

# SOFTWARE ENGINEERING TASK 1

27-11-2024

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## What is GitHub?

GitHub is a website and platform where people can store, share, and collaborate on computer code. It's like an online "storage space" for projects, but it also helps teams work together by keeping track of changes made to the code over time.

It uses a tool called **Git** to manage these changes. Git allows you to save different versions of your code, so you can see who made changes and when. It also makes it easier to combine everyone's changes together, even if they are working on different parts of the project.

In simple terms, GitHub is like a big online notebook for programmers where they can write, edit, and share their code, and work together on coding projects with others, no matter where they are.

## Introduction to GitHub

GitHub is a web-based platform primarily used for version control and collaboration in software development. It allows developers to store their code, track changes, and collaborate with others, all in one place. GitHub is built on **Git**, a popular version control system that helps developers manage different versions of their code, making it easier to work on projects as a team.

It's widely used by developers, teams, and even large organizations to create open-source projects, manage private repositories, and contribute to others' work. GitHub has become the go-to platform for software collaboration and has grown beyond just code hosting to become a hub for knowledge sharing, project management, and community engagement.

## Key Features of GitHub

1. Version Control with Git:
  - GitHub uses Git to track changes in your code. Git allows you to save snapshots of your project at different points in time, so you can review, compare, or revert back to previous versions of your code.
2. Repositories (Repos):
  - A repository (or "repo") is where all the files for a project are stored, including code, documentation, and assets. Repositories can be public (anyone can see) or private (only selected people can access).
3. Collaboration Tools:
  - GitHub allows multiple developers to work on the same project. It provides features like:

- Pull Requests: Developers can propose changes (called "pull requests") to a repository. Others can review, discuss, and approve the changes before merging them into the main project.
  - Forking: You can make a copy of someone else's repository (called "forking") to work on it independently, and then later propose changes back to the original project.
  - Branches: You can create different versions of the project (branches) to experiment with changes without affecting the main project (called "master" or "main" branch).
4. Issues and Project Management:
    - GitHub has an integrated Issues feature, which helps track bugs, tasks, or new features in your project.
    - You can organize work by creating to-do lists, assigning tasks to team members, and adding labels to categorize issues.
  5. Community and Open-Source Contributions:
    - GitHub is home to millions of open-source projects that anyone can contribute to. You can browse repositories, contribute to projects by fixing bugs or adding features, and learn from others' code.
    - Discussions and wikis allow teams and open-source contributors to communicate and share ideas.
  6. Actions and Automation:
    - GitHub Actions is a feature that lets you automate workflows, like automatically testing your code, deploying your application, or sending notifications when something happens in your repository.
    - This helps streamline processes and reduce manual work.
  7. Code Review and Collaboration:
    - GitHub offers tools for reviewing code through comments, inline discussions, and suggesting changes.
    - It allows teams to collaborate efficiently, with features for assigning tasks, reviewing pull requests, and merging code changes.
  8. Documentation and Wikis:
    - GitHub provides features to document your project, either by adding README files directly in your repositories or creating a full Wiki to explain your project in detail.
    - This is particularly useful for open-source projects, so others know how to use and contribute to the project.
  9. GitHub Pages:
    - GitHub Pages lets you host static websites directly from a GitHub repository. This is ideal for personal projects, portfolios, or documentation.
  10. Security Features:
    - GitHub offers security alerts for known vulnerabilities in your code or dependencies, helping you stay on top of security risks.
    - Dependabot automatically creates pull requests to update vulnerable dependencies.
  11. Insights and Analytics:
    - GitHub provides project insights, including metrics about repository activity, contributions, and community engagement, to help you understand how your project is progressing.
  12. Integration with Other Tools:

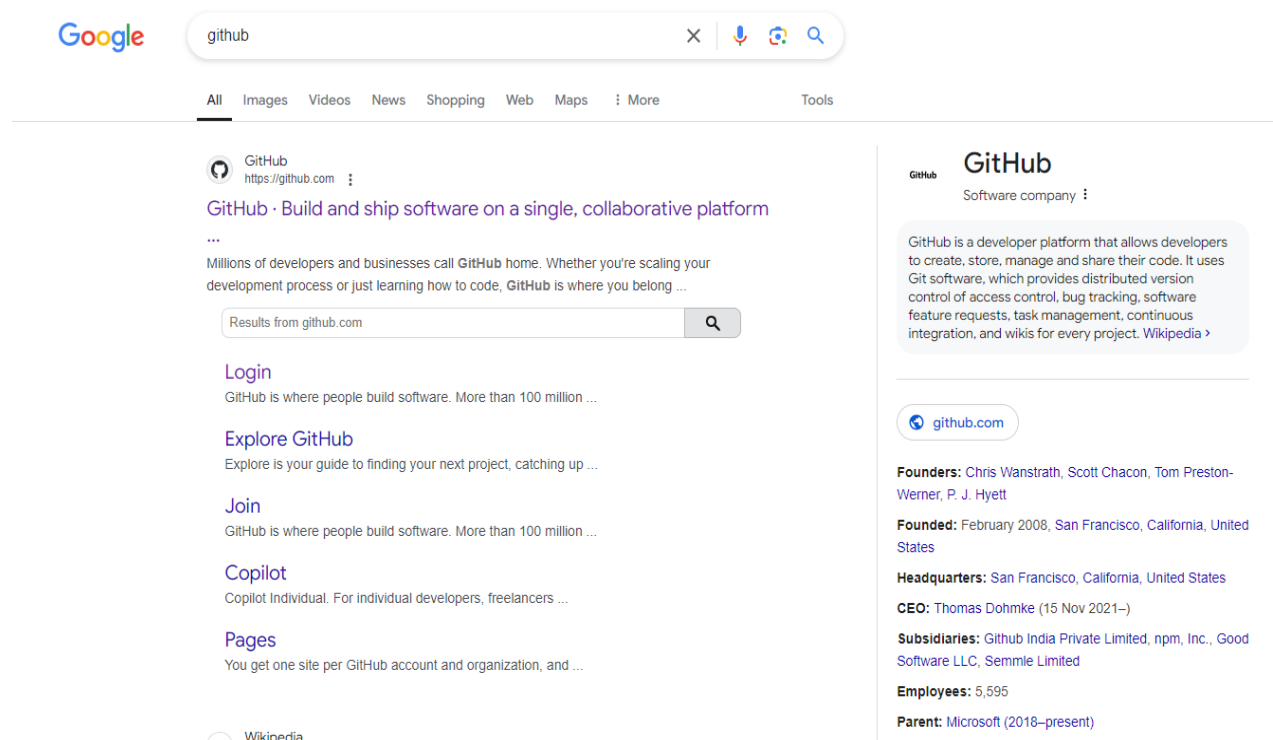
- GitHub integrates with many other tools like CI/CD services (for automated testing and deployment), Slack (for notifications), and project management tools like Trello and Jira.

