Introduction to
open-Source Software (OSS)

Concepts, strategies, and methodologies
related to open-source software development

Week 01 – Lecture 01

- Introduction (Couse Overview)

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Today, Agenda

- Teaching methodologies
- Discussed the overall learning path
- Course objectives
- Brief introduction of OSS
- History of Free and Open Source
- GNU and the Free Software Foundation (FSF)
- Open-Source Initiative

Welcome to the Course!

- Greetings and Introduction
  - Warm greetings to all participants!
  - An exciting journey into the world of OSS awaits.
- Engage and Interact
  - Your questions are encouraged!
  - Feel free to seek clarity if concepts seem challenging.
- Course Focus: Starting point for beginners to the open-source world
  - Educate you on the objectives of open-source
  - Understand open-source software licensing requirements
  - Get an introduction to the norms followed in the open-source world
  - Join the open-source movement and begin contributing.

Prerequisites

- English Language
- A good understanding of software development and software engineering
- Experience with at least one programming language

Teaching Methods

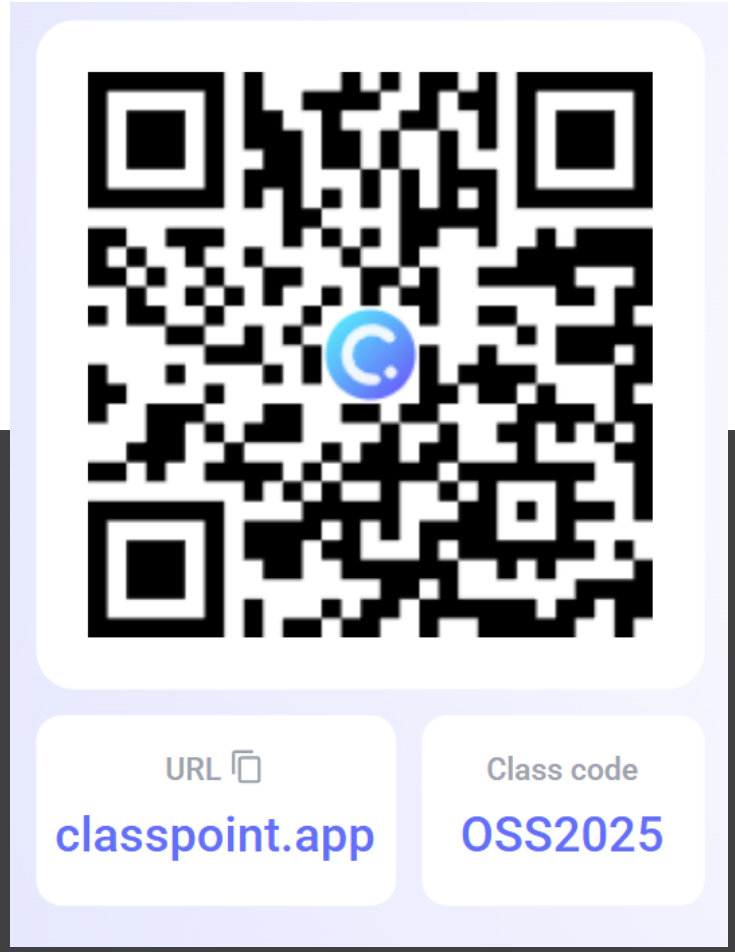
Project Based Learning

Gamification into your classroom

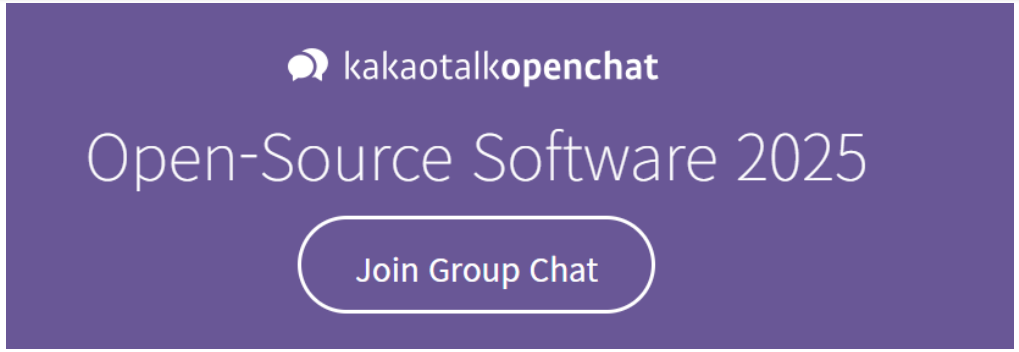
Teaching Methods

Interactive Classroom Quiz in PowerPoint

- Turn slides into quizzes and engage your students



Communication Channel



https://open.kakao.com/o/gDh7VmQh

Grading

- **Mid Exam: 20 %**
  - Mid Exam. Covers material seen during the lectures before the exam.
- **Final Exam: 25 %**
  - Final Exam. Covers material seen after the mid-exam
- **Quizzes: 10 %**
  - There will be popup quizzes during lectures
- **Attendance: 10 %**
- **Assignments & Group Project: 35 %**
  - Assignment will be due within seven (7) days of the announcement
  - No late assignments will be accepted
  - A group of max Three (4) students will be allowed

Assignments & Group Project!

- They will be posted on the website.
- Due 11:59 pm on the due date, submitted online.
- Can use the discussion board and labs to meet with your group members.

How can you succeed?

- Attend all classes
- Be punctual
- Download lecture slides and programming files before the class and follow along.
- Actively read reference materials and practice practice practice OSS tools
- Read course notifications in the portal
- Get help immediately when you need it
- Actively participate in a team project
- Do not cheat or copy assignments from others
- Be responsible for your own learning

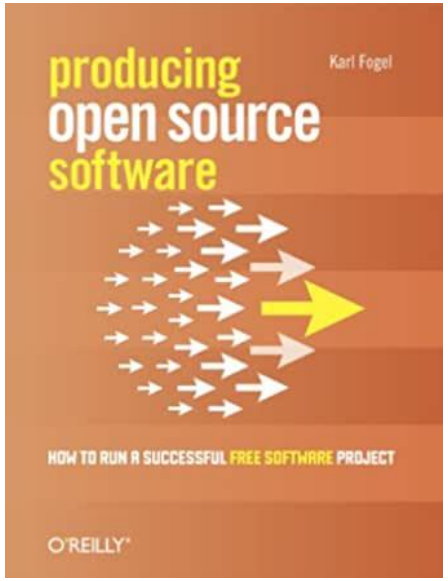
Academic Violations

- You should do all the work that you submit
- Never look at another team's work.
- Never show another team your work.
- Applies to all drafts and partial solutions.
- Discuss how to solve an assignment only with me

