edunet foundation

Module - 1

Rapid Web Dev using Copilot/Cursor

DISCLAIMER

The content is curated from online/offline resources and used for educational purpose only

Learning Objective

You will learn in this Chapter:

- Apply modern web development skills using AI-assisted tools like GitHub Copilot and Cursor AI.
- Enable rapid prototyping and data visualization through Streamlit for building interactive web applications.
- Introduce AI integration techniques using tools like Gemini API for smart feature development (e.g., chatbots, content generation).
- Develop proficiency in version control and cloud deployment using Git, GitHub, and Streamlit Community Cloud.
- Empower learner to transfer industry-relevant skills to students, enhancing employability and innovation in academic projects.

Learning Outcome

You will learn in this Chapter:

- Describe modern web development workflows and AI-assisted tools.
- Set up VS Code, Cursor Editor, and GitHub integration.
- Construct semantic HTML structures and templates using Copilot.
- Apply CSS styling and refactor styles with AI prompts.
- Develop interactive features using JavaScript and DOM manipulation.
- Implement AI-assisted scripts for validation and basic UI behavior.

Source : Place your source text here

Introduction to AI Enhanced Web Development

Overview of Modern Web Development Workflows

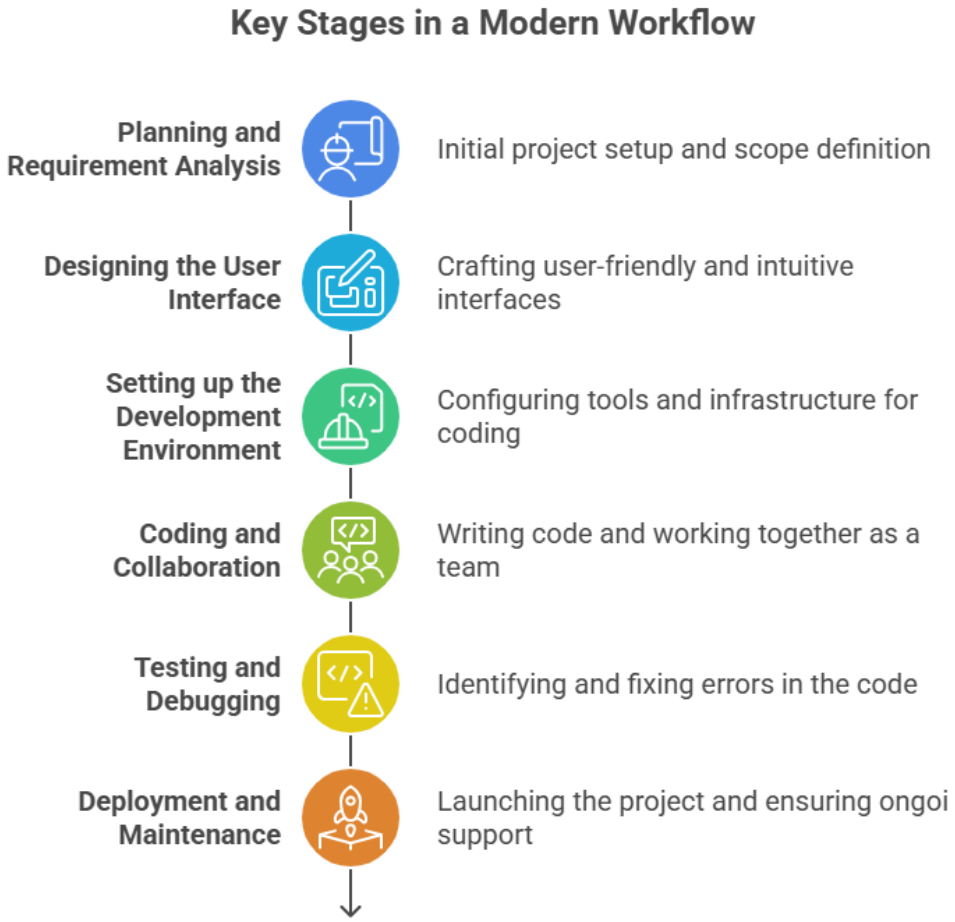
- Web development involves creating websites and web applications that work on different devices.
- A workflow is a series of steps and tools followed from the idea stage to a working website or application.
- Early development was manual, with simple HTML pages edited directly in text editors.
- Increasing complexity of websites led to structured workflows for better efficiency.
- Modern workflows include planning, coding, testing, deployment, and maintenance.
- These workflows enable automation and collaboration among multiple developers.

Source : https://static.vecteezy.com/system/resources/previews/006/430/292/non_2x/icon-of-web-workflow-in-modern-flat-design-vector.jpg

Introduction to AI Enhanced Web Development

Key stages in Modern Web Development Workflows

- Planning and requirement analysis defines what features need to be developed.
- Designing the user interface involves sketching or wireframing the structure of pages.
- Setting up the development environment prepares tools like code editors, browsers, servers, and version control systems.
- Coding and collaboration include writing HTML, CSS, JavaScript and using version control to manage teamwork.
- Testing and debugging ensure the website works correctly before launch.
- Deployment and maintenance make the site live and handle future updates.



Source : AI Generated

Introduction to AI Enhanced Web Development

Introduction to Copilot

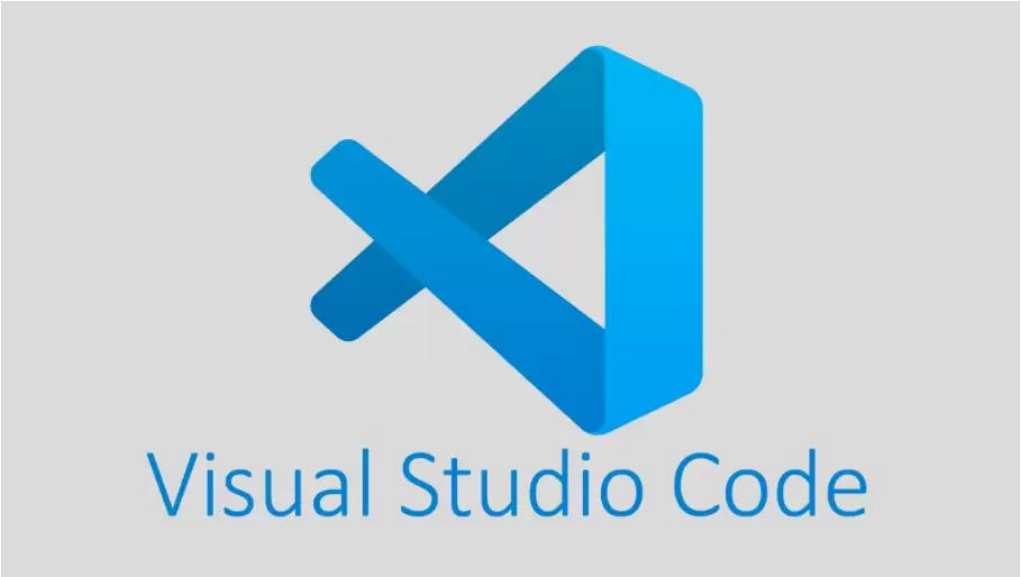
- Copilot is an AI-powered tool that integrates with code editors.
- It suggests complete lines of code or functions based on what is being typed.
- It acts as an assistant to support developers rather than replace them.
- Copilot helps reduce repetitive coding work by generating standard code patterns.
- It uses machine learning models trained on large amounts of publicly available code.
- Developers can accept, reject, or modify the suggestions provided by Copilot.

