Exercise 4: Configure the web application and Version control using Git using Git commands and version control operations.

Introduction to Git And GitHub

Git is a **specific open-source version control system** created by Linus Torvalds in 2005. Git is a **distributed version control system**, which means that the entire codebase and history is available on every developer's computer, which allows for easy branching and merging.

GitHub is a code hosting platform for collaboration and version control.

GitHub lets you (and others) work together on projects.

GitHub essentials are:

- Repositories
- Branches
- Commits
- Pull Requests

Git (the version control software GitHub is built on)

Repository

- A GitHub **repository** can be used to store a development **project**.
- It can contain **folders** and any type of **files** (HTML, CSS, JavaScript, Documents, Data, Images).
- A GitHub repository should also include a **licence** file and a **README** file about the project.
- A GitHub repository can also be used to store ideas, or any resources that you want to share.

Branch

- A GitHub branch is used to work with different **versions** of a repository at the same time.
- By default a repository has a **master** branch (a production branch).
- Any other branch is a **copy** of the master branch (as it was at a point in time).
- New Branches are for bug fixes and feature work separate from the master branch. When changes are ready, they can be merged into the master branch. If you make changes to the master branch while working on a new branch, these updates can be pulled in.

Commits

- At GitHub, changes are called commits.
- Each commit (change) has a description explaining why a change was made.
- Pull Requests
- Pull Requests are the heart of GitHub **collaboration**.
- With a pull request you are **proposing** that your changes should be **merged** (pulled in) with the master.
- Pull requests show content **differences**, changes, additions, and subtractions in **colors** (green and red).
- As soon as you have a commit, you can open a pull request and start a discussion, even before the code is finished.

What is GitHub?

- GitHub is a Git repository hosting service that provides a web-based graphical interface. It is the world's largest coding community. Putting a code or a project into GitHub brings it increased, widespread exposure. Programmers can find source codes in many different languages and use the command-line interface, Git, to make and keep track of any changes.
- GitHub helps every team member work together on a project from any location while facilitating collaboration. You can also review previous versions created at an earlier point in time.

What is a Version Control System?

The Git version control system, as the name suggests, is a system that records all the modifications made to a file or set of data so that a specific version may be called up later if needed. The system makes sure that all the team members are working on the file's latest version, and everyone can work simultaneously on the same project.

What is Git?

Git is a version control system used for tracking changes in computer files, making it a top-rated utility for programmers world-wide. Git can handle projects of any size.

Git is used to coordinate the workflow among project team members and track their progress over time. It also benefits both programmers and non-technical users by keeping track of their project files. Git allows multiple users to work together without disrupting each other's work.

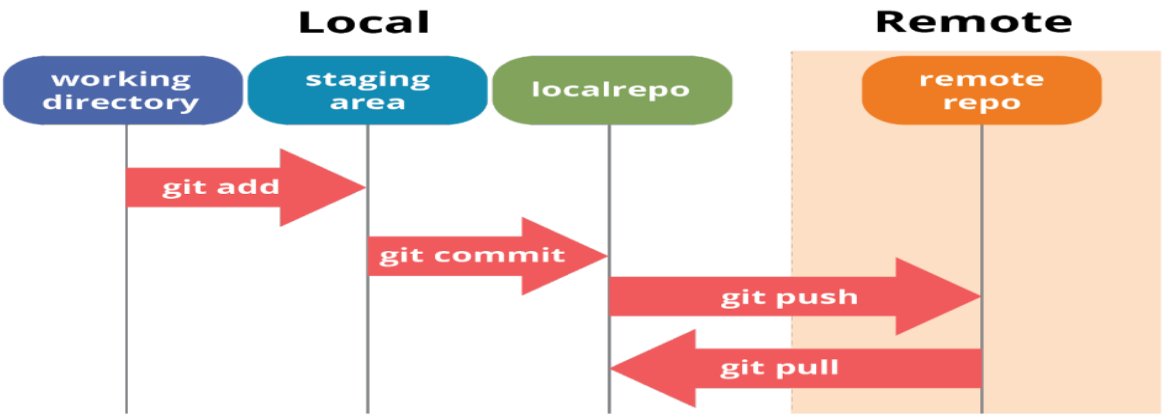
What are GitHub's Features?

1. Easy Project Management

GitHub is a place where project managers and developers come together to coordinate, track, and update their work so that projects are transparent and stay on schedule.