### Difference between Git and GitHub

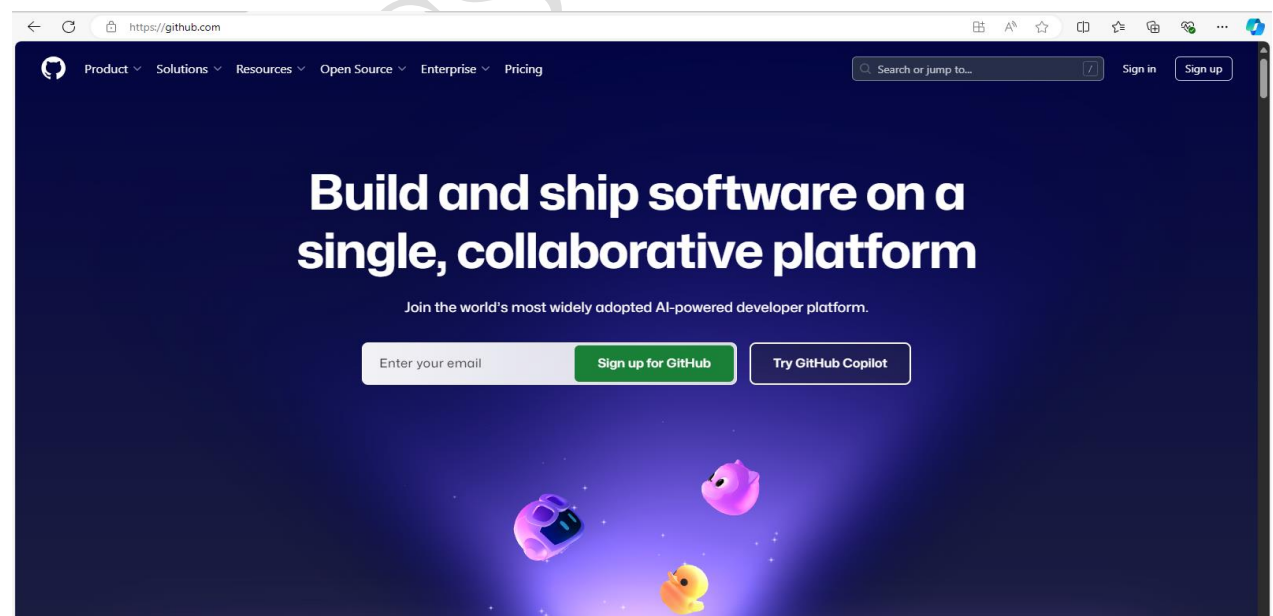
| Feature              | Git                                                            | GitHub                                                                     |
|----------------------|----------------------------------------------------------------|----------------------------------------------------------------------------|
| What It Is           | Version control system                                         | Cloud-based platform for hosting Git repositories                          |
| Functionality        | Tracks changes, manages versions, and allows branching locally | Hosts Git repositories and adds collaboration features                     |
| Where It Runs        | Locally on your computer                                       | Online, accessible through a web browser or GitHub tools                   |
| Purpose              | Manages and tracks code versions                               | Stores, shares, and collaborates on code remotely                          |
| Collaboration        | No collaboration features (works locally)                      | Collaboration tools: pull requests, issues, code reviews                   |
| Access               | Runs offline on your computer                                  | Requires an internet connection to access repositories                     |
| Storage              | Manages local versions of code                                 | Stores code in the cloud, accessible from anywhere                         |
| Usage                | Used for tracking changes, branching, and versioning           | Used for hosting repositories, sharing code, and collaborating with others |
| Installation         | Installed locally on your machine                              | No installation required; accessed via web or GitHub Desktop               |
| Internet Requirement | Works offline                                                  | Requires internet to push, pull, and clone repositories                    |

## Getting Started with GitHub

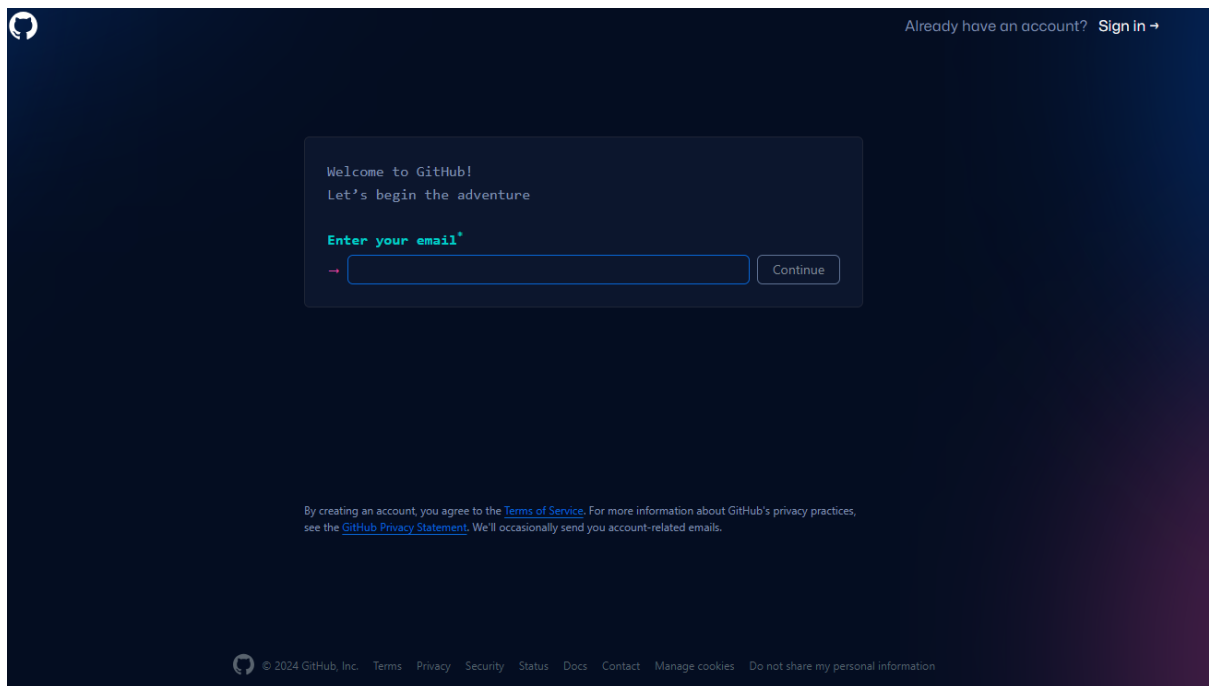
1. Search “GitHub” in any browser and click enter.



