SE LAB TASK 1

27-11-2024

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HU22CSEN0100287

What is GitHub?

GitHub is a website where people can store and share their computer code. It's like an online folder where you can put your projects, work on them with other people, and keep track of changes over time.

Think of it as a tool that helps developers collaborate. You can:

1. Store your code: Upload your programming files so they are safe and accessible from anywhere.
2. Collaborate: Other people can work on your project, suggest changes, or fix problems, and you can review and approve those changes.
3. **Track changes**: GitHub helps keep a history of all the changes made to the code, so you can see who changed what and why.

It's based on a tool called **Git**, which keeps track of different versions of files, so you can always go back to an earlier version if needed.

Many people use GitHub for software development, but it's also used for other types of projects, like writing documentation or managing data.

Introduction to Github

GitHub is a platform used by developers and other project teams to store, share, and manage code and projects. It’s not just a place to save your files; it’s a powerful tool that helps teams collaborate, track progress, automate tasks, and organize work more efficiently.

Here’s a simple breakdown of GitHub’s features and how it works:

Key Features of GitHub

1. Repositories (Repos)

- A repository is like a project folder where all your files (code, documents, etc.) are stored on GitHub.
- You can make repositories public (anyone can see and contribute) or private (only selected people can access).

2. Issues and Project Management

- Issues are used to track tasks, bugs, or improvements. They are like to-do items for the project.
- You can assign issues to people, label them (e.g., bug, enhancement), and track their progress.
- Project Boards help organize tasks visually (like Trello) with columns like "To Do," "In Progress," and "Done."

3. Branches

- Branches allow you to work on different parts of the project without affecting the main code (usually the main or master branch).
- You can create a branch for new features, bug fixes, or experiments, and later merge them back into the main project.

4. Pull Requests (PRs)

- A pull request is a way to propose changes to a project. You can request that your changes (from a branch) be reviewed and merged into the main code.
- It’s also where you discuss changes with your team and ensure everything is working correctly before merging.

5. GitHub Actions and Automation

- GitHub Actions are automated workflows that run tasks like testing, building, or deploying your project.
- For example, you can set up an action to automatically run tests every time someone adds new code to the project.
- Actions save time by automating repetitive tasks and making the development process smoother.

6. Version Control (Git)

- GitHub uses Git, which keeps track of all changes made to the code.
- You can always go back to an earlier version of the code if something goes wrong.
- Git also allows multiple people to work on the same project without conflicting changes.

7. Wiki and Documentation

- GitHub allows you to create a Wiki for your project, which is a place to document how your project works, how to set it up, or how others can contribute.
- It helps new contributors understand the project quickly.

8. Security and Access Control

- Branch Protection: You can protect the main code branches, ensuring changes are reviewed before being merged.
- Dependabot: GitHub automatically checks for security vulnerabilities in the libraries your project depends on and can suggest updates to fix them.

9. Community and Open Source

- GitHub is home to millions of open-source projects, allowing anyone to contribute.
- You can fork (copy) a project, make changes, and then submit a pull request to contribute your changes back to the original project.

10. Discussions

- Discussions are a space for project teams and communities to have conversations, ask questions, and share ideas, separate from code issues.
- It's like a forum where you can discuss features, ask for help, or share general thoughts.

11. Collaboration Tools

- GitHub allows teams to collaborate by assigning tasks, reviewing changes, and discussing updates through issues, pull requests, and discussions.
- You can easily share work, review code, and contribute to other projects.

12. Integration with Other Tools

- GitHub can integrate with other services, like Slack, Trello, or CI/CD tools, to streamline communication and development.
- You can link GitHub with tools for automatic deployments, continuous integration, and monitoring.

13. Free and Paid Plans

- GitHub is free for public repositories and small teams.
- There are paid plans for private repositories or teams with advanced features like better security controls.

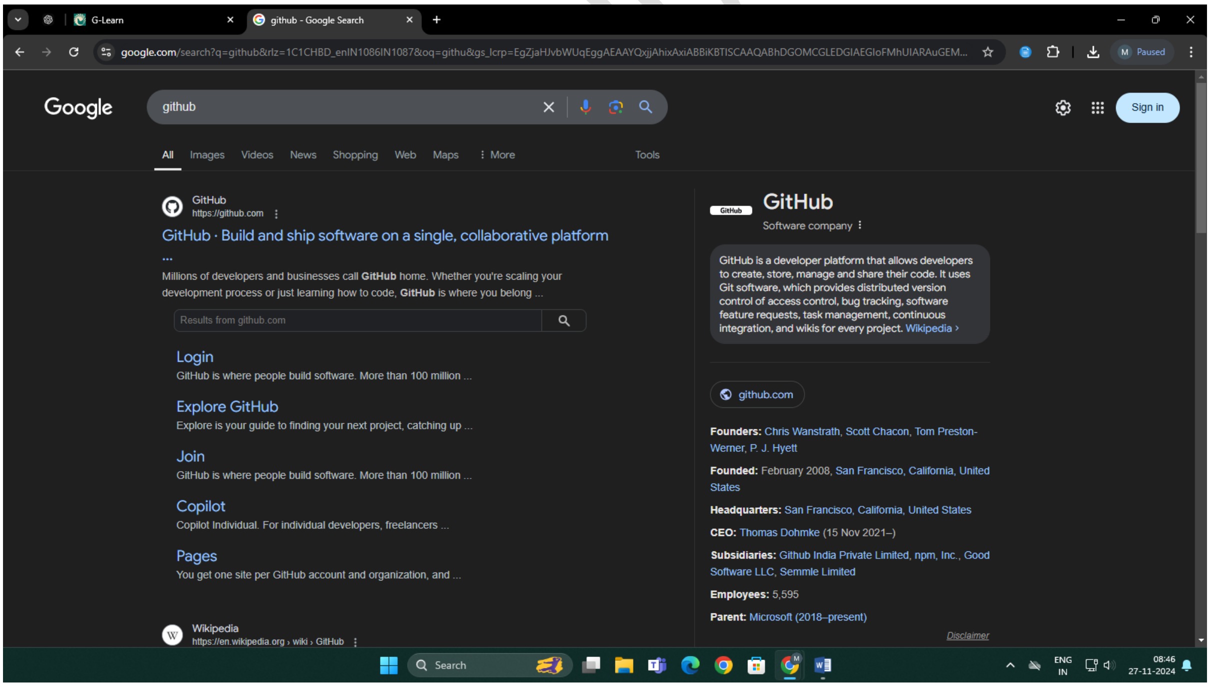
Difference Between Git And GitHub

Feature	Git	GitHub
Definition	Version control system	Web platform for hosting Git repositories
Purpose	Track changes locally on your machine	Host code remotely, enable collaboration
Functionality	Manages versions, commits, branches	Stores code, offers collaboration tools (PRs, issues)
Hosting	Works locally (on your computer)	Cloud-based, stores code online
Usage	Used to manage local code versions	Used to share, collaborate, and manage code remotely
Collaboration	No built-in tools for collaboration	Pull requests, issues, discussions, team collaboration
Repositories	Local repositories	Remote repositories on GitHub servers
Version Control	Tracks changes in local files	Displays version history and commits online
Access Control	Local file access only	Public/private repos, team access management
Backup	No built-in backup (requires remote push)	Auto backups, cloud storage
Security	No built-in security features	Two-factor authentication, security alerts
Integration	Works with local tools (e.g., IDEs)	Integrates with CI/CD tools, project management, and mo
Community	No community features	Supports open-source projects, discussions, and contribut
Cost	Free	Free for public repos, paid for private repos and teams
Performance	Fast and lightweight (works offline)	Relies on internet connection for access
Workflow	Command-line tool for version control	Web interface, GitHub Desktop, and Git CLI
Forking	Doesn’t support forking (local only)	Allows users to fork and contribute to other repositories
Code Reviews	No built-in code review features	Pull requests with comments and reviews
Collaboration History	No tracking of collaboration details	Tracks contributors, pull requests, and comments
Open-Source Projects	N/A (Git itself is not a project)	Hosts millions of open-source projects for public collaboration
Issue Tracking	No issue tracking	Built-in issue tracking for bugs, tasks, and feature request

