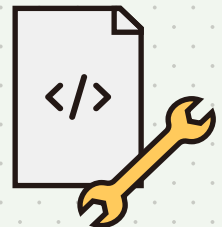
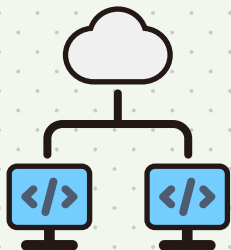


2025년 오픈소스SW 라이선스 전문교육

공통과정



문화체육관광부



한국저작권위원회
KOREA COPYRIGHT COMMISSION

2025년 오픈소스SW 라이선스 전문교육 공통과정

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1. 오픈소스SW와 라이선스의 이해 및 분쟁 사례

오픈소스SW와 라이선스의 이해 및 분쟁 사례



문화체육관광부



한국저작권위원회

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OSS 라이선스의 의의 및 기본 원리

Open Source Software (OSS) refers to software whose **source code is made publicly available** for anyone to view, use, modify, and distribute. The core idea is **transparency, collaboration, and community-driven development**.

Key Characteristics of Open Source Software:

- 1. Access to Source Code**
The source code is freely accessible, allowing developers to understand how the software works.
- 2. Free Redistribution**
You can use, copy, and share the software with others without restriction (though licenses may impose certain conditions).
- 3. Modification Rights**
You can modify the software to suit your needs and share those modifications with the community.
- 4. Community Collaboration**
OSS projects often involve global collaboration among developers who contribute improvements, bug fixes, and new features.

Benefits of Open Source Software:

- Cost-effective (often free)
- Flexible and customizable
- Transparent and auditable for security
- Encourages innovation and rapid development through collaboration

Potential Challenges:

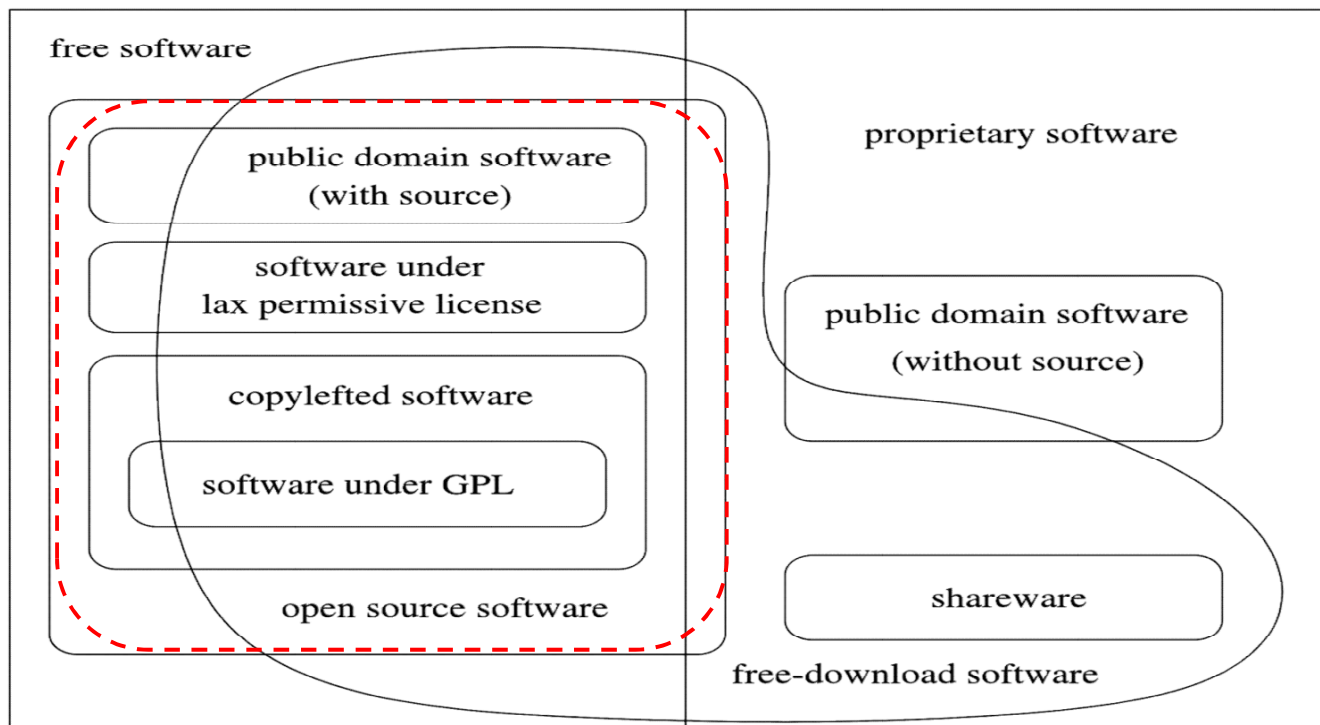
- Requires technical knowledge to modify or maintain
- Community support may vary in quality
- Licensing compliance can be complex in enterprise use

Examples of Popular Open Source Software:

- **Linux** (operating system kernel)
- **Apache HTTP Server** (web server)
- **Mozilla Firefox** (web browser)
- **VLC Media Player** (media player)
- **TensorFlow** (machine learning framework)

(Source : Chat GPT 4o)

유사 개념과의 비교

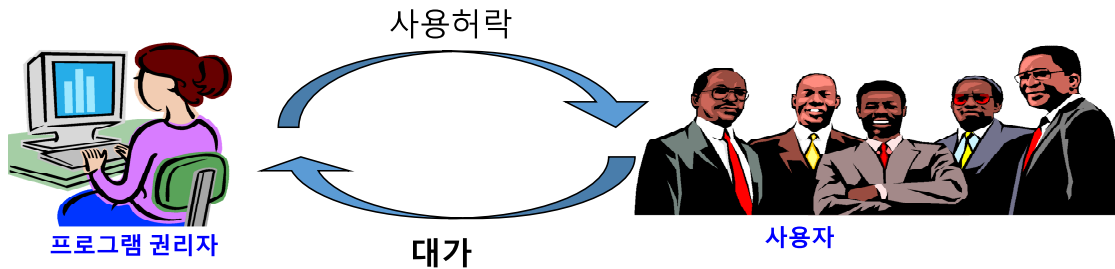


(Source : Wikipedia)

- Software License

is a legal instrument (usually by way of contract law, with or without printed material) governing the use or redistribution of software. (wikipedia)

- Ownership (Copyright) / Licensing



리눅스 커널 사례

linux kernel

전체 이미지 동영상 뉴스 쇼핑 지도 도서 더보기

스폰서

Automox
https://www.automox.com
Linux Patching Made Easy - Start Your Free Trial
✓ 비즈니스 아이디엔티티 확인됨 — Customize & Automatically Enforce Patching w/ Custom Policies. Reduce Your Threat Surface.

The Linux Kernel Archives
https://www.kernel.org
The Linux Kernel Archives
The Linux Kernel Archives ; mainline: 6.10-rc7, 2024-07-07, [tarball] ; stable: 6.9.9, 2024-07 [tarball], [pgp] ; longterm: 6.6.39, 2024-07-11, [tarball], [pgp] ...

Documentation
Core API - Development process - Kernel Hacking Guides - Rust

어떻게 리눅스 커널 개발을 하는가
커널 개발자들은 첨부파일이거나 압축된 패치들을 원하지 않는다. 그들 ...

Releases
Prepatch: Prepatch or "RC" kernels are mainline kernel pre ...

V5.x
Index of /pub/linux/kernel/v5.x/ ../ incr/ 05-Jul-2024 07:23 ...

Coding Style
Linux kernel style for use of spaces depends (mostly) on function ...
kernel.org 검색결과 더보기 »

Red Hat
https://www.redhat.com › linux › what-is-the-linux-kernel
리눅스 커널(Linux kernel)이란 - 개념, 구성요소, 인터페이스
2023. 3. 1. — 리눅스 커널은 리눅스 운영 체제(OS)의 주요 구성 요소이며 컴퓨터 하드웨어와 프로 세스를 연결하는 핵심 인터페이스입니다.

나무위키
https://namu.wiki › Linux › 커널
Linux/커널
6일 전 — **Linux 커널** 구조도. Linux의 커널. **Linux 커널**은 단일형 커널 구조를 가지며, 모듈화되 어 있어, 컴파일 후에 모듈을 로드시킬 수 있다.

GitHub
https://github.com › torvalds › linux
torvalds/linux: Linux kernel source tree
Linux kernel ===== There are several guides for kernel developers and users. These guides can be rendered in a number of formats, like HTML and PDF.

Wikipedia
https://en.wikipedia.org › wiki › Linux_kernel
Linux kernel
The **Linux kernel** is a free and open-source, ⁴ UNIX-like kernel that is used in many computer systems worldwide. The kernel was created by Linus Torvalds ...

Wikipedia
https://ko.wikipedia.org › wiki › 리눅스_커널
리눅스 커널 - 위키백과, 우리 모두의 백과사전
리눅스 커널(영어: **Linux kernel**)은 오픈 소스 모놀리식 유닉스 계열 컴퓨터 운영 체제 커널이다. 리눅스 계열의 운영 체제는 이 커널에 기반을 두며 개인용 컴퓨터와 ...

< Hyun / Log >
https://hstory0208.tistory.com › entry › kernel-이란-쉽...
[Linux] kernel(커널) 이란 ? 쉽게 알아보자
2022. 10. 3. — 커널은 운영체제의 핵심부분으로써 주로 디바이스 관리, 프로세스 관리, 메모리 관리, 시스템 콜 제공 같은 기능을 관리하는 등, 컴퓨터 자원을 관리 ...



Linux Kernel

Settings | Report Duplicate



Very High Activity

7,625

I Use This!

Analyzed about 8 hours ago, based on code collected about 11 hours ago.

Project Summary

The Linux kernel is a Unix-like computer operating system kernel. It is used world-wide: the Linux operating system is based on it and deployed on both traditional computer systems such as personal computers and servers, usually in the form of Linux distributions, and on various embedded devices such as routers, wireless access points, PBXes, set-top boxes, FTA receivers, smart TVs, PVRs and NAS appliances. The Android operating system for tablet computers, smartphones and smartwatches is also based atop the Linux kernel.

(from Wikipedia)

Tags

arm arm64 c #daci ia64 kernel linux
linuxkernel operating_system os posix #saci
unix x64 x86 x86_64

In a Nutshell, Linux Kernel...

... has had 1,369,251 commits made by 30,348 contributors representing 36,759,298 lines of code

... is mostly written in C with a low number of source code comments

... has a well established, mature codebase maintained by a very large development team with stable Y-O-Y commits

... took an estimated 12,450 years of effort (COCOMO model) starting with its first commit in April, 2005 ending with its most recent commit about 12 hours ago

Quick Reference

Organization: The Linux Foundation

Project Links: Homepage (4 Links)

Documentation

Download (2 Links)

Forums

Issue Trackers

Mailing Lists

Code Locations: https://github.com/torvalds/linux

Similar Projects: Debian FreeBSD

Quam OS

linux-e60q22

Managers: Ramkumar Ramachandra

(Source : OpenHub)

GNU General Public License v2.0 only

Permitted

Commercial Use



Modify



Distribute



Place Warranty



Forbidden

Sub-License



Hold Liable



Required

Distribute Original



Disclose Source



Include Copyright



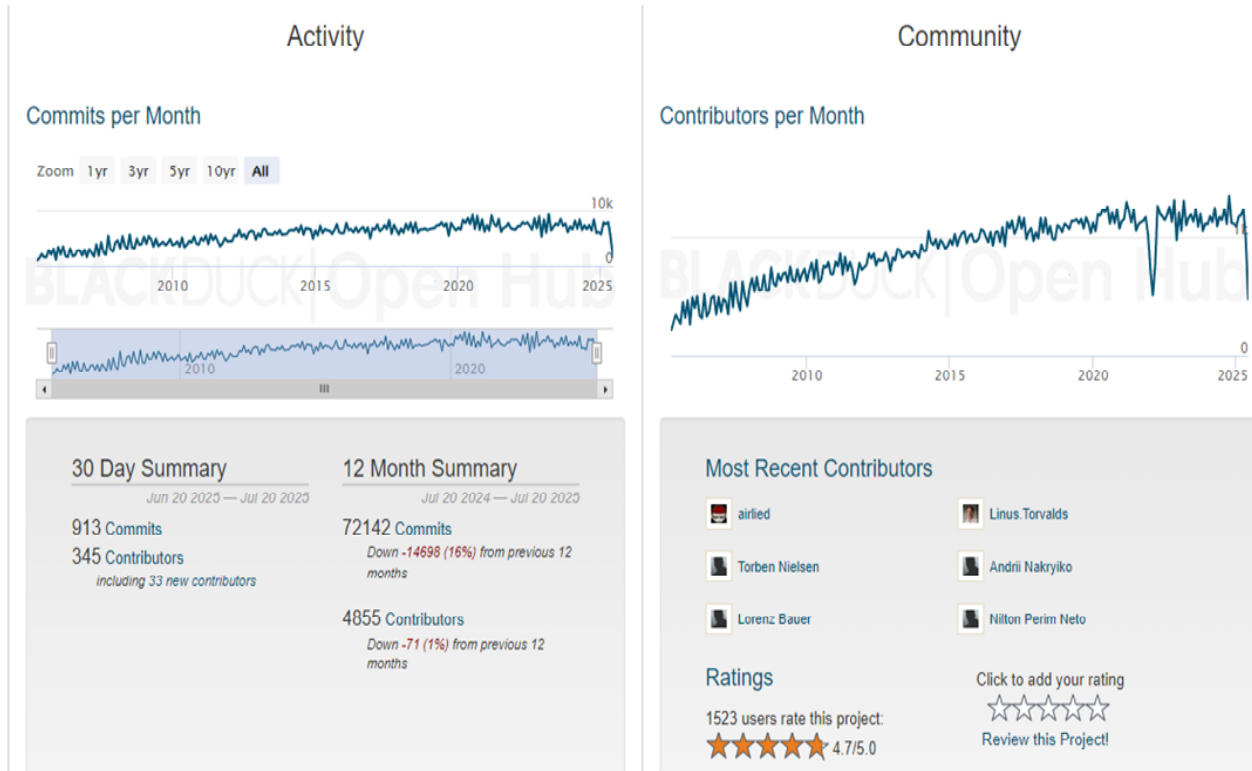
State Changes



Include License



These details are provided for information only. No information here is legal advice and should not be used as such.



Kernel Version	Files	Lines
3.0	36,788	14,651,135
3.1	37,095	14,776,002
3.2	37,626	15,004,006
3.3	38,091	15,171,607
3.4	38,573	15,389,393
3.5	39,101	15,601,911
3.6	39,738	15,873,569
3.7	40,912	16,197,233
3.8	41,532	16,422,416
3.9	42,435	16,692,421
3.10	43,029	16,961,031

Most active 6.12 employers					
By changesets			By lines changed		
Intel	1240	9.3%	Intel	68687	11.0%
(Unknown)	1173	8.8%	(Unknown)	52196	8.3%
Google	957	7.2%	AMD	44794	7.2%
AMD	810	6.1%	Google	42921	6.9%
Huawei Technologies	791	5.9%	Red Hat	38609	6.2%
(None)	672	5.0%	Meta	30757	4.9%
Red Hat	651	4.9%	NVIDIA	30555	4.9%
Linaro	618	4.6%	IBM	20294	3.2%
Meta	480	3.6%	Oracle	18201	2.9%
NVIDIA	382	2.9%	Linaro	17513	2.8%
SUSE	361	2.7%	(None)	17146	2.7%
Oracle	262	2.0%	SUSE	15243	2.4%
Renesas Electronics	254	1.9%	BayLibre	14470	2.3%
IBM	249	1.9%	Qualcomm	11740	1.9%
Arm	241	1.8%	NXP Semiconductors	11214	1.8%
NXP Semiconductors	236	1.8%	Microsoft	10858	1.7%
(Consultant)	229	1.7%	Huawei Technologies	10181	1.6%
Qualcomm	175	1.3%	Realtek	9941	1.6%
Microsoft	159	1.2%	YADRO	9274	1.5%
Linutronix	140	1.0%	Arm	8545	1.4%

(Source : Linux Foundation, LWN.net)

1. Linus Torvalds – The Benevolent Dictator

- **Role:**
Linus Torvalds is the **creator and chief maintainer** of the Linux kernel.
- **Authority:**
He has the **final say on which patches are accepted into the mainline (upstream) kernel**.
- **Approach:**
Although often described as a "**benevolent dictator for life (BDFL)**," Torvalds usually accepts code via trusted maintainers rather than directly from contributors.