2. Increased Safety With Packages
Packages can be published privately, within the team, or publicly to the open-source community. The packages can be used or reused by downloading them from GitHub.
3. Effective Team Management
GitHub helps all the team members stay on the same page and organized. Moderation tools like Issue and Pull Request Locking help the team to focus on the code.
4. Improved Code Writing
Pull requests help the organizations to review, develop, and propose new code. Team members can discuss any implementations and proposals through these before changing the source code.
5. Increased Code Safety
GitHub uses dedicated tools to identify and analyze vulnerabilities to the code that other tools tend to miss. Development teams everywhere work together to secure the software supply chain, from start to finish.
6. Easy Code Hosting
All the code and documentation are in one place. There are millions of repositories on GitHub, and each repository has its own tools to help you host and release code.
GitHub's Competitors
The market provides many alternatives and competitors to GitHub. As of the end of 2020, **the top ten competitors are:** Bitbucket, Google Cloud Source Repositories, Phabricator, GitLab, Gogs, Gitea, SourceForge, Apache Allura, Launchpad, AWS CodeCommit

Git architecture



Git Commands

Check the Git version:
$ git –version
For any help, use the following command:
$ git help config
This command will lead you to a browser of config commands. Basically, the help the command provides a manual from the help page for the command just following it (here, it's config).
Another way to use the same command is as follows:
$ git config –help
Create a local directory using the following command:
$ mkdir test

$ cd test

Initialize the directory:

$ git init

Enter the Git bash interface and type in the following command to check the status:

$ git status

Add the "demo" to the current directory using the following command:

$ git add demo.txt

make a commit using the following command:

$ git commit -m "committing a text file"

Link the Git to a Github Account:

$ git config --global user.username

Note: simplilearn-github is the username on the Github account.

Git bash and link the remote and local repository using the following command:

$ git remote add origin <link>

Push the local file onto the remote repository using the following command:

$ git push origin master

Move back to Github and click on "test_demo" and check if the local file "demo.txt" is pushed to this repository.

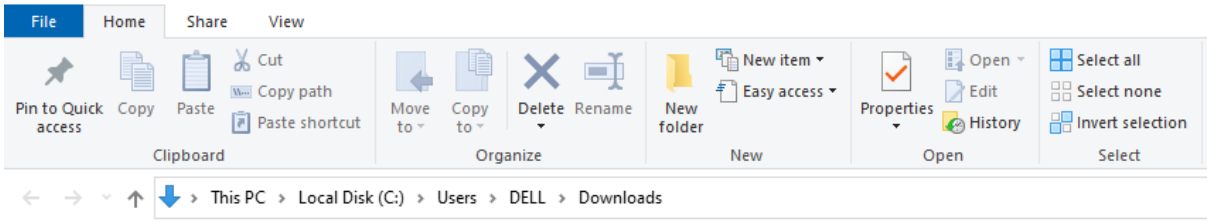
Configure the web application and Version control using Git

Download web – application template from Internet

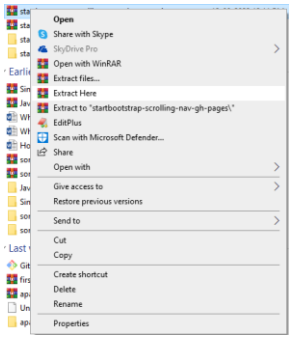
1. https://startbootstrap.com/templates

2.Choose some template and download

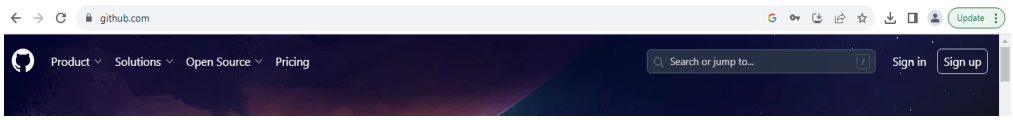
3. Open downloaded file location



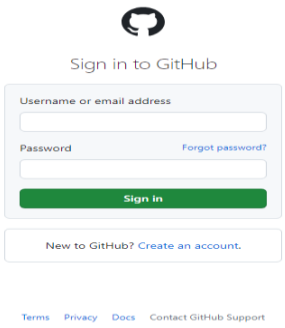
4.Right click on that and extract that folder