Source : https://i.pinimg.com/736x/b8/d1/83/b8d1830691c0c656e0ea84ccd05b1ac8.jpg

Introduction to AI Enhanced Web Development

Environment Setup: VS Code

- A good development environment organizes tools for writing, running, and testing code.
- Proper setup avoids confusion and saves time during development.
- It ensures structured coding, quick error detection, smooth testing, and better teamwork.
- VS Code is a modern source-code editor that supports multiple programming languages.
- It combines an editor, debugger, file manager, and terminal in one window.



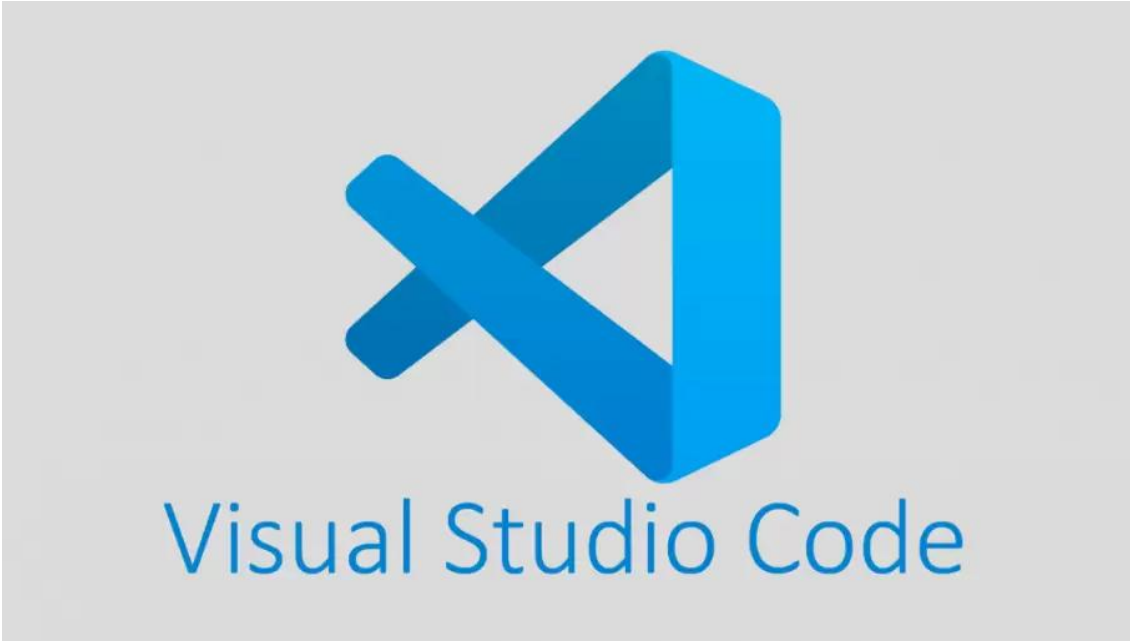
Source : https://dtptips.com/wp-content/uploads/2025/06/image-142.webp

Introduction to AI Enhanced Web Development

Environment Setup: VS Code

Key features of VS Code for web development:

- Integrated file management
- Syntax highlighting and error detection
- Built-in terminal
- Extensions and customization
- Integrated debugging
- Version control integration.



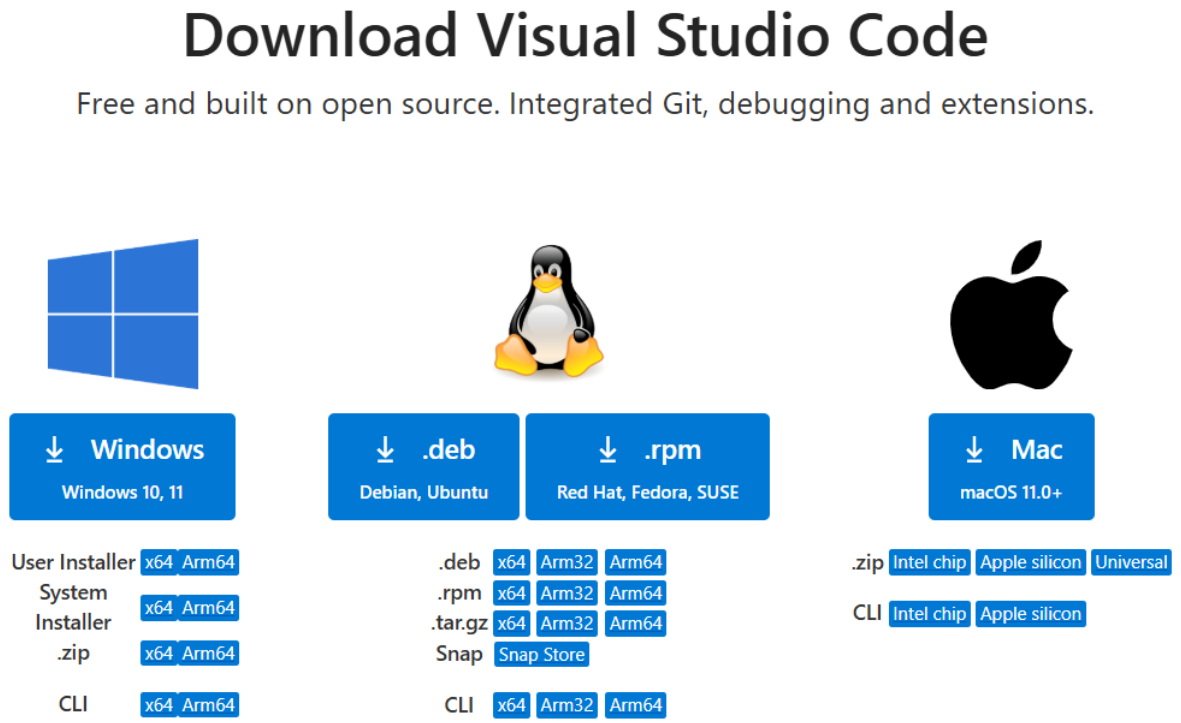
Source : https://dtptips.com/wp-content/uploads/2025/06/image-142.webp

Introduction to AI Enhanced Web Development

Steps to set up VS Code for web development

Step 1: Install VS Code from the official website - https://code.visualstudio.com/download.

During installation, select options to add it to your system's path so that you can open files directly from the terminal.