Feature	Git	GitHub
Documentation	No built-in docs support	Wiki feature for project documentation, README suppo
Continuous Integration	No built-in CI/CD support	GitHub Actions for automating workflows like testing an deployment
Branching	Local branches for feature development	Remote branches on GitHub for team collaboration
Community Features	No social aspects	Stars, forks, discussions, and followers for community engagement

Getting Started with GitHub

1) Type “Github” in Google searchbar and search for it



G-Learn
github - Google Search
google.com/search?q=github&rlz=1C1CHBD_enIN1086IN1087&oq=githu&gs_lcrp=EgZjaHJvbWUqEggAEAAYQxjjAhixAxiABBiKBTISCAAQABhDGOMCGLEDGIAEGIoFMhUIARAuGEM...
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All
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GitHub
https://github.com

GitHub · Build and ship software on a single, collaborative platform ...

Millions of developers and businesses call **GitHub** home. Whether you're scaling your development process or just learning how to code, **GitHub** is where you belong ...

Results from github.com

Login
GitHub is where people build software. More than 100 million ...

Explore GitHub
Explore is your guide to finding your next project, catching up ...

Join
GitHub is where people build software. More than 100 million ...

Copilot
Copilot Individual. For individual developers, freelancers ...

Pages
You get one site per GitHub account and organization, and ...

Wikipedia
https://en.wikipedia.org › wiki › GitHub

GitHub
Software company

GitHub is a developer platform that allows developers to create, store, manage and share their code. It uses Git software, which provides distributed version control of access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project. Wikipedia ›

github.com

Founders: Chris Wanstrath, Scott Chacon, Tom Preston-Werner, P. J. Hyett

Founded: February 2008, San Francisco, California, United States

Headquarters: San Francisco, California, United States

CEO: Thomas Dohmke (15 Nov 2021–)

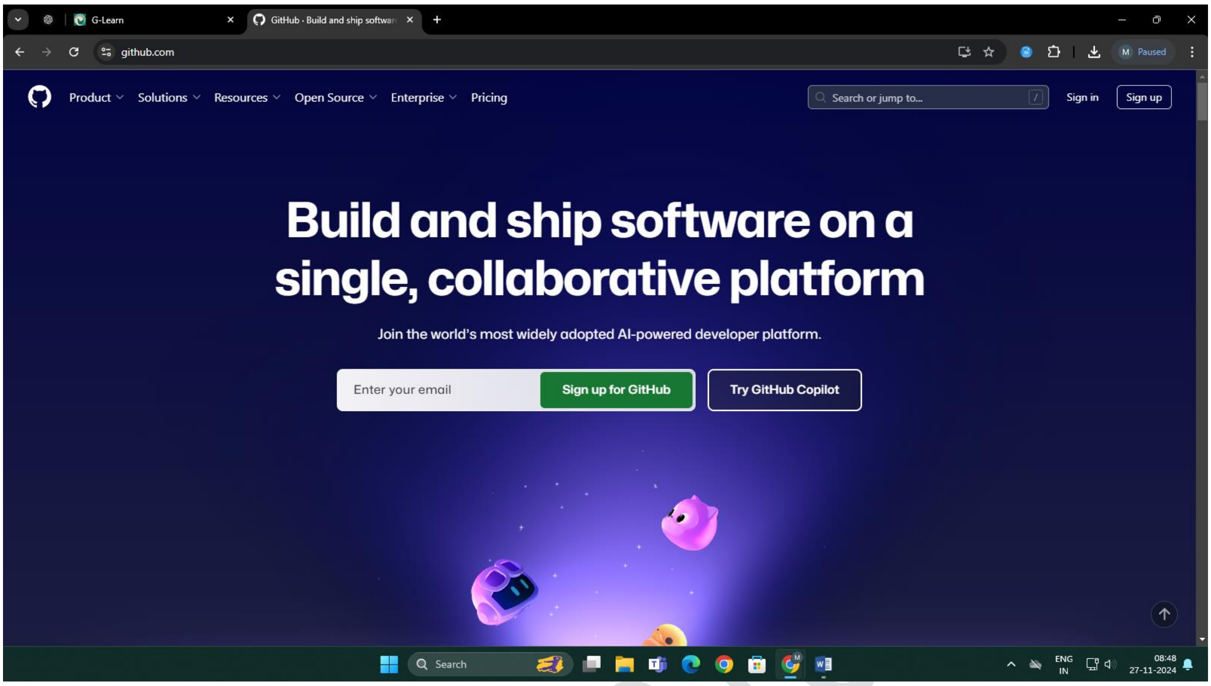
Subsidiaries: Github India Private Limited, npm, Inc., Good Software LLC, Semmle Limited

Employees: 5,595

Parent: Microsoft (2018–present)

Disclaimer

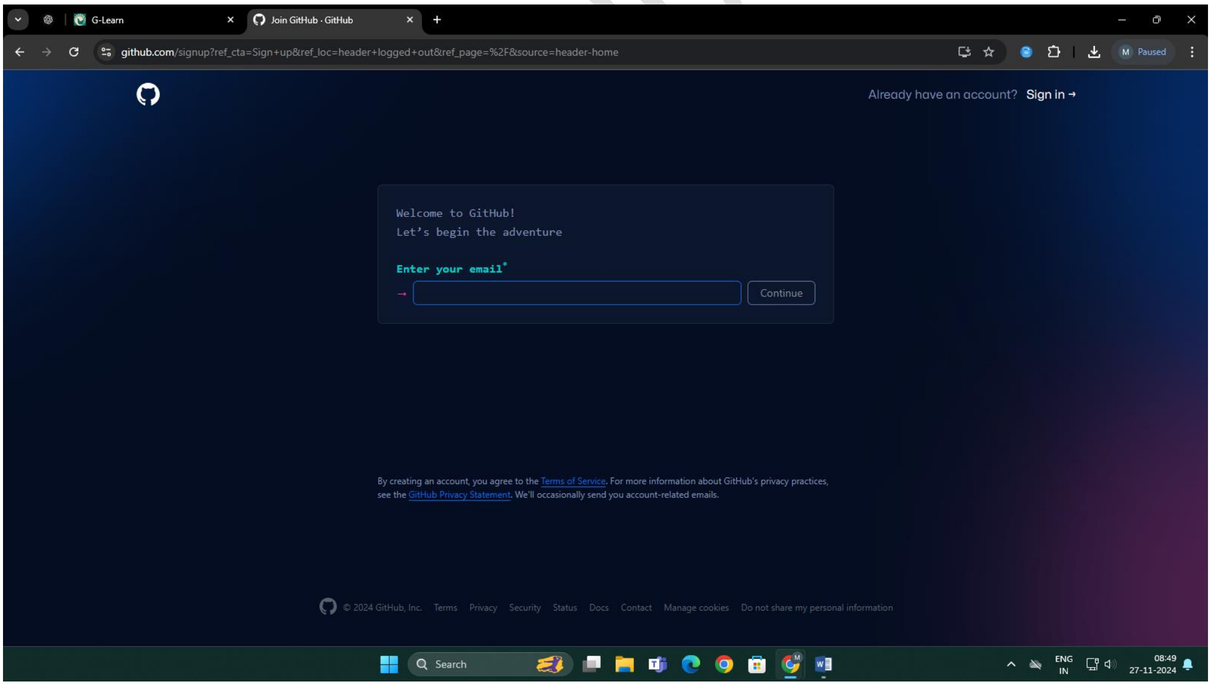
2) Click on the Github Website link which directs to the GitHub Website



Build and ship software on a single, collaborative platform

Join the world's most widely adopted AI-powered developer platform.