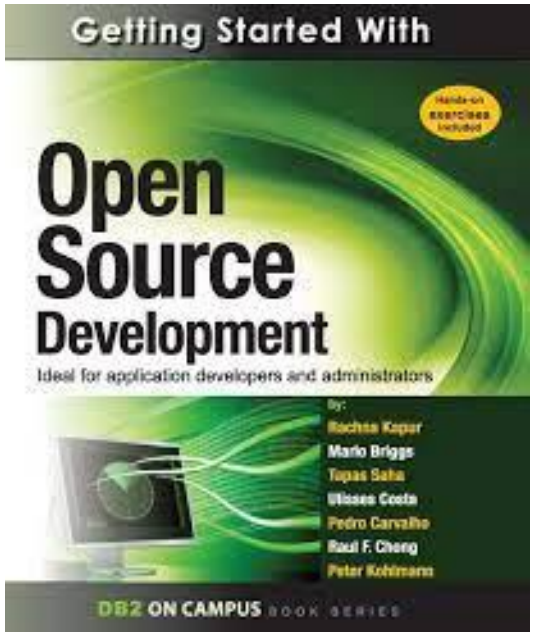
Getting Help

- **Office Hours.**
  - We're deciding on these right now!
- Can ask for help from me during labs.
- Course Discussion board.
- **Monday-Thursday.**
  - Office: Room 421, Innovation Building
  - Email: jamil@sejong.ac.kr
  - Office Hours: Thurs & Fri – 9:00 AM to 6:00PM (or appointment by email)

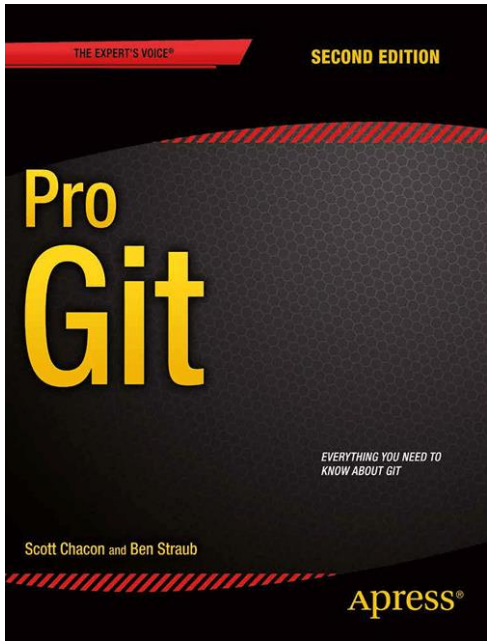
Recommend Books



Producing Open Source Software How to Run a Successful Free Software Project-Karl Fogel

