GitHub and Repository Management

Command Line and Git

Workbook 3

Version 6.0 Y

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Module 1

GitHub - Collaborating with Others

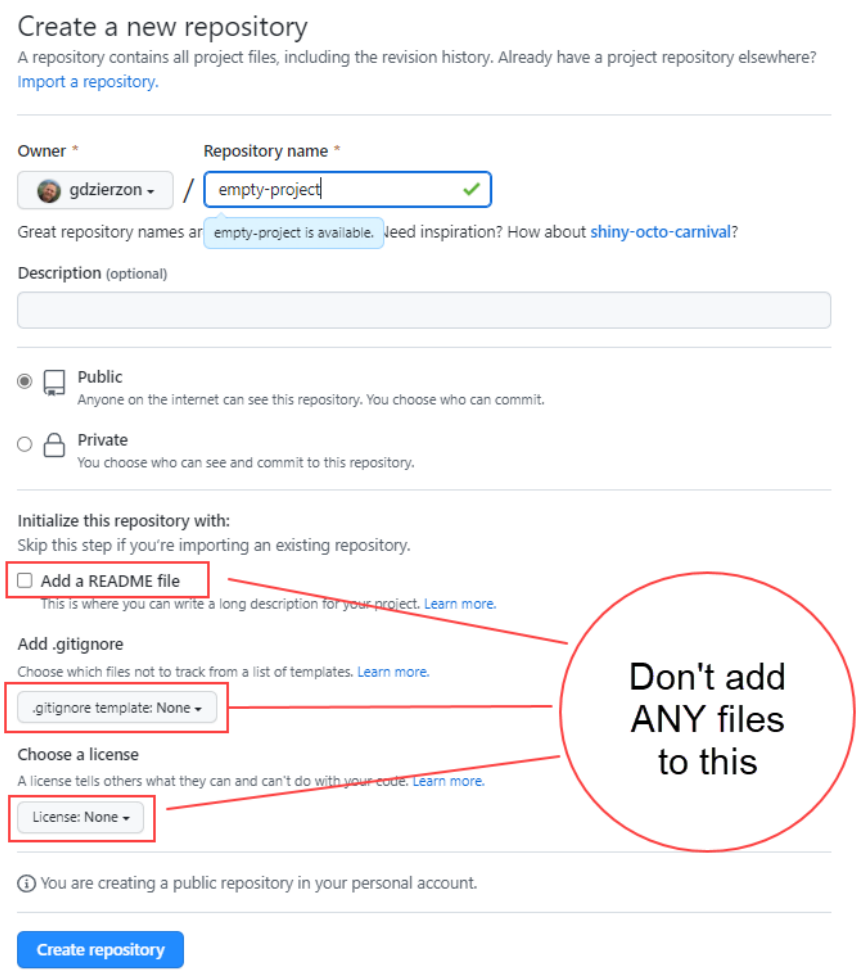
Section 1–1

Migrating a Local Repository to GitHub

Migrating a Local Repository

- **Often you will have a project that was started before the GitHub repository was created**
  - `git clone` will not allow you to clone a new repository into an existing folder
- **You can create a new EMPTY repository on GitHub, and then configure your project to point to the empty repo**
  - There can not be any files in the repo when you create it
    * Not even a `README.md` or a `.gitignore`

Creating an EMPTY Remote Repository



Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? Import a repository.

Owner * gdzierzon / Repository name * empty-project

empty-project is available.

Great repository names ar... Need inspiration? How about shiny-octo-carnival?

Description (optional)

● Public — Anyone on the internet can see this repository. You choose who can commit.

○ Private — You choose who can see and commit to this repository.

Initialize this repository with:
Skip this step if you're importing an existing repository.

☐ Add a README file — This is where you can write a long description for your project. Learn more.

Add .gitignore — Choose which files not to track from a list of templates. Learn more. .gitignore template: None

Choose a license — A license tells others what they can and can't do with your code. Learn more. License: None

You are creating a public repository in your personal account.