2. The Maintainer Hierarchy

The Linux kernel is **modular and split into subsystems** (e.g., networking, file system device drivers). Each subsystem has:

Role	Responsibilities
Subsystem Maintainers	Review and approve patches for their specific areas
Lieutenants	Trusted maintainers who collect patches and send requests to Linus.
Contributors	Developers who submit patches and improvements (can be individuals or companies).

5. Decision-Making Principles

- **Technical Meritocracy:**
Decisions are based on **technical quality, code review, and consensus**, not corporate hierarchy.
- **Open Discussion:**
All discussions happen in public (LKML), and **anyone can participate**.
- **No Formal Voting:**
There's **no formal voting system**; maintainers use their judgment, informed by consensus and review.

6. Corporate Contributions

- Over **75% of kernel contributions come from paid developers** working for companies like Intel, Google, AMD, Red Hat, Meta, etc.
(Source: Linux Foundation, "State of Linux Kernel Development")
- **Corporate contributors must follow the same process** as individuals: submit patches to the community for review.

(Source : Chat GPT 4o)

Projects

We would like to collaboratively build technologies for various industries by sharing more open source with developers around the world, starting from 110 open-source projects we have already released.

Result : 204

Enter Search Item

Search

Chromium

Chromium is an open-source browser project that aims to build a safer, ...

C, C++, JavaScript, Multi licen...

GStreamer

GStreamer is a library for constructing graphs of media-handling ...

C, LGPL-2.0

Kernel

The Linux kernel is a free and open-source,[12]:4 monolithic, modular, ...

C, Rust, GPL-2.0

Kubernetes

Kubernetes, also known as K8s, is an open-source system for automating ...

Golang, Apache-2.0

PROJECT

Q Enter your search parameters

Result: 15



Piccolo

SDV upper-middleware software component based on open source.
- Helps adding, deleting, modifying, updating context based user scenarios and policies using manifests for applications and...

C++, Go, Python
GITHUB



ThinQ Connect SDK

A library for interacting with the LG devices using ThinQ Connect API

Python
GITHUB | WEBPAGE



heaptrace

Heaptrace is a tool that collects and reports heap allocated memory.



meta-shift

The meta-shift layer is a set of recipes and classes for the Bitbake build system, which allows developers to test or examine their C/C++ software modules in the host build environment.



문화체육관광부

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한국저작권위원회

네이버 사례

CLOVA HyperCLOVA X Tech Blog AI Research AI Products ▾ CLOVA X 가 파트너 채용 문의하기

Apr 23, 2025

AI 생태계에 씨앗을 뿌리다: 상업용 오픈소스 AI, HyperCLOVA X SEED



AI 생태계에 씨앗을 뿌리다:

상업용 오픈소스 AI, HyperCLOVA X SEED

상업적 활용이 가능한 오픈소스 AI 모델, HyperCLOVA X SEED를 공개합니다. 이번 공개는 단순한 모델 배포를 넘어, 한국의 소버린 AI 생태계 구축을 위한 중요한 발걸음입니다. 소버린 AI의 구현은 어느 한 기업이나 국가가 혼자 이룰 수 없는 거대한 과제입니다. 네이버는 다른 기업들이 더 강력해지기를 바라며, 소버린 AI 생태계 조성을 위해 HyperCLOVA X SEED를 오픈소스로 공개합니다.

작지만 강력한 HyperCLOVA X SEED는 기업이나 개발자가 특정 비즈니스의 요구사항에 맞게 튜닝하여 다양한 산업 분야에 맞춤형으로 적용할 수 있습니다. 3B, 1.5B, 0.5B 파라미터를 가진 세 가지 모델로 출시되어 각각 특화된 영역에서 실질적인 성능을 발휘합니다. 특히 3B 모델은 이미지 이해(vision understanding) 역량을 갖추고 있어, 텍스트와 시각 정보를 함께



문화체육관광부

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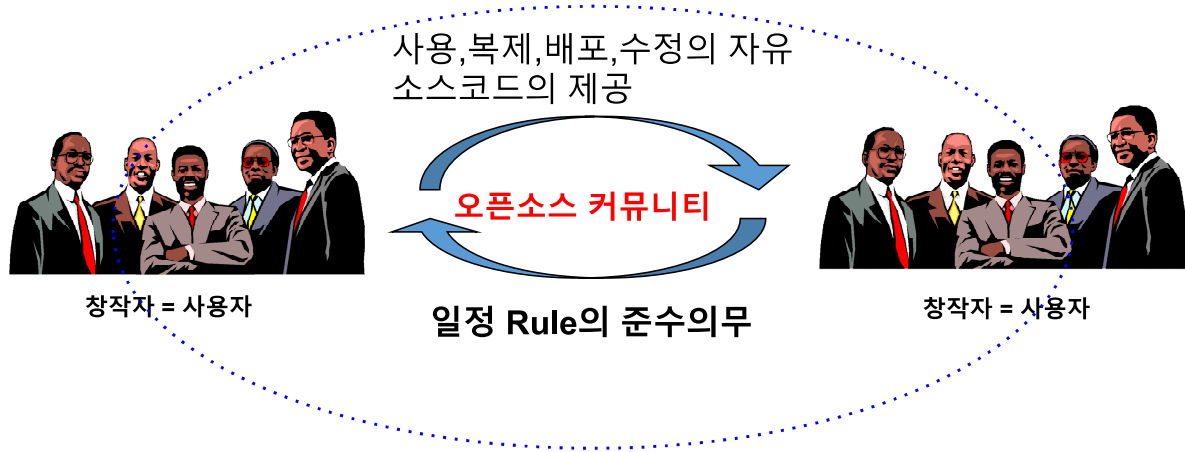
한국저작권위원회

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오픈소스SW 라이선스의 이해 및 분쟁 사례

An open-source license

is a type of license for computer software and other products that allows the source code, blueprint or design to be used, modified and/or shared under defined terms and conditions. (wikipedia)



OSS 라이선스 종류와 주요 내용

OSI Approved Licenses :

<https://opensource.org/licenses/category>

Free Software Licenses :

<https://www.gnu.org/licenses/license-list.html>

SPDX License List : <https://spdx.org/licenses/>

Choose a license :

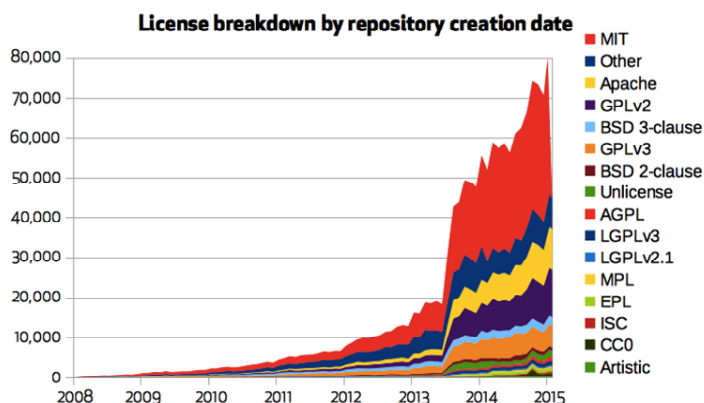
<https://choosealicense.com/appendix/>

licenses that are “popular and widely-used or with large communities”

The below list is based on publicly available statistics obtained at the [Report of License Proliferation Committee](#).

- [Apache License 2.0 \(Apache-2.0\)](#)
- [3-clause BSD license \(BSD-3-Clause\)](#)
- [2-clause BSD license \(BSD-2-Clause\)](#)
- [GNU General Public License \(GPL\)](#)
- [GNU Lesser General Public License \(LGPL\)](#)
- [MIT license \(MIT\)](#)
- [Mozilla Public License 2.0 \(MPL-2.0\)](#)
- [Common Development and Distribution License 1.0 \(CDDL-1.0\)](#)
- [Eclipse Public License 2.0 \(EPL-2.0\)](#)

Here's the top 20 OSI-Approved licenses most frequently sought out by our community in 2024 based on number of pageviews.



License	Pageviews	Visitors
mit	1.7M	1M
bsd-3-clause	247.9K	207K
apache-2-0	244.6K	184K
bsd-2-clause	115.8K	98.2K
gpl-2-0	83.8K	71.7K
gpl-3-0	72.4K	61.5K
isc-license-txt	48.7K	34.9K
lgpl-2-1	21.6K	19K
lgpl-3-0	17.8K	15.4K
qpl-1-1	16.9K	14.1K
mpl-2-0	14.8K	12.8K
postgresql	14.6K	12K
ms-pl-html	13.8K	9.9K
agpl-v3	13.3K	11.1K
0bsd	13.1K	11.1K
bsd-1-clause	10.3K	8.7K
afl-3-0-php	10.1K	8.6K
cpl-0-txt	8.1K	5.9K
osl-3-0-php	7.2K	6.3K
mit-0	6.7K	5.8K

(Source : github.com, opensource.org)

copyleft v. permissive

"**Copyleft**" refers to licenses that allow derivative works but require them to use the same license as the original work. ...

A "**permissive**" license is simply a non-copyleft open source license — one that guarantees the freedoms to use, modify, and redistribute, but that permits proprietary derivative works (opensource.org)

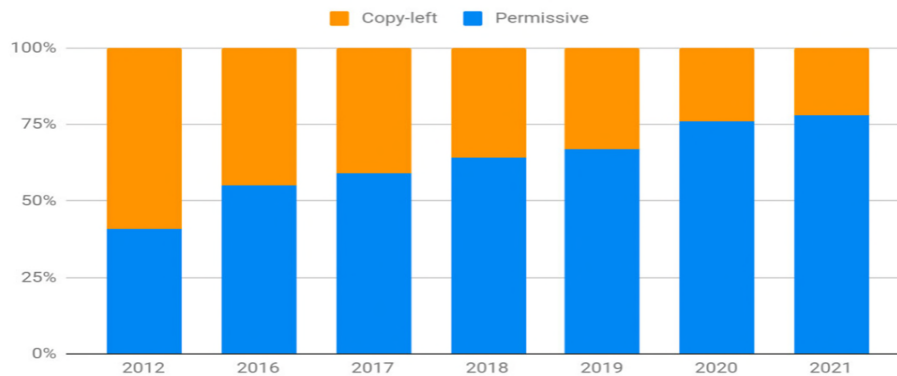


Fig 1. Permissive vs. Copyleft Open-Source Licenses Over Time

(source: white source research)

Permissive 라이선스의 의의 및 사례

A "**permissive**" license is simply a non-copyleft open source license — one that guarantees the freedoms to use, modify, and redistribute, but that permits proprietary derivative works. (opensource.org)

Permissive 라이선스 사례

- MIT License
- BSD 4-Clause, 3-Clause, 2-Clause
- ISC License
- Apache 2.0
- Microsoft Public License

Copyright (c) [year] [fullname]

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(끝!)

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Permissions

- Commercial use
- Distribution
- Modification
- Private use

Conditions

- License and copyright notice

Limitations

- Liability
- Warranty

(source: white source research)

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...

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Limitations

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- Warranty

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ISC License

A permissive license lets people do anything with your code with proper attribution and without warranty. The ISC license is functionally equivalent to the **BSD 2-Clause** and **MIT** licenses, removing some language that is no longer necessary.

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- Modification
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Patent Use

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Microsoft Public License 요약

Microsoft Public License

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Permissions

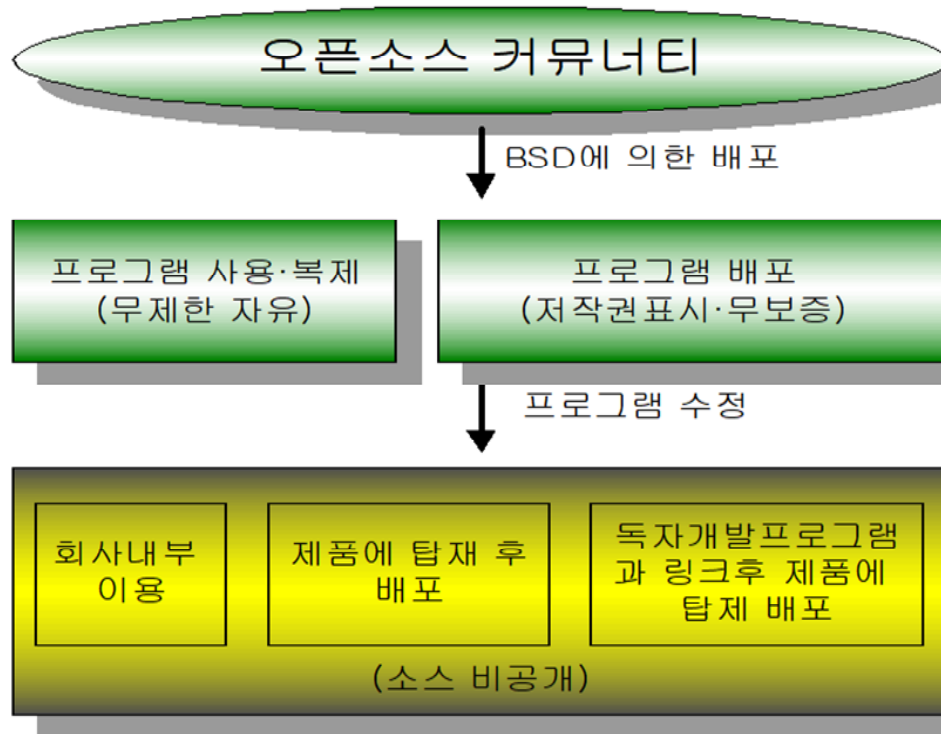
- Commercial use
- Distribution
- Modification
- Patent use
- Private use

Conditions

- License and copyright notice

Limitations

- Trademark use
- Warranty



Copyleft 라이선스의 의의 및 특징

Copyleft is the legal technique of granting certain freedoms over copies of copyrighted works with the requirement that the same rights be preserved in derivative works.

- Strong Copyleft
GPL 2.0, GPL 3.0
AGPL, SSPL
- Weak Copyleft
LGPL 2.1, 3.0
MPL 2.0
EPL 1.0

GNU General Public License v2.0

GNU GPLv2

The GNU GPL is the most widely used free software license and has a strong copyleft requirement. When distributing derived works, the source code of the work must be made available under the same license. There are multiple variants of the GNU GPL, each with different requirements.

Permissions

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- Distribution
- Modification
- Private use

Conditions

- Disclose source
- License and copyright notice
- Same license
- State changes

Limitations

- Liability
- Warranty

GPL 2.0

Disclose source

- 3.a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, ...

Same license

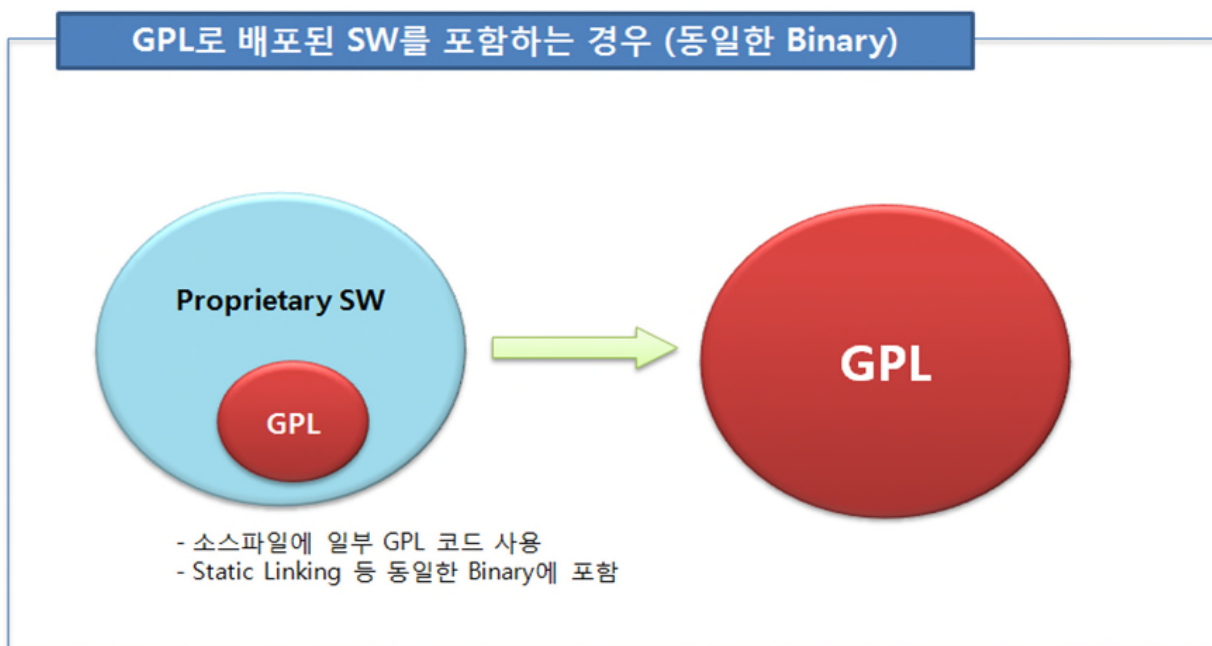
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➤ What is the difference between an “aggregate” and other kinds of “modified versions”?