2. Click on the GitHub website link which is shown in above picture then GitHub Website opens

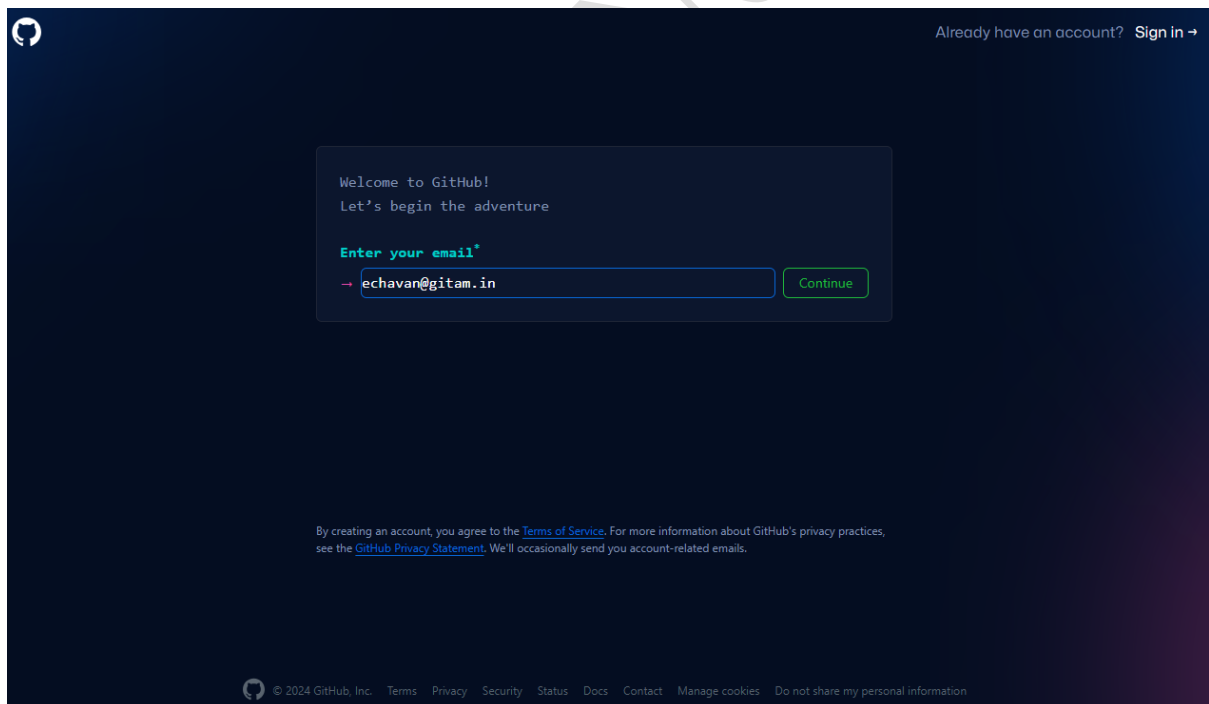


3. Click on sign up in top right corner of the above image then sign up pages appears



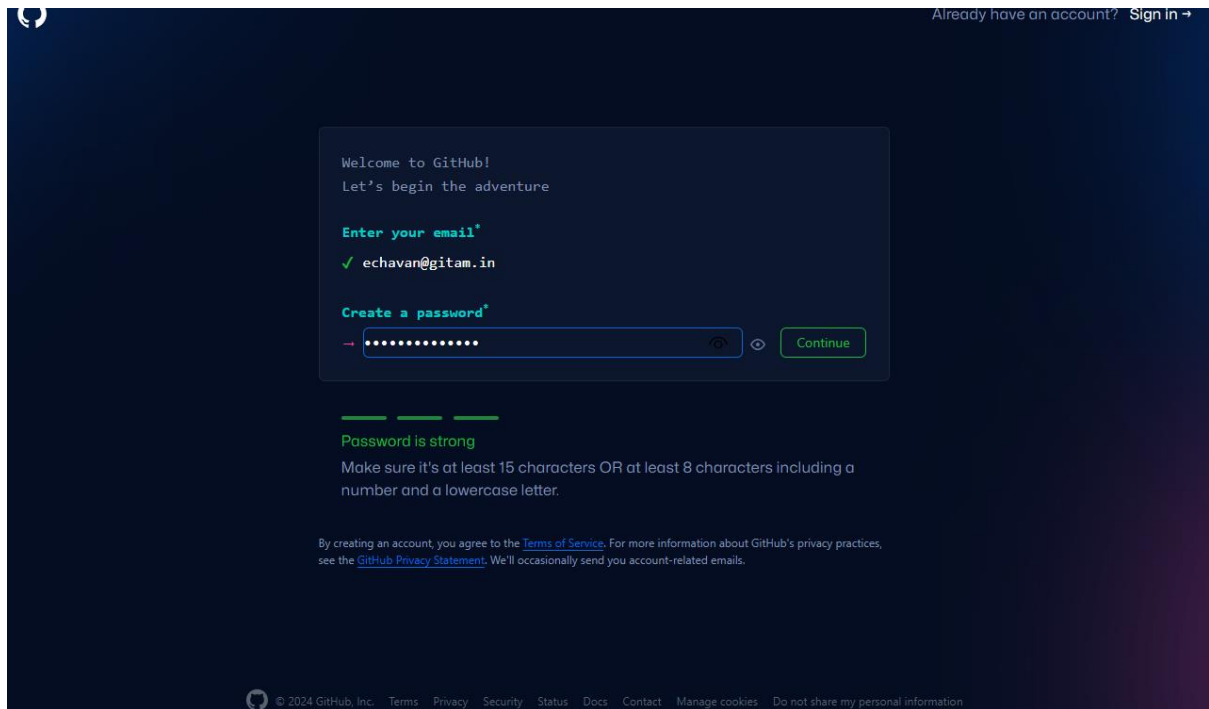
The image shows the GitHub sign-up page. At the top left is the GitHub logo. At the top right, it says "Already have an account? Sign in →". In the center, there is a dark blue box with the text "Welcome to GitHub! Let's begin the adventure". Below this, it says "Enter your email\*" in green. There is a text input field with a red arrow icon on the left and a "Continue" button on the right. Below the input field, there is a small text block: "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." At the bottom, there is a footer with the GitHub logo, "© 2024 GitHub, Inc.", and links for Terms, Privacy, Security, Status, Docs, Contact, Manage cookies, and Do not share my personal information.

4. Enter your Email



The image shows the GitHub sign-up page with the email "echavan@gitam.in" entered in the input field. The "Continue" button is now green. The rest of the page, including the header, footer, and terms of service text, is the same as in the previous image.

## 5. Create a password and continue



Already have an account? [Sign in](#) →

Welcome to GitHub!  
Let's begin the adventure

Enter your email\*

✓ echavan@gitam.in

Create a password\*

→ [password field] [eye icon] [Continue]