Source : https://code.visualstudio.com/download

edunet foundation

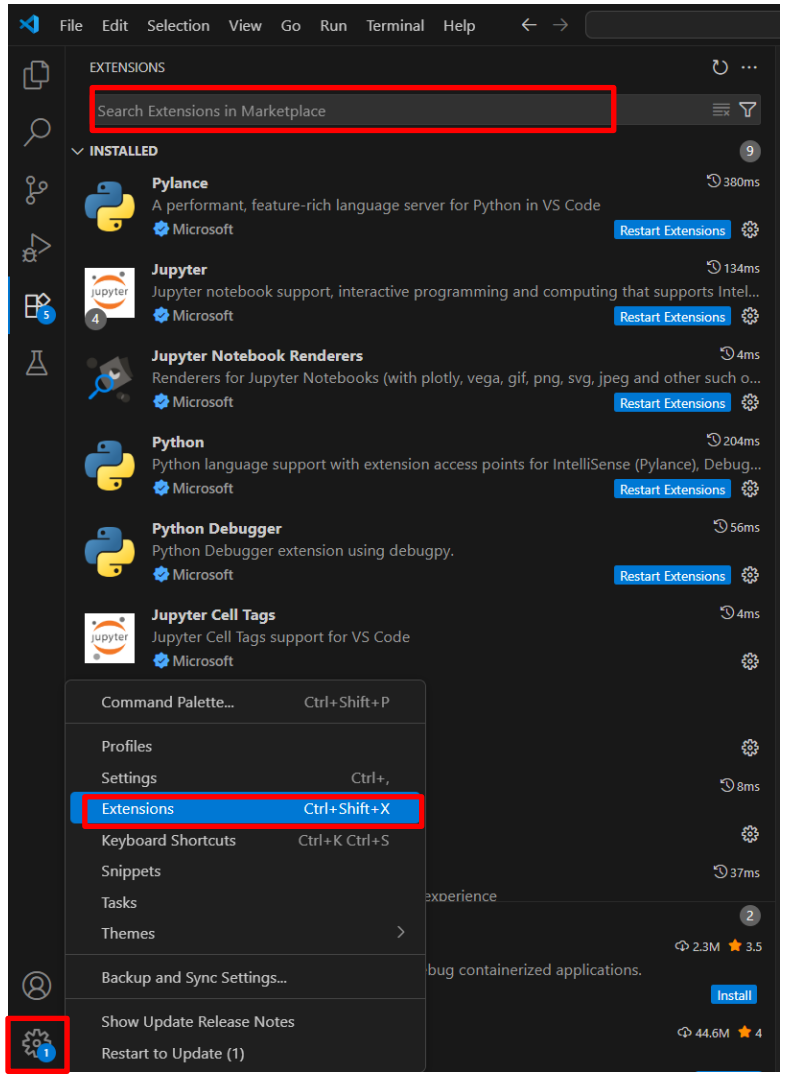
Introduction to AI Enhanced Web Development

Steps to set up VS Code for web development

Step 2: Use the Extensions Marketplace to install support for HTML, CSS, JavaScript, and frameworks.

To install Extension, click on the ***Gear Icon > Extensions > Search for Extensions > Click on Install***

Install extensions that provide live preview for web pages.



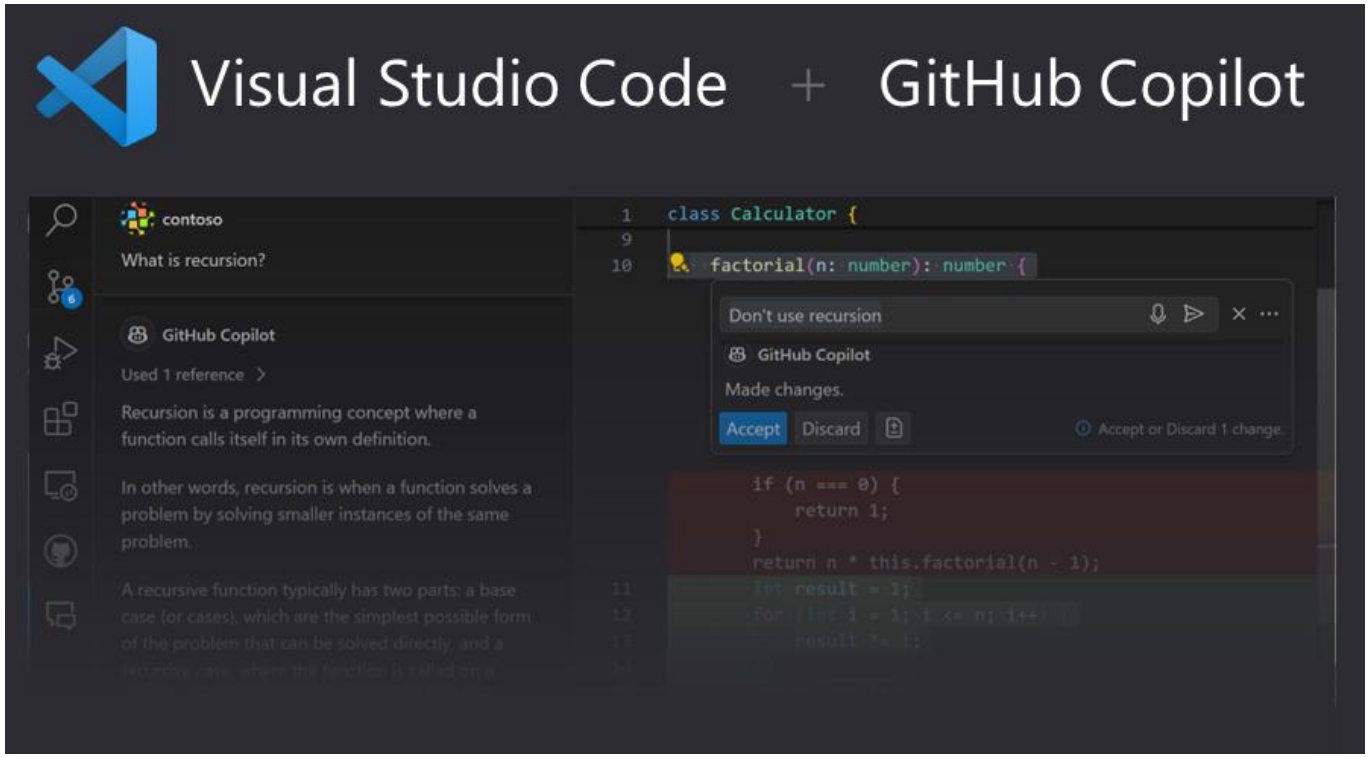
Source : Screenshot

Introduction to AI Enhanced Web Development

Steps to set up VS Code for web development

Step 3: Integrate AI tools such as Copilot by installing their extensions.

Enable Copilot in VS Code by pressing Ctrl + Alt + I to access Copilot chat.



Source : https://code.visualstudio.com/assets/docs/copilot/shared/github-copilot-social.png

Introduction to AI Enhanced Web Development

Cursor Editor

- Cursor Editor is a modern code editor with AI integrated as a core feature.
- It is built on top of the capabilities of VS Code but with stronger AI support.
- AI features are built-in rather than added as separate extensions.
- Developers can give plain language instructions to generate code.
- Cursor can explain parts of the code directly in the editor.
- It enables faster writing, testing, and revising of code.