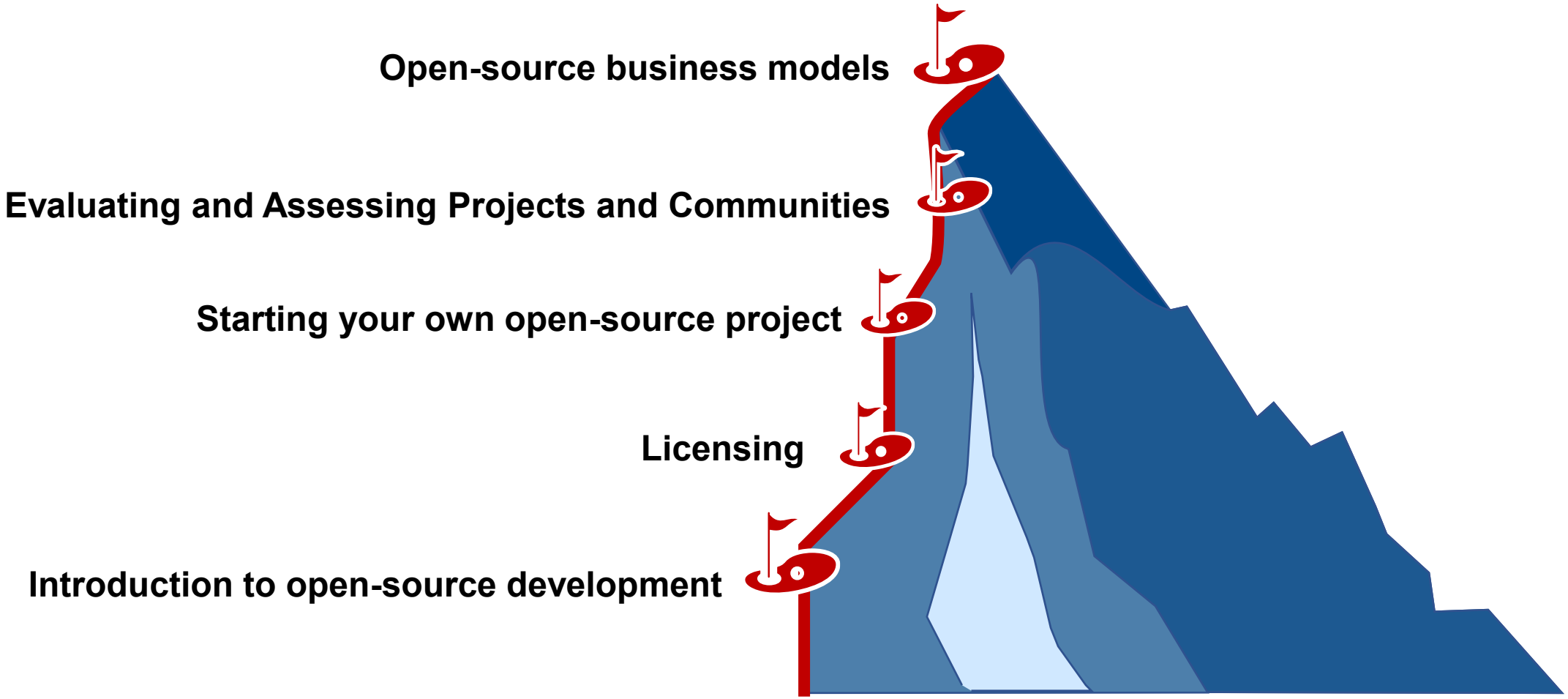


Getting started with open source development



Pro Git

Learning Path



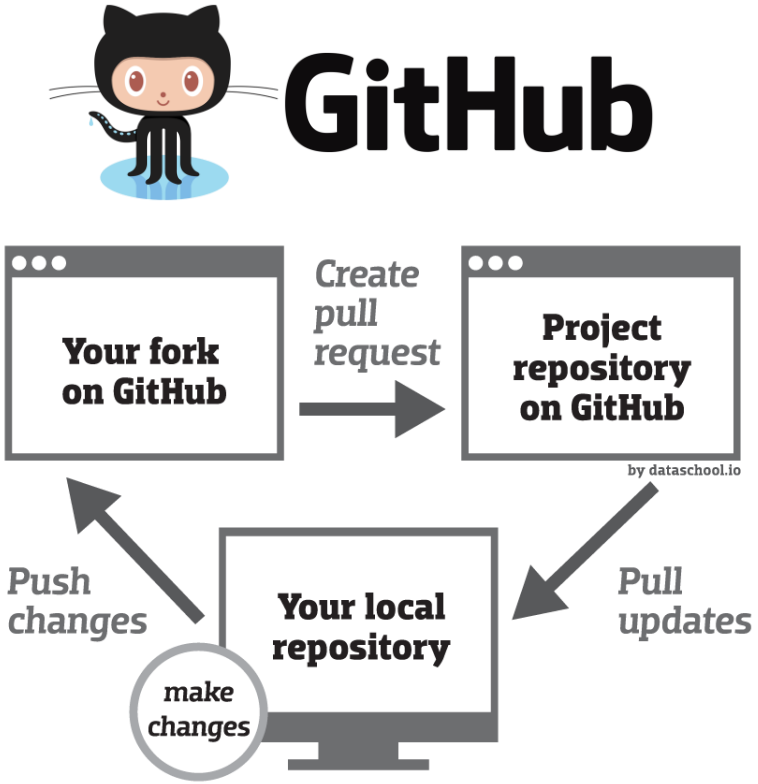
Minimum Objectives [1/4]

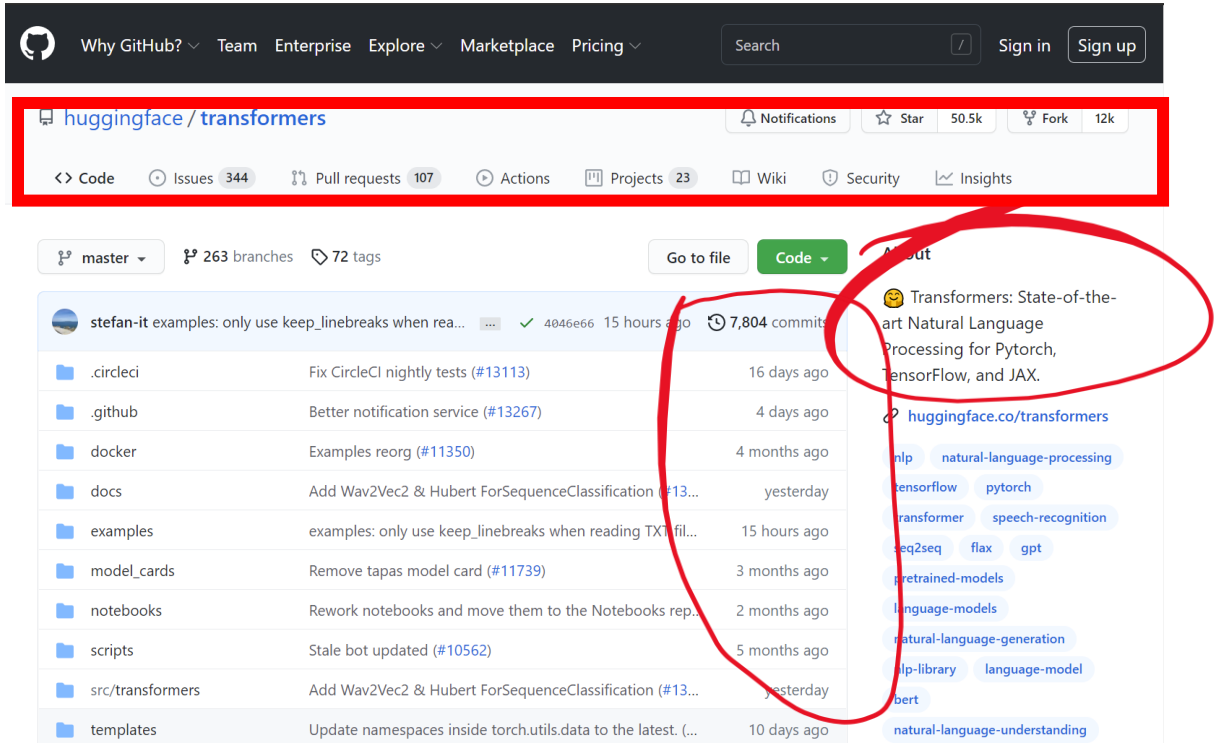
- Understand concepts, strategies, and methodologies related to open source-software development.

- Understand the common open-source licenses and the impact of choosing a license

Minimum Objectives [2/4]

- Understand open-source project structure and how to set up a project successfully