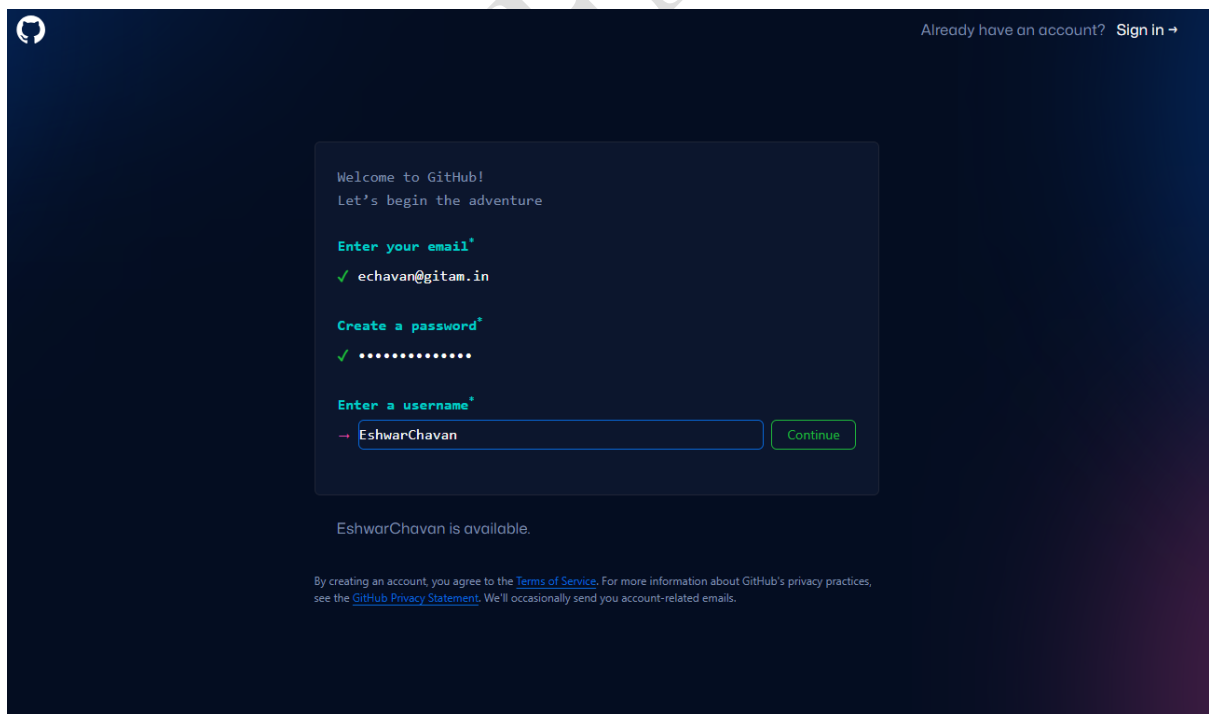
Password is strong

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.

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## 6. Enter a Username



Already have an account? [Sign in](#) →

Welcome to GitHub!  
Let's begin the adventure

Enter your email\*

✓ echavan@gitam.in

Create a password\*

✓ [password field]

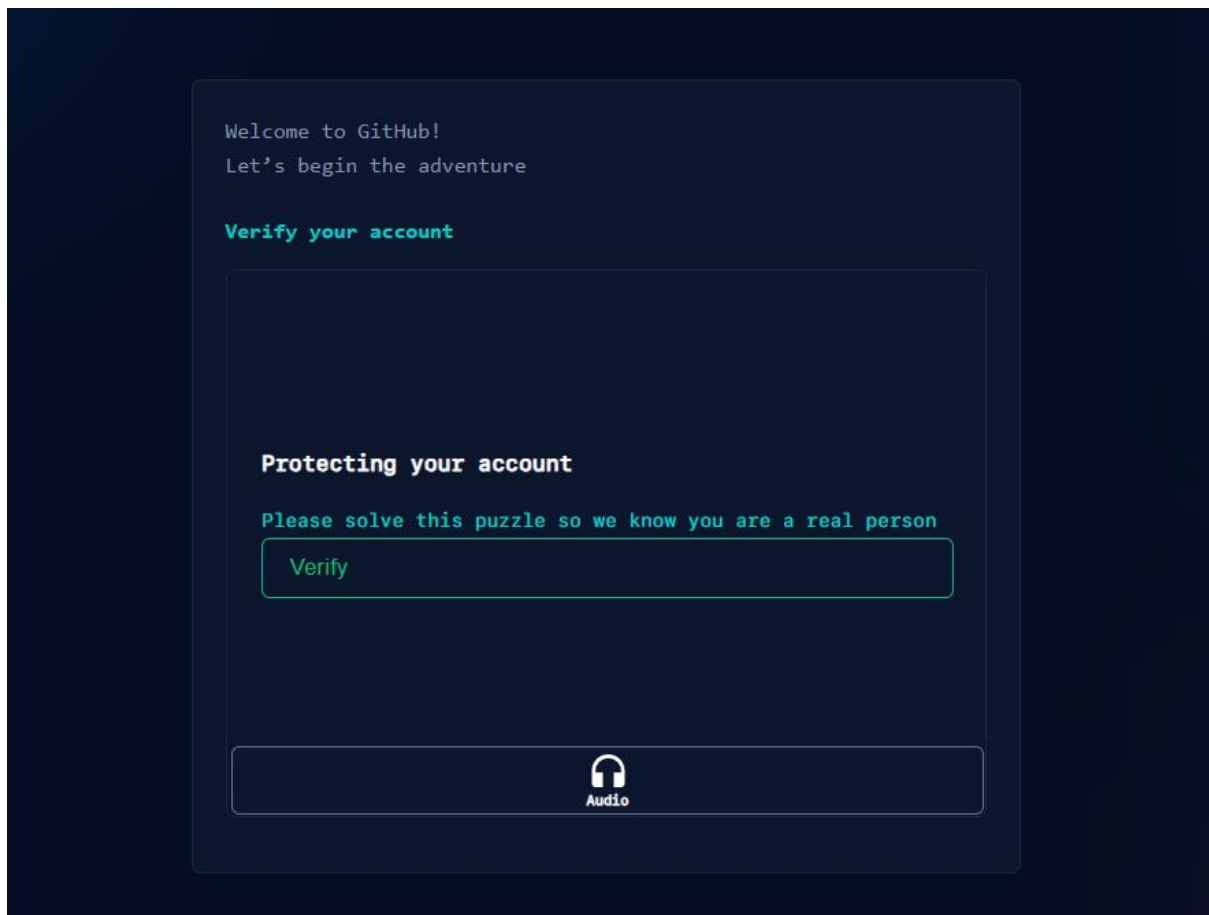
Enter a username\*

→ EshwarChavan [Continue]