Source : https://miro.medium.com/v2/resize:fit:686/1*PGy33jpk3D_sNn8nGE6Xyg.jpeg

edunet foundation

Introduction to AI Enhanced Web Development

Cursor Editor

Key features:

1. AI-assisted code generation
2. Code explanation
3. Code refactoring
4. Context awareness
5. Collaboration assistance

Source : https://miro.medium.com/v2/resize:fit:686/1*PGy33jpk3D_sNn8nGE6Xyg.jpeg

Introduction to AI Enhanced Web Development

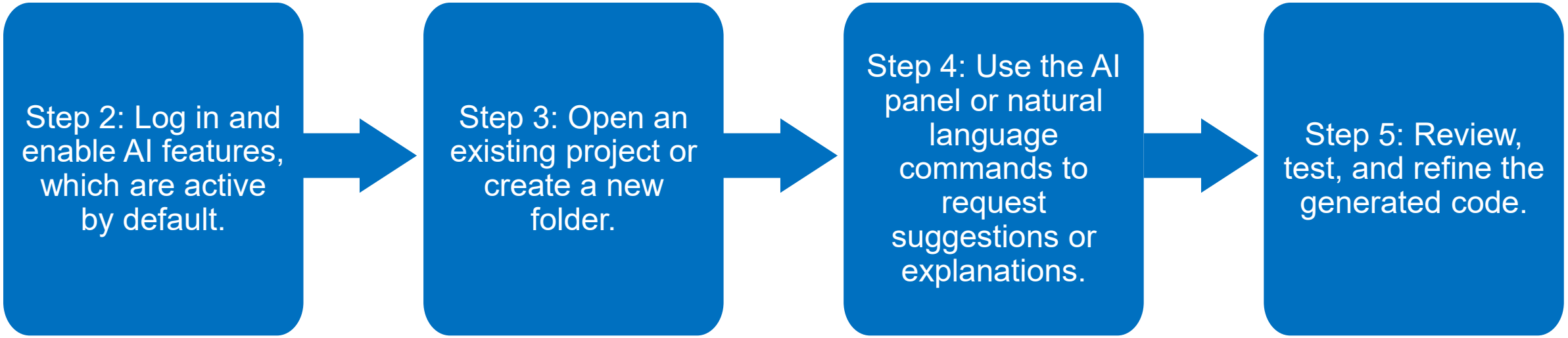
Steps to start using Cursor Editor

Step 1: Download and install Cursor Editor from its official source - https://cursor.com/

Source : https://cursor.com/

Introduction to AI Enhanced Web Development

Steps to start using Cursor Editor



Introduction to AI Enhanced Web Development

GitHub Integration

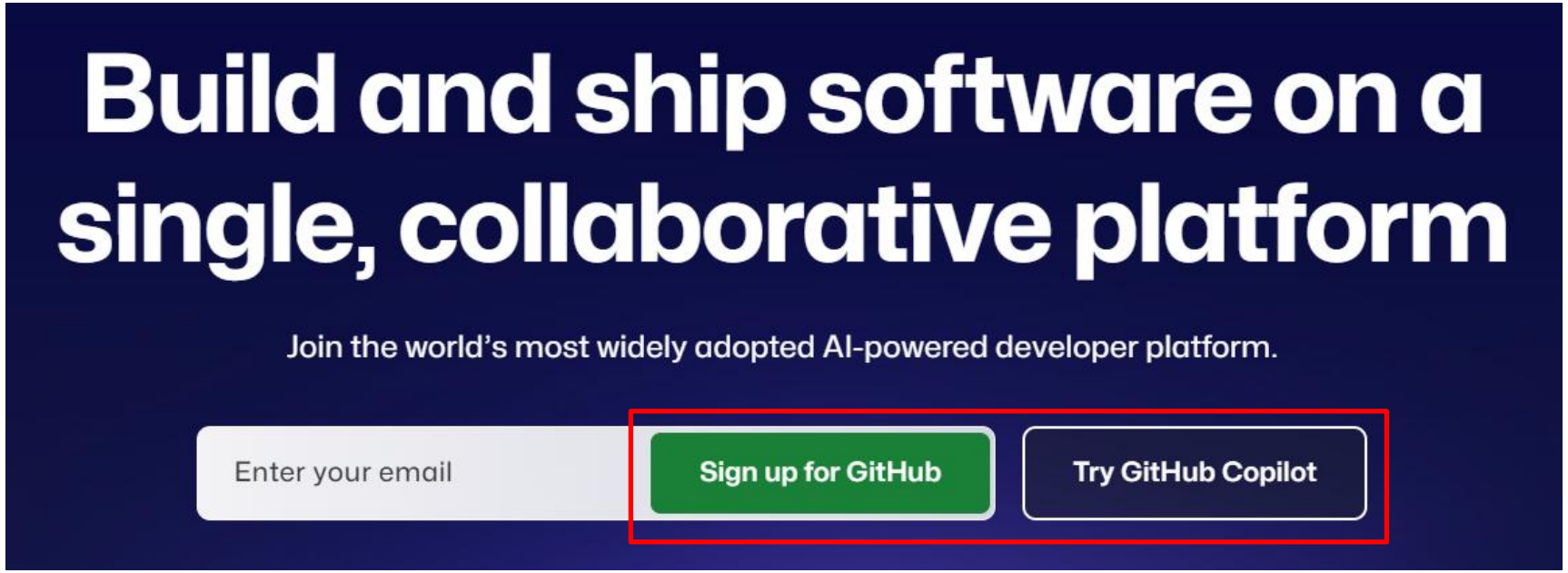
- Version control systems track and manage changes to code.
- Without version control, collaboration can lead to overwriting and confusion.
- Version control records every change with details of the author and time.
- GitHub is an online platform that hosts projects managed by Git.
- GitHub supports collaboration, version history, branching, and backup.
- Integrating editors like VS Code or Cursor with GitHub improves workflow.

Source : https://encrypted-tbn0.gstatic.com/images?q=tbn:ANd9GcRfRZJJuc5_oRrgBxn8yKCO-JoJ7ZxhVunhpQ&s

Introduction to AI Enhanced Web Development

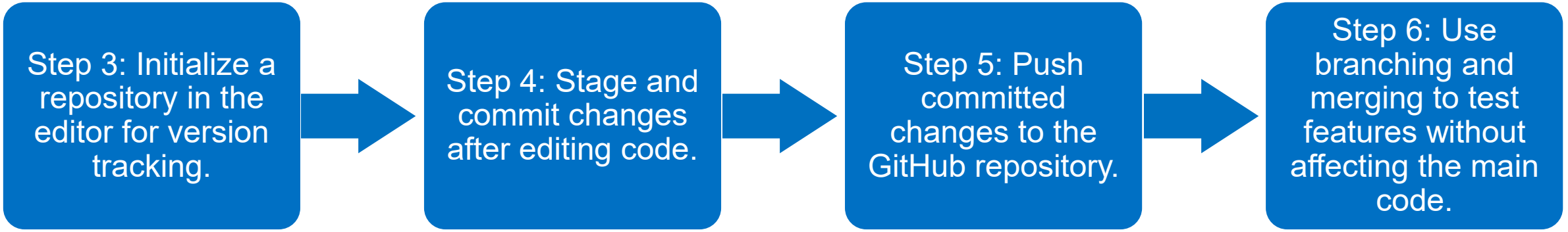
Steps to Connect Editor with GitHub

- Step 1: Install Git from the official website - https://git-scm.com/downloads/win
- Step 2: Create and sign in to a GitHub account through the editor.