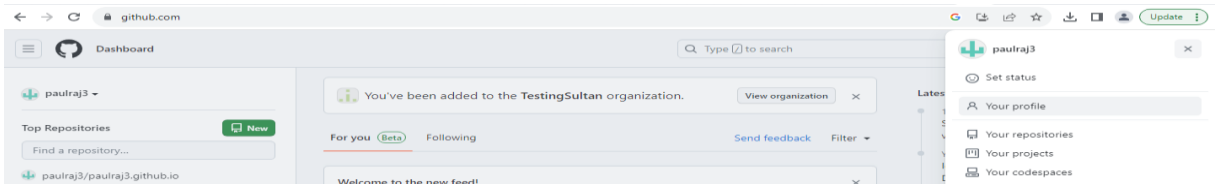
5.Open Github Website



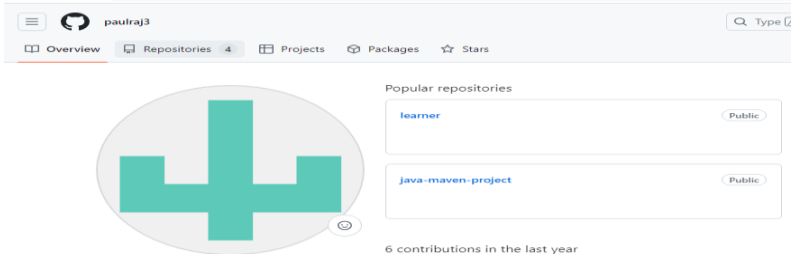
6.Click on Sign in, if you don’t have github account click on Sign up



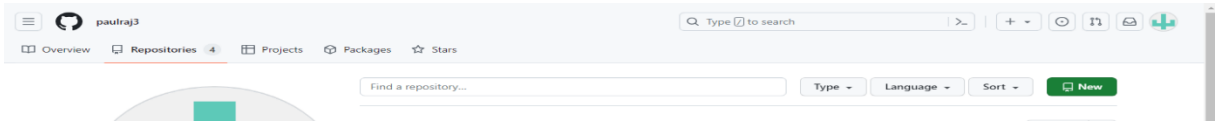
7.After Sign in click on your profile.



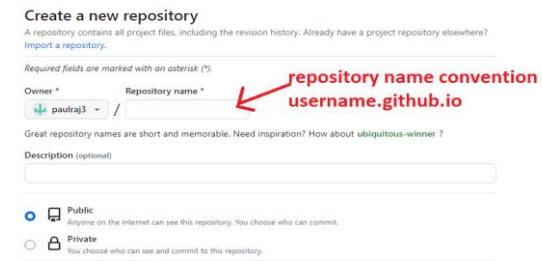
8.click on Repositories



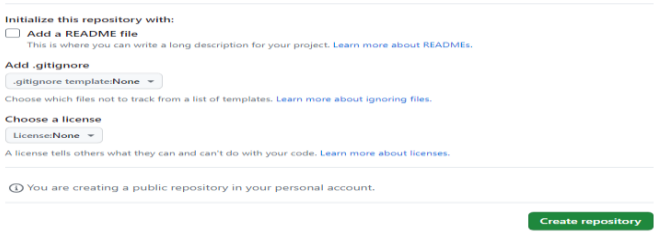
9.select option new



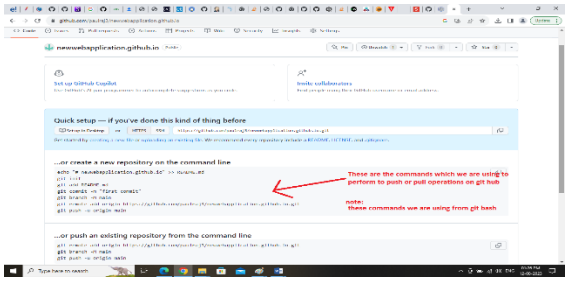
10 click on create repository



11.click on create repository



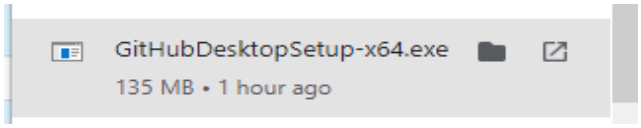
12.Repository Created now Fetch the code from local to remote