3) Click on "Sign Up" present on the top right



Welcome to GitHub!
Let's begin the adventure

Enter your email*

By creating an account, you agree to the Terms of Service. For more information about GitHub's privacy practices, see the GitHub Privacy Statement. We'll occasionally send you account-related emails.

G-Learn
Join GitHub · GitHub
github.com/signup?ref_cta=Sign+up&ref_loc=header+logged+out&ref_page=%2F&source=header-home
Already have an account? Sign in →
Continue
© 2024 GitHub, Inc.
Terms
Privacy
Security
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Manage cookies
Do not share my personal information
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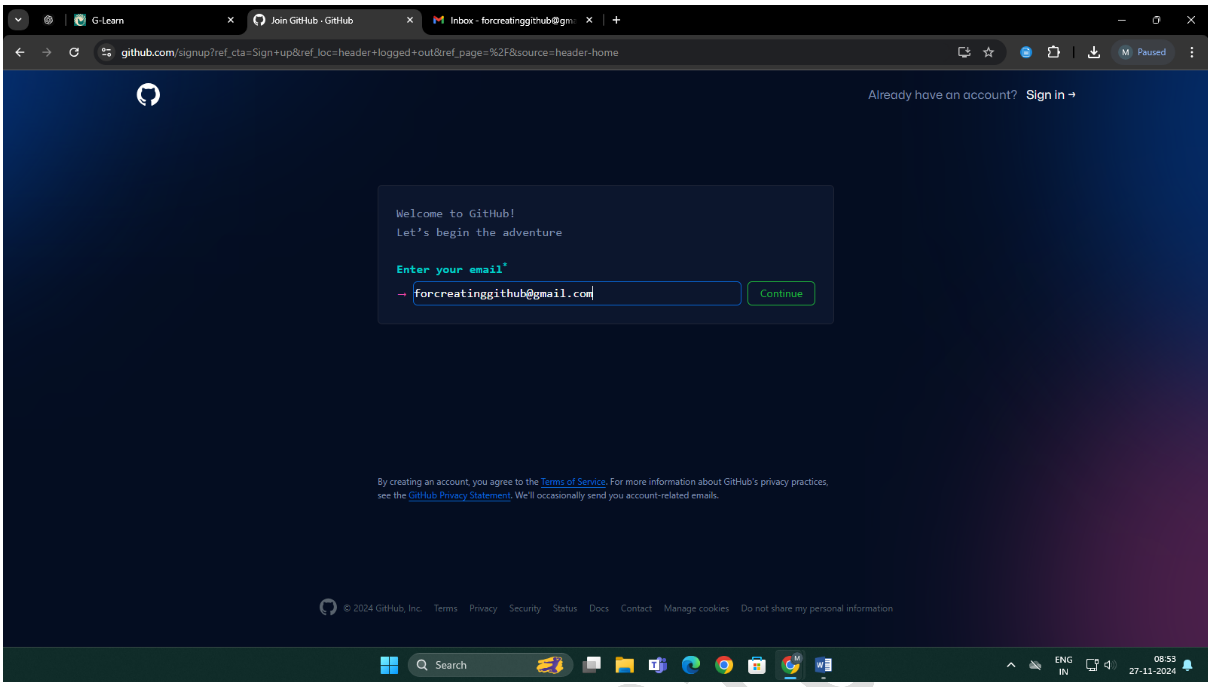
4) Enter email credentials



Welcome to GitHub!
Let's begin the adventure

Enter your email*

→ forcreatinggithub@gmail.com

Continue
Already have an account? Sign in →
github.com/signup?ref_cta=Sign+up&ref_loc=header+logged+out&ref_page=%2F&source=header-home
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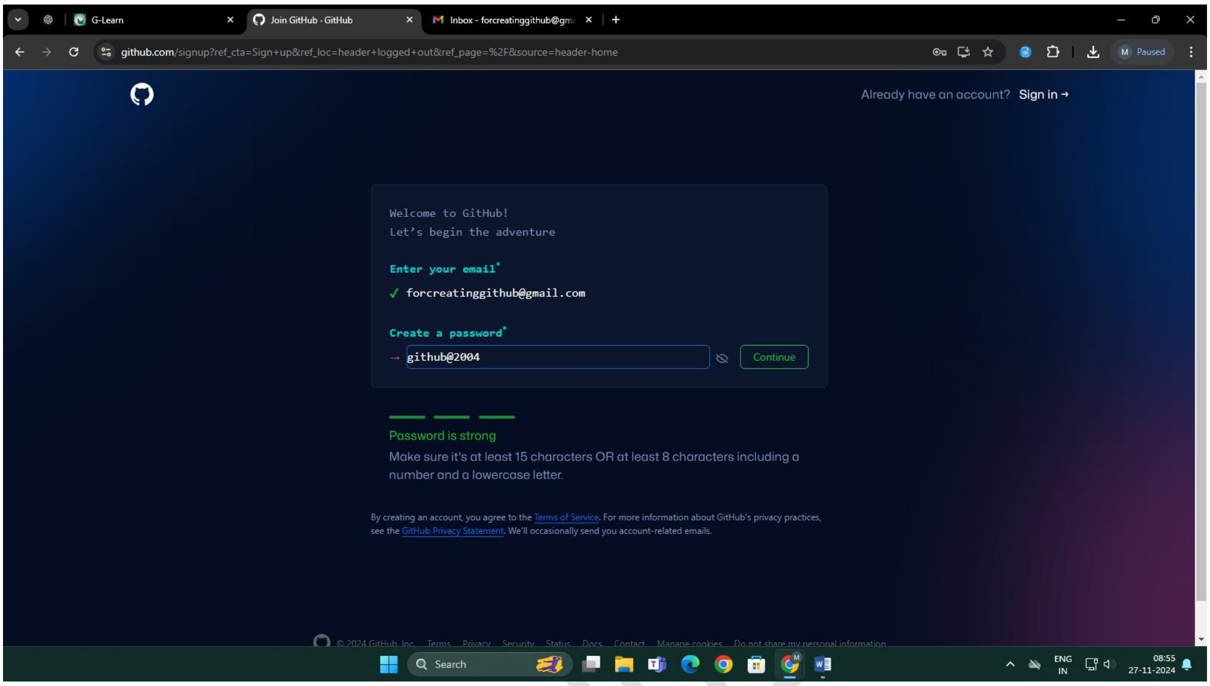
5) Type the password you want to set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Join GitHub · GitHub
Inbox - forcreatinggithub@gm
github.com/signup?ref_cta=Sign+up&ref_loc=header+logged+out&ref_page=%2F&source=header-home
Paused
Already have an account? Sign in →
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Welcome to GitHub!
Let's begin the adventure