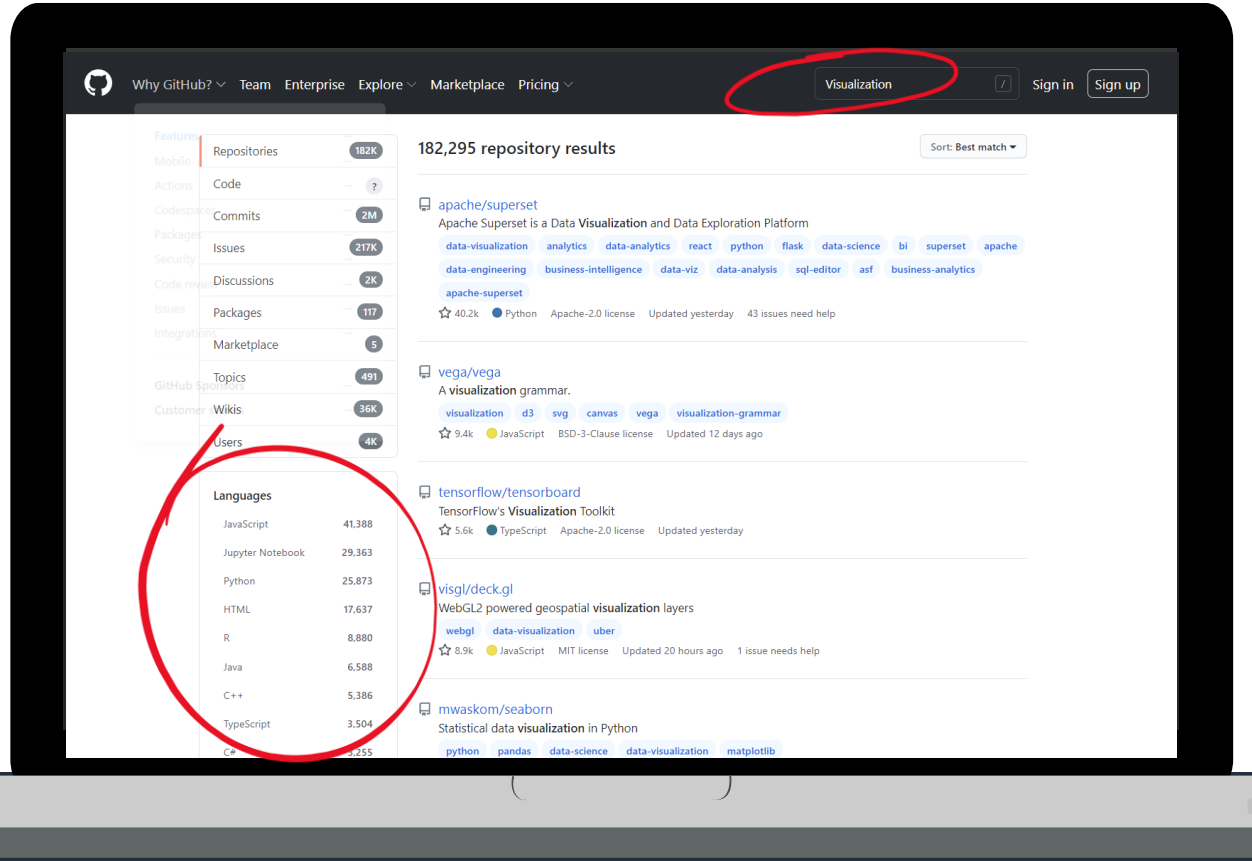
Minimum Objectives [3/4]

- Be familiar with open-source software products and development tools currently available.

Utilize open-source software for developing a variety of software applications.

Minimum Objectives [4/4]

- Be able to find open-source projects related to a given development problem.
- Be able to install from source code an open-source project and start using it.



Assessment about OSS

Assessment about OSS

Q1: Did you ever use any version control software?

A Yes

B No

Multiple Choice

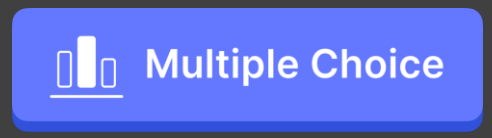
Assessment about OSS

Q2: Rate your skill in software development?

A Absolutely no previous SW development experience

B Developed small scale projects

C Expert in SW development



Assessment about OSS

Q3: Any Knowledge about the software Licensing?

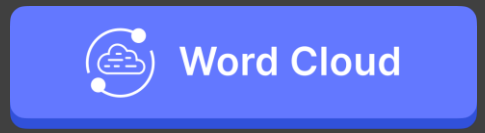
A Yes

B No

Multiple Choice

Assessment about OSS

Q3: Why do you enroll in this course?