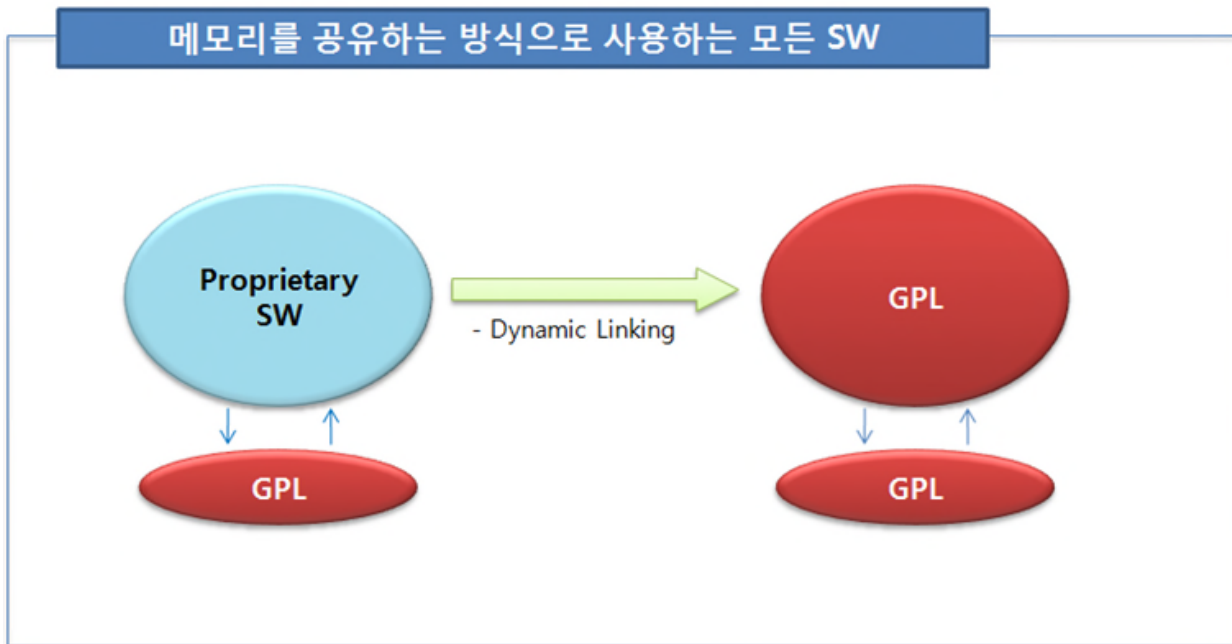
... If the modules are included in the same executable file, they are definitely combined in one program. If modules are designed to run linked together in a shared address space, that almost surely means combining them into one program.

By contrast, pipes, sockets and command-line arguments are communication mechanisms normally used between two separate programs. So when they are used for communication, the modules normally are separate programs. But if the semantics of the communication are intimate enough, exchanging complex internal data structures, that too could be a basis to consider the two parts as combined into a larger program.

Aggregate / Separate



*** 바이너리에 GPL 소스코드가 일부라도 포함되어 있으면 바이너리는 GPL이 됨**



* 원 저작자가 특별히 기술한 예외사항이 없는 한 모두 GPL화가 됨

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GNU GPLv3

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Limitations

- Liability
- Warranty

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LGPL 2.1 요약

GNU Lesser General Public License v2.1

GNU LGPLv2.1

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- Distribution
- Modification
- Private use

Conditions

- Disclose source
- License and copyright notice
- Same license (library)
- State changes

Limitations

- Liability
- Warranty

Same License (Library)

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

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GNU LGPLv3

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- Distribution
- Modification
- Patent use
- Private use

Conditions

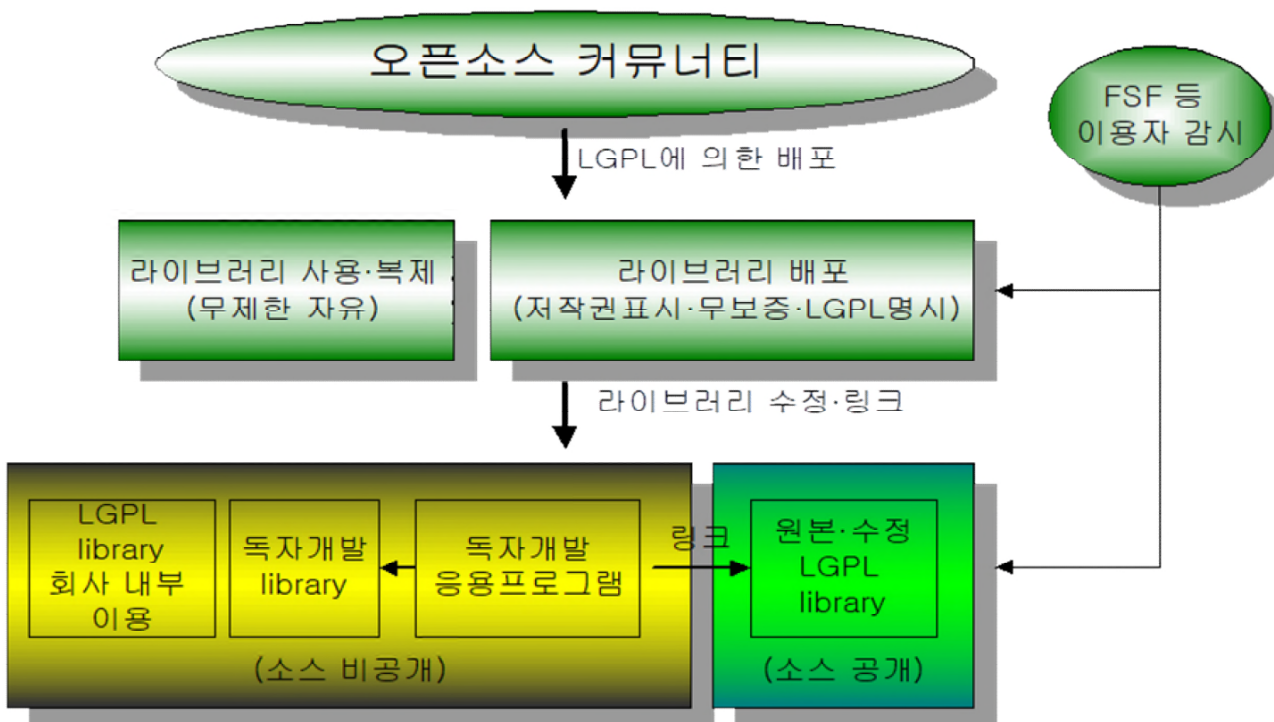
- Disclose source
- License and copyright notice
- Same license (library)
- State changes

Limitations

- Liability
- Warranty

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- Modification
- Patent use
- Private use

Conditions

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- License and copyright notice
- Same license (file)

Limitations

- Liability
- Trademark use
- Warranty

MPL 2.0

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1.10. "Modifications" means any of the following:

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- Modification
- Patent use
- Private use

Conditions

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- License and copyright notice
- Same license

Limitations

- Liability
- Warranty

Same license

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- ii) additions to the Program;

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분쟁 대응방안 가이드 >

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라이선스 속성 >

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라이선스 추천 >



라이선스 비교표

라이선스 배포시
주의사항OSS라이선스
상담하기

I 목차

이 가이드는 다음과 같은 목차로 구성되어 있다.

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(Source : olis.or.kr)

OSS 라이선스 선택

상용 라이선스

오픈소스 라이선스

기존 오픈소스 커뮤니티 참여 및 기여(Contribution)
신규 오픈소스 프로젝트

Dual (Multi) licensing

오픈소스 + 상업용

대표적인 듀얼 라이선스 사례

소프트웨어	오픈소스 라이선스	상업용 라이선스
MySQL	GPL	Oracle 상업 라이선스
Qt Framework	LGPL / GPL	Qt Commercial License
MariaDB	GPL	MariaDB Enterprise License

(Source : Chat GPT 4o)

Permissive?

생태계 확장과 빠른 확산, 업계 표준화 유도, 영향력 확보

Google의 gRPC, Facebook의 React → Apache 2.0

Google의 Android → 부분적 Apache 2.0

Microsoft의 VSCode → MIT

Copyleft?

코드의 자유를 강하게 보장, 무임승차 금지

Dual(Multi) Licensing

Qt, MySQL, MongoDB, Elasticsearch, Ghostscript...

특히 SaaS, 클라우드 플랫폼들이 많이 사용

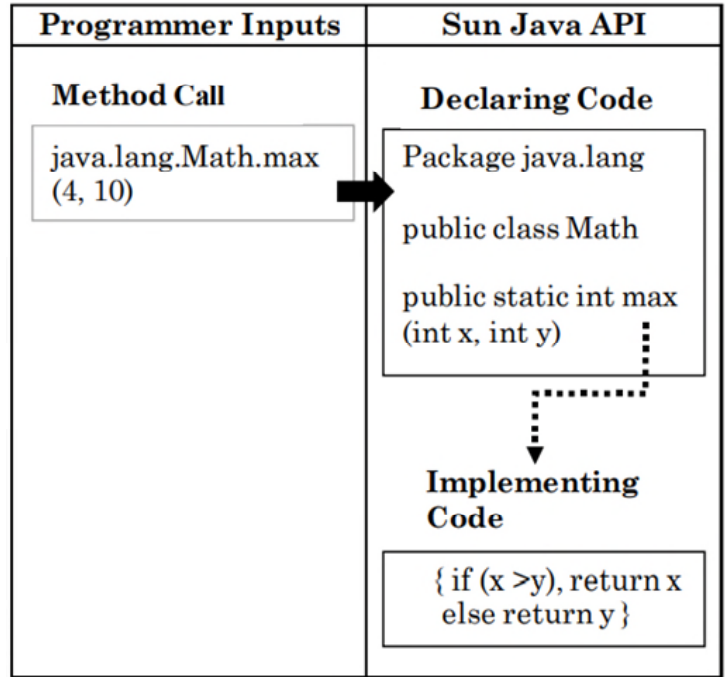
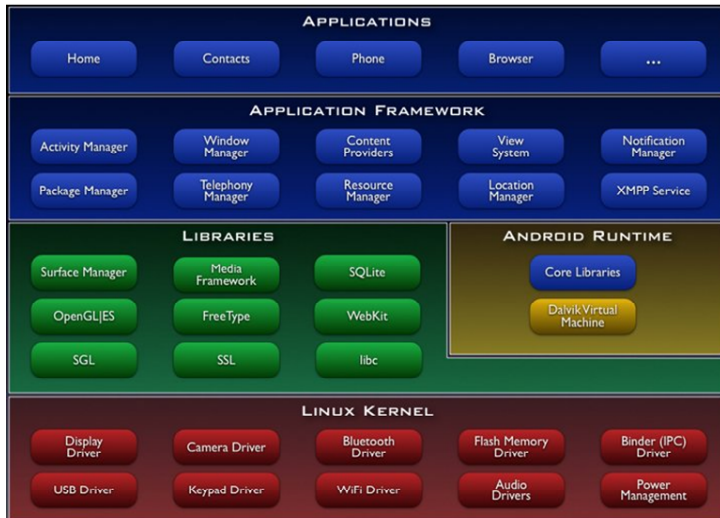
소프트웨어	라이선스 조합	설명
MySQL	GPL + 상업용 라이선스	GPL로 공개, 기업용은 상업 라이선스 판매
Qt Framework	LGPL/GPL + 상업용 라이선스	오픈소스 개발자는 LGPL/GPL, 기업 고객은 상업용
MariaDB	GPL + 상업용	MySQL과 유사한 모델
Mozilla Firefox	MPL + GPL + LGPL (3중)	사용자가 선택 가능
ElasticSearch (2021~)	SSPL + Elastic License	클라우드 사업자에 대응하기 위한 라이선스 변화
MongoDB	SSPL + AGPL (과거)	클라우드 제공업체에 대응

OSS 관련 분쟁 사례와 IPR(지재산권) 리스크 관리

라이선스/저작권 관련 소송

2025년 오픈소스SW 라이선스 전문교육

- Jacobsen v. Katzer (2008)
- BusyBox litigation (2007-13)
- Free Software Foundation, Inc. v. Cisco Systems, Inc. (2009)
- Artifex Software Inc. v. Hancom Inc. (2017)
- Geniatech v. McHardy (2018)



특허 관련 소송

IP Innovation v. Red Hat and Novell

IP Innobation이 Red Hat과 Novell의 Linux 운영체제가 자신의 특허 3건을 침해했다고 주장. 결과는 원고 패소.

"Total victory for open source software in a patent lawsuit"

"I hope that Red Hat now sees the dangers of software patenting and will give up the practice, lest it one day morph into a troll."

"If RedHat does not get patents, then it will ALWAYS be subject to potential litigation from bullish companies"

"Ultimately, what Linux distributions want isn't Free Software, Freedom, an end to Software Patents or anything else... It's to make a profit"

"when Red Hat's portfolio is eventually purchased, the promise is off and your defensive patents become offensive"

(source : opensource.com)

Culture

Red Hat settles patent suit with Firestar, DataTern

Linux provider reaches an agreement with two companies alleging that its JBoss unit had infringed a patent for linking object-oriented software to relational databases.

Dawn Kawamoto

June 11, 2006 7:15 a.m. PT



FireStart가 Red Hat의 오픈소스가 특허를 침해했다고 주장

Red Hat의 보상금 지급으로 종료된 것으로 추정, 이후 해당 오픈소스 자유 사용

대법원 2009. 2. 12. 선고 2006도8369 판결

- 프로그램 1은 GPL 조건을 붙여 공개한 프로그램인 프로그램 3을 개작한 것
- 프로그램 1과 프로그램 2가 프로그램 3에 대하여 새로운 프로그램이라고 할 정도의 창작성이 인정되는 이상 프로그램 2의 저작권자는 E회사
- E회사가 프로그램 2 원시코드의 공개를 거부함으로써 GPL을 위반하였다고 하더라도, E회사가 프로그램 3의 저작권자에 대하여 그로 인한 손해배상책임 등을 부담하는 것은 별론으로 하고,
- 프로그램 2의 원시코드가 공연히 알려져 있지 아니하고 독립된 경제적 가치를 가지며 상당한 노력에 의하여 비밀로 유지된 이상 E회사의 영업비밀에 해당

라이선스

- 라이선스 소개 >
- 라이선스 분류 >
- 라이선스 가이드 >
- REUSE 라이선스 >
- 분쟁 대응방안 가이드 >**
- 라이선스 FAQ >
- 라이선스 속성 >
- 라이선스 양립성 검사 >

라이선스 > 분쟁 대응방안 가이드

분쟁 대응방안 가이드

오픈소스SW 라이선스 분쟁 대응방안 가이드는 오픈소스 관리에 관한 기업들의 사례를 제시함으로써, 국내 기업

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4

감사합니다.



