new GitHub repository to host your project files. Add the GitHub repository as a remote repository for your local `hello-nodejs` project. Publish your local repository to GitHub.

   7.1. In a browser, navigate to https://github.com (https://github.com). If you are not logged in to Github, then log in.

   7.2. Click the + on the upper-right, and then select `New repository` from the list displayed.

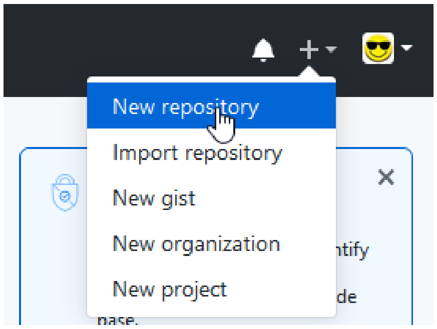
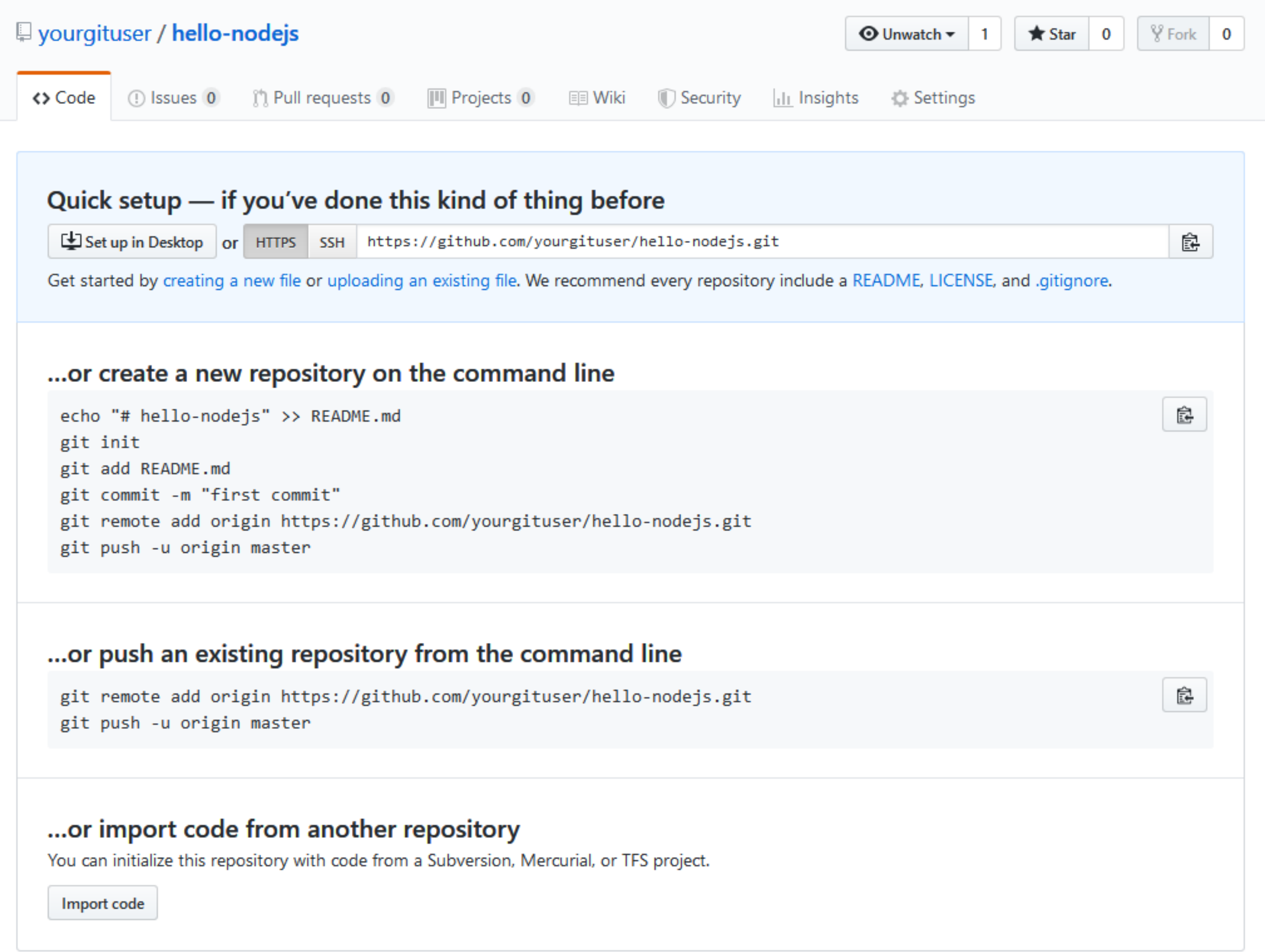


