Class Time 高科技產業英文 (Wed 5.6)

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The name of the technology/product: Git and Github

Outline:

I. Introduction

A: What is Github

1. GitHub launched in 2008 by Tom Preston-Werner, Chris Wanstrath, PJ Hyett, and Scott Chacon. It was created as a platform to help developers host and share Git repositories in a user-friendly and collaborative environment.

B: Why college students should learn Github

1. Learning Resources: GitHub has a huge community with tutorials, examples, and open-source projects, providing valuable learning resources for students looking to enhance their coding skills.
2. Industry Standard Tool: Many companies use GitHub for version control, so learning it gives students a competitive edge when applying for internships or jobs in tech.
3. Personal Portfolio: Students can use GitHub to showcase their projects, code, and contributions to open-source projects, creating a strong portfolio for potential employers.

II. Basic Github command

A. Basic commands

1. Cd: Change Directory command is used to change your current working directory. It allows you to navigate between different folders in the file system.
2. Git clone: Creates a copy of a remote repository on your local machine.
3. Git status: Displays the state of the working directory and the staging area, showing which changes are staged, unstaged, or untracked.
4. Git add: Adds changes in the working directory to the staging area, preparing them for the next commit.
5. Git commit: Captures a snapshot of the currently staged changes to the project history, usually accompanied by a descriptive message.
6. Git push: Uploads your local commits to a remote repository.

B. Repository

1. A repository is a storage space where your project’s files and their entire version history are kept. Tracks every change made to a project over time.

C. Branch

1. A branch is a separate line of development within a repository.

   It allows you to work on new features or fix bugs without affecting the

main code (usually the main or master branch).

III. Use Github to help you with your work

A. Programming homework

1. Code update: We can use Github and Git to upload our code into Github website.
2. View changes about your code: Changes will be displayed on Github to let you or your classmate or even teacher to view what you have done in this commit.

B. This HI-Tech presentation

1. Collaboration with teammates: When preparing this HI-Tech presentation, we also used Github to collaborate with each other.

IV. Conclusions

A. Common use cases

1. Version Control for Code: GitHub is widely used to track changes to source code. Developers can commit updates to repositories, view history, and easily revert to previous versions.
2. Collaboration and Code Review: GitHub enables teams of developers to work together on the same project. Through pull requests, teams members can propose changes, review each other's code, discuss improvements, and merge them into the main codebase.

B. Advantage and disadvantage

1. Version Control with Git: GitHub provides a powerful platform for version control, allowing developers to track changes, revert to previous versions, and manage code history efficiently.
2. Large Open-Source Community: Millions of open-source projects exist on GitHub, making it easy to contribute, learn, or reuse code libraries.
3. Private Repos Costs (for larger teams): Although GitHub offers free private repositories; larger organizations may need paid plans for advanced features and permissions.
4. Security Concerns: Hosting code in the cloud may raise security concerns, especially for sensitive or proprietary projects (though GitHub provides security tools).

Essential words:

1. Repository (n.) 儲存庫

   A central location where data, code, or files are stored and organized, often containing the project's entire history.

2. Commit (v.) 提交

   To save changes to the local repository, creating a snapshot of the project at that specific point in time.

3. Directory (n.) 目錄

   A container in a computer's file system used for grouping and organizing files; commonly known as a folder.

4. Clone (v.) 克隆 (複製)

   To create an exact copy of a remote repository on your local machine, including all files and version history.

5. Workflow (n.) 工作流程

The sequence of processes or steps involved in moving a piece of work from start to finish.

Questions:

1. What are the three steps of making changes on Github?
2. Who may likely take advantage of Github?
3. Do you know which the most used language on GitHub is?

Reference(s): (參考資料：網站、書、期刊、雜誌…)

1. Git 教學和 GitHub 設定指引

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3. CS50W - Lecture 1 – Git

   https://www.youtube.com/watch?v=NcoBAfJ6l2Q

4. Wikipedia of Github

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