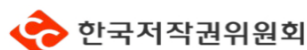
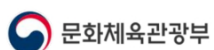
문화체육관광부



한국저작권위원회

2. 주제별 오픈소스SW 라이선스 트렌드 및 주요 이슈

주제별 오픈소스 SW 라이선스 트렌드 및 주요 이슈



1

CONTENTS

- I** SW Market, Copyright and Business Model
- II** PC/Mobile : Compatibility, etc.
- III** Cloud : AGPL, SSPL, etc.
- IV** Data License : CCL, etc.
- V** Generative AI : Open Source AI

SW Market, Copyright and Business Model

Software History (1)

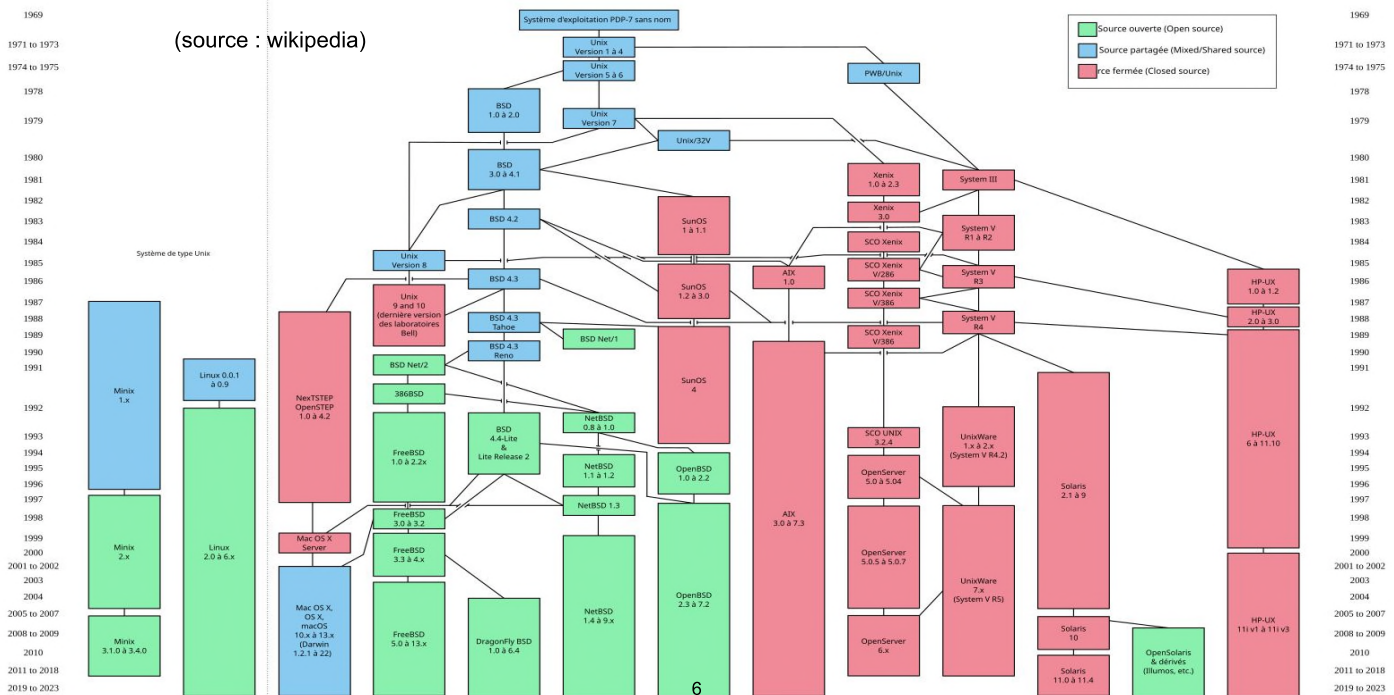
2025 오픈소스 SW 라이선스 전문교육

- Early Days (1940s-1950s):
 - Machine Code (1940s)
 - Assembly Language (1950s)
 - First Compilers and High-Level Languages (1950s)
- The Rise of Software Market(1960s-1970s):
 - Software Industry (1960s)
 - Operating Systems (1960s)
 - Personal Computers (1970s)

(Source : Gemini, prompted by LEE)

- The Software Revolution (1980s-1990s):
 - Graphical User Interfaces (GUI) (1980s)
 - Microsoft Windows and Office (1980s-1990s)
 - The Internet (1990s)
- The 21st Century and Beyond:
 - Open Source Software (2000s)
 - Mobile Apps (2000s-2010s)
 - Cloud Computing (2010s-Present)
 - Artificial Intelligence and Machine Learning (Present)

History of Unix and Open Source Platform



PC/Mobile 플랫폼

Linux distributions

2025 오픈소스 SW 라이선스 전문교육

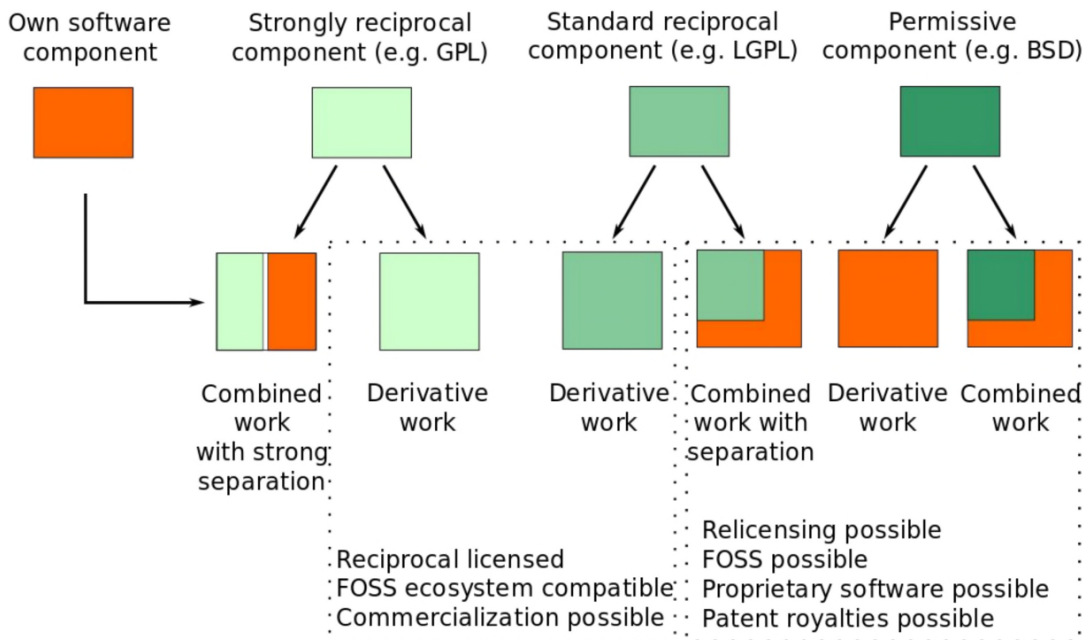
- 1990년대 주요 리눅스 배포판
 - Linux Kernel Release (1991)
 - Slackware (1993)
 - Debian (1993)
 - Red Hat Linux (1994)
 - SUSE Linux (1994)
- 라이선스 정책
 - GNU GPL과 자유 소프트웨어 철학의 강조
 - 하드웨어 호환성, 사용자 편의성의 고려
 - DFSG (Debian Free Software Guidelines)

- 라이선스 양립성(Compatibility)의 의미
 - 둘 이상의 코드를 사용하여 새로운 프로그램을 개발할 경우 각 코드의 라이선스 요구사항이 서로 상충하는가의 문제
- **GPLv2 and Proprietary Software:** The GPLv2 prohibits distributing GPL-licensed code with proprietary software that restricts users' freedom to modify and redistribute it. This means distribution maintainers must be careful not to tightly integrate GPL-licensed components with proprietary drivers or firmware in a way that violates the GPL.
- **GPL and Other Open-Source Licenses:** Some open-source licenses, like MIT or BSD licenses, are considered compatible with the GPLv2 because they allow for more permissive use and redistribution. However, care must still be taken to ensure that specific terms and conditions are met.

(Source : Gemini, prompted by LEE)

9

License Compatibility



(source : wikipedia)

10

- Multy Licensing

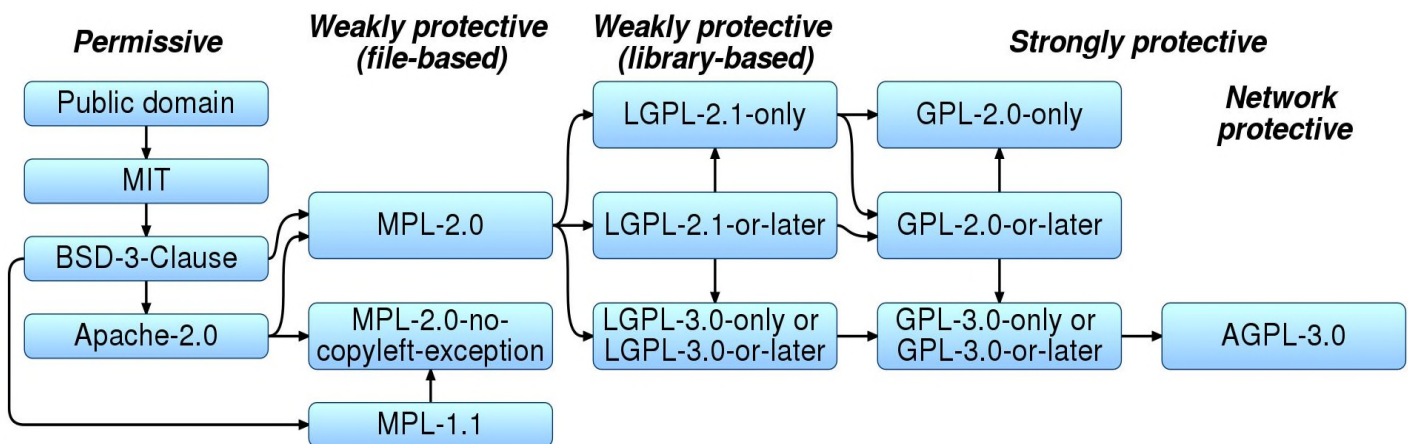
- Perl : GPL or Artistic License

Perl5 is Copyright (C) 1993-2005, by Larry Wall and others.

It is free software; you can redistribute it and/or modify it under the terms of either:

- a) the GNU General Public License as published by the Free Software Foundation; either version 1, or (at your option) any later version, or
- b) the "Artistic License".

- Mozilla's Tri licensing (MPL 1.1, GPL 2.0, LGPL 2.1)
- MPL 2.0's Secondary Licenses (GPL 2.0, LGPL 2.1, AGPL or any later version of those licenses)



License Exceptions

Full name

Linux Syscall Note

Short identifier

Linux-syscall-note

Other web pages for this exception

- <https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux.git/tree/COPYING>

Notes

This note is used with the Linux kernel to clarify how user space API files should be treated.

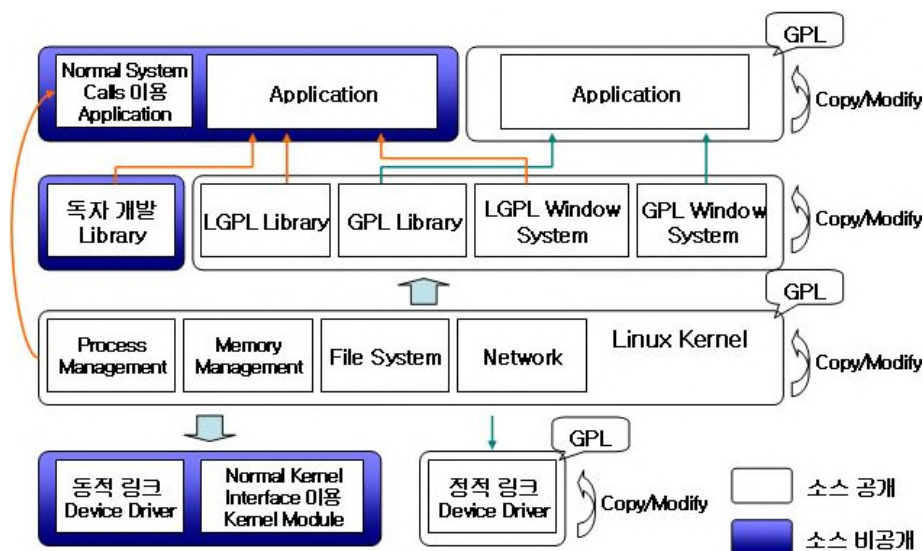
Text

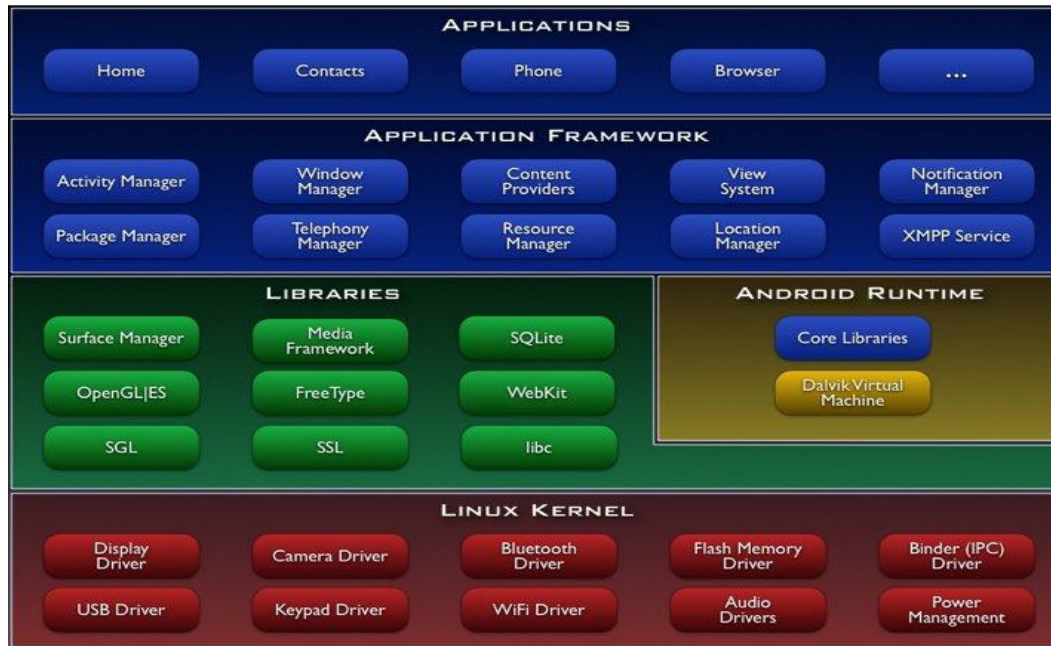
NOTE! This copyright does *not* cover user programs that use kernel services by normal system calls - this is merely considered normal use of the kernel, and does *not* fall under the heading of "derived work". Also note that the GPL below is copyrighted by the Free Software Foundation, but the instance of code that it refers to (the Linux kernel) is copyrighted by me and others who actually wrote it.

Also note that the only valid version of the GPL as far as the kernel is concerned is _this_ particular version of the license (ie v2, not v2.2 or v3.x or whatever), unless explicitly otherwise stated.

Linus Torvalds

Case : Linux





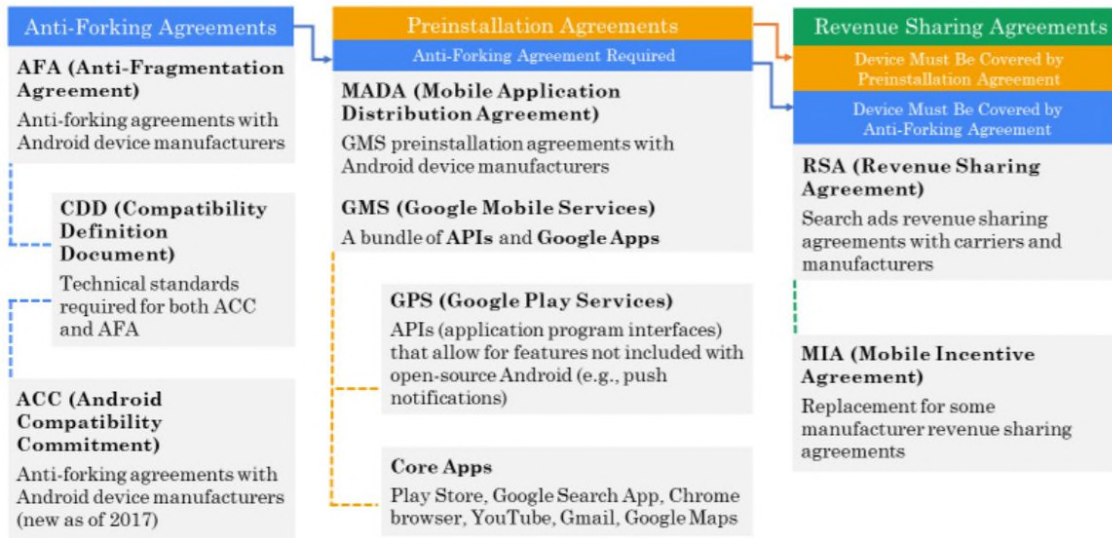
OSS Governance

Open Governance Index (Vision Mobile, 2011)

Area	Metrics
Access	availability of the latest source code, developer support mechanisms, public roadmap, transparency of decision-making
Development	the ability of developers to influence the content and direction of the project
Derivatives	the ability for developers to create and distribute derivatives of the source code in the form of spinoff projects, handsets or applications.
Community	a community structure that does not discriminate between developers

Open Governance Index (% open)	
Android	23%
Qt	58%
Symbian	58%
MeeGo	61%
Mozilla	65%
WebKit	68%
Linux	71%
Eclipse	84%

Google's Exclusionary Android Agreements



Cloud

GNU Affero General Public License v3.0

GNU AGPLv3

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- Same license
- State changes

Limitations

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AGPL

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- Grafana ('21.4)
 - Grafana Labs는 2021년 4월, 주요 오픈소스 프로젝트인 Grafana, Grafana Loki, Grafana Tempo의 라이선스를 Apache 2.0에서 AGPL-3.0으로 변경
 - 기업이 소스 코드를 수정하여 외부로 서비스할 경우, 그 수정된 소스 코드를 공개하도록 요구함으로써, 상업적 사용을 제한하고자 하는 목적
- MinIO ('21.5)
 - MinIO는 2021년 5월, Apache 2.0 라이선스에서 AGPLv3로 라이선스를 변경
 - 클라우드 서비스 제공업체들이 MinIO를 수정하고 자체 서비스에 통합하는 것을 제한하고, 수정된 코드를 공개하도록 요구함으로써, 유료 구매를 유도하여 수익화를 도모하기 위한 조치

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“Service Source Code” means the Corresponding Source for the Program or the modified version, and the Corresponding Source for all programs that you use to make the Program or modified version available as a service, including, without limitation, management software, user interfaces, application program interfaces, automation software, monitoring software, backup software, storage software and hosting software, all such that a user could run an instance of the service using the Service Source Code you make available.