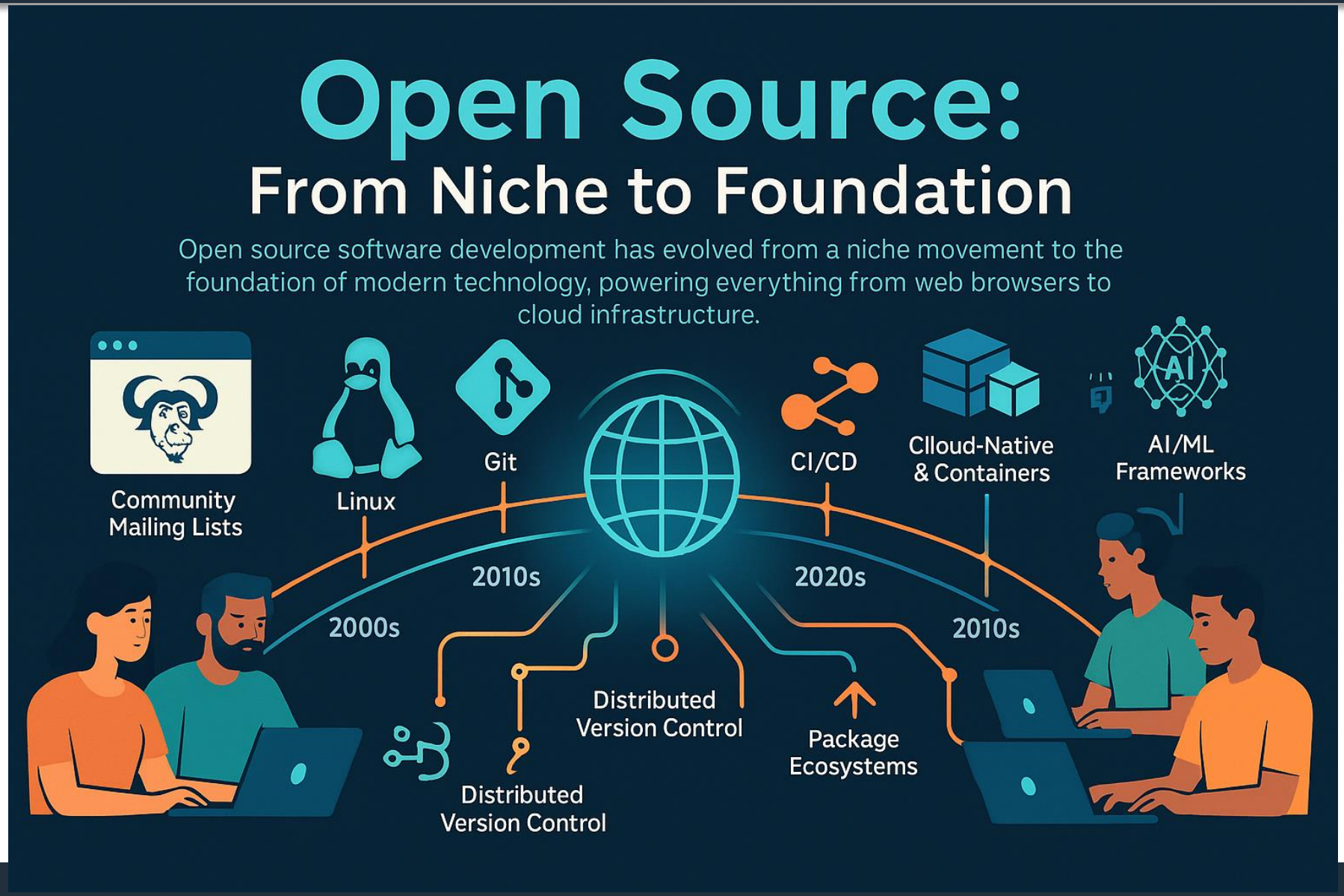


Getting Started with

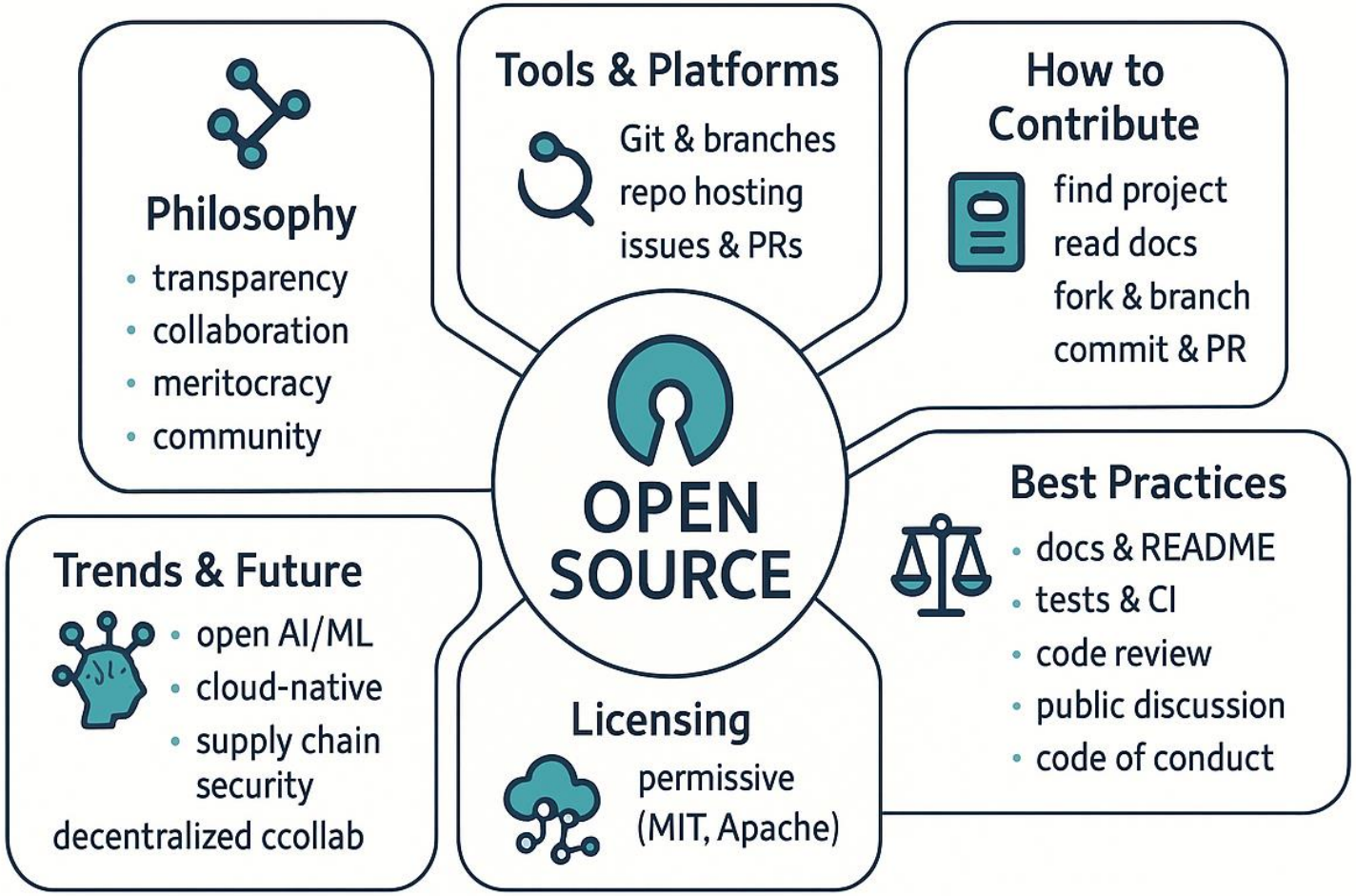
Open-source Software development

From Beginner's to Advanced

Open source software development



Open source software development



Discover → Fork → Branch → Commit → PR→ Review → Merge

Brief Introduction of OSS

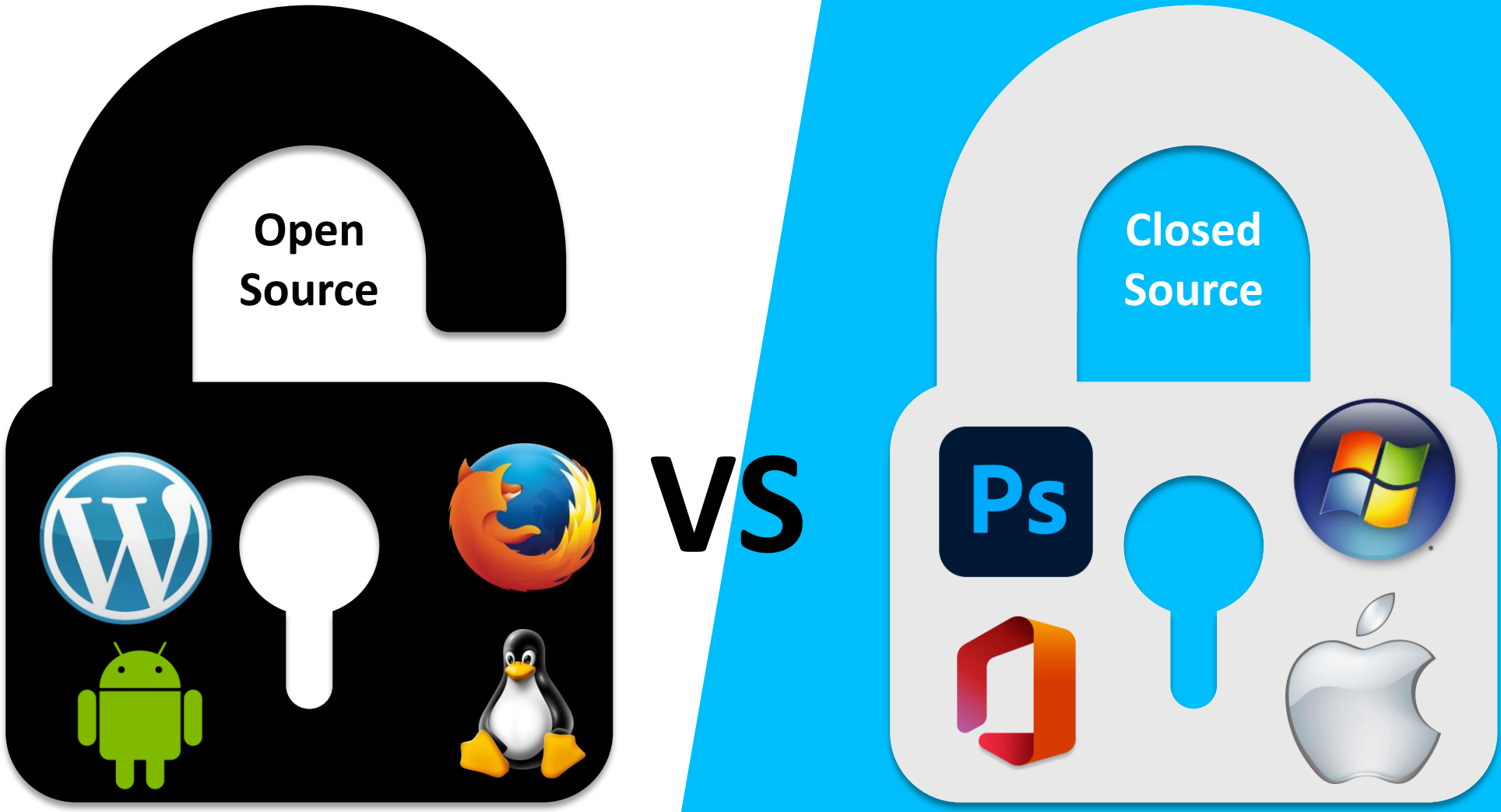
→ **Open Source**