Enter your email*
✓ forcreatinggithub@gmail.com

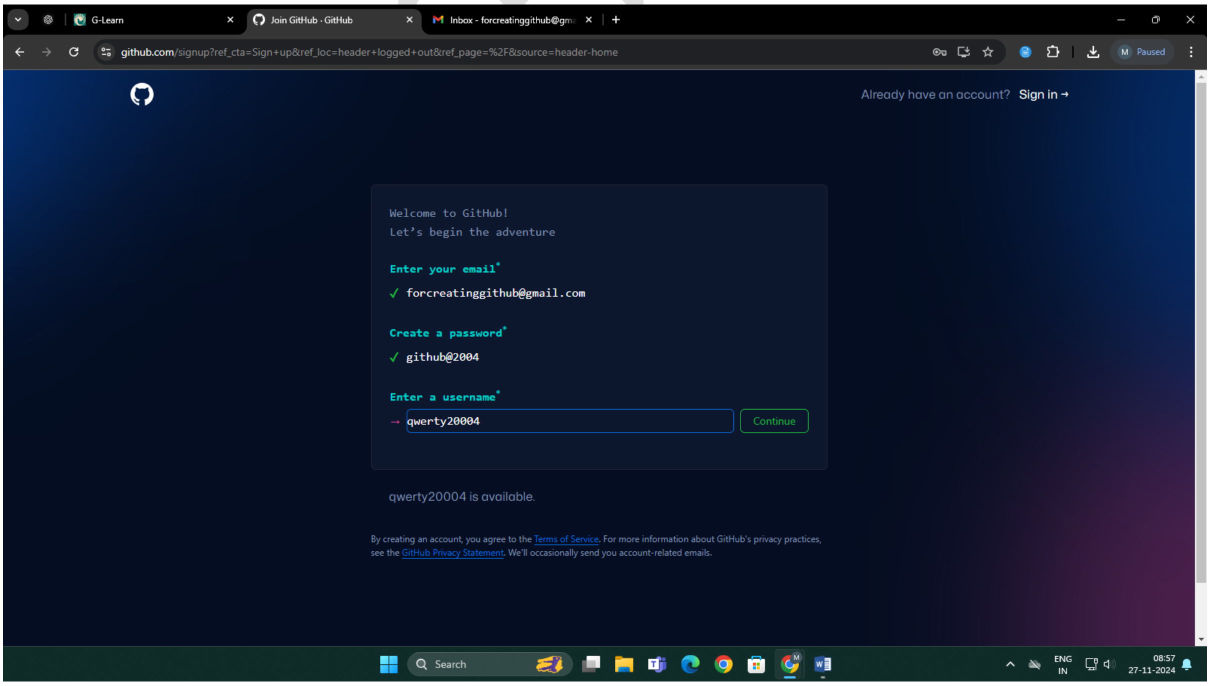
Create a password*
→ github@2004

Continue

Password is strong
Make sure it's at least 15 characters OR at least 8 characters including a number and a lowercase letter.

By creating an account, you agree to the Terms of Service. For more information about GitHub's privacy practices, see the GitHub Privacy Statement. We'll occasionally send you account-related emails.

6) Enter Username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Paused
Already have an account? Sign in →
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Welcome to GitHub!
Let's begin the adventure

Enter your email*
✓ forcreatinggithub@gmail.com

Create a password*
✓ github@2004

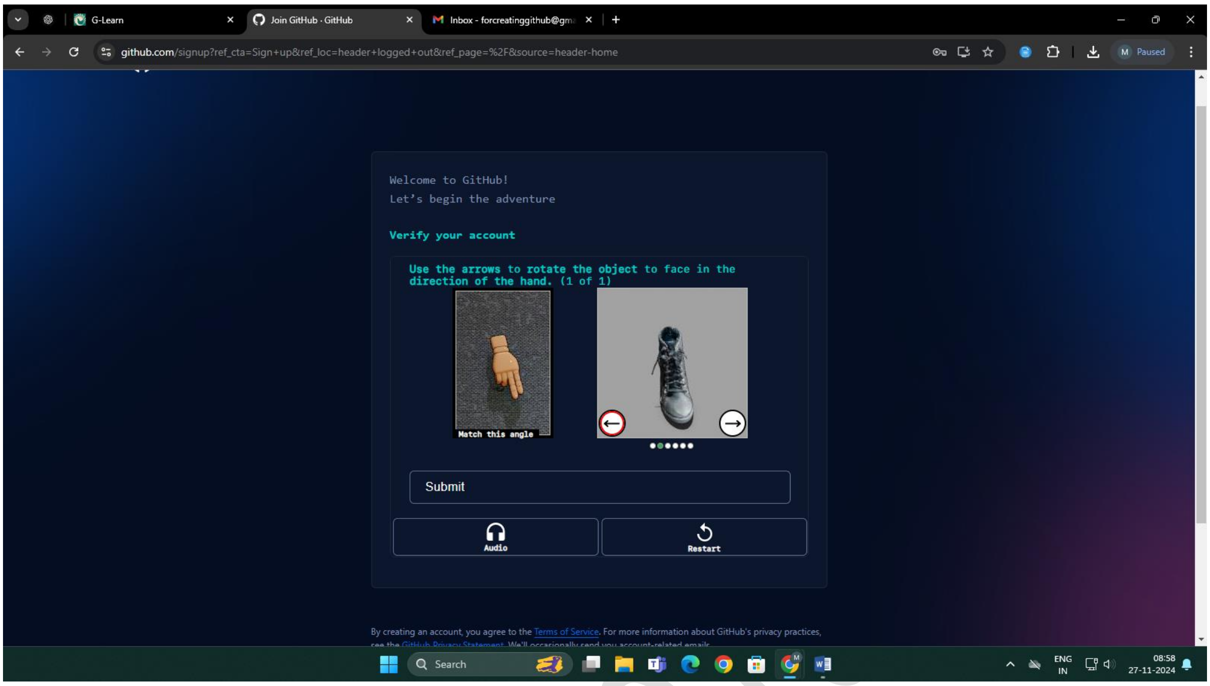
Enter a username*
→ qwerty20004

Continue

qwerty20004 is available.

By creating an account, you agree to the Terms of Service. For more information about GitHub's privacy practices, see the GitHub Privacy Statement. We'll occasionally send you account-related emails.

7) Work with required captcha for verification



github.com/signup?ref_cta=Sign+up&ref_loc=header+logged+out&ref_page=%2F&source=header-home