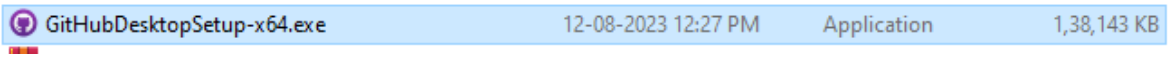
13.click on Set up in Desktop

14.Download Github Desktop

15.Open that GitHubDesktopSetup and Try to install



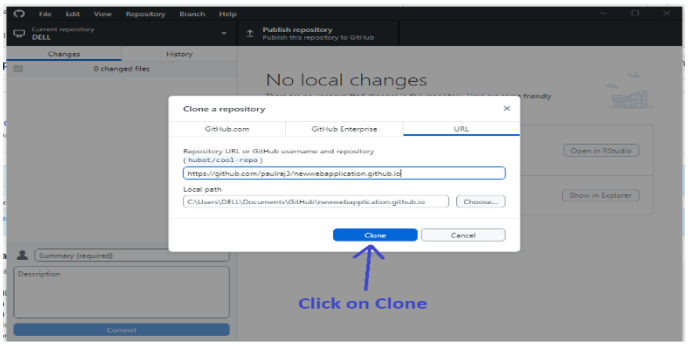
16.double click on setup file or rightclick and select open



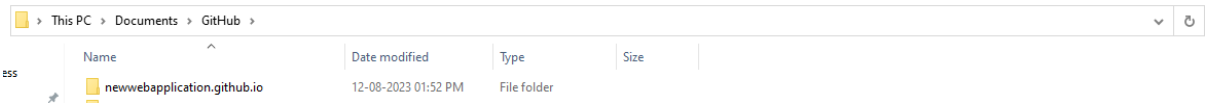
17.Installing GitHub desktop

18.GitHubDesktop Terminal

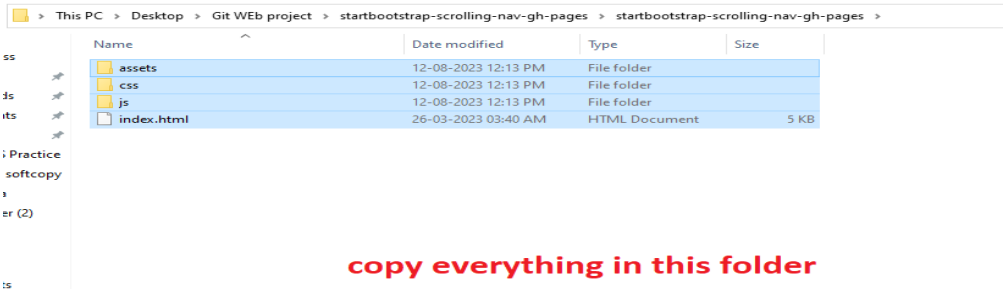
19.Next Open your github and click on Set up Desktop



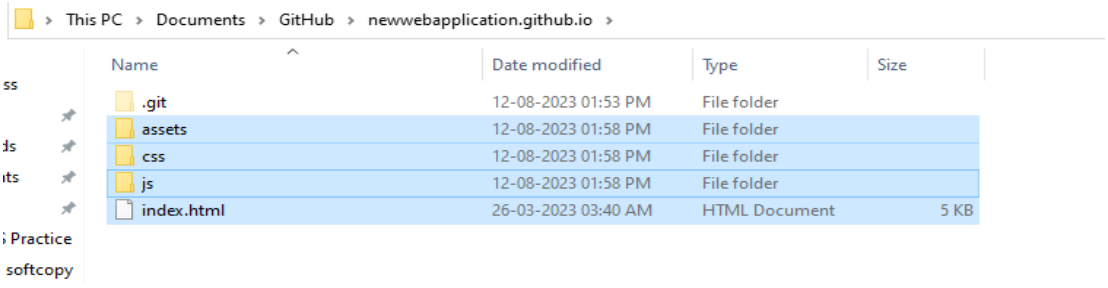
20.Open cloned folder location



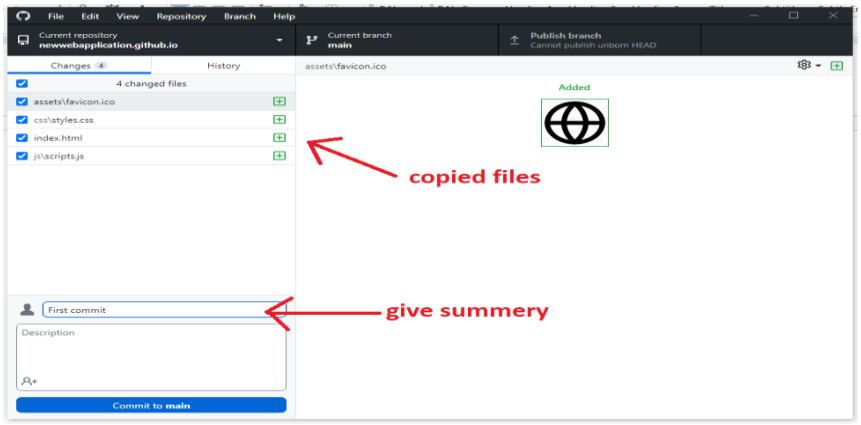
21.Now Open downloaded web application template folder and copy everything in that folder