Introduction to AI Enhanced Web Development

Steps to Connect Editor with GitHub



Introduction to AI Enhanced Web Development

Prompt Engineering and Basics

- Prompt engineering means writing clear and structured instructions for AI tools.
- Well-written prompts guide AI to produce accurate and relevant results.
- Poor prompts can lead to vague or incorrect suggestions.

Discuss:

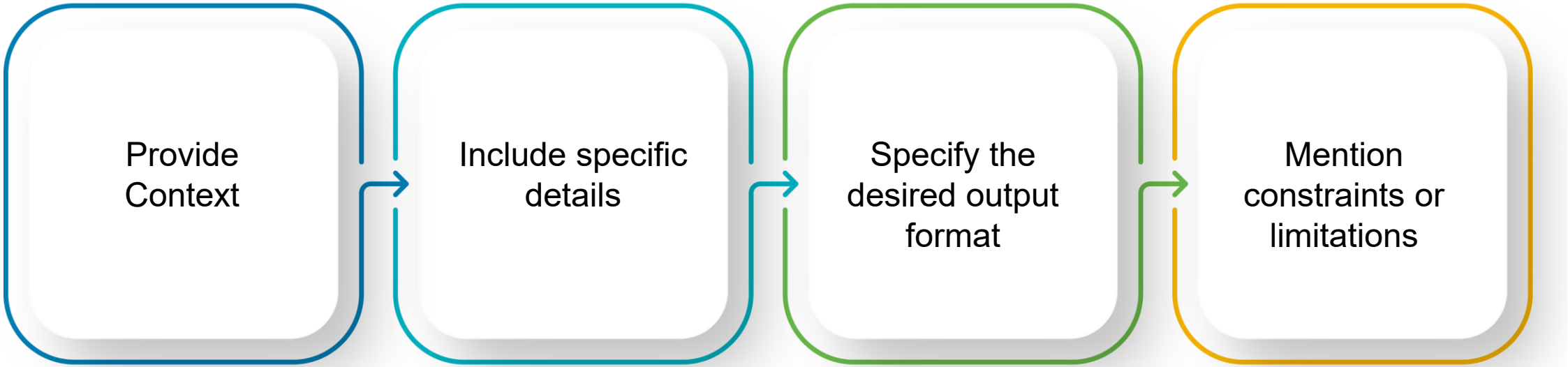
- Why prompts matter in AI-assisted web development

Source : https://www.student-circuit.com/wp-content/uploads/sites/54/2023/07/AdobeStock_597539357.jpeg

Introduction to AI Enhanced Web Development

Prompt Engineering and Basics

- Components of a good prompt:



Introduction to AI Enhanced Web Development

Prompt Engineering and Basics

Example:

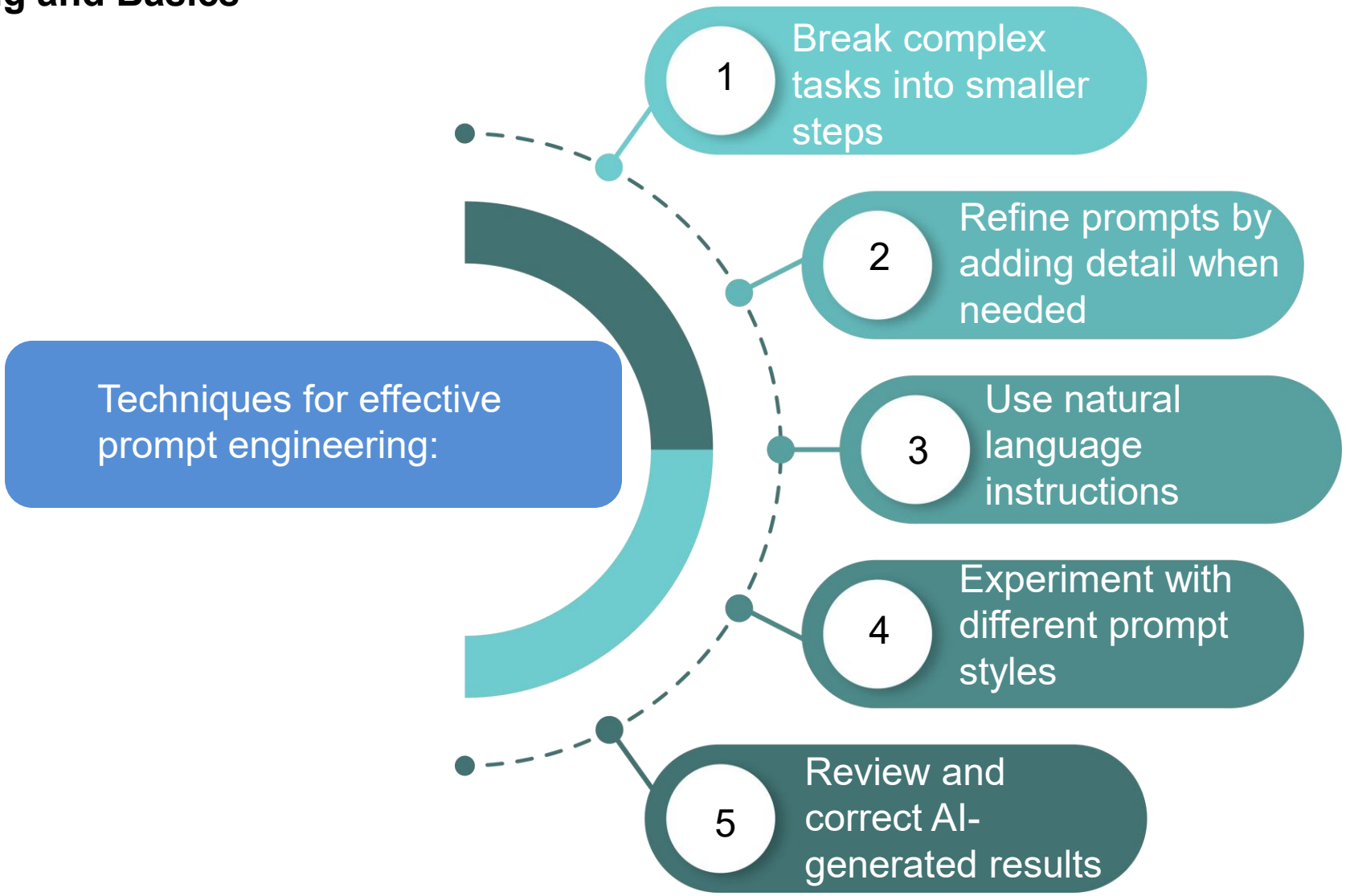
- Poor prompt: Make a page.