- **mongoDB (2018)**
 - MongoDB는 2018년, 기존의 AGPL 라이선스에서 SSPL로 라이선스를 변경
 - 클라우드 서비스 제공 업체들이 MongoDB를 서비스로 제공할 때, 소스 코드를 공개하지 않고 상업적 이익을 얻는 것을 방지하기 위한 조치
 - SSPL은 클라우드 제공업체들이 MongoDB를 기반으로 상업적 서비스를 제공할 경우, 그 서비스의 소스 코드도 공개하도록 요구함으로써, MongoDB Inc.의 상업적 이익을 보호하고자 함

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- **Elasticsearch ('21.1)**
 - Elasticsearch는 2021년 1월, Apache 2.0 라이선스에서 Elastic License로 라이선스를 변경
 - AWS와 같은 클라우드 서비스 제공업체가 오픈소스 소프트웨어를 상업적으로 이용하는 것을 제한하고, 상업적 라이선스를 통해 수익을 창출하기 위한 조치

- **RSAL(Redis Source Available License)**은 Redis Labs에서 도입한 라이선스로, 소프트웨어의 소스 코드를 공개할 필요는 없지만, 클라우드 서비스로 제공할 경우 상업적 라이선스를 요구하는 모델
 - 클라우드 서비스 제공업체들이 Redis를 무단으로 상업적 서비스에 이용하는 것을 방지하기 위한 목적;
 - 클라우드 서비스 제공 제한: 소프트웨어를 클라우드 서비스로 제공하려면 상업적 라이선스를 구매해야 함.
 - 소스 코드 비공개: 소프트웨어의 소스 코드를 공개할 필요는 없음.
- **Redis ('24.3)**
 - Redis는 2024년 3월, BSD 라이선스에서 Redis Source Available License (RSAL) 또는 SSPL 중 선택할 수 있는 듀얼 라이선스 정책으로 변경
 - Redis 7.4 이후 버전을 클라우드 서비스로 제공하는 것을 제한하고, 상업적 이용 시 유료 라이선스를 요구하는 전략
 - 오픈소스 소프트웨어의 상업적 가치를 보호하고, 지속 가능한 개발과 유지 보수를 위한 수익을 확보하기 위한 조치.

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- **BUSL(Business Source License)**은 MariaDB 재단에서 처음 도입된 라이선스로, 소프트웨어를 비상업적 용도로 사용할 경우 일정 기간 동안 무료로 사용하도록 허용하지만, 그 이후에는 유료 라이선스를 요구하는 모델
 - 비상업적 용도 무료 사용: 일정 기간 동안 비상업적 용도로 소프트웨어를 무료로 사용할 수 있음.
 - 상업적 이용 시 유료: 상업적 용도로 소프트웨어를 사용하려면 유료 라이선스를 구매해야 함.
- **하시코프 ('23.8)**
 - 하시코프는 2023년 8월 10일, 테라폼의 라이선스를 MPL에서 BUSL 1.1로 변경
 - 오픈소스 프로젝트의 상업적 이용을 제한하고, 기업 고객들에게 더 나은 지원과 서비스를 제공하기 위한 조치
- **Akka ('22.10)**
 - Akka는 2022년 10월 1일 이후부터 BUSL로 전환
 - 일정 기간 동안 소프트웨어를 무료로 사용하도록 허용하되, 그 이후에는 유료 라이선스를 요구하는 모델이며, 기업 수익 창출을 위한 전략.

- Forking의 의미
 - 기존 오픈소스 프로젝트의 소스 코드를 복사하여 완전히 새로운, 독립적인 개발 프로젝트를 시작하는 행위
- Forking 사례
 - BSD
 - Elasticsearch v. OpenSearch
 - Redis v. Valkey
 - MySQL v. MariaDB
- Non-Forking 사례
 - Linux
 - Android?
 - MongoDB

Data License



(source: wikipedia)

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30



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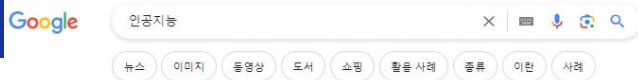
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Google
https://cloud.google.com/what-is-artificial-intelligence/

인공지능(AI)이란 무엇인가? - Google Cloud

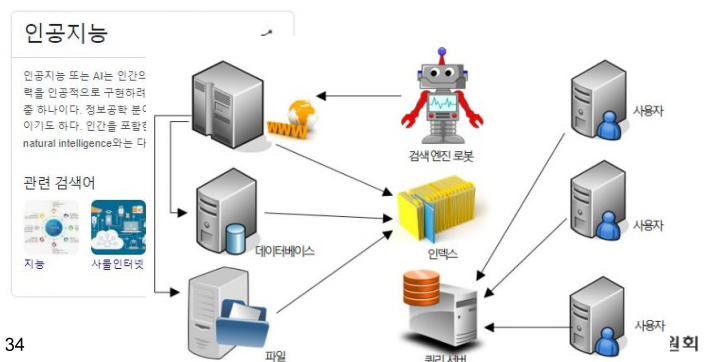
나무위키
https://namu.wiki/인공지능

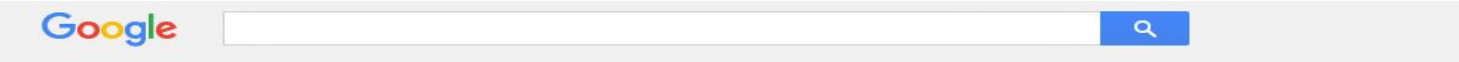
인공지능
5월 전 — 인공지능(人工智能) 또는 A.I.(Artificial Intelligence)는 일반적으로 인간의 학습능력, 추론능력, 지각능력이 필요한 작업을 할 수 있도록 컴퓨터...
계산 복잡도 이론: 점근 표기법 - 튜링 기계고... 기본 대상-수학기초론(수리논리학)논리 연...
인공지능/논리: 인공지능/창작물: 강인공지능: 생성형 인공지능
이 페이지를 3번 방문했습니다. 최근 방문 날짜: 23. 5. 8

Wikipedia
https://ko.wikipedia.org/wiki/인공지능

인공지능 - 위키백과, 우리 모두의 백과사전
인공지능(人工智能) 또는 AI(영어: artificial intelligence, AI)는 인간의 학습능력, 추론능력, 지각능력을 인공적으로 구현하려는 컴퓨터 과학의 세부분야 중...

주요 뉴스 :
구글 뉴스 >





특허 검색

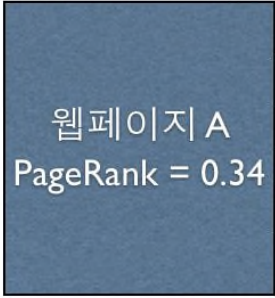
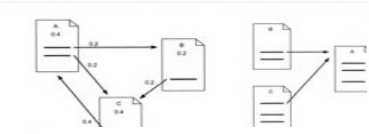
선행 기술 검색 이 특허에 대해

Method for node ranking in a linked database
US 6285999 B1

초록

A method assigns importance ranks to nodes in a linked database, such as any database of documents containing citations, the world wide web or any other hypermedia database. The rank assigned to a document is calculated from the ranks of documents citing it. In addition, the rank assigned to a document from a constant representing the probability that a document will randomly jump to the document in enhancing the performance of search engines in databases, such as the world wide web, with variation in quality.

이미지 (4)



발행 번호	US6285999 B1
발행 유형	승인
출원 번호	US 09/004,827
공개 날짜	2001년 9월 4일
출원일	1998년 1월 9일
우선일	1997년 1월 10일
특허로 상태	지불됨

0.1/5 + 웹페이지 T1. PageRank = 0.1 (5개의 링크를 가지고 있음)

0.3/2 + 웹페이지 T2. PageRank = 0.3 (2개의 링크를 가지고 있음)

0.05/1 + 웹페이지 T3. PageRank = 0.05 (1개의 링크를 가지고 있음)

0.2/10 + 웹페이지 T4. PageRank = 0.2 (10개의 링크를 가지고 있음)

0.3/3 + 웹페이지 T5. PageRank = 0.3 (3개의 링크를 가지고 있음)

35

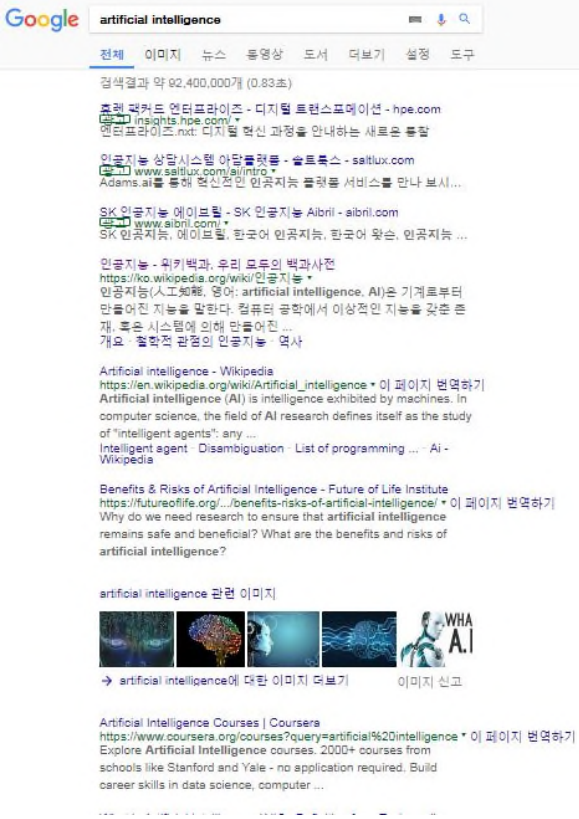
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- Field v. Google, Inc.
- Perfect 10, Inc. v. Google, Inc.
- AFP v. Google, Inc.
- Viacom International Inc. v. YouTube, Inc.
- Authors Guild, Inc. v. 한국저작권위원회

Data : GPT-3의 학습데이터

2025 오픈소스 SW 라이선스 전문교육

Dataset	Quantity (tokens)	Weight in training mix
Common Crawl (filtered)	410 billion	60%
WebText2	19 billion	22%
Books1	12 billion	8%
Books2	55 billion	8%
Wikipedia	3 billion	3%

(source : [arXiv:2005.14165](https://arxiv.org/abs/2005.14165))

	language	number of documents	percentage of total documents
1	en	235987420	93.68882%
2	de	3014597	1.19682%
3	fr	2568341	1.01965%
4	pt	1608428	0.63856%
5	it	1456350	0.57818%
6	es	1284045	0.50978%
7	nl	934788	0.37112%
8	pl	632959	0.25129%
9	ja	619582	0.24598%
10	da	396477	0.15740%
11	no	379239	0.15056%
12	ro	320256	0.12714%
13	fi	315228	0.12515%

(source: github.com)

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Version 1.3, 3 November 2008

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0. PREAMBLE

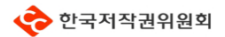
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Wikipedia License Policy

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Wikipedia:Licensing update

3 languages

Project page [Talk](#) [Read](#) [View source](#) [View history](#) [Tools](#)

From Wikipedia, the free encyclopedia



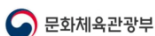
This page is currently inactive and is retained for historical reference. This page is no longer relevant. To revive discussion, seek broader input via a forum such as the [village pump](#).

Shortcut
WP:LU

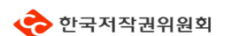
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40



나무위키
최근 변경
최근 토론
특수 기능

나무위키:기본방침/문서 관리 방침

최근 수정 시각: 2024-06-24 01:38:10

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분류: 나무위키의 규정

나무위키의 규정

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Common Crawl
BIG PICTURE - THE DATA - ABOUT -

Us

We build and maintain an open repository of web crawl data that can be accessed and analyzed by anyone.

Need years of free web page data to change the world.

はい C'est vrai!
40+ languages
Effectivement. You bet.

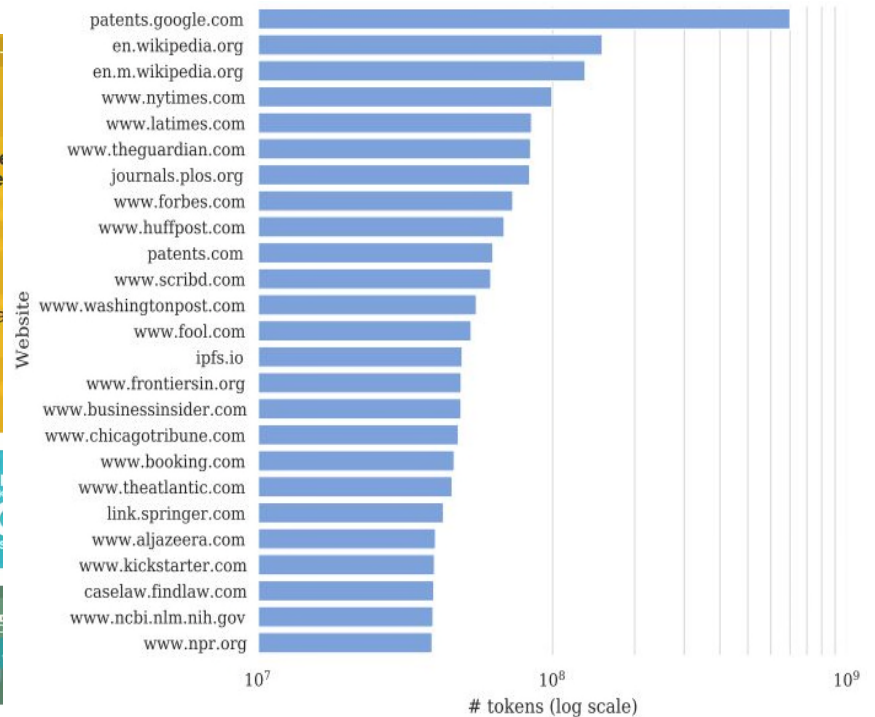
RAW DATA
METADATA
TEXT DATA

We gather it.
We aggregate it.
You utilize it.
And it's all free.