We need to know about the Openness

→ **Software**

We need to know about the software development process

Brief Introduction of OSS

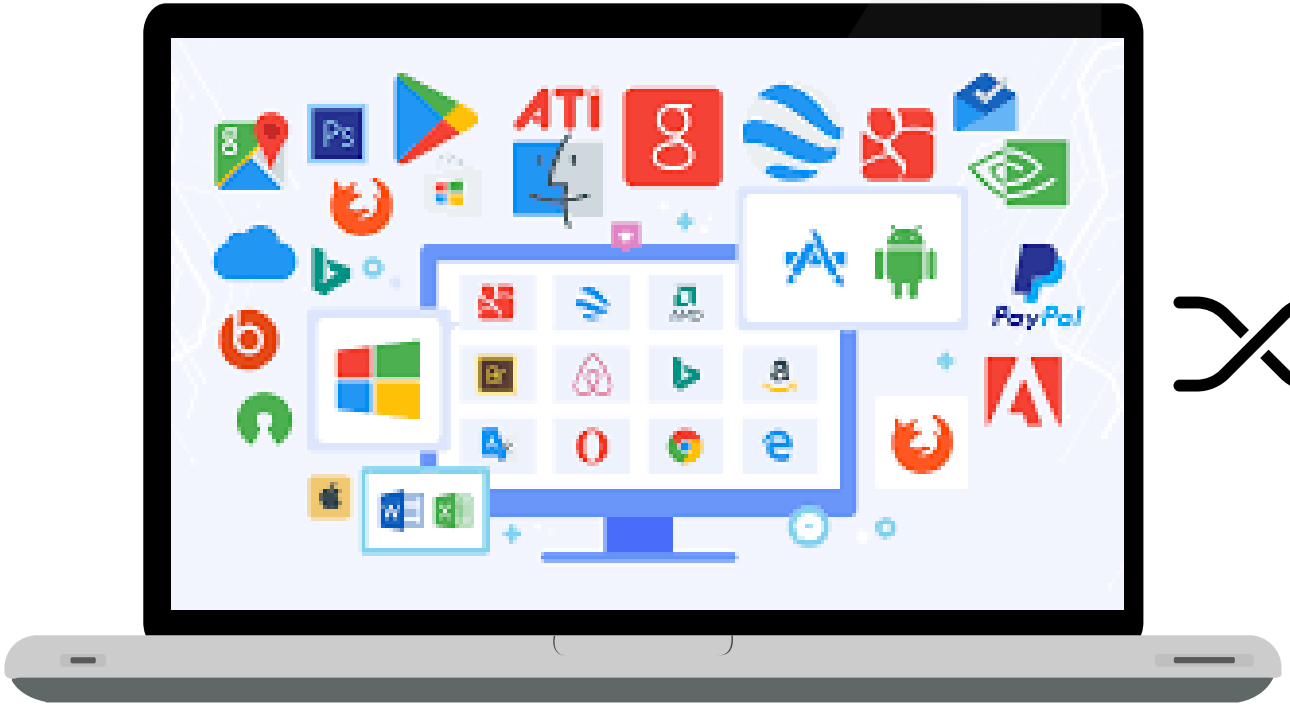


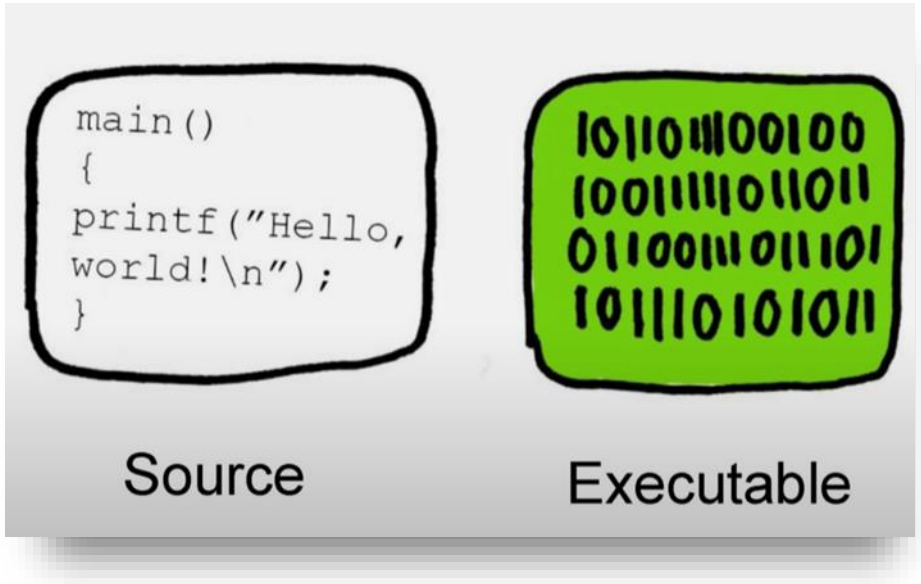
Software by license type

Software type	Free (cost)	Redistri-butable	Unlimited use and users	Source code available	Source code modifiable