Figure 1.28: Create a new Git repository on GitHub

7.3. Type `hello-nodejs` in the `Repository name` field. By default, the repository is publicly accessible. If you need a private repository, then select the **Private** check box.

> **WARNING**
>
> Do not select `Initialize the repository with a README`. Also, do not add a `.gitignore` file nor a license to your repository.
>
> Create an empty repository to avoid a merge conflict in a later step.

Click **Create Repository** to create the new GitHub repository. A summary page provides Git commands for a variety of project initialization scenarios:



Quick setup — if you've done this kind of thing before

https://github.com/yourgituser/hello-nodejs.git

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

```
echo "# hello-nodejs" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/yourgituser/hello-nodejs.git
git push -u origin master
```

...or push an existing repository from the command line

```
git remote add origin https://github.com/yourgituser/hello-nodejs.git
git push -u origin master
```

...or import code from another repository

You can initialize this repository with code from a Subversion, Mercurial, or TFS project.

Figure 1.29: The summary page for a new GitHub repository

8. Add your new GitHub repository as a remote repository for the `hello-nodejs` project.

   8.1. In VS Code, type `Git: Add` in the Command Palette (**View → Command Palette...**). Then, select `Git: Add Remote` from the list of options.

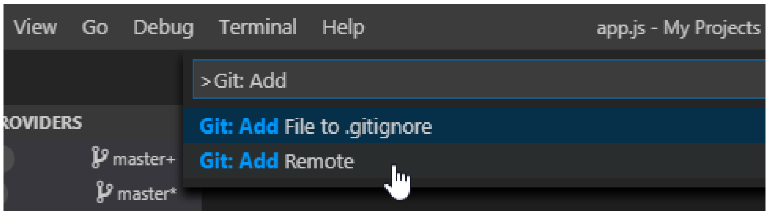


Figure 1.30: The remote URL prompt to add a remote Git repository

   8.2. If you have more that one local Git repository in VS Code, then select `hello-nodejs` from the list of options.

   When prompted for a remote name, enter `origin`.

> **NOTE**
>
> A Git repository can interact with multiple remote repositories. A remote name of `origin` is a Git convention to indicate the originating repository for a local Git repository.

   8.3. At the next prompt, enter the HTTPS URL of your `hello-nodejs` GitHub repository. The URL form is: `https://github.com/`*`yourgituser`*`/hello-nodejs`.

9. Publish your local repository commits to the GitHub repository.

   9.1. Locate the `hello-nodejs` entry in the `SOURCE CONTROL PROVIDERS` section, and then click the "Publish Changes" icon.