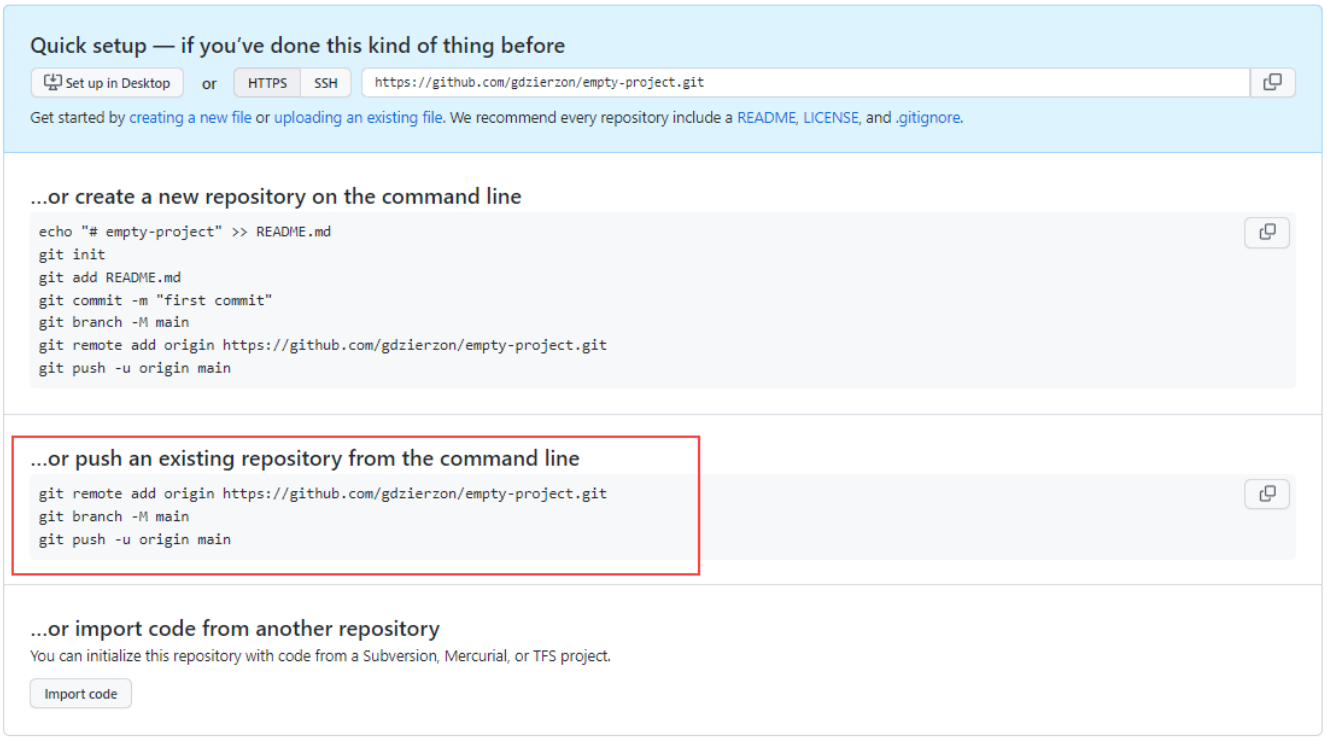
Create repository

Don't add ANY files to this

- **After clicking the New button, you can:**
  - Name the repo
  - Set the visibility of the repo (public / private)
  - DO NOT add a README file or gitignore file
  - DO NOT specify licensing
  - Accept the default main branch name as 'main' or change it to something else
    * Until recently, it defaulted to 'master'

- **There may be small differences on your internal GitHub**

- **After creating the an empty repo - GitHub displays instructions on how to point to the new repo**



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

```
https://github.com/gdzierzon/empty-project.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 "# empty-project" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/gdzierzon/empty-project.git
git push -u origin main
```

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

```
git remote add origin https://github.com/gdzierzon/empty-project.git
git branch -M main
git push -u origin main
```