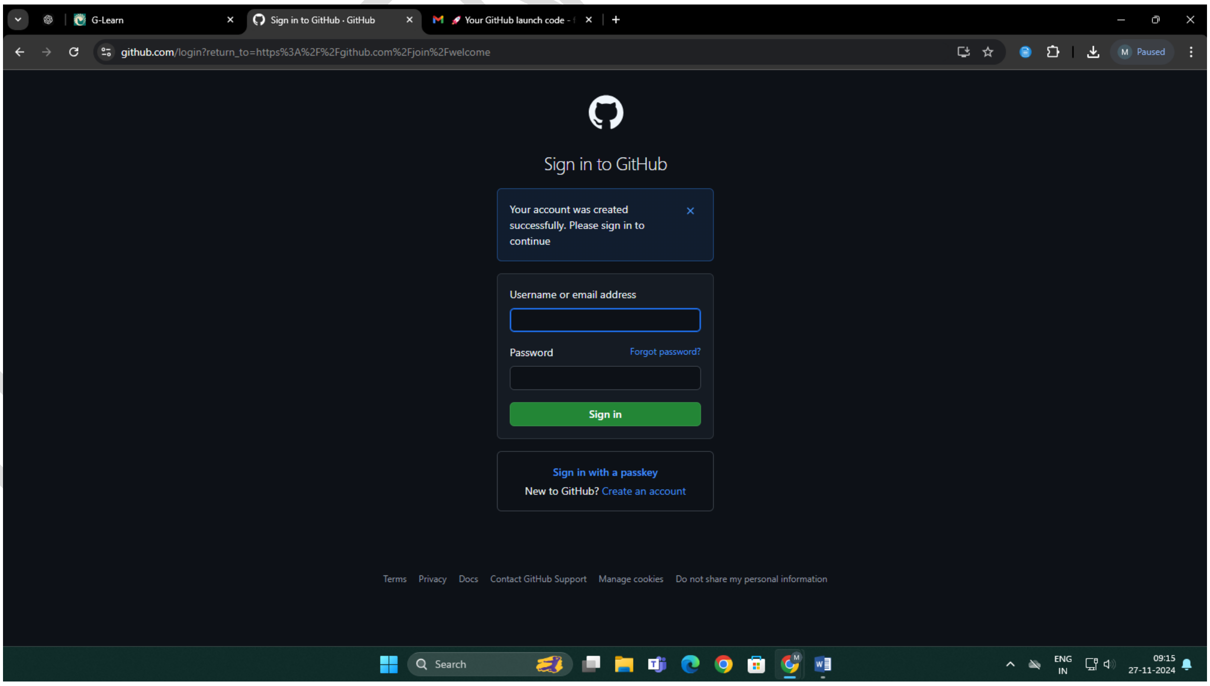
Welcome to GitHub!
Let's begin the adventure

Verify your account

Use the arrows to rotate the object to face in the direction of the hand. (1 of 1)

By creating an account, you agree to the Terms of Service. For more information about GitHub's privacy practices,

8) Enter Verification code and Login



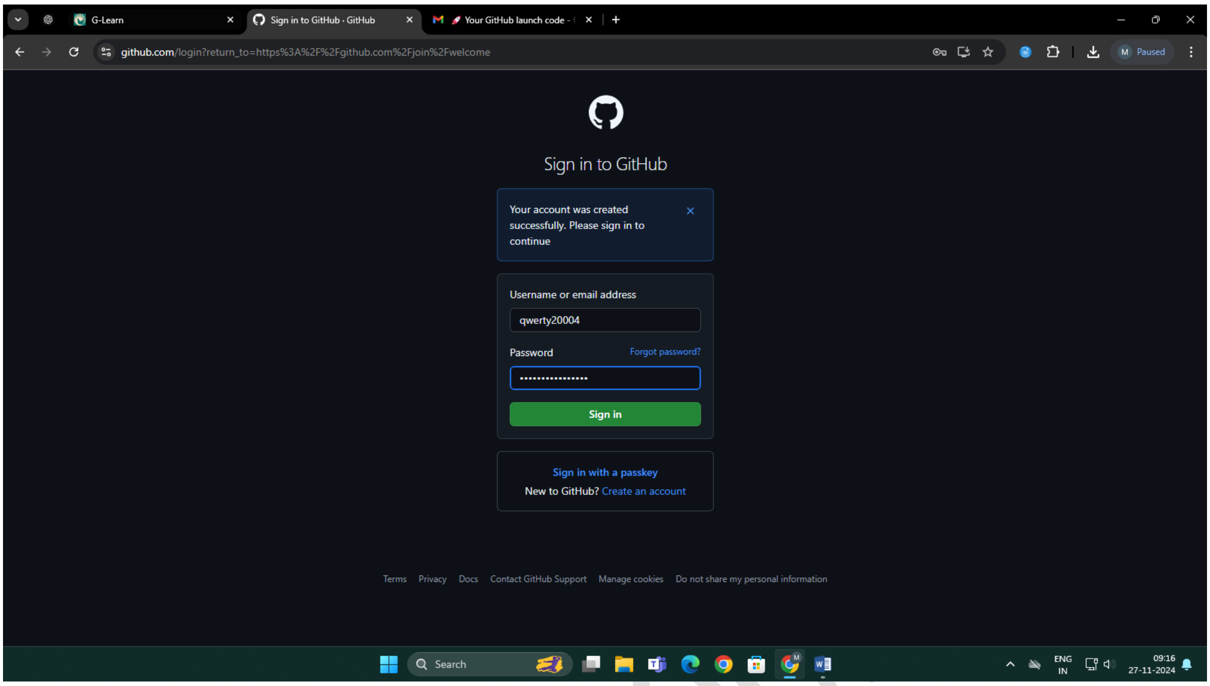
github.com/login?return_to=https%3A%2F%2Fgithub.com%2Fjoin%2Fwelcome

Sign in to GitHub

Your account was created successfully. Please sign in to continue

Username or email address

Password



github.com/login?return_to=https%3A%2F%2Fgithub.com%2Fjoin%2Fwelcome

Sign in to GitHub

Your account was created successfully. Please sign in to continue

Username or email address: qwerty20004

Password: ••••••••••••••••• (Forgot password?)

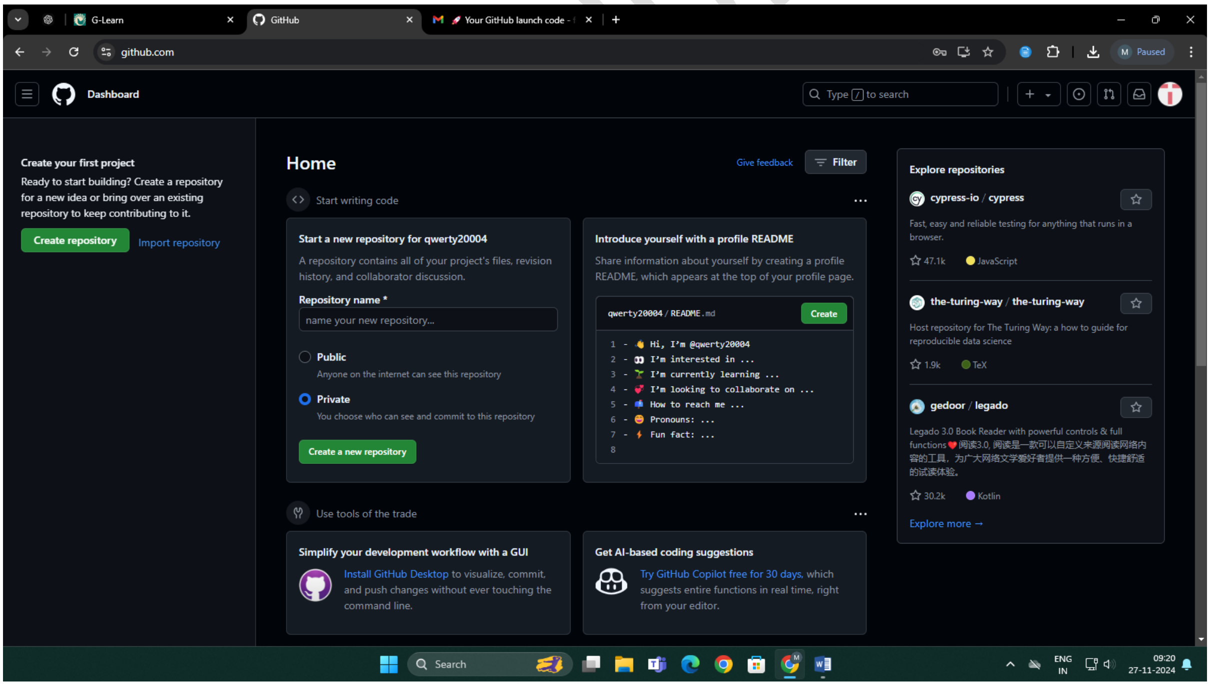
Sign in

Sign in with a passkey

New to GitHub? Create an account

Terms Privacy Docs Contact GitHub Support Manage cookies Do not share my personal information

9) Enter necessary details about how you want to use GitHub and it will be redirected to Dashboard



github.com

Create your first project

Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

Create repository Import repository

Home

Start writing code

Start a new repository for qwerty20004

A repository contains all of your project's files, revision history, and collaborator discussion.