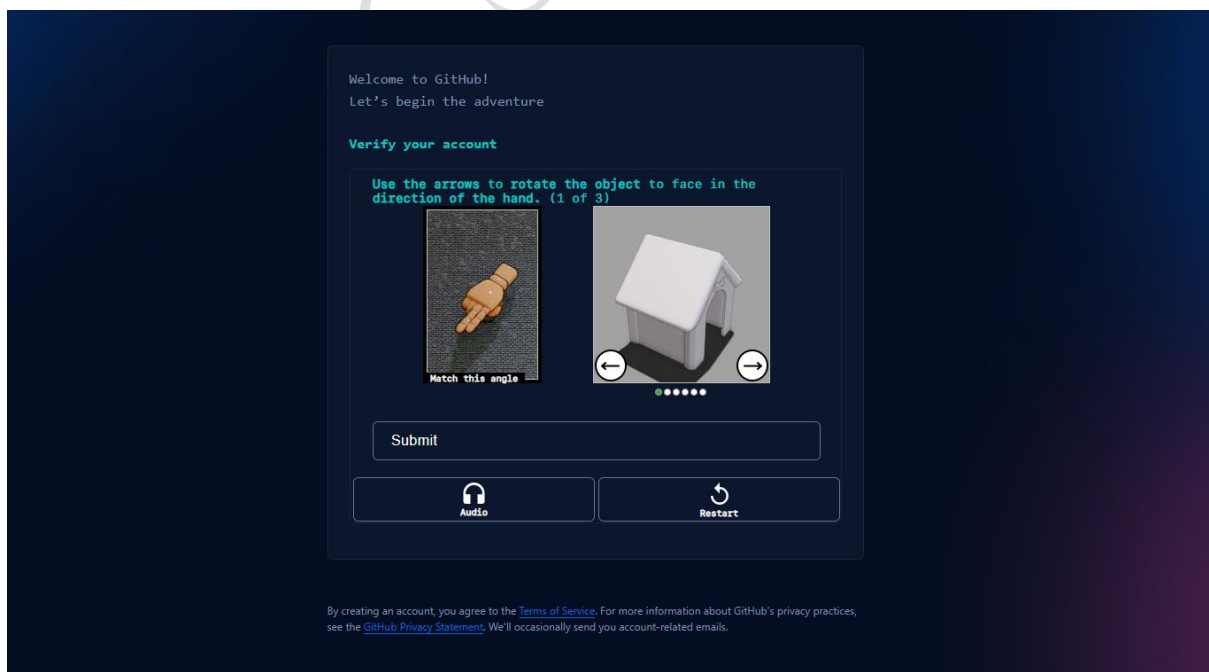
EshwarChavan is available.

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.

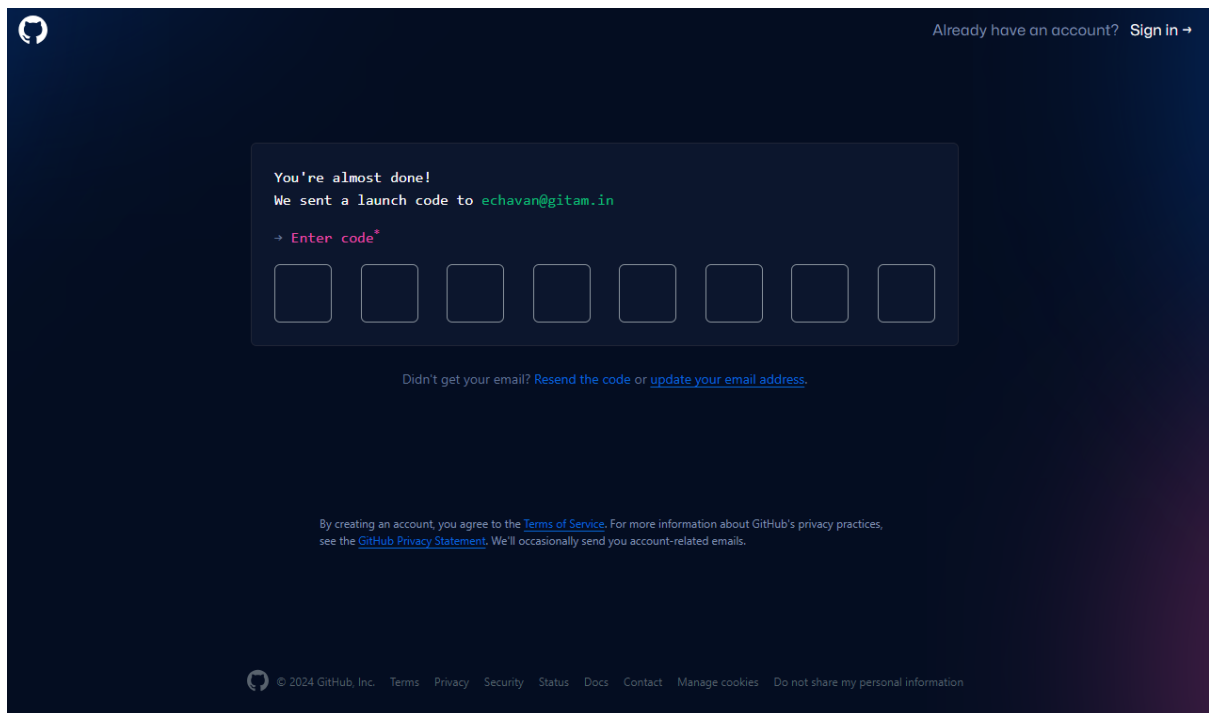
## 7. Verify your account



## 8. Verify the account by solving the captcha

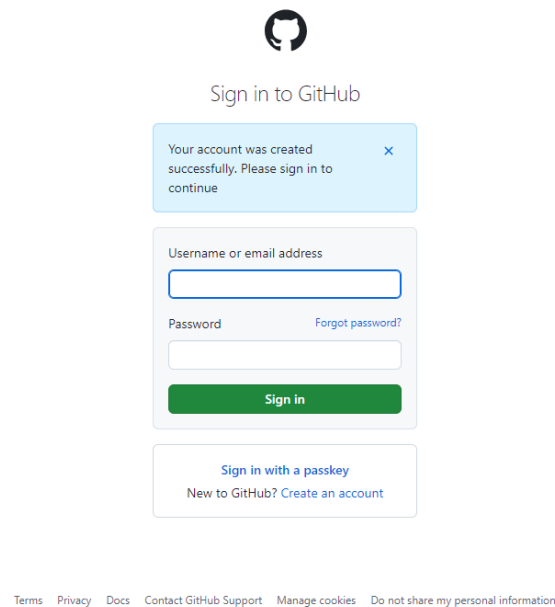


## 9. Enter the verification/launch code sent to registered email



The screenshot shows the GitHub account verification page. At the top left is the GitHub logo, and at the top right is the text "Already have an account? [Sign in](#) →". The main content area has a dark blue background with a white box containing the following text: "You're almost done!", "We sent a launch code to echavan@gitam.in", and "→ Enter code\*". Below this text are eight empty square input boxes for the verification code. Below the input boxes, it says "Didn't get your email? [Resend the code](#) or [update your email address](#)." At the bottom of the main content area, there is a small text block: "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." The footer contains the GitHub logo, "© 2024 GitHub, Inc.", and links for "Terms", "Privacy", "Security", "Status", "Docs", "Contact", "Manage cookies", and "Do not share my personal information".