Commercial (Close-source)					
Shareware	X	X			
Freeware	X	X	X		
Royalty-free libraries	X	X	X	X	
Open source	X	X	X	X	X

Source Code

The Technical blueprint that tells a program how to function





Software Release

Software Creators

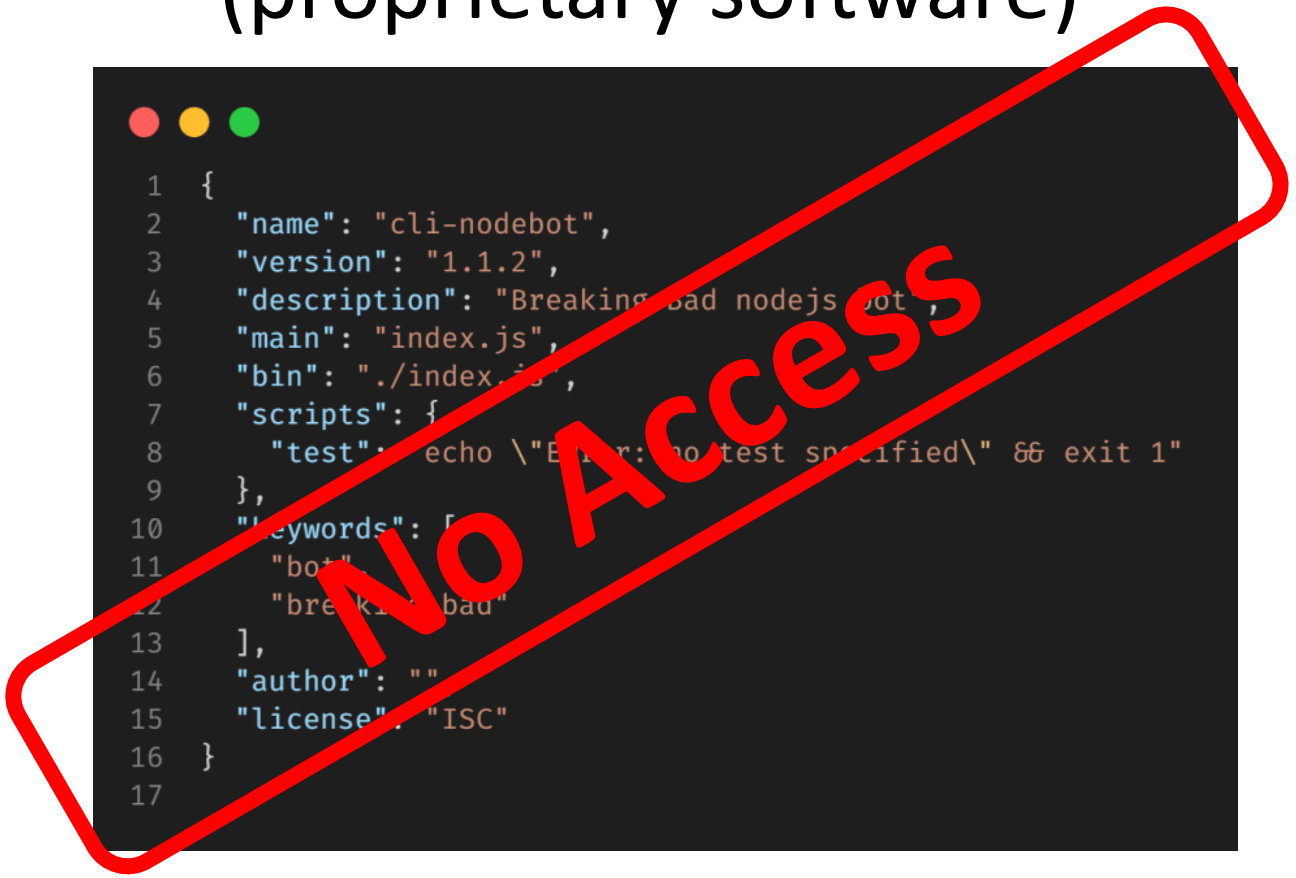
Open Source

Close Source

Close Source Software

- Closed source software, also known as

(proprietary software)