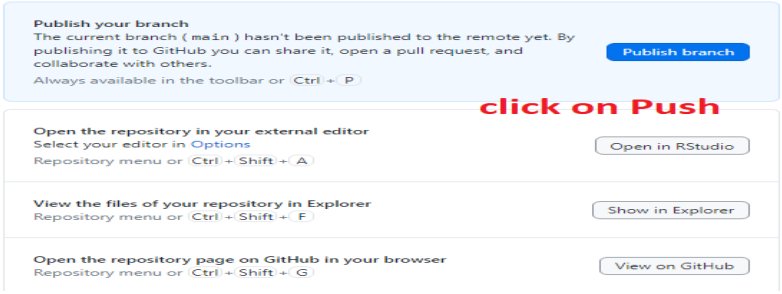
22.Paste your copied files in cloned folder



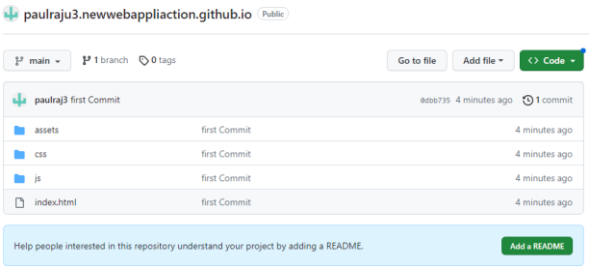
23.Now open your GitHub Desktop there you will see all project files, and then Click on Commit to main



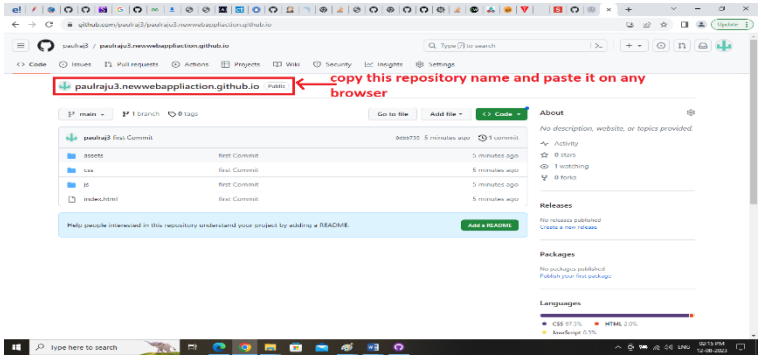
24.Click on Publish Branch



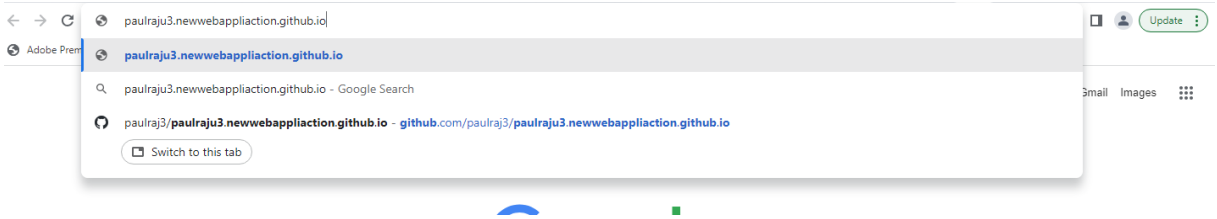
25.Now go and check your repository



26.copy this repository name



27.paste in browser address bar.



Another way

open git bash, and execute git bash commands.

Some interview questions

1. What Is GitHub?
GitHub is a website and cloud-based service that assists developers in storing and managing code, as well as tracking and controlling changes to their code.
2. What Is Version Control?
The method of recording and controlling changes to software code is known as version control, often known as source control. Version control systems (VCS) are software tools that assist software development teams in managing changes to source code over time.

3. What Is Git?

Git is a free and open source distributed version control system that can handle projects of any size, from little to very large, with speed and efficiency.

6. Who uses GitHub?

Github is used by developers, programming instructors, students, and businesses all across the world to host millions of open source projects and facilitate structured collaboration on a single platform. It is a collaborative web-based platform with version control systems that allows for more effective software development.

7. What is GitHub used for?

GitHub is a platform for hosting code that allows for version control and collaboration. It allows you and others to collaborate on projects from anywhere. This lesson will teach you the fundamentals of GitHub, such as repositories, branches, commits, and pull requests.