Example:

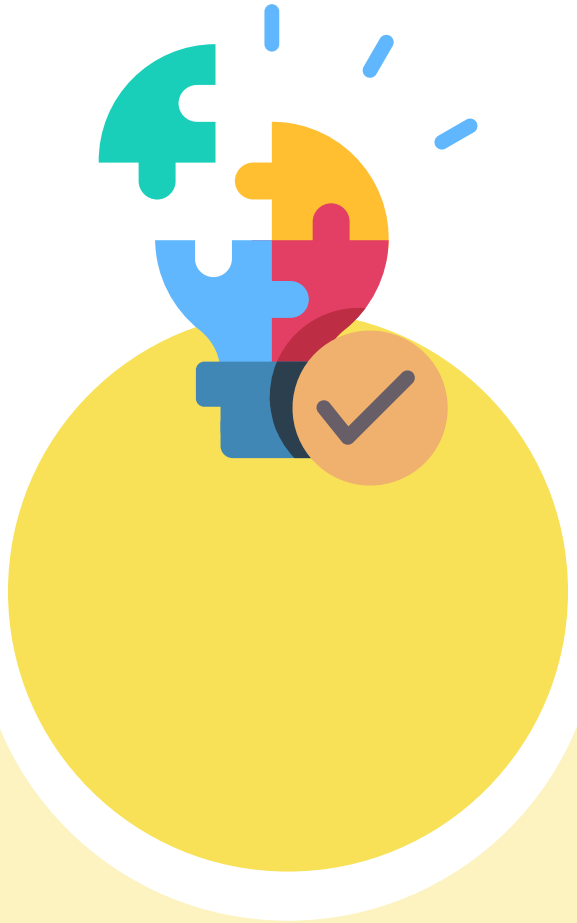
- Improved prompt: Generate an HTML page with a login form that includes fields for username and password, a submit button, and a simple CSS style.

Introduction to AI Enhanced Web Development

Prompt Engineering and Basics



Lab Activity



Lab 1 - Integrating Git, GitHub and Utilize Copilot for simple code snippets

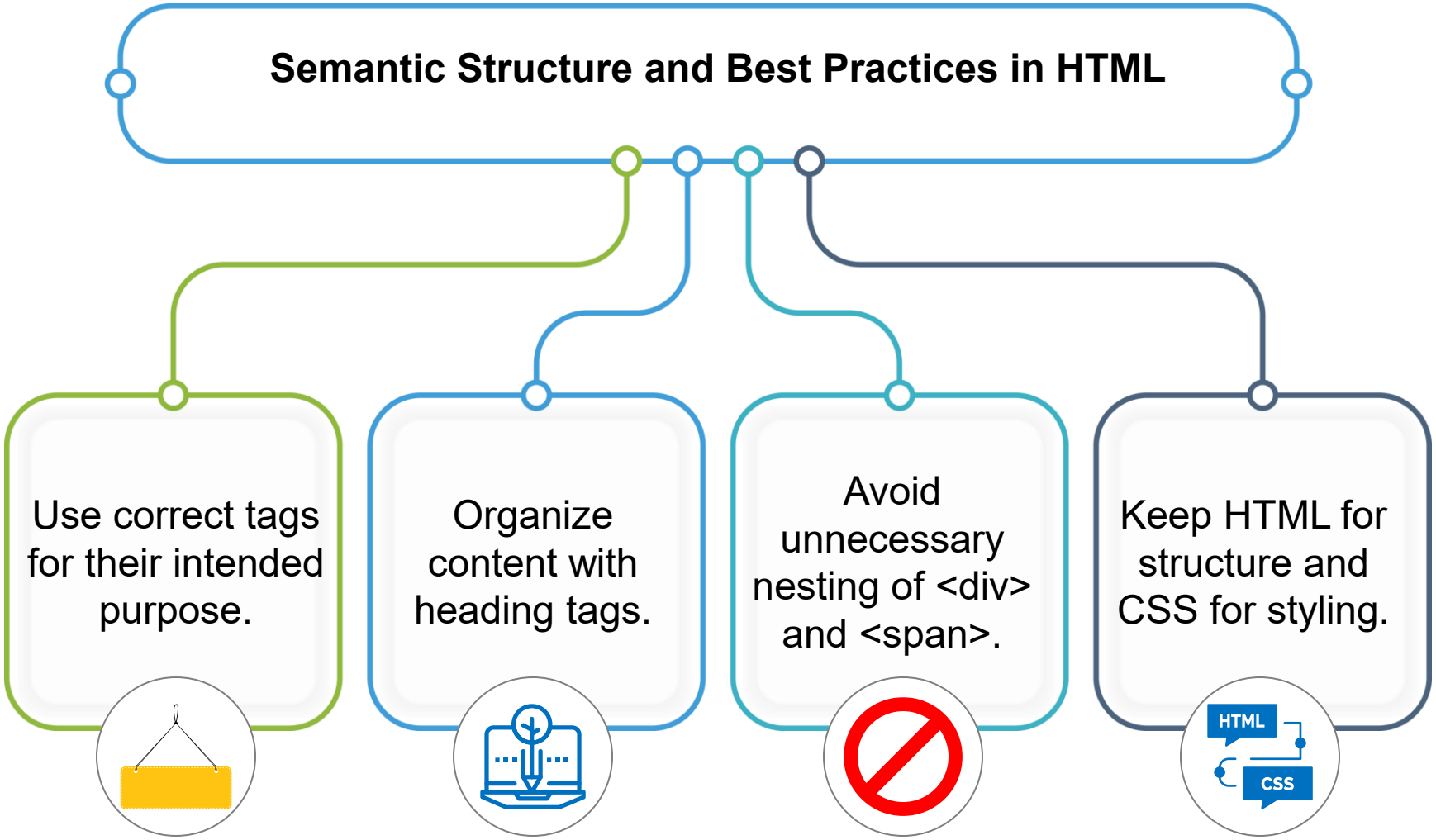
HTML Template Building with Copilot

Semantic Structure and Best Practices in HTML

- HTML defines the structure of a webpage.
- CSS adds design and JavaScript adds interactivity.
- AI tools like Copilot help generate standard HTML templates quickly.
- Semantic HTML uses meaningful tags like <header>, <main>, <article>, and <footer>.