...or import code from another repository

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

Configuring the Remote Repository Locally: `git remote`

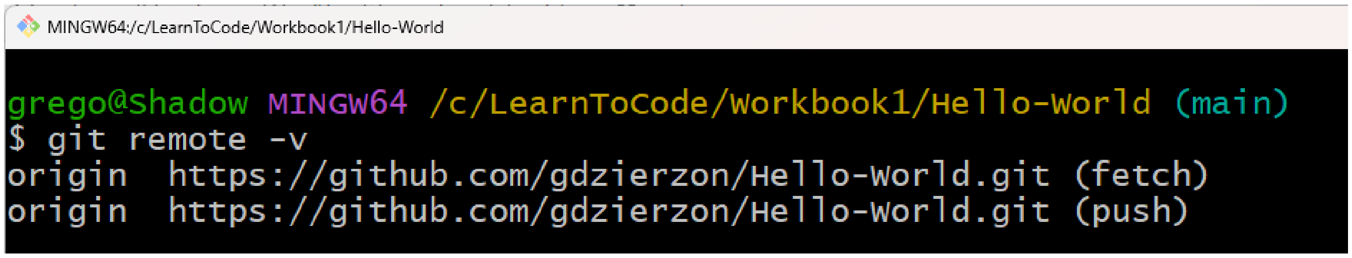
- **If your local repo was not cloned from a GitHub repo it will not know where to push or pull**
  - But you can configure your repo to point to any remote git repository

- **You can use the `git remote -v` command to see if it is pointing to a remote repository**

Finding out about the remote repo

```
$ git remote -v
```

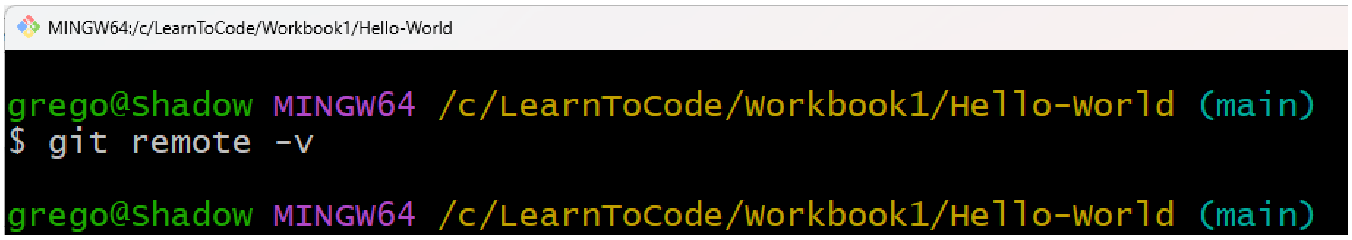
If your repo was cloned from a remote it should look similar to this



MINGW64:/c/LearnToCode/Workbook1/Hello-World

```
grego@Shadow MINGW64 /c/LearnToCode/Workbook1/Hello-World (main)
$ git remote -v
origin  https://github.com/gdzierzon/Hello-World.git (fetch)
origin  https://github.com/gdzierzon/Hello-World.git (push)
```

If you created the repo using `git init` instead of cloning it, your screen may look similar to this



MINGW64:/c/LearnToCode/Workbook1/Hello-World

```
grego@Shadow MINGW64 /c/LearnToCode/Workbook1/Hello-World (main)
$ git remote -v

grego@Shadow MINGW64 /c/LearnToCode/Workbook1/Hello-World (main)
```

- **If you do not see an origin listed as a remote, your repo cannot be pushed to a remote server**
  - You can still configure your repo to add an **origin** link

- **If you created the repo on your local computer first, you should use the `git remote add` command to create and configure the remote repo**
  - You may be prompted for GitHub credentials

Creating a remote repo using Git

```
$ git remote add origin https://github.com/gdzierzon/empty-project.git
```

  - Notice here we are specifically giving the remote the name 'origin'