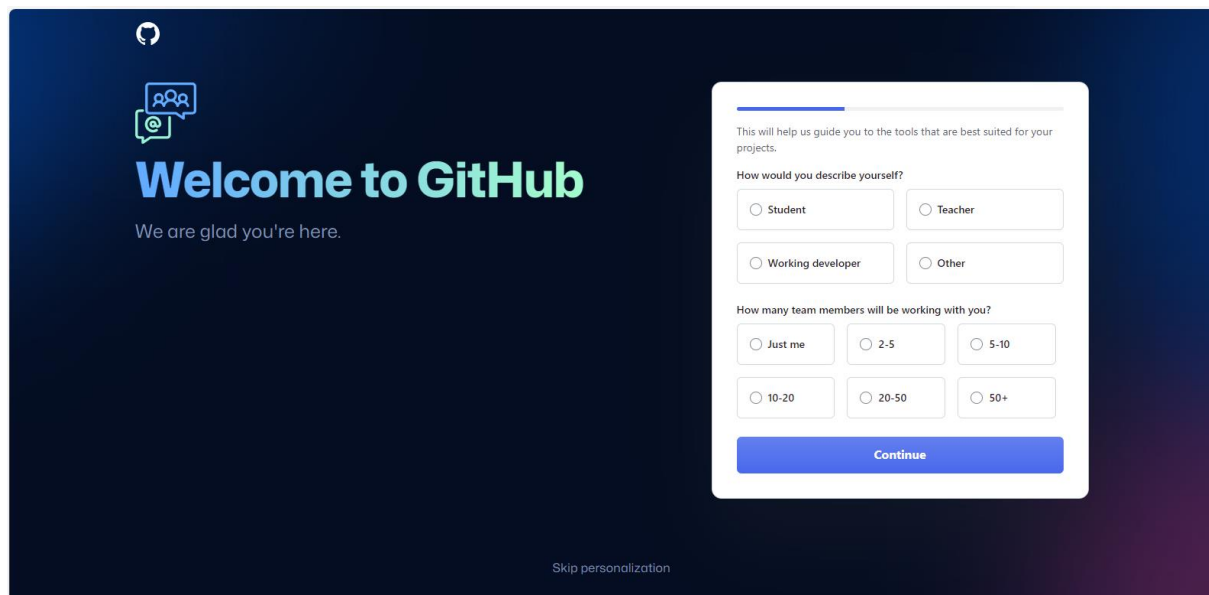
## 10. Account is successfully created a pop up page appears



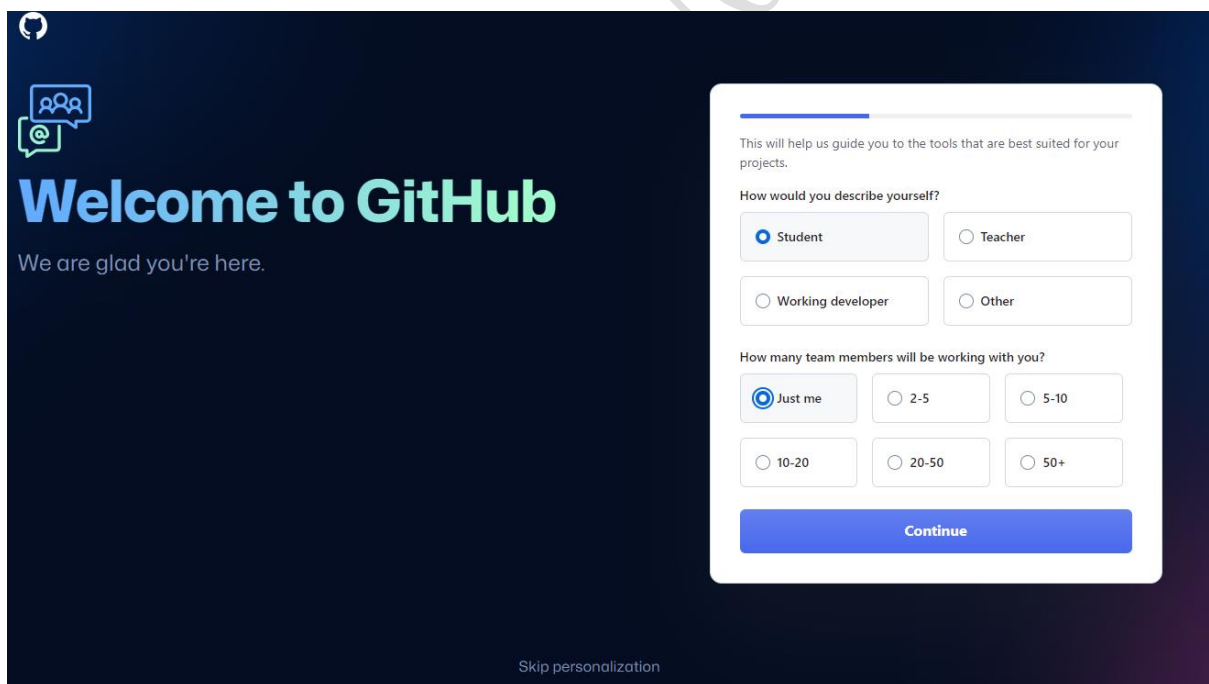
The screenshot shows the GitHub sign-in page. At the top is the GitHub logo, followed by the text "Sign in to GitHub". Below this is a light blue success message box that says "Your account was created successfully. Please sign in to continue" with a close button (X). Below the message box is a sign-in form with two input fields: "Username or email address" and "Password". There is a "Forgot password?" link next to the password field. Below the input fields is a green "Sign in" button. Below the sign-in button is a link "Sign in with a passkey". At the bottom of the form is a link "New to GitHub? Create an account". The footer contains links for "Terms", "Privacy", "Docs", "Contact GitHub Support", "Manage cookies", and "Do not share my personal information".



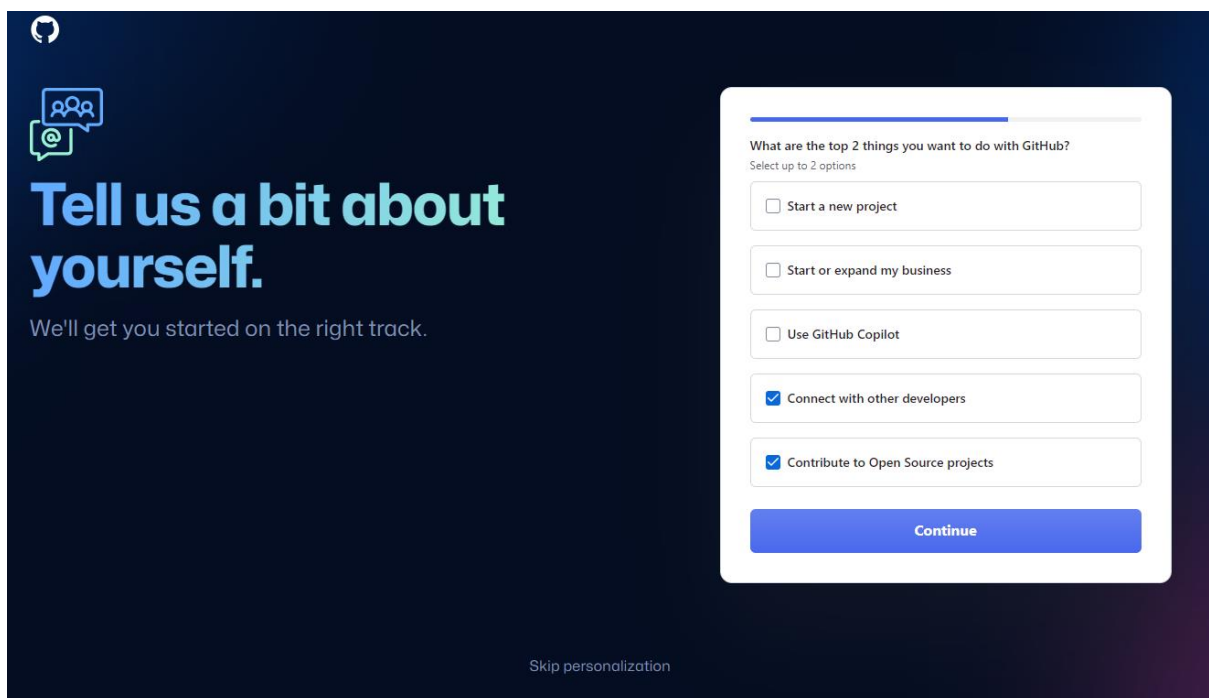
11. Login in your account using Username/email and password after that a welcome page appears