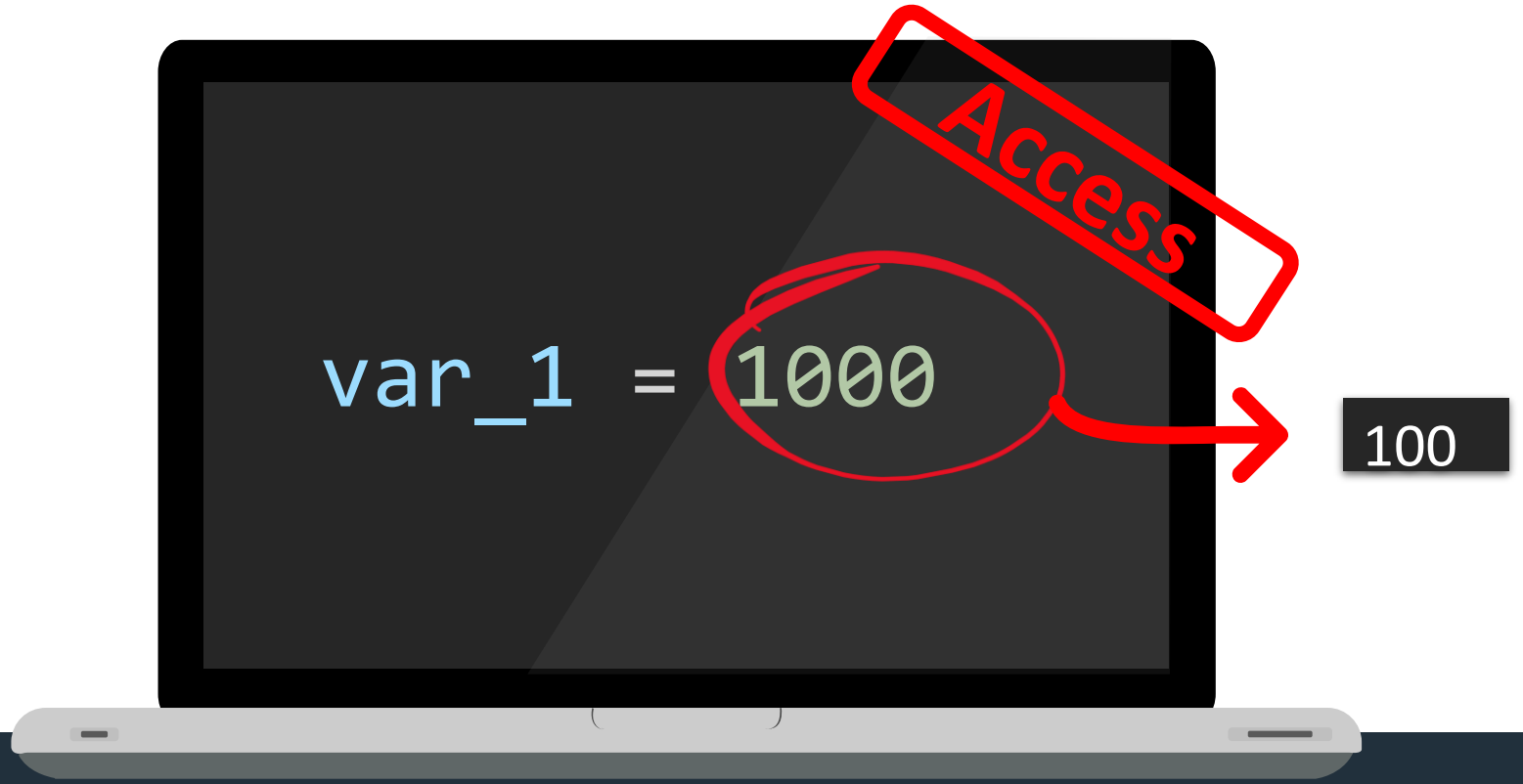


Close Source Software

What is Open Source Software?

Access to source code

Free = freedom to use, modify, copy



Open Source Is Not Just the Code

- **Beyond code availability**: Open-source software is more than just software with visible source code.
- **Community-driven**: It is inseparable from the community of contributors, users, and supporters who actively sustain it.
- **Rooted in philosophy**: It embodies the principles of sharing and freedom that shaped the **Free and Open-Source Software** movements.
- **Philosophy of openness**: At its core, open source is the belief that software should be free and accessible.
- **Collaborative methodology**: It is a way of building software collectively through collaboration.
- **Shared goals**: Contributors work together toward common, shared objectives.
- **Social structure**: Development takes place within communities and structures they create themselves.
- **Success through cooperation**: The approach is guided by the belief that collective effort ensures long-term project success.

Source: Stewart Weiss : http://www.compsci.hunter.cuny.edu/~sweiss/course_materials/csci395.86/slides/introduction.html#1

What is Open-Source Software?

- **So what does that mean?**
- Open-source software is **collectively developed** by a community of technologists who share an interest in a particular application or tool.
- It is then **distributed freely** to the broader community of individuals who can benefit from it.
- It is software that **anyone is licensed to use, copy, study, and modify** in any way.
- The **source code is openly shared**, encouraging people to **voluntarily improve and enhance** its design. *(Wikipedia)*

What is Open-Source Software?

- Free to use
- Free to change
- Free to distribute
- An alternative to commercial software

Open Source Software is Everywhere

- Free and open source software is all around us, more than you probably realize. Some examples:
  - The code that secures Internet transactions, OpenSSL;
  - The Android operating system in many smartphones;
  - The Firefox browser;
  - The Linux kernel and operating system;
  - The code that many web developers use to build web pages, such as Wordpress and Drupal.
- Look at The Octoverse 2024, a report produced by GitHub, to see just how much activity happened in 2024 surrounding free and open source software.

Source: Stewart Weiss : http://www.compsci.hunter.cuny.edu/~sweiss/course_materials/csci395.86/slides/introduction.html#1

Openness In General

- The **Free and Open-Source Software (FOSS) movement** tiled the way for a broader philosophy of **open access**, often called *the Open Source Way* or simply *Openness*.
- This philosophy extends beyond software into many domains, including:
- **Open encyclopedias**: e.g., Wikipedia
- **Open digital libraries**: e.g., Internet Archive
- **Open maps**: e.g., OpenStreetMap
- **Open data**: thousands of datasets are freely available, such as:
  - **Municipal level**: NYC Open Data
  - **State level**: New York State Open Data
  - **Federal level**: United States Open Government
  - And many more across governments, institutions, and communities.

Supporting Institutions

- There are many, many institutions that support free and open source software. Some of the major ones in the U.S. are:

The Free Software Foundation

The Open Source Initiative

The Software Freedom Conservancy

The Mozilla Foundation

The Linux Foundation

The Creative Commons

there are many others around the world

Q1: Android OS is OSS?

A True **B** False

Multiple Choice

Q2: Can you distribute the OSS Software?

A Yes **B** No

Multiple Choice

History of Open-Source (OSS) Software

The Origins of Open Source

- The story of open-source development began before the Free Software movement.
- In the 50s and 60s, research institutes primarily produced software.