Source : https://blinktech.com.ng/wp-content/uploads/2024/06/I-Will-Write-Javascript-Html-Css-Php-Jquery-Code-For-You.jpeg

HTML Template Building with Copilot



HTML Template Building with Copilot

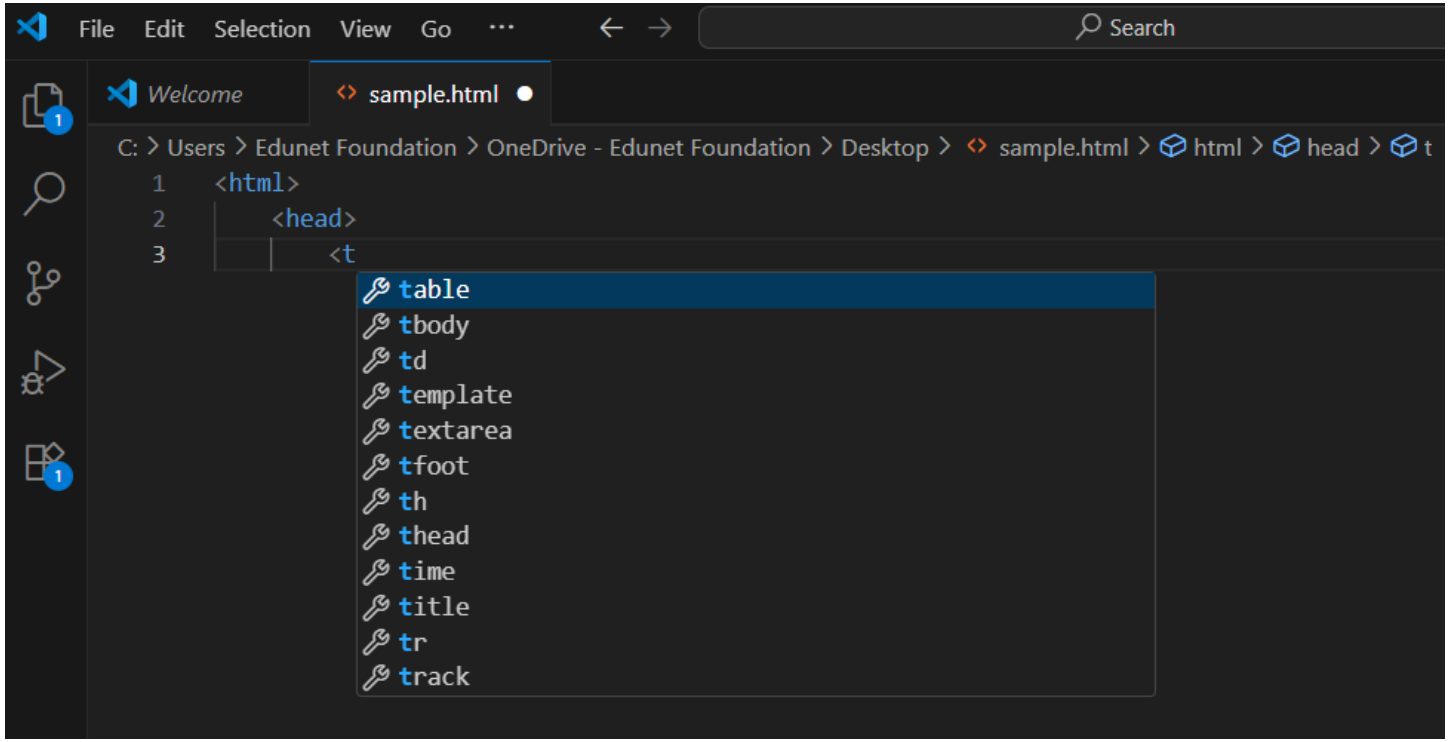
Steps to create an HTML skeleton template with Copilot

Step 1: Create a new file with a .html extension.

- Open your editor (VS Code or Cursor) and create a new file with the extension .html.

File > New File > Type the filename.html

Step 2: Type ‘!’ or “html” to trigger boilerplate suggestions.



HTML Template Building with Copilot

Steps to create an HTML skeleton template with Copilot

Step 3: Add the head section with metadata and title.

```
<html>
    <head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title> SAMPLE WEB PAGE </title>
    </head>
</html>
```

HTML Template Building with Copilot

Steps to create an HTML skeleton template with Copilot

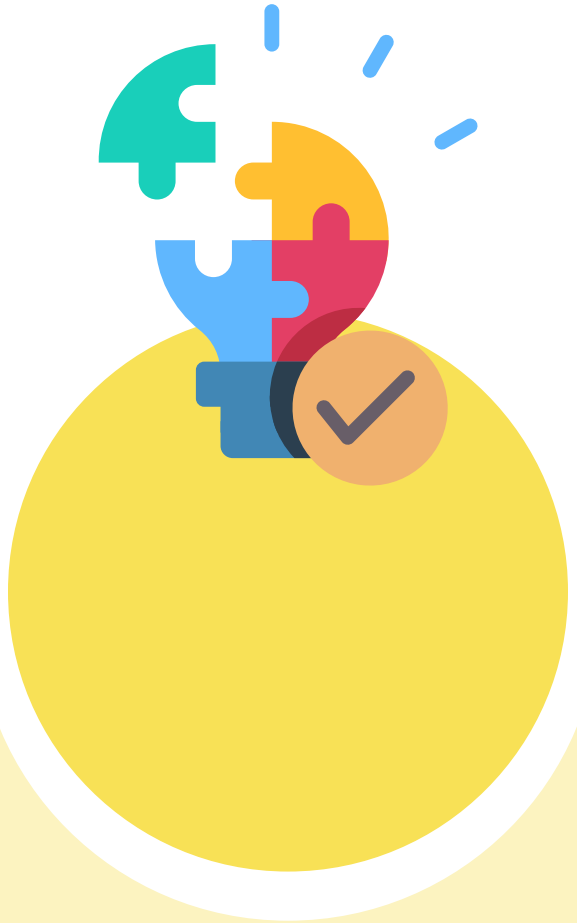
Step 4: Add the body structure with placeholders for header, main, and footer.

Copilot auto-suggests standard tags while typing.