12. Select the required options accordingly, here I am selecting student and just me and continue



13. Select top 2 things you want to do with GitHub and continue



The image shows the GitHub onboarding form. On the left, there's a dark blue background with the GitHub logo at the top left. Below it, there's an icon of three people in a circle. The text "Tell us a bit about yourself." is in large, bold, light blue font. Below that, in a smaller font, it says "We'll get you started on the right track." At the bottom right of this section, there's a link that says "Skip personalization". On the right, there's a white form with a blue border. At the top of the form, it says "What are the top 2 things you want to do with GitHub?" and "Select up to 2 options". Below this, there are five checkboxes with labels: "Start a new project", "Start or expand my business", "Use GitHub Copilot", "Connect with other developers", and "Contribute to Open Source projects". The last two are checked. At the bottom of the form is a blue button labeled "Continue".

**Tell us a bit about yourself.**  
We'll get you started on the right track.

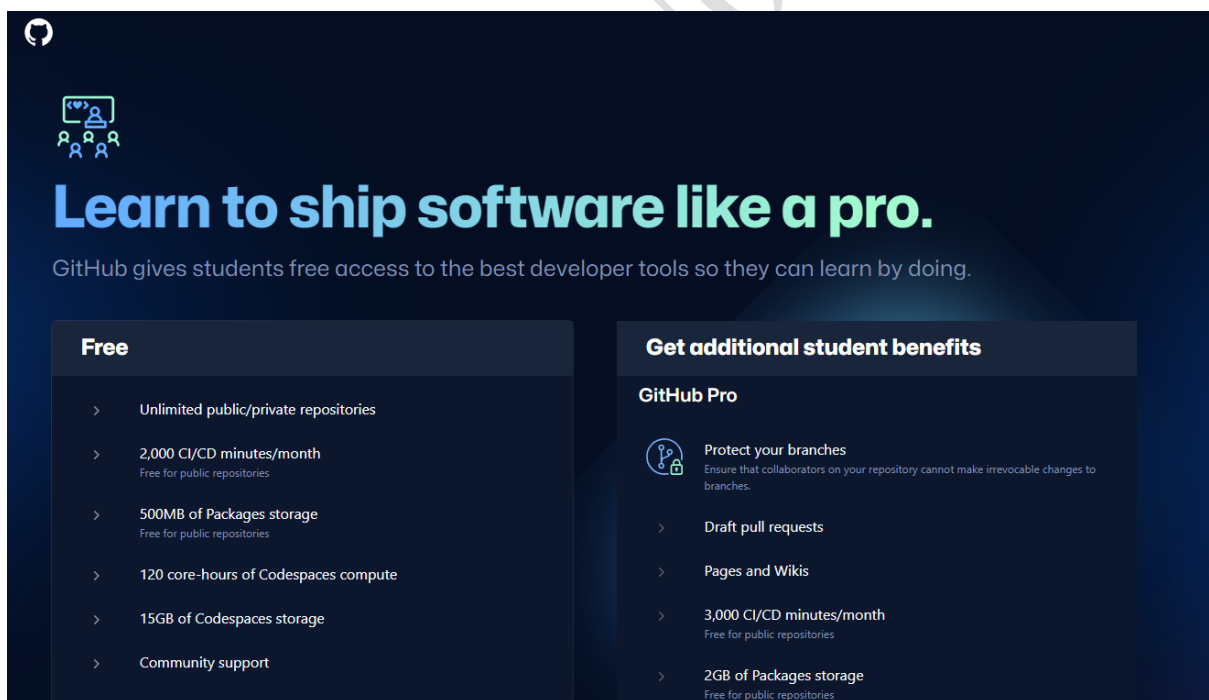
Skip personalization

What are the top 2 things you want to do with GitHub?  
Select up to 2 options

- ☐ Start a new project
- ☐ Start or expand my business
- ☐ Use GitHub Copilot
- ☒ Connect with other developers
- ☒ Contribute to Open Source projects