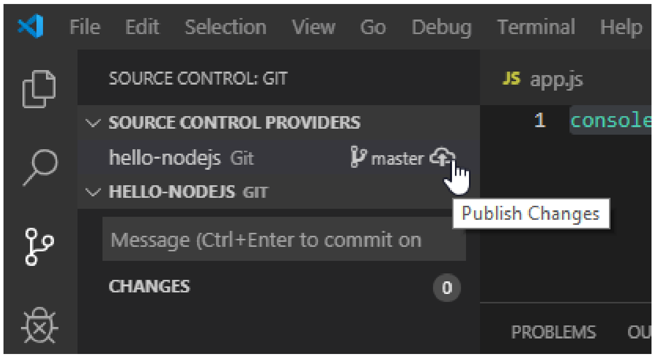
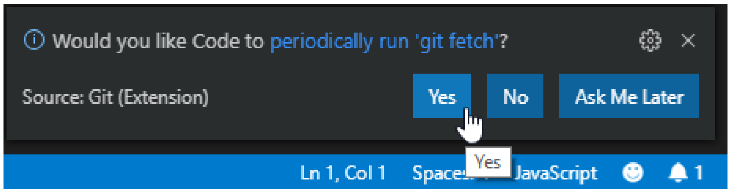


Figure 1.31: Source control view with multiple workspace Git repositories.

   The first time VS Code connects to GitHub, a prompt for your GitHub credentials displays. When prompted, provide your GitHub user name and password.

   9.2. If this is your first time publishing commits in VS Code, then an additional prompt displays:



ⓘ Would you like Code to periodically run 'git fetch'?

Source: Git (Extension)

Figure 1.32: VS Code prompt to periodically fetch new commits

   Click **Yes** to configure VS Code to periodically check the remote repository for new commits.

10. In a browser, navigate to `https://github.com/`*`yourgituser`*`/hello-nodejs`, replacing *`yourgituser`* with your GitHub user name. Verify that your source code is present in your GitHub repository.

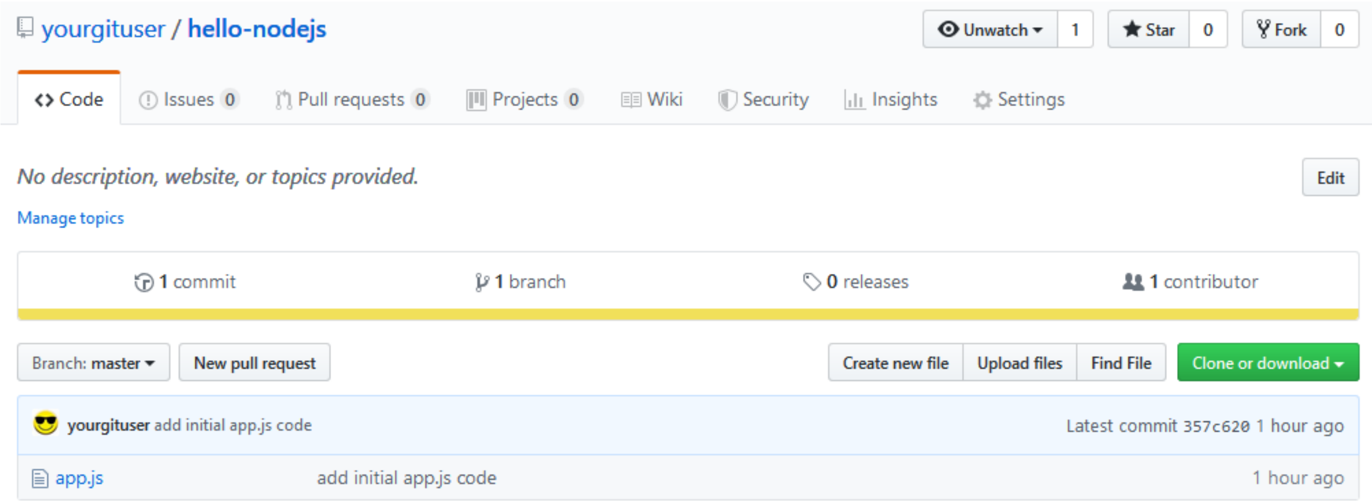


Figure 1.33: Local project files are present on GitHub

11. To clean up your work, click the **Kill Terminal** icon to close the integrated terminal window.

This concludes the guided exercise.

← PREVIOUS (/ROL/APP/COURSES/DO101-4.2/PAGES/CH01S03) → NEXT (/ROL/APP/COURSES/DO101-4.2/PAGES/CH01S05)