HOW BIG WE'RE TALKING
BIG
PETABYTES

billion OF PAGE
trillions OF LINKS

(source: common crawl)



(source: [arXiv:2104.08758](#))


```
# New York Times content is made available for your personal, non-commercial
# use subject to our Terms of Service here:
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# (3) creating or providing archived or cached data sets containing our content to others; and/or
# (4) any commercial purposes.
# Contact https://nytlicensing.com/contact/ for assistance.
```

```
User-agent: *
Disallow: /ads/
Disallow: /adx/bin/
Disallow: /puzzles/leaderboards/invite/*
Disallow: /svc
Allow: /svc/crosswords
Allow: /svc/games
Allow: /svc/letter-boxed
Allow: /svc/spelling-bee
Allow: /svc/vertex
Allow: /svc/wordle
Disallow: /video/embedded/*
Disallow: /search
Disallow: /multiproduct/
Disallow: /hd/
```

Disallow Rules

```
User-agent: Amazonbot
Disallow: /

User-agent: anthropic-ai
Disallow: /

User-agent: AwariofssBot
User-agent: AwarioSmartBo
Disallow: /

User-agent: Bytespider
Disallow: /

User-agent: CCBot
Disallow: /

User-agent: ChatGPT-User
Disallow: /

User-agent: ClaudeBot
Disallow: /

User-agent: Claude-Web
Disallow: /
```

```
User-agent: cohere-ai
Disallow: /

User-agent: DataForSeoBot
Disallow: /

User-agent: FacebookBot
Disallow: /

User-agent: Google-Extended
Disallow: /

User-agent: GPTBot
Disallow: /

User-agent: magpie-crawler
Disallow: /

User-agent: omgili
Disallow: /

User-agent: omgilobot
Disallow: /

User-agent: peer39_crawler
User-agent: peer39_crawler/1.0
Disallow: /

User-agent: PerplexityBot
Disallow: /

# Other Bot Rules

User-agent: facebookexternalhit
Allow: /*?*smid=

User-agent: Twitterbot
Allow: /*?*smid=
```

43

Output from GPT-4:

exempted it from regulations, subsidized its operations and promoted its practices, records and interviews showed. Their actions turned one of the best-known symbols of New York — its yellow cabs — into a financial trap for thousands of immigrant drivers. More than 950 have filed for bankruptcy, according to a Times analysis of court records, and many more struggle to stay afloat. “Nobody wanted to upset the industry,” said David Klahr, who from 2007 to 2016 held several management posts at the Taxi and Limousine Commission, the city agency that oversees medallions. “Nobody wanted to kill the golden goose.” New York City in particular failed the taxi industry, The Times found. Two former mayors, Rudolph W. Giuliani and Michael R. Bloomberg, placed political allies inside the Taxi and Limousine Commission and directed it to sell medallions to help them balance budgets and fund key initiatives. During that period, much like in the mortgage lending crisis, a group of industry leaders enriched themselves by artificially inflating medallion prices. They encouraged medallion buyers to borrow as much as possible and ensnared them in interest-only loans and other one-sided deals that often required borrowers to pay hefty fees, forfeit their legal rights and give up most of their monthly incomes. When the market collapsed, the government largely abandoned the drivers who bore the brunt of the crisis. Officials did not bail out borrowers or persuade banks to soften loan

Actual text from NYTimes:

exempted it from regulations, subsidized its operations and promoted its practices, records and interviews showed. Their actions turned one of the best-known symbols of New York — its signature yellow cabs — into a financial trap for thousands of immigrant drivers. More than 950 have filed for bankruptcy to a Times analysis of court records, and many more struggle to stay afloat. “Nobody wanted to upset the industry, Klahr, who from 2007 to 2016 held several management posts at the Taxi and Limousine Commission, the city agency that oversees cabs. “Nobody wanted to kill the golden goose.” New York City in particular failed the taxi industry, The Times found. Two former mayors, Giuliani and Michael R. Bloomberg, placed political allies inside the Taxi and Limousine Commission and directed it to sell medallions to help them balance budgets and fund priorities. Mr. Bloomberg and Mr. de Blasio continued the policies. Under Mr. Bloomberg and Mr. de Blasio made more than \$855 million by selling medallions and collecting taxes on private cars to the city. But during that period, much like in the mortgage lending crisis, a group of industry leaders enriched themselves by artificially inflating medallion prices. They encouraged medallion buyers to borrow as much as possible and ensnared them in interest-only loans and other one-sided deals that often required borrowers to pay hefty fees, forfeit their legal rights and give up most of their monthly incomes

Output from GPT-4:

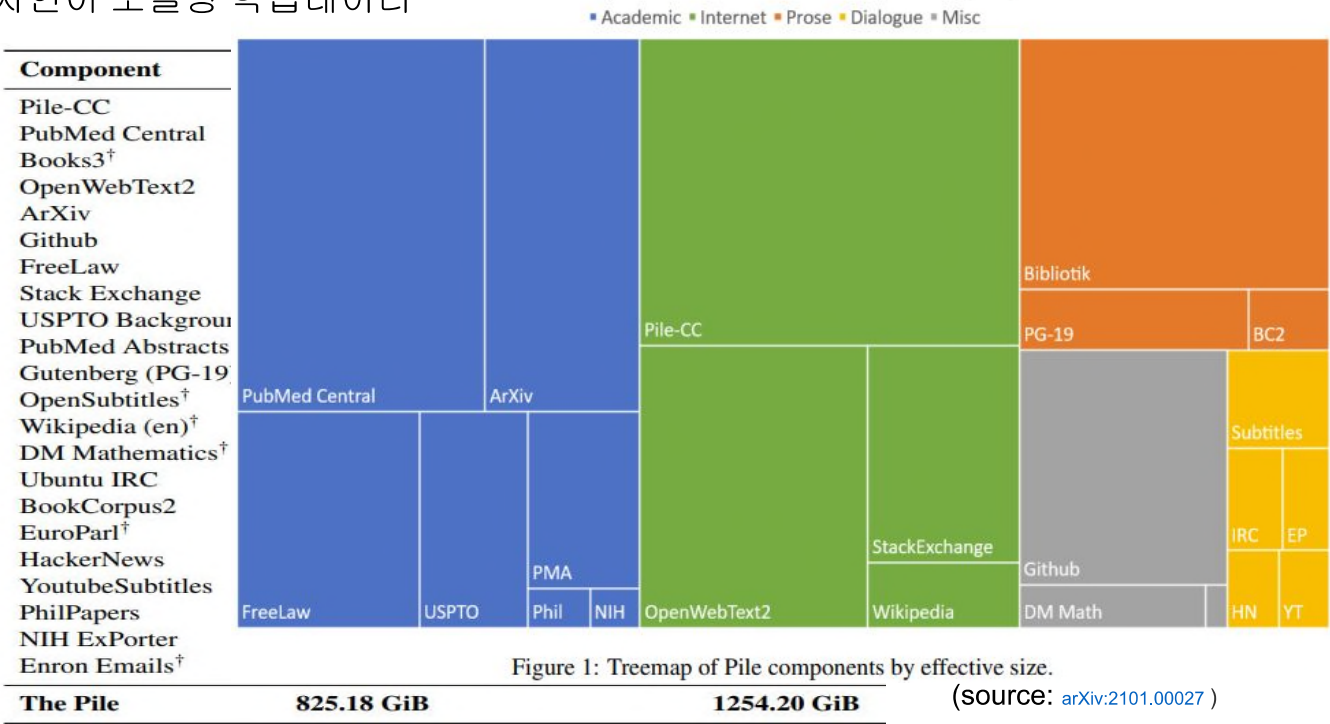
many of America's other global companies — aren't nearly as avid in creating American jobs as other famous companies were in their heydays. Apple employs 43,000 people in the United States and 20,000 overseas, a small fraction of the over 400,000 American workers at General Motors in the 1950s, or the hundreds of thousands at General Electric in the 1980s. Many more people work for Apple's contractors: an additional 700,000 people engineer, build and assemble iPads, iPhones and Apple's other products. But almost none of them work in the United States. Instead, they work for foreign companies in Asia, Europe and elsewhere, at factories that almost all electronics designers rely upon to build their wares. “Apple's an example of why it's so hard to create middle-class jobs in the U.S. now,” said Jared Bernstein, who until last year was an economic adviser to the White House. “If it's the pinnacle of capitalism, we should be worried.” Apple executives say that going overseas, at this point, is their only option. One former executive described how the company relied upon a Chinese factory to revamp iPhone manufacturing just weeks before the device was due on shelves. Apple had redesigned the iPhone's screen at the last minute, forcing an assembly line overhaul. New screens began arriving at the plant near midnight. A foreman immediately roused 8,000 workers inside

Actual text from NYTimes:

many of its high-technology peers — are not nearly as avid in creating American jobs as other famous companies were in their heydays. Apple employs 43,000 people in the United States and 20,000 overseas, a small fraction of the over 400,000 American workers at General Motors in the 1950s, or the hundreds of thousands at General Electric in the 1980s. Many more people work for Apple's contractors: an additional 700,000 people engineer, build and assemble iPads, iPhones and Apple's other products. But almost none of them work in the United States. Instead, they work for foreign companies in Asia, Europe and elsewhere, at factories that almost all electronics designers rely upon to build their wares. “Apple's an example of why it's so hard to create middle-class jobs in the U.S. now,” said Jared Bernstein, who until last year was an economic adviser to the White House. “If it's the pinnacle of capitalism, we should be worried.” Apple executives say that going overseas, at this point, is their only option. One former executive described how the company relied upon a Chinese factory to revamp iPhone manufacturing just weeks before the device was due on shelves. Apple had redesigned the iPhone's screen at the last minute, forcing an assembly line overhaul. New screens began arriving at the plant near midnight.

44

Composition of the Pile by Category



Data 사례 : LLaMA의 학습데이터

2025 오픈소스 SW 라이선스 전문교육

← → ↻ llama.meta.com/llama2

Meta Llama 2 Purple Llama Community Stories Get started

Large language model

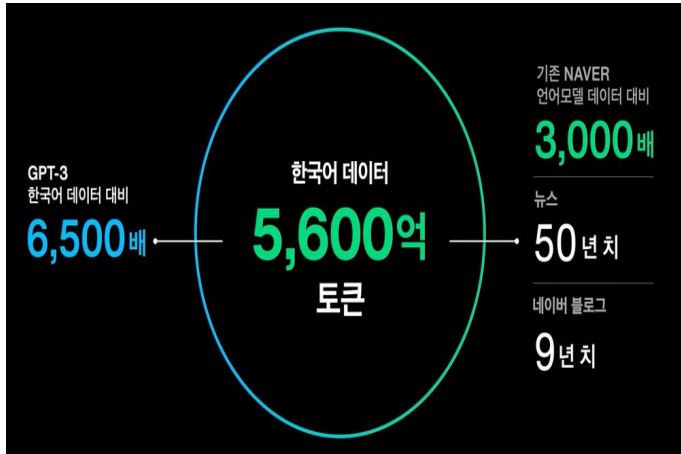
Llama 2: open source, free for research and commercial use

We're unlocking the power of these large language models. Our latest version of Llama - Llama 2 - is now accessible to individuals, creators, researchers, and businesses so they can experiment, innovate, and scale their ideas responsibly.

Download the model

Dataset	Sampling prop.	Epochs	Disk size
CommonCrawl	67.0%	1.10	3.3 TB
C4	15.0%	1.06	783 GB
Github	4.5%	0.64	328 GB
Wikipedia	4.5%	2.45	83 GB
Books	4.5%	2.23	85 GB
ArXiv	2.5%	1.06	92 GB
StackExchange	2.0%	1.03	78 GB

(source: [arXiv:2104.08758](https://arxiv.org/abs/2104.08758))



(source: naver.com)

Name	Description	Tokens
Blog	Blog corpus	273.6B
Cafe	Online community corpus	83.3B
News	News corpus	73.8B
Comments	Crawled comments	41.1B
KiN	Korean QnA website	27.3B
Modu	Collection of five datasets	6.0B
WikiEn, WikiJp	Foreign wikipedia	5.2B
Others	Other corpus	51.5B
Total		561.8B

Table 1: Descriptions of corpus for HyperCLOVA.

Naver Blog Policy

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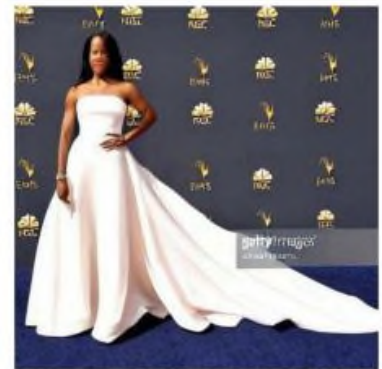
또한 여러분이 제공한 소중한 콘텐츠는 네이버 서비스를 개선하고 새로운 네이버 서비스를 제공하기 위해 인공지능 분야 기술 등의 연구 개발 목적으로 네이버 및 네이버 계열사에서 사용될 수 있습니다. 네이버는 지속적인 연구 개발을 통해 여러분께 좀 더 편리하고 유용한 서비스를 제공해 드릴 수 있도록 최선을 다하겠습니다.

LAION-Aesthetics v2 6+, which includes 12 million image-text pairs with a predicted aesthetic score of 6 or higher, instead of the 600 million rated 5 or higher used in Stable Diffusion's training.

id	domain	image_counts
24	i.pining.com	1043949
7	render.fineartamerica.com	601106
16	us.123rf.com	497244
5	cdn.shopify.com	241632
136	photos.smugmug.com	225582
25	i0.wp.com	197566
138	images.squarespace-cdn.com	189035
61	i1.wp.com	158869
13	i2.wp.com	151566
89	static.wixstatic.com	108436
49		

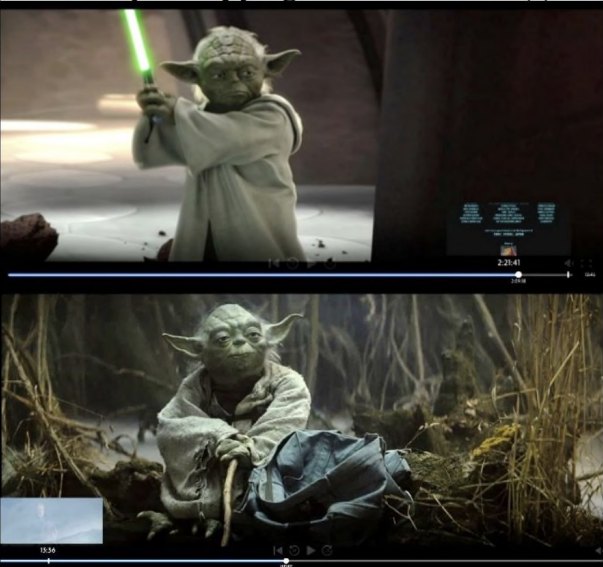
(source: [KRX Notice 2210.08402](https://www.krx.co.kr/eng/notice/notice.do?menu=110¬ice=2210.08402))

Getty Images v. Stability AI



0

Disney v. Midjourney

Midjourney Output	Disney's Copyrighted Character(s)
	

51

생성 AI 사례 : Copilot의 학습데이터

2025 오픈소스SW 라이선스 전문교육

```

1 #!/usr/bin/env ts-node
2
3 import { fetch } from "fetch-h2";
4
5 // Determine whether the sentiment of text is positive
6 // Use a web service
7 async function isPositive(text: string): Promise<boolean> {
8   const response = await fetch("http://text-processing.com/api/sentiment/", {
9     method: "POST",
10    body: `text=${text}`,
11    headers: {
12      "Content-Type": "application/x-www-form-urlencoded",
13    },
14  });
15  const json = await response.json();
16  return json.label === "pos";
17 }

```

Product
Team
Enterprise
Explore
Marketplace
Pricing

Where the world builds software

Millions of developers and companies build, ship, and maintain their software on GitHub—the largest and most advanced development platform in the world.

83+ million
Developers

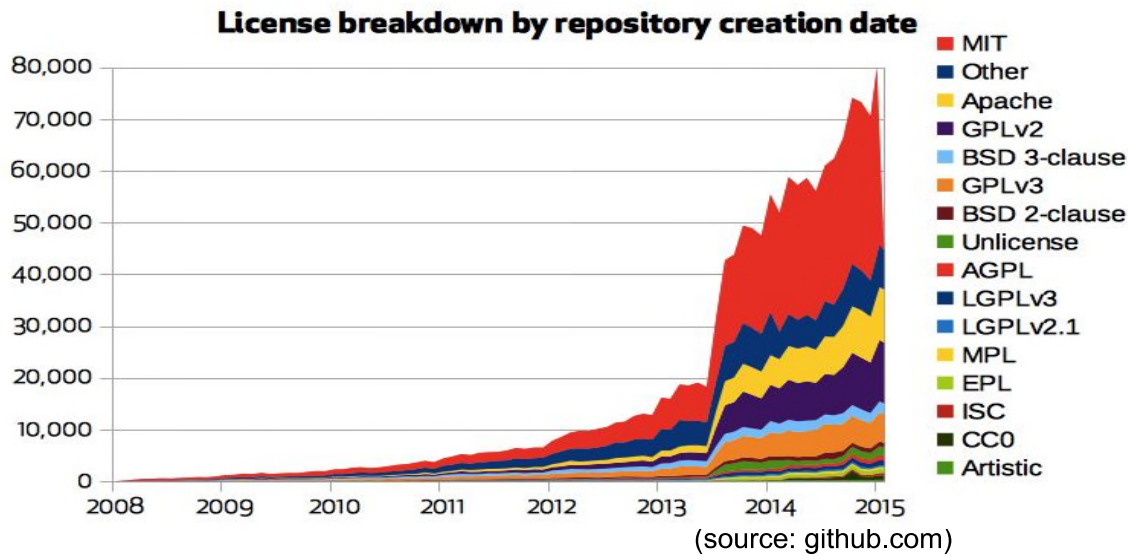
4+ million
Organizations

200+ million
Repositories

90%
Fortune 100

(source: github.com)

학습데이터 관련 쟁점 : 라이선스 위반?