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
        <title>Sample HTML Document</title>
    </head>
</html>
```

edunet foundation

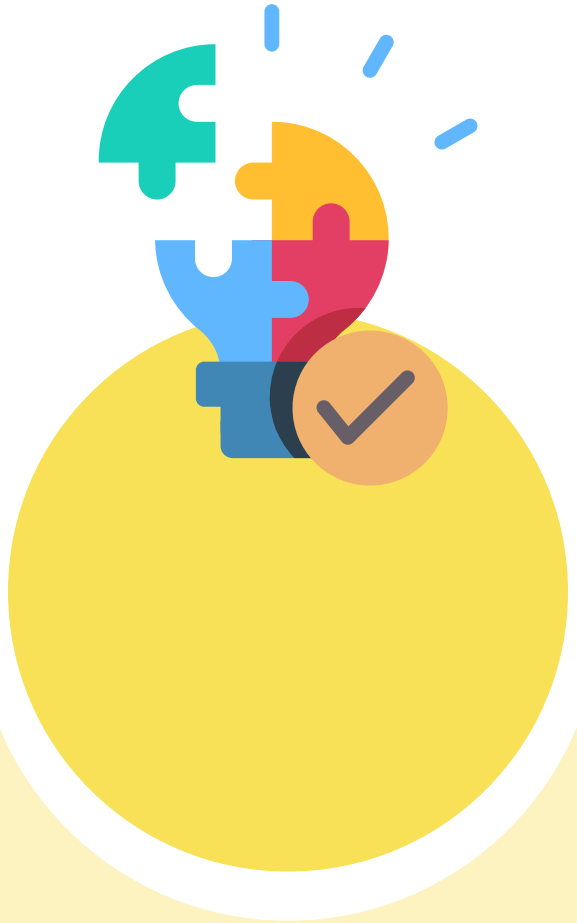
Lab Activity



Lab 2 - Semantic Web Page Design with GitHub Copilot

edunet foundation

Lab Activity



Lab 3 - Styled Web Page

Interactivity with JavaScript

Introduction

- HTML and CSS provide structure and style, but JavaScript adds interactivity.
- JavaScript responds to user actions, validates inputs, and updates pages dynamically.
- **Variables:** Used to store data. Declared using let, const, or var.
- **Functions:** Blocks of reusable code for specific tasks.
- **Control Flow:**
  - Conditional statements (if, else if, else).
  - Loops (for, while).
  - Switch statements for multiple conditions.
- Copilot assists by suggesting: Functions, Loops and conditionals, and Syntax explanations.

Source : https://blinktech.com.ng/wp-content/uploads/2024/06/I-Will-Write-Javascript-Html-Css-Php-Jquery-Code-For-You.jpeg

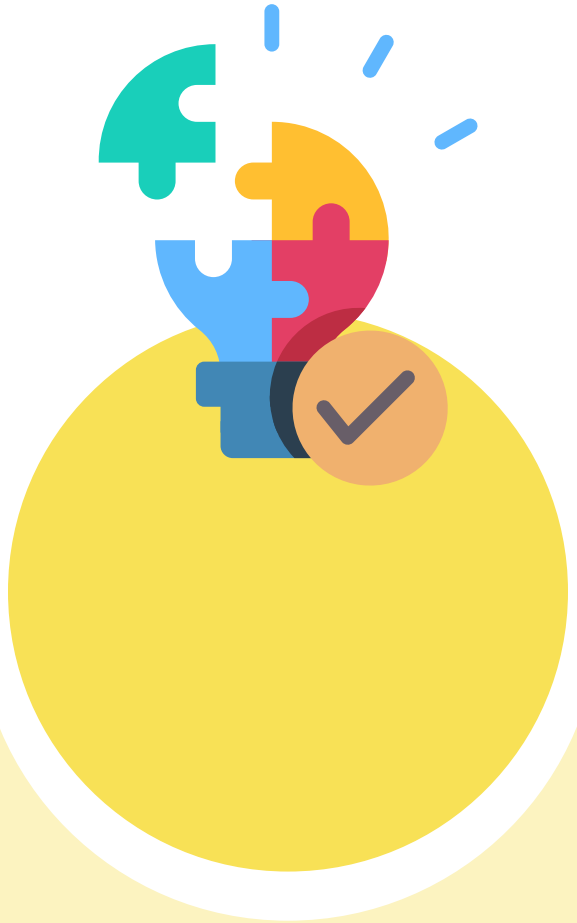
Interactivity with JavaScript

DOM Manipulation and AI-assisted Scripts

- The DOM represents a webpage as a tree structure of elements.
- JavaScript can select elements, change their content or styling, and add or remove elements dynamically.
- Common element selection methods:
  - getElementById()
  - getElementsByClassName()
  - querySelector()
  - querySelectorAll()
- Events trigger scripts based on user actions such as clicks or typing: addEventListener() is used to attach functions to events.

Source : https://www.guvi.in/blog/wp-content/uploads/2024/03/feature_image3.webp

Lab Activity



Lab 4 - Enhancing Web Functionality Using JavaScript

Summary

You will learn in this Chapter:

- How AI-powered tools like Copilot and Cursor help in faster and structured web development.
- Steps to set up editors such as VS Code and Cursor for modern web projects.
- How to use GitHub for version control, collaboration, and managing code history.
- Basics of prompt engineering to get accurate and useful AI suggestions.
- Creating semantic HTML structures and skeleton templates with AI assistance.
- Using CSS and AI tools to design responsive and reusable layouts.
- Adding interactivity through JavaScript, DOM manipulation, and AI-assisted form validation.

Source : https://www.freepik.com/

Reference

- Brains, E. (2024, November 18). Code less, Achieve More: Automating workflows in modern web development. Medium. https://medium.com/@emperorbrains/code-less-achieve-more-automating-workflows-in-modern-web-development-a47a0fbbab4b
- Cursor. (n.d.). Cursor - the AI code editor. https://cursor.com/
- Holcombe, J. (2025, May 23). What Is GitHub? A Beginner's Introduction to GitHub. Kinsta®. https://kinsta.com/blog/what-is-github/
- Jarzynski, P. (2021, December 23). A modern web development workflow explained - the startup - medium. Medium. https://medium.com/swlh/a-modern-web-development-workflow-explained-c96bd68ff79c
- Microsoft. (2024, October 1). What is Copilot, and how can you use it? Microsoft Copilot. https://www.microsoft.com/en-us/microsoft-copilot/for-individuals/do-more-with-ai/general-ai/what-is-copilot?form=MA13KP
- Muchmore, M. (2025, July 30). What is Copilot? Microsoft's AI assistant explained. PCMAG. https://www.pcmag.com/explainers/what-is-microsoft-copilot
- Mzizi, S., & Mzizi, S. (2024, June 14). HTML, CSS, and JavaScript: Essential Front-End languages explained. ITonlinelearning. https://www.itonlinelearning.com/blog/html-css-and-javascript-essential-front-end-languages-explained/

Reference

- Prompt Engineering for AI Guide. (n.d.). Google Cloud. https://cloud.google.com/discover/what-is-prompt-engineering
- Python environments in VS Code. (2021, November 3). https://code.visualstudio.com/docs/python/environments
- Setting up Visual Studio Code. (2021, November 3). https://code.visualstudio.com/docs/setup/setup-overview
- Understanding HTML, CSS, and JavaScript | Documentation. (n.d.). https://docs.weweb.io/web-development-basics/understanding-html-css-javascript.html
- What is a copilot and how does it work? | Microsoft Copilot. (n.d.). https://www.microsoft.com/en-us/microsoft-copilot/copilot-101/what-is-copilot
- What is prompt engineering? (2024, March 22). McKinsey & Company. https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-prompt-engineering
- Working with GitHub in VS Code. (2021, November 3). https://code.visualstudio.com/docs/sourcecontrol/github


QUIZ

Quiz

1. AI stands for _____.

a) Automated Integration

b) Advanced Illustration

c) Artificial Intelligence

d) Augmented Interface

Answer: C
Artificial Intelligence

Quiz

2. Which tool is discussed for automatically generating routine code pieces in web projects?

a) Copilot

b) Postman

c) Trello

d) Canva

Answer: A
Copilot

Quiz

3. In JavaScript, the keyword let is used when a variable's value may _____ during execution.

a) remain constant

b) change

c) be deleted

d) hold only arrays

Answer: B
Change

Quiz

4. Copilot was trained chiefly on code from which kind of repositories?

a) Printed textbooks

b) Offline workshops

c) open-source repositories

d) private emails

Answer: C
open-source repositories

Quiz

5. Reusable CSS templates enhance development speed by providing _____ structures.

a) pre-defined

b) random

c) deprecated

d) ambiguous

Answer: A
Pre-defined

Thank You