Repository name *

name your new repository...

○ Public
Anyone on the internet can see this repository

● Private
You choose who can see and commit to this repository

Create a new repository

Introduce yourself with a profile README

Share information about yourself by creating a profile README, which appears at the top of your profile page.

qwerty20004 / README.md Create

```
- 👋 Hi, I’m @qwerty20004
- 👀 I’m interested in ...
- 🌱 I’m currently learning ...
- 💞️ I’m looking to collaborate on ...
- 📫 How to reach me ...
- 😄 Pronouns: ...
- ⚡ Fun fact: ...
```

Use tools of the trade

Simplify your development workflow with a GUI

Install GitHub Desktop to visualize, commit, and push changes without ever touching the command line.

Get AI-based coding suggestions

Try GitHub Copilot free for 30 days, which suggests entire functions in real time, right from your editor.

Explore repositories

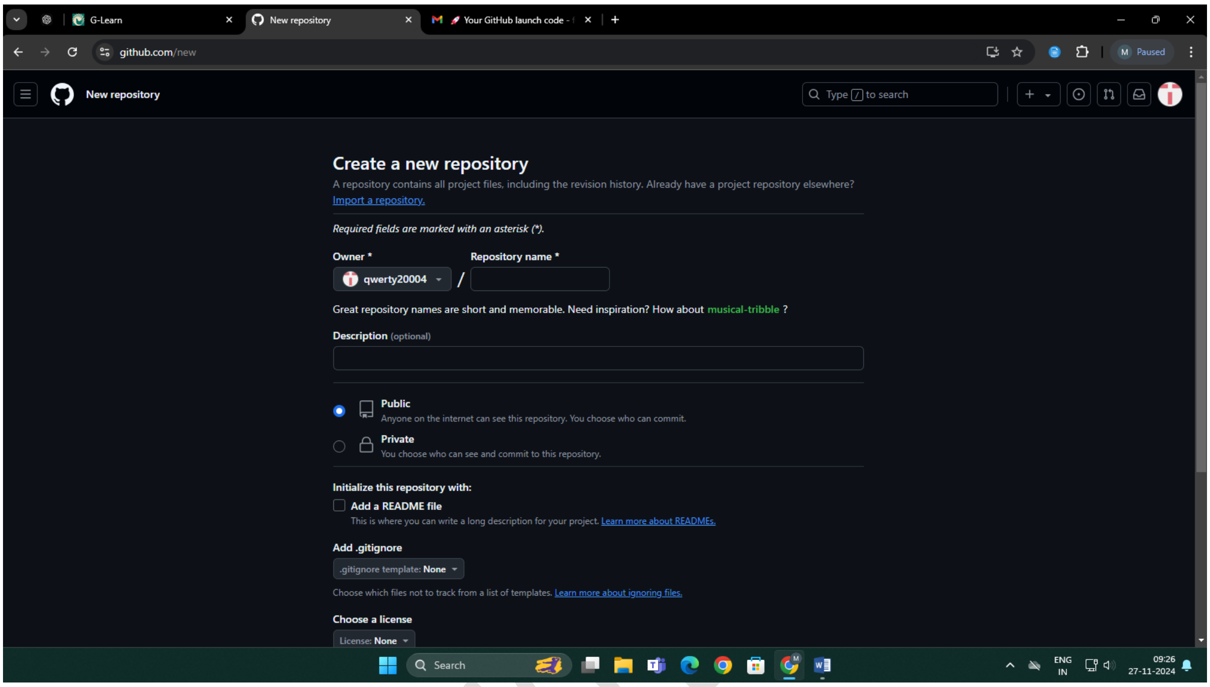
cypress-io / cypress
Fast, easy and reliable testing for anything that runs in a browser.
☆ 47.1k ● JavaScript

the-turing-way / the-turing-way
Host repository for The Turing Way: a how to guide for reproducible data science
☆ 1.9k ● TeX

gedoor / legado
Legado 3.0 Book Reader with powerful controls & full functions❤️阅读3.0, 阅读是一款可以自定义来源阅读网络内容的工具，为广大网络文学爱好者提供一种方便、快捷舒适的试读体验。
☆ 30.2k ● Kotlin

Explore more →

10) Click on "Create Repository" button present in the left panel



Create a new repository

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

Required fields are marked with an asterisk (*).

Owner * qwerty20004 / Repository name *

Great repository names are short and memorable. Need inspiration? How about musical-tribble ?

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:

□ Add a README file
This is where you can write a long description for your project. Learn more about READMEs.

Add .gitignore

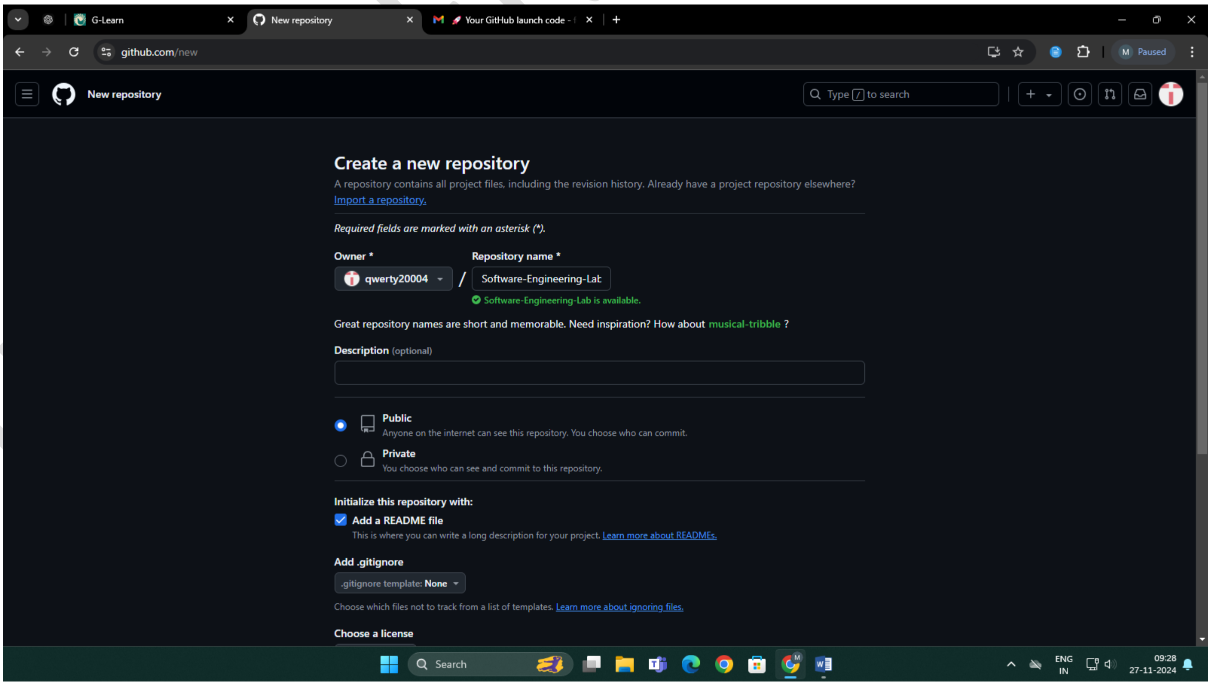
.gitignore template: None

Choose which files not to track from a list of templates. Learn more about ignoring files.