Pushing to the Remote Repository: `git push`

- **The `git push` command says "push the commits in the local branch to the remote branch"**
  - Once executed, commits since your last push will be available on GitHub (the remote repo)

Initial push

```
$ git push -u origin main
```

  - Use the **-u** flag the FIRST time you push any new branch to create an ***upstream*** tracking connection
  - `origin main` is the name of the remote and the name of the new branch

- **Development is a constant cycle of:**
  - making local changes
  - committing to the local repo
  - pushing changes to the remote repo
  - pulling changes from the remote repo

- **So, why do you pull changes?**
  - Because others might be working in the same project and have made pushes that you want to refresh in your own local repo

Pulling from the Remote Repository: `git pull`

- **The `git pull` command that says "pull the commits in the remote branch to the local branch"**
  - When executed, any commits made to the remote branch since your last pull become available in your local copy of the repository

Example pull

```
$ git checkout main

$ git pull origin main
```

  - It's a good practice to make sure you are in the right branch before you execute the pull command

Working with Other Branches and a Remote Repo

- **When you create a new branch locally and decide to push it to the remote repo, you will need to use the -u flag on the initial push**
  - Afterwards, the push command is simple

- **A log of a programmer's work might be:**

```
$ git checkout main               > checkout the latest main
$ git pull origin main

$ git checkout -b MyNewFeature1   > create a branch off main
> make changes <

$ git status
$ git add .
$ git commit -m "Some changes occurred"
$ git status

> check everything <

$ git push -u origin MyNewFeature1  > create a remote tracking
                                    > branch
> make more changes <

$ git status
$ git add .
$ git commit -m "More changes occurred"
$ git status

> check everything <

$ git push origin MyNewFeature1     > push additional changes
```

- **Alternatively, you may not want to push the branch to the remote**
  - You might work in the branch locally and then merge to main
  - Then, push main to the remote

Exercises

In this exercise you will create a new remote GitHub repository for your `LearnToCode` workbook exercises. You will then see how to convert an existing project folder as a git repository and push your work to GitHub.

EXERCISE 1

Step 1: Log into GitHub and create a new empty repository.

Go to your GitHub profile, click the Repositories tab, then click the **New** button

Name the repo `command-line` and let everything else can stay at the default values (so **do not add readme!**), then click "Create Repository".

Step 2: Configure the remote repository

While still in GitHub, copy the HTTPS URL of your new repository. It will resemble:

```
https://github.com/your-github-username/command-line.git
```

Navigate to your `C:/pluralsight/command-line` folder in GitBash.

Initialize this directory as a git repo.

```
$ git init
```

Verify that you do not currently have any remote repository linked (there should be no origins)

```
$ git remote -v
```

Add a new remote to your `command-line` repo and push all of your existing code to the remote

```
$ git remote add origin https://github.com/<your-github-username>/command-line.git

$ git remote -v

$ git status

$ git push -u origin main
```

Section 1–2

`README.md` - How to Create Good Markup Files

`README.md`

- **A `README.md` file is a text file that describes the project contained in a repo**
  - It resides at the root of the project
  - The Git cloud services GitHub, GitLab, and Bitbucket look for your README and display its information along with the list of files and directories in your project

- **The README contains information such as:**
  - what the project is used for
  - the technologies used in the project
  - how to collaborate with you (if appropriate)
  - license information (if any)

- **It helps the audience understand how to install and use your project**

- **Many people get into the habit of making it the first file you create in a new project**

Markdown Language

- **Most READMEs are often written using the Markdown language**
  - The wiki for markdown is here: `https://en.wikipedia.org/wiki/Markdown`
- **It lets you to add some lightweight formatting without using a sophisticated editor**
  - Remember, the README file is a plain text file
- **A quick Google search will lead you to lots of good examples of READMEs and markdown syntax, however the following pages will demonstrate some examples**