53

생성물의 저작권 침해 책임 : Doe v. Github

track or reproduce such data. The Output in the example above is taken from *Eloquent Javascript* by Marijn Haverbeke.⁸

49. Based on this assumption, Codex will then prov by Marijn Haverbeke.⁸

rest of the function. Based on the given prompt, it produced th

```
function isEven(n) {
  if (n == 0)
    return true;
  else if (n == 1)
    return false;
  else if (n < 0)
    return isEven(-n);
  else
    return isEven(n - 2);
}
console.log(isEven(50));
// → true
console.log(isEven(75));
// → false
console.log(isEven(-1));
// → ??
```

57. Here is the exercise from *Eloquent Javascript*:

```
// Your code here.

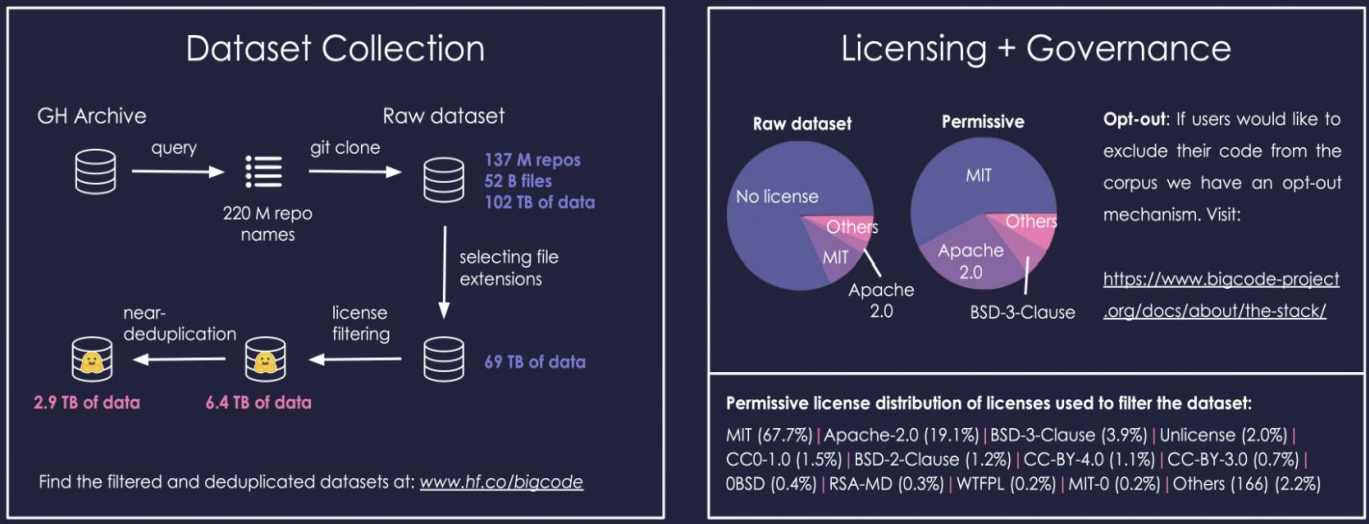
console.log(isEven(50));
// → true
console.log(isEven(75));
// → false
console.log(isEven(-1));
// → ??
```

59. Haverbeke provides the following solution to the function discussed above:

```
function isEven(n) {
  if (n == 0) return true;
  else if (n == 1) return false;
  else if (n < 0) return isEven(-n);
  else return isEven(n - 2);
}
```