Choose a license

License: None

11) Enter Repository Name



Create a new repository

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

Required fields are marked with an asterisk (*).

Owner * qwerty20004 / Repository name * Software-Engineering-Lat

✓ Software-Engineering-Lab is available.

Great repository names are short and memorable. Need inspiration? How about musical-tribble ?

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.

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☑ Add a README file
This is where you can write a long description for your project. Learn more about READMEs.

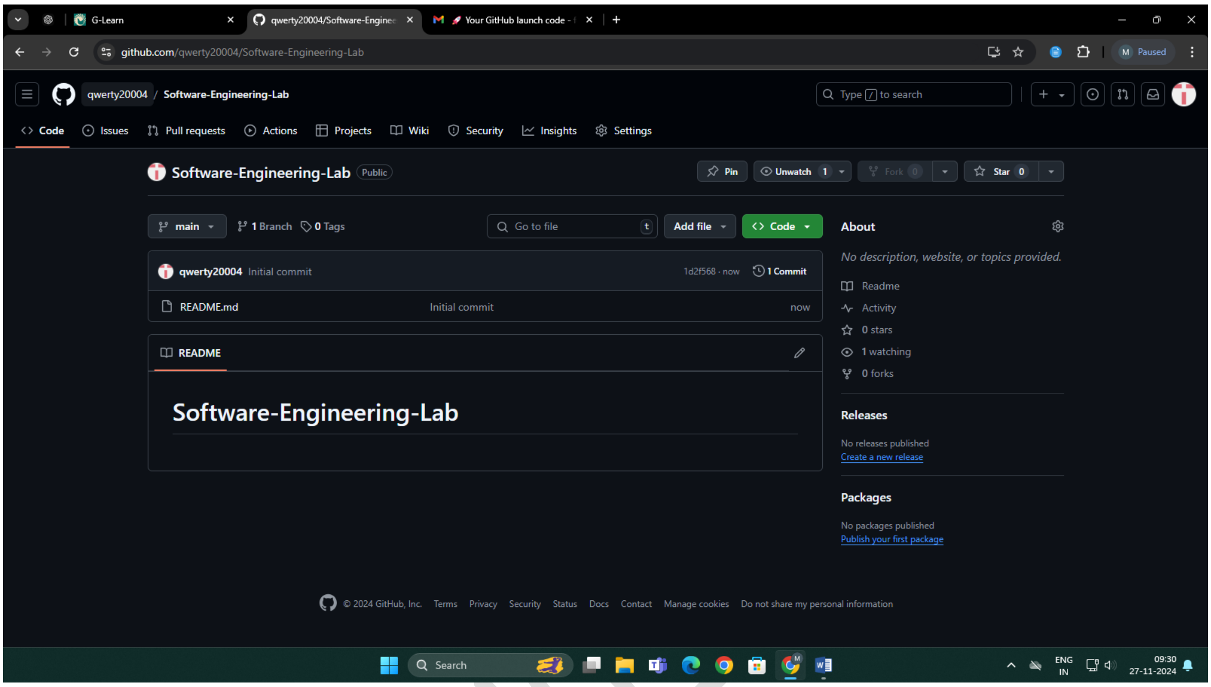
Add .gitignore

.gitignore template: None

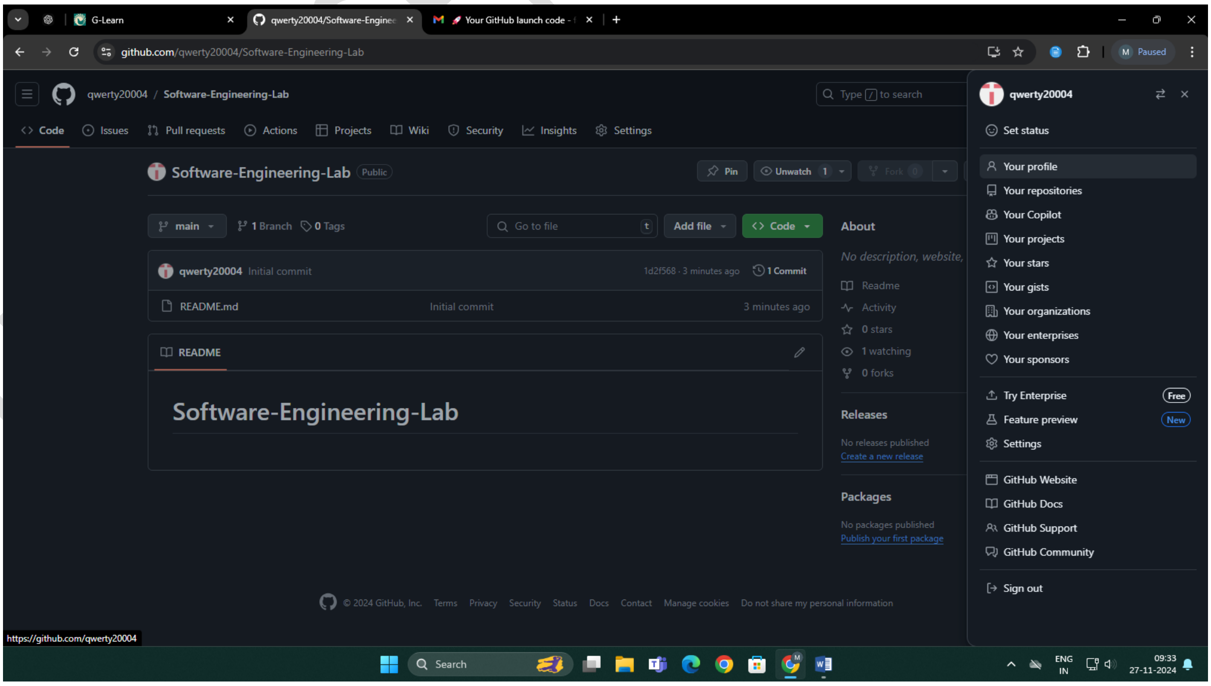
Choose which files not to track from a list of templates. Learn more about ignoring files.