Basic Markdown Rules

- **The examples below show different ways to use markdown in a README file**

```
There are two ways to create a BIG heading:

# This is a Big Heading

This is also a Big Heading
==========================

## This is a Sub-heading

This is also a Sub-heading
--------------------------

Paragraphs are just a bunch of sentences separated
by a blank line. Lorem ipsum dolor sit amet, consectetur
adipiscing elit. Nullam.

See, this is another paragraph. Lorem ipsum dolor sit
amet, consectetur adipiscing elit. Nullam.

Sometimes, you want to force a line break.  In this case,
put two spaces at the end of a line
and do you see the line break?

You can add a horizontal rule like this:

---

You can also set the font on text.  For example,
_these words are italicized_,
on some systems *these worlds might be italicized*,
**these words are bolded**,
and finally, `the words use a monospace font`.

You can have bulleted lists:

  * HTML
  * CSS
  * JavaScript

You also can have numbered lists:
```

~~~
  1. HTML
  2. CSS
  3. JavaScript

You can add links.  For more information, click [here](https://en.wikipedia.org/wiki/Ma
rkdown)

If you want to add formatted code to markdown, use backticks before and after it like t
his:

```
<!DOCTYLE html>
<html lang="en">
  <head>
    <title>Page Title</title>
  </head>
  <body>
    <!-- body markup goes here -->
  </body>
</html>
```

And to add an image, try this:
![Image](images/readme-images/dana.jpg "icon")
~~~

- **To see the markdown above rendered, look at the next page**

Example

This is a Big Heading

This is also a Big Heading

This is a Sub-heading

This is also a Sub-heading

Paragraphs are just a bunch of sentences separated by a blank line. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Nullam.

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  <head>
    <title>Page Title</title>
  </head>
  <body>
    <!-- body markup goes here -->
  </body>
</html>
```

And to add an image, try this:

A Good README

- **Good READMEs are like good books -- everyone has different opinions**
  - `https://www.makeareadme.com/`
- **Minimally, you should include:**
  - Name
  - Description
    - Consider adding a list of features section
- **You may also want to add screenshots or even a video of your user interface**
- **If your project requires non-obvious installation steps, you will want to include them**
  - You may even include a list of system or software requirements
- **You may include code examples of how to use or extend the software if it is a framework**
- **If you provide support, tell people where they can go to for help**
  - It might be an email address, a web site, a chat room, or even a place to report issues
- **If you are open to contributions, describe your requirements are for accepting them**

- **Perhaps even include an authors and acknowledgment section!**
- **Finally, for open source projects, describe how it is licensed**
  - Types of licenses include MIT, Apache, and BSD
  - `https://snyk.io/blog/mit-apache-bsd-fairest-of-them-all/`

Exercises

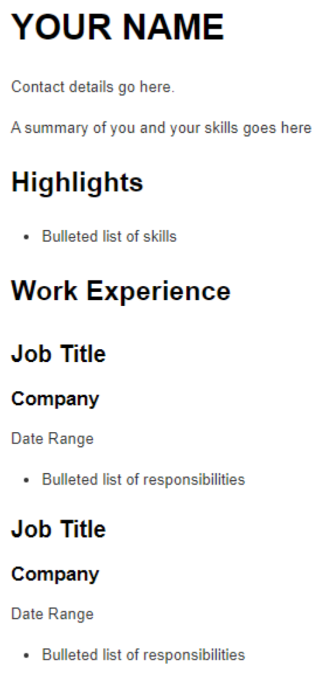
EXERCISE 1

In this exercise you will add a `README.md` file to your `java-develoment` repository.

Step 1: Open your `java-development` folder in IntelliJ.

Open the `README.md` file

Step 2: Modify your README file to create a basic resume that resembles the following:



YOUR NAME

Contact details go here.

A summary of you and your skills goes here

Highlights

- Bulleted list of skills

Work Experience

Job Title

Company

Date Range

- Bulleted list of responsibilities

Job Title

Company

Date Range

- Bulleted list of responsibilities

Step 3: Stage, commit and push your changes. Then navigate to your repo on GitHub.com and verify that your resume appears on the homepage of the repo.