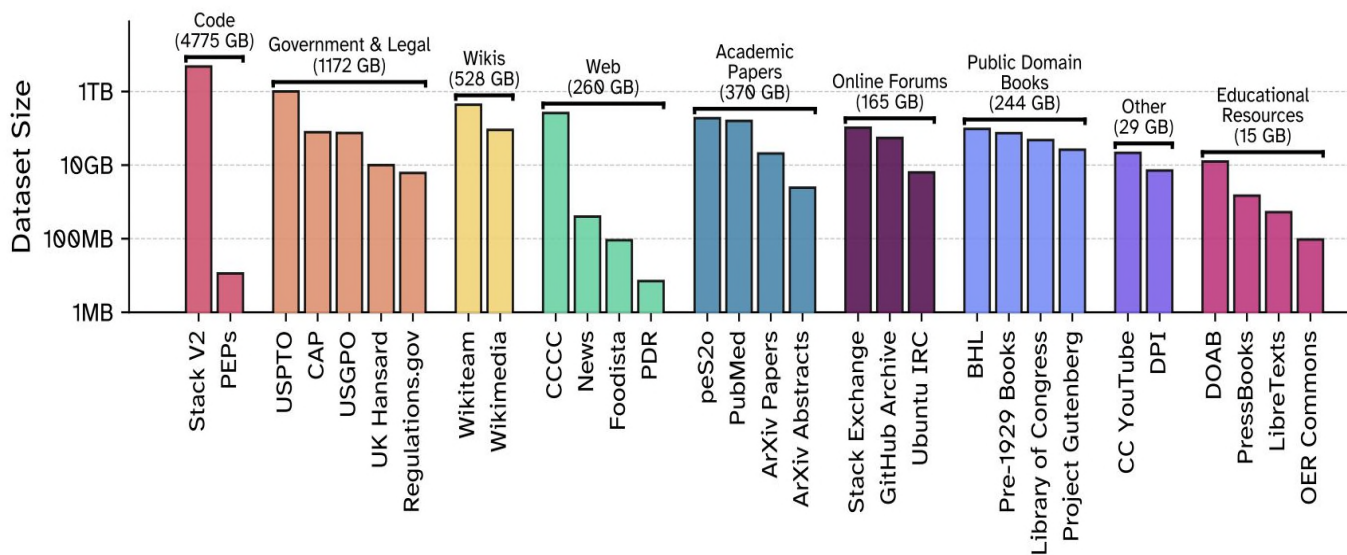
54

License Compliance : The Stack



(source:Hugging Face) 55

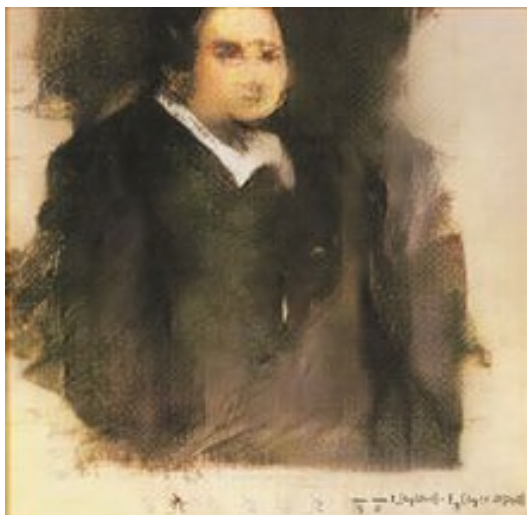
The Common Pile



Generative AI

Case : art-DCGAN

2025 오픈소스 SW 라이선스 전문교육



```
1 master - art-DCGAN / LICENSE.md
robbebarat Update LICENSE.md
Latest commit 43699ad on 10 Jan 2019 History
R1.1 contributor
32 lines (24 sloc) | 1.59 KB
<> D Raw Blame
(modified) BSD License
For dcgan.torch software
Copyright (c) 2015, Facebook, Inc. All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
• Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
• Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
• Neither the name Facebook nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.
EXTRA: NO OUTPUTS OF THE PRE-TRAINED MODELS MAY BE SOLD OR USED FOR-PROFIT OTHERWISE.
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```

META LLAMA 3 COMMUNITY LICENSE AGREEMENT

Meta Llama 3 Version Release Date: April 18, 2024

v. You will not use the Llama Materials or any output or results of the Llama Materials to improve any other large language model (excluding Meta Llama 3 or derivative works thereof).

2. **Additional Commercial Terms.** If, on the Meta Llama 3 version release date, the monthly active users of the products or services made available by or for Licensee, or Licensee’s affiliates, is greater than 700 million monthly active users in the preceding calendar month, you must request a license from Meta, which Meta may grant to you in its sole discretion, and you are not authorized to exercise any of the rights under this Agreement unless or until Meta otherwise expressly grants you such rights.

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THE OPEN SOURCE AI DEFINITION 1.0 (1)

An Open Source AI ... grant the **freedoms to Use, Study, Modify, Share**

Preferred form to make modifications to machine-learning systems

- **Code:** The complete source code used to train and run the system. The Code shall represent the full specification of how the data was processed and filtered, and how the training was done. Code shall be made available under OSI-approved licenses.
- **Parameters:** The model parameters, such as weights or other configuration settings. Parameters shall be made available under OSI-approved terms.

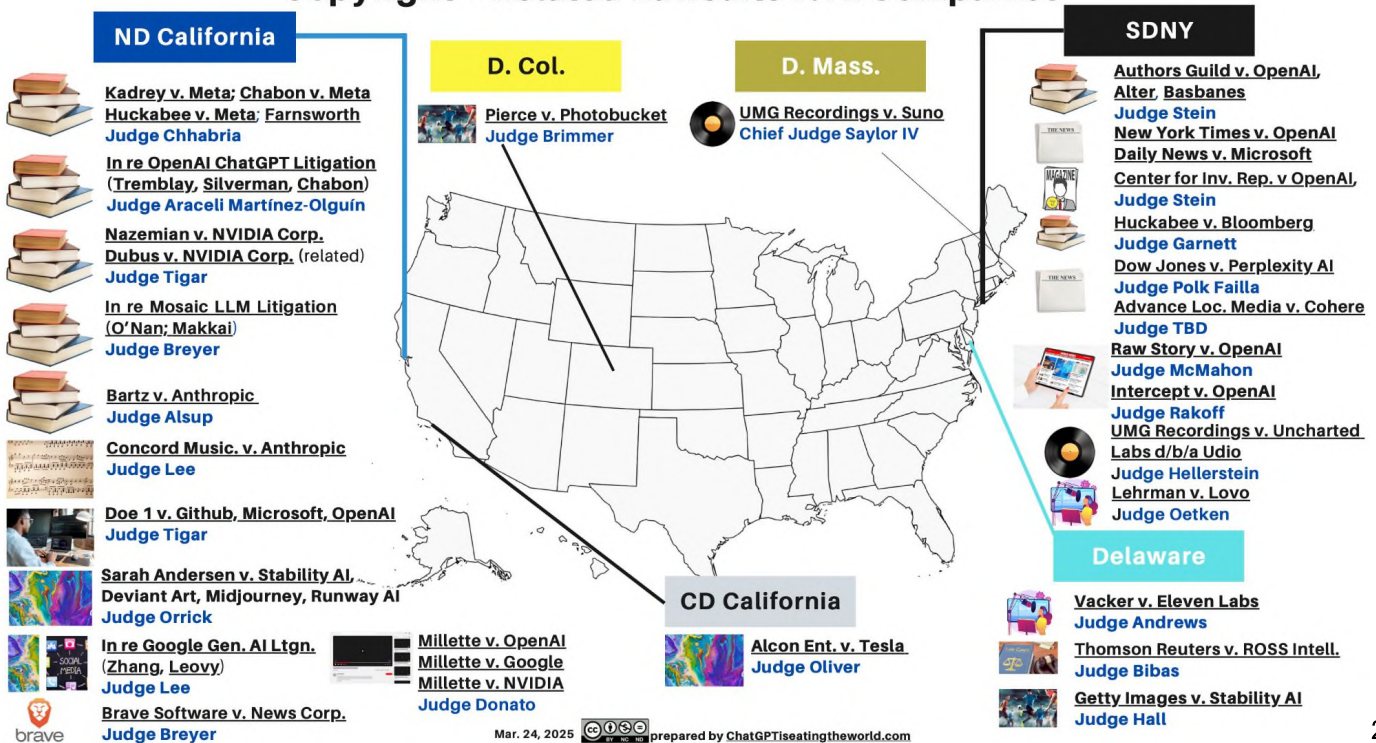
60

THE OPEN SOURCE AI DEFINITION 1.0 (2)

- Data Information: Sufficiently detailed information about the data used to train the system so that a skilled person can build a substantially equivalent system. Data Information shall be made available under OSI-approved terms.
 - In particular, this must include: (1) the complete description of all data used for training, including (if used) of unshareable data, disclosing the provenance of the data, its scope and characteristics, how the data was obtained and selected, the labeling procedures, and data processing and filtering methodologies; (2) a listing of all publicly available training data and where to obtain it; and (3) a listing of all training data obtainable from third parties and where to obtain it, including for fee.

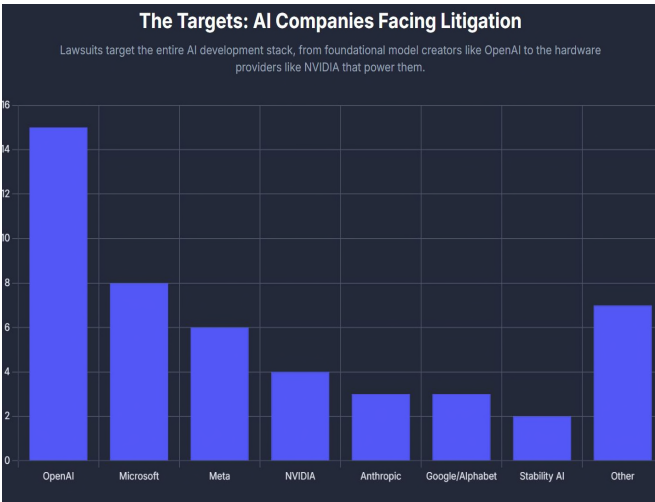
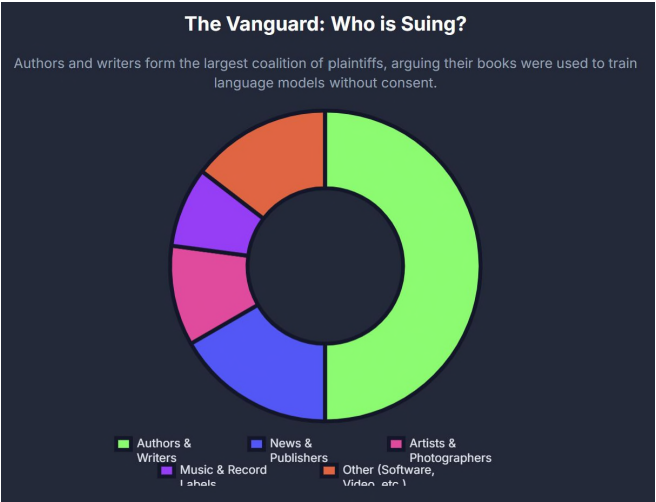
61

Copyright + Related Lawsuits v. AI Companies



2

AI 관련 저작권 소송 분석



(source: gemini 2.5 Pro, prompt by Lee)

Legal Risk (Fair Use) Analysis

1

Purpose & Character of Use

Is the use transformative and for public benefit, or is it commercial and derivative?

2

Nature of the Copyrighted Work

Is the original work highly creative (like a novel) or more factual (like a news article)?

3

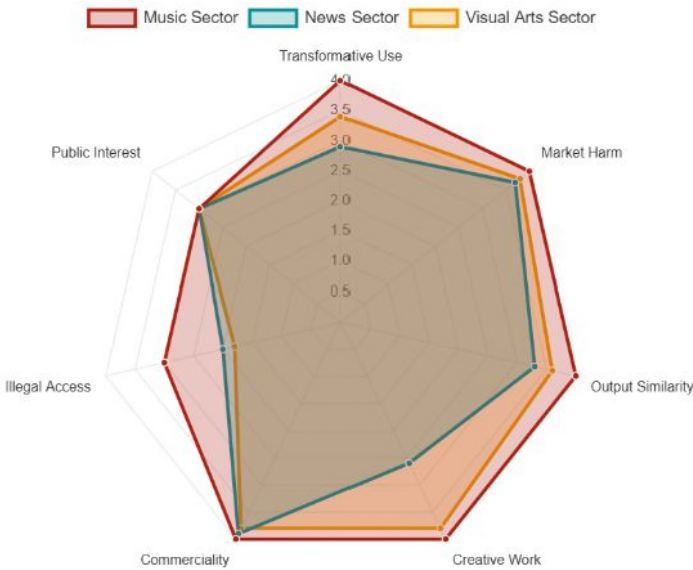
Amount & Substantiality Used

Was the entire work copied, or just a small, necessary portion?

4

Effect on the Potential Market

Does the new work replace the original in the market or cause financial harm to the creator?



(source: gemini 2.5 Pro, prompt by Lee)

Data Compliance and Risk Management

- Data Governance in General
 - Data Quality Management
 - Data Security and Privacy
 - Ethical AI and Bias Mitigation
 - ...
 - Data Provenance and Compliance ?
- Data License Compliance
 - Copyright and License Notice
 - Copyleft and Share-Alike ?
- Copyright Risk Management
 - Filtering and TPM
 - TDM and Opt-out Policy
 - Data Licensing and Contract

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EU AI Act Article 53: Obligations for Providers of GPAI Models

1. Providers of general-purpose AI models shall:

(a) draw up and keep up-to-date the technical documentation of the model ...

(b) draw up, keep up-to-date and make available information and documentation to providers of AI systems ...

(c) put in place a policy to comply with ..., a reservation of rights expressed pursuant to Article 4(3) of Directive (EU) 2019/790

(d) draw up and make publicly available a sufficiently detailed summary about the content used for training of the general-purpose AI model, according to a template provided by the AI Office.

2. The obligations set out in paragraph 1, points (a) and (b), shall not apply to providers of AI models that are released under a free and open-source licence that allows for the access, usage, modification, and distribution of the model, and whose parameters, including the weights, the information on the model architecture, and the information on model usage, are made publicly available.

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Template for the Public Summary of Training Content (1)

1. General information
 - 1.1. Provider identification
 - 1.2. Model identification
 - 1.3. Modalities, overall training data size and other characteristics

Modality	Training data size	Types of content
☐ Text	☐ Less than 1 billion tokens ☐ 1billion to 10 trillions tokens ☐ More than 10 trillions tokens	<i>Examples of possible types of content include fiction and non fiction text, scientific text, press publications, legal and official documents, social media comments, source code.</i>
☐ Image	☐ Less than 1 million images ☐ 1Million to1 billion images ☐ More than 1 billion images	<i>Examples of possible types of content include photography, visual art works, infographics, social media images, logos, brands.</i>
☐ Audio ¹	☐ Less than 10 000 hours ☐ 10 000 to1 million hours ☐ More than 1 million hours	<i>Examples of possible types of content include musical compositions and recordings, audiobooks, radio shows and podcasts, private audio communication.</i>
☐ Video	☐ Less than 10 000 hours ☐ 10 000 to1 million hours ☐ More than 1 million hours	<i>Examples of possible types of content include music videos, films, TV programmes, performances, video games, video clips, journalistic videos, social media videos.</i>
☐ Other		

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Template for the Public Summary of Training Content (2)

2. List of data sources
 - 2.1. Publicly available datasets
 - 2.2. Private non-publicly available datasets obtained from third parties
 - 2.2.1. Datasets commercially licensed by rightsholders or their representatives
 - 2.2.2. Private datasets obtained from other third parties
 - 2.3. Data crawled and scraped from online sources
 - 2.4. User data
 - 2.5. Synthetic data
 - 2.6. Other sources of data

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Template for the Public Summary of Training Content (3)

- 3. Data processing aspects
 - 3.1. Respect of reservation of rights from text and data mining exception or limitation
 - 3.2. Removal of illegal content
 - 3.3. Other information (optional)

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인공지능 기본법

- 제15조(인공지능 학습용데이터 관련 시책의 수립 등)
- 제31조(인공지능 투명성 확보 의무)
- 제34조(고영향 인공지능과 관련한 사업자의 책무)
 - 2. 기술적으로 가능한 범위에서의 인공지능이 도출한 최종결과, 인공지능의 최종결과 도출에 활용된 주요 기준, 인공지능의 개발·활용에 사용된 학습용데이터의 개요 등에 대한 설명 방안의 수립·시행

70



"realistic 3d rendering of mickey mouse working on a vintage computer doing his taxes" on DALL·E 2 (left) vs. Stable Diffusion (right)

(source : <https://waxy.org/2022/08/exploring-12-million-of-the-images-used-to-train-stable-diffusions-image-generator/>) 71



(gemini 2.5 Pro, prompt by Lee)



73



(gemini 2.5 Pro, prompt by Lee)



Théâtre D'opéra Spatial
[Midjourney](#), using a prompt by Jason M. Allen

75



(positive prompt) : “(ultraphotorealistic:1.3)
 , extremelyhighqualityhighdetailRAWcolorphoto, inlocations, j
 apanidol, highlydetailedsymmetricalattractiveface, angularsim
 metricalface, perfectskin, skinpores, dreamyblackeyes, reddi
 sh□brownplaitshairs, uniform, longlegs, thighhighs, softfocus
 ,
 (filmgrain, vividcolors, filmemulation, kodakgoldportra100, 35
 mm, canon50f1.2)
 , LensFlare, GoldenHour, HD,Cinematic, BeautifulDynamicLi
 ghting”

76

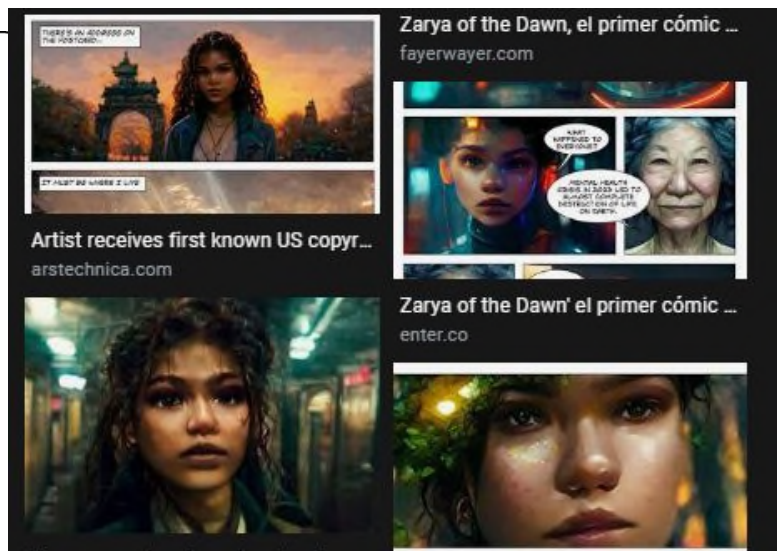
(NegativePrompt) : “((3d, render, cg, painting, drawing, cartoon, anime, comic:1.2))
 , badanatomy, badhands, text, error, missingfingers, extradigit, fewerdigits, cropped, worstquality, signature, watermark, username, blurry, artistname, (longbody)
 , badanatomy, liquidbody, malformed, mutated, badproportions, uncoordinatedbody, unnaturalbody, disfigured, ugly, grossproportions, mutation, disfigured, deformed, (mutation), (child:1.2)
 , b&w, fat, extranipples, minimalistic, nsfw, lowres, badanatomy, badhands, text, error, missingfingers, extradigit, fewerdigits, cropped, worstquality, lowquality, normalquality, jpegartifacts, signature, watermark, username, blurry, disfigured, kitsch, ugly, oversaturated, grain, low-res, Deformed, disfigured, poorlyrawnface, mutation, mutated, extralimb, ugly, poorlydrawnhands, missinglimb, floatinglimbs, disconnect edlimbs, malformedhands, blur, outoffocus, longneck, longbody, ugly, disgusting, poorlydrawn, childish , mutilated, mangled, old, surreal, text, b&w, monochrome, conjoinedtwins, multipleheads, extralegs, extraarms, meme, elongated, twisted, fingers, strabismus, heterochromia, closedeyes, blurred, watermark , wedding, group, darkskin, dark-skinnedfemale, tattoos, nude, lowres, badanatomy, badhands, text, error, missingfingers, extradigit, fewerdigits, cropped, worstquality, lowquality, normalquality, jpegartifacts , signature, watermark, username, blurry





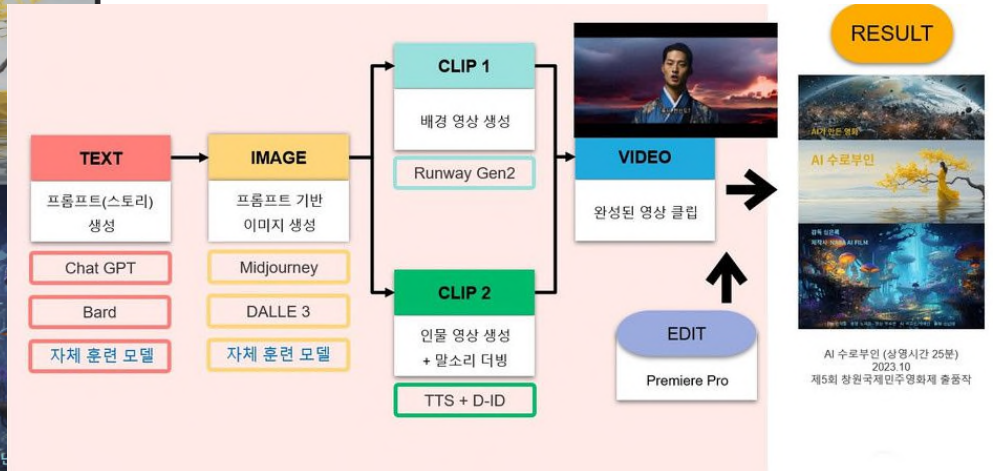
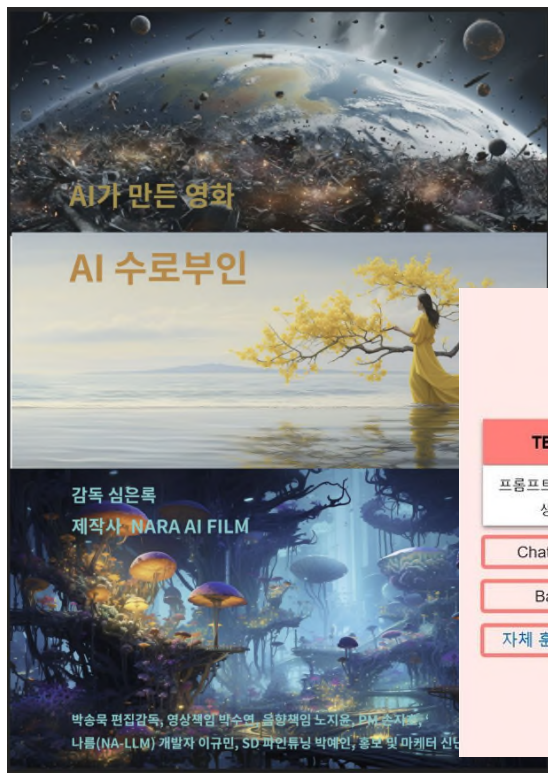
79

생성물의 저작물성과 저작자(이해관계자)



(source: aicomicrobooks.com)

80



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AI 생성물의 표시

2025 오픈소스SW 라이선스 전문교육

- 콘텐츠에 인공지능이 생성한 결과물이라는 사실을 표시하는 것
 - 표지(label)
 - 워터마크(watermark)
 - 출처표시(attribution)
 - 이력관리(provenance)

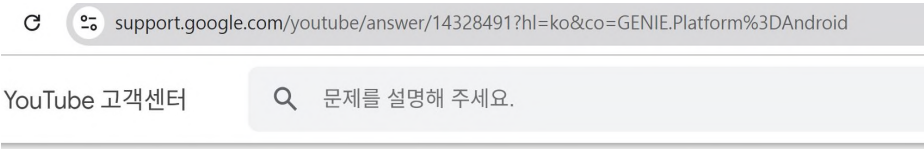
인공지능 발전과 신뢰 기반 조성 등에 관한 기본법

제31조(인공지능 투명성 확보 의무) ① 인공지능사업자는 고영향 인공지능이나 생성형 인공지능을 이용한 제품 또는 서비스를 제공하려는 경우 제품 또는 서비스가 해당 인공지능에 기반하여 운용된다는 사실을 이용자에게 사전에 고지하여야 한다.

② 인공지능사업자는 생성형 인공지능 또는 이를 이용한 제품 또는 서비스를 제공하는 경우 그 결과물이 생성형 인공지능에 의하여 생성되었다는 사실을 표시하여야 한다.

③ 인공지능사업자는 인공지능시스템을 이용하여 실제와 구분하기 어려운 가상의 음향, 이미지 또는 영상 등의 결과물을 제공하는 경우 해당 결과물이 인공지능시스템에 의하여 생성되었다는 사실을 이용자가 명확하게 인식할 수 있는 방식으로 고지 또는 표시하여야 한다. 이 경우 해당 결과물이 예술적·창의적 표현물에 해당하거나 그 일부를 구성하는 경우에는 전시 또는 향유 등을 저해하지 아니하는 방식으로 고지 또는 표시할 수 있다.

④ 그 밖에 제1항에 따른 사전고지, 제2항에 따른 표시, 제3항에 따른 고지 또는 표시의 방법 및 그 예외 등에 관하여 필요한 사항은 대통령령으로 정한다.



변경되었거나 합성된 콘텐츠의 사용 공개

YouTube는 크리에이터가 콘텐츠 편집 또는 생성 도구를 활용하여 콘텐츠를 생성할 때, 콘텐츠가 변경되었거나 합성된 콘텐츠를 생성할 수 있습니다. 하지만 시청자는 자신이 시청하거나 듣는 콘텐츠가 진짜인지 여부를 알 수 없습니다. YouTube는 시청자에게 현재 보고 있는 콘텐츠에 대한 정보가 정확하고 신뢰할 수 있도록 하기 위해, 콘텐츠가 변경되었거나 합성된 콘텐츠임을 표시합니다.

크리에이터는 다음과 같은 콘텐츠를 사용한 경우 이를 공개해야 합니다.

- 실제 인물이 말하거나 하지 않은 행동을 한 것처럼 보이게 하기
- 실제 사건 또는 장소의 영상을 변경
- 실제로는 발생하지 않았으나 진짜처럼 보이는 장면을 생성

여기에는 오디오, 동영상, 이미지 제작 또는 편집 도구를 사용한 콘텐츠가 포함될 수 있습니다.

크리에이터가 공개하지 않아도 됨	크리에이터가 공개해야 함
• 미용 필터 적용	• 특정 인물의 얼굴을 다른 사람의 얼굴로 변경하기 위해 콘텐츠를 디지털 방식으로 생성 또는 변경
• 움직이는 자동차를 시뮬레이션하기 위해 배경화면을 합성으로 생성하거나 확장	• 원작 영화에 나오지 않았던 유명인을 등장시키기 위해 유명 자동차 추격 장면을 디지털 방식으로 변경
• 효과를 사용하여 이전에 녹음된 오디오 개선	• 의료 전문가가 실제로 하지 않은 조언을 한 것처럼 들리게 오디오 시뮬레이션
• 동영상에 시로 생성한 미사일 애니메이션 사용	• 실제 도시를 향해 미사일이 발사되는 모습을 사실적으로 묘사

유튜브 수익화 정책 변경

AI 콘텐츠 유형	수익 창출 자격	정책 근거
AI 음성으로 위키백과를 읽고 슬라이드를 붙인 영상	불가	인간의 창의적 개입이나 가치 추가가 부재한 'AI 슬롭'
AI가 제작한 이미지와 음악만으로 구성된 영상	불가	기계적으로 조합되어 독창성이 없는 대량 생산 콘텐츠
AI 도구로 제작한 애니메이션에 인간이 직접 더빙과 스크립트를 추가한 영상	가능	AI를 보조 도구로 활용하여 독창적인 스토리를 창작
AI 자막, 업스케일링 등 편집 툴을 사용한 강의 영상	가능	인간의 해설이 포함되어 명확한 가치를 추가
원본 영상에 풍부한 해설과 분석을 더한 리액션 영상	가능	콘텐츠를 변형하고 새로운 통찰을 추가한 경우

감사합니다.