Choose a license

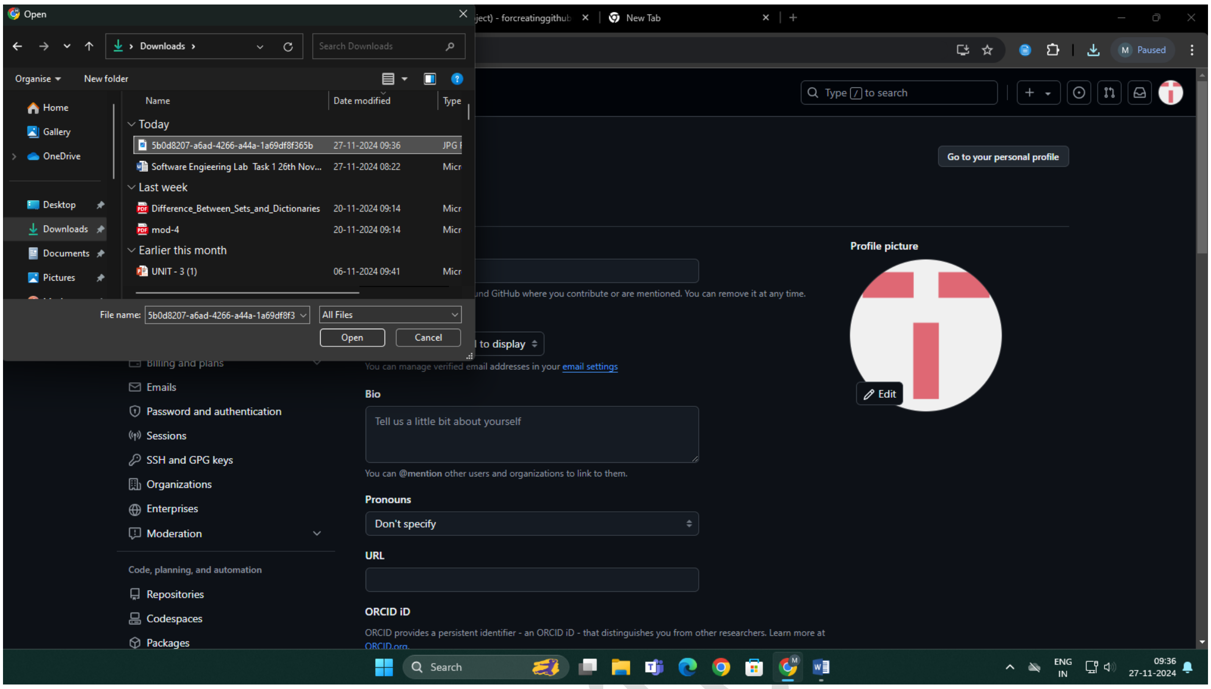
12) It will be directed to Repository Dashboard

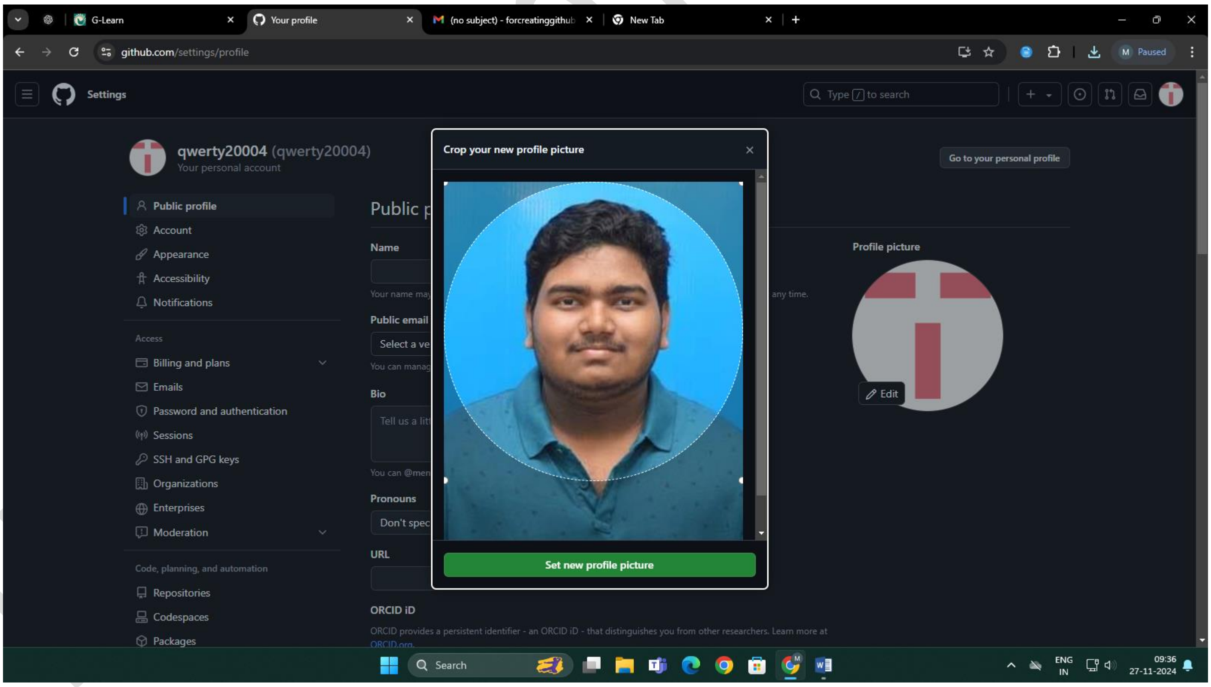


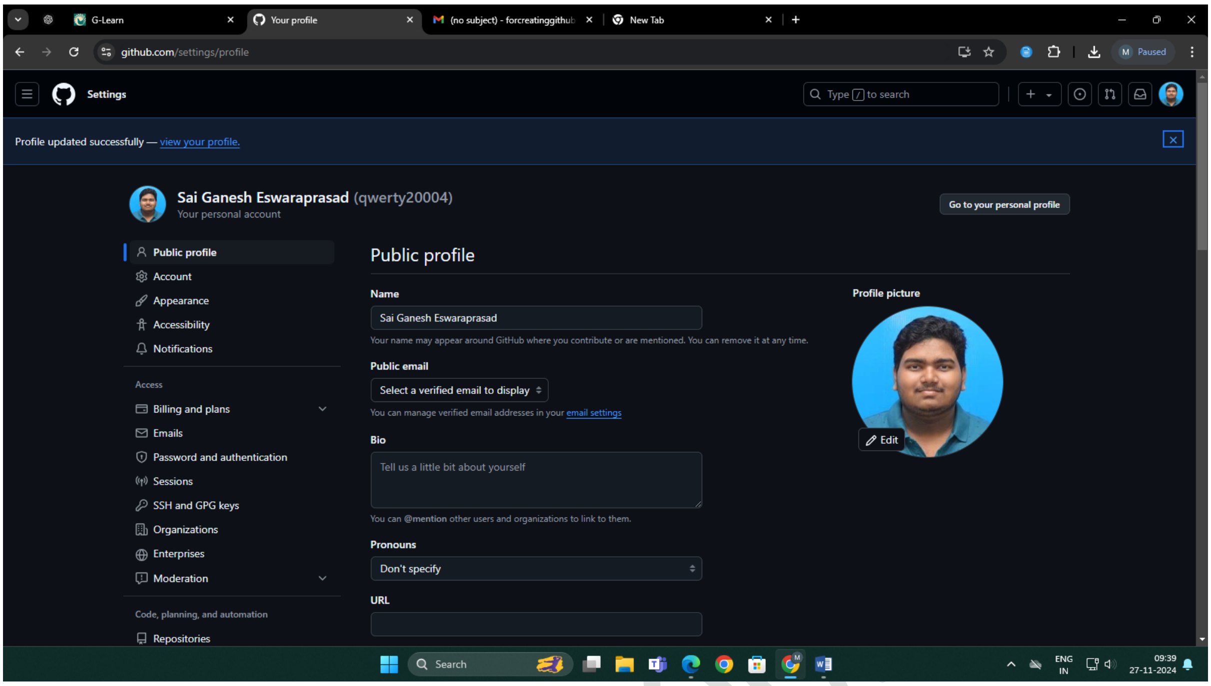
13) To change the profile image, click profile icon on top right and select profile



14) Change the profile pic







Profile updated successfully — view your profile.

Sai Ganesh Eswaraprasad (qwerty20004)
Your personal account

Public profile

Name
Sai Ganesh Eswaraprasad
Your name may appear around GitHub where you contribute or are mentioned. You can remove it at any time.

Public email
Select a verified email to display
You can manage verified email addresses in your email settings

Bio
Tell us a little bit about yourself
You can @mention other users and organizations to link to them.

Pronouns
Don't specify

URL

Profile picture