Continue

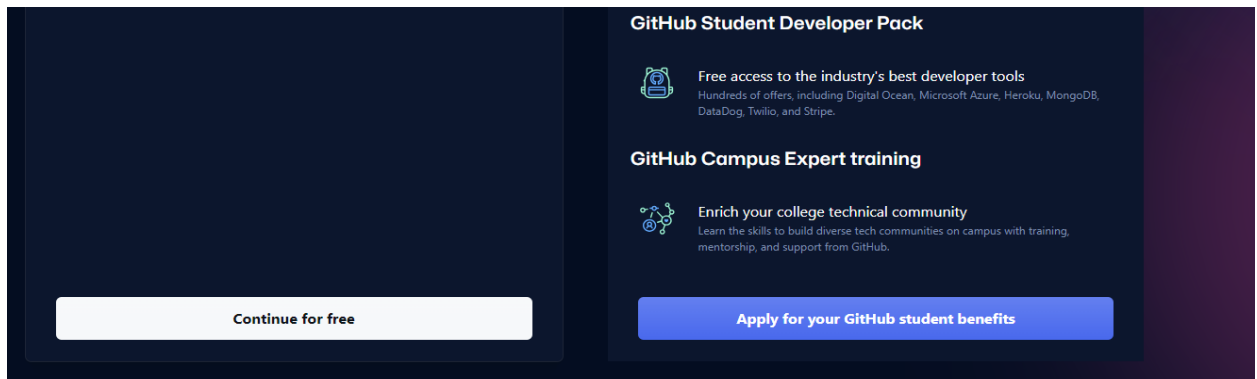
14. Click on free account and continue



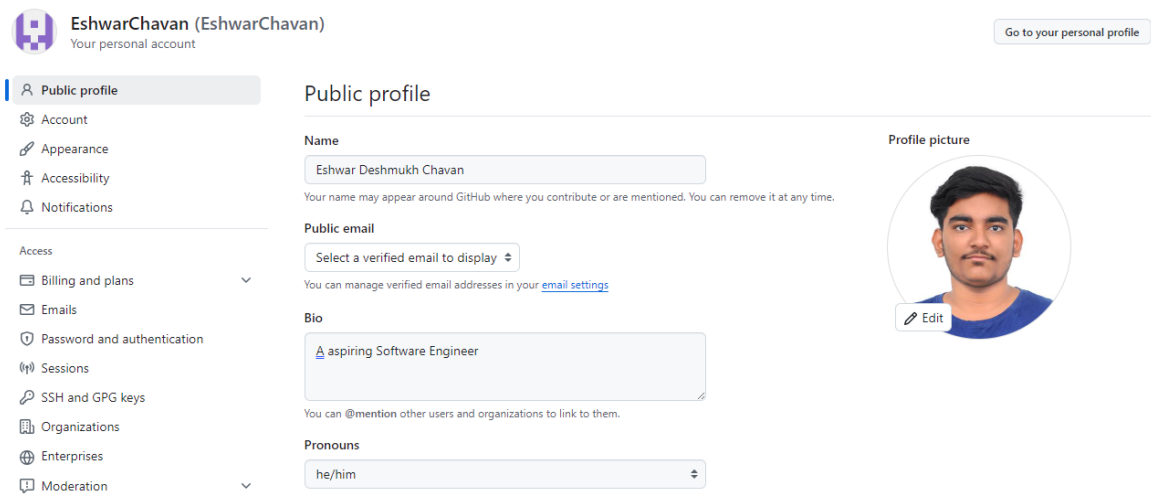
The image shows the GitHub Student Developer Pack page. At the top, there's a dark blue background with the GitHub logo at the top left. Below it, there's an icon of three people in a circle. The text "Learn to ship software like a pro." is in large, bold, light blue font. Below that, in a smaller font, it says "GitHub gives students free access to the best developer tools so they can learn by doing." Below this, there are two columns. The left column is titled "Free" and lists six benefits: "Unlimited public/private repositories", "2,000 CI/CD minutes/month (Free for public repositories)", "500MB of Packages storage (Free for public repositories)", "120 core-hours of Codespaces compute", "15GB of Codespaces storage", and "Community support". The right column is titled "Get additional student benefits" and lists "GitHub Pro" with four benefits: "Protect your branches (Ensure that collaborators on your repository cannot make irrevocable changes to branches.)", "Draft pull requests", "Pages and Wikis", and "3,000 CI/CD minutes/month (Free for public repositories)". Below these, there's a link to "2GB of Packages storage (Free for public repositories)".

**Learn to ship software like a pro.**  
GitHub gives students free access to the best developer tools so they can learn by doing.

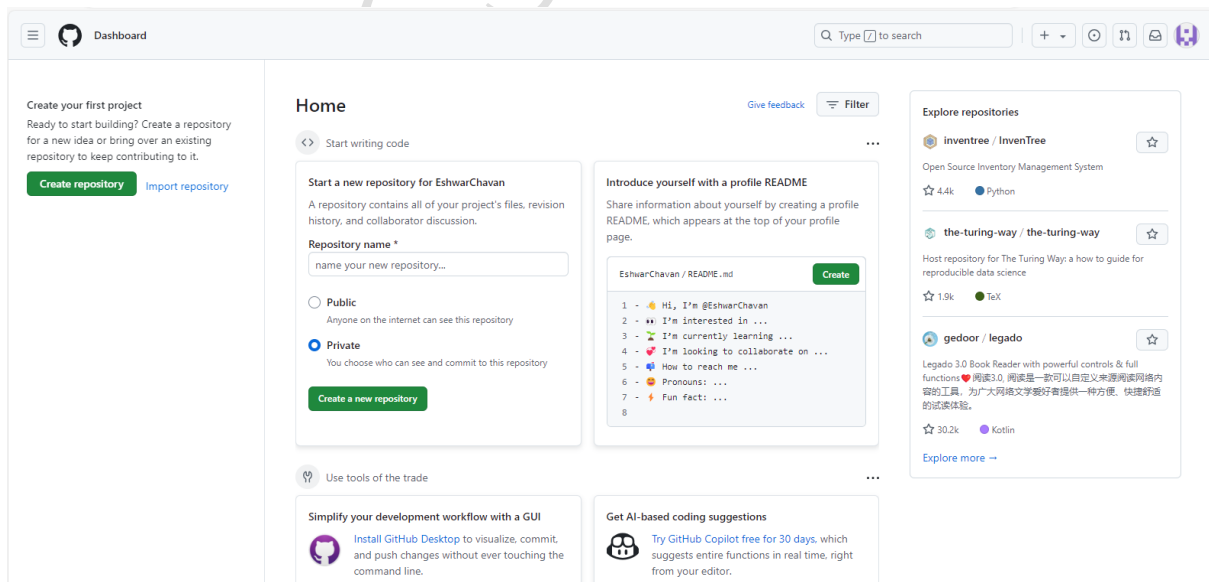
| Free                                                                                                                                                                                                                                                                                                                                                                                              | Get additional student benefits                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>&gt; Unlimited public/private repositories</li><li>&gt; 2,000 CI/CD minutes/month<br/><small>Free for public repositories</small></li><li>&gt; 500MB of Packages storage<br/><small>Free for public repositories</small></li><li>&gt; 120 core-hours of Codespaces compute</li><li>&gt; 15GB of Codespaces storage</li><li>&gt; Community support</li></ul> | <p><b>GitHub Pro</b></p> <ul style="list-style-type: none"><li>&gt; <b>Protect your branches</b><br/><small>Ensure that collaborators on your repository cannot make irrevocable changes to branches.</small></li><li>&gt; Draft pull requests</li><li>&gt; Pages and Wikis</li><li>&gt; 3,000 CI/CD minutes/month<br/><small>Free for public repositories</small></li><li>&gt; 2GB of Packages storage<br/><small>Free for public repositories</small></li></ul> |



## 15. Add a profile pic and fill other details to your GitHub Account




## 16. Dashboard appears



# Steps to Create a Repository

## 17. Click on the button Create a new Repository

 New repository

Q Type to search

+

### 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 \*

EshwarChavan

Repository name \*

Great repository names are short and memorable. Need inspiration? How about [cuddly-guide](#) ?

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

## 18. Now Write Repository Name and write Description of it and add a README file

 New repository

Q Type to search

+

### 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 \*

EshwarChavan

Repository name \*

Software Engineering lab

✔ Your new repository will be created as `Software-Engineering-lab`.  
The repository name can only contain ASCII letters, digits, and the characters `.`, `-`, and `_`.

Great repository names are short and memorable. Need inspiration? How about [cuddly-guide](#) ?

Description (optional)

Software Engineering lab task will be stored here

☒ 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

## 19. Click on Create repository button

Description (optional)

Software Engineering lab task will be stored here

☒ **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**

A license tells others what they can and can't do with your code. [Learn more about licenses.](#)

This will set **main** as the default branch. Change the default name in your [settings](#).

You are creating a public repository in your personal account.

**Create repository**

## 20. Repository has been Created

EshwarChavan / Software-Engineering-lab

Search Type (7) to search

ode Issues Pull requests Actions Projects Wiki Security Insights Settings

**Software-Engineering-lab** Public

Pin Unwatch 1 Fork 0 Star 0

main 1 Branch 0 Tags

Go to file Add file Code

EshwarChavan Initial commit b6bfa44 · now 1 Commit

README.md Initial commit now

**README**

**Software-Engineering-lab**

Software Engineering lab task will be stored here

**About**

Software Engineering lab task will be stored here

Readme Activity 0 stars 1 watching 0 forks

**Releases**

No releases published [Create a new release](#)

**Packages**

No packages published [Publish your first package](#)

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