

## Experiment 1

**AIM: Explore GitHub/GitLab for open-source projects with different licenses**

### **1. List of GitHub Licenses**

- No License
- Apache License 2.0
- GNU General Public License v3.0 (GPL-3.0)
- MIT License
- BSD 2-Clause "Simplified" License
- BSD 3-Clause "New" or "Revised" License
- Boost Software License 1.0
- Creative Commons Zero v1.0 (CC0)
- Eclipse Public License 2.0 (EPL-2.0)
- GNU Affero General Public License v3.0 (AGPL-3.0)
- GNU General Public License v2.0 (GPL-2.0)
- GNU Lesser General Public License v2.1 (LGPL-2.1)
- Mozilla Public License 2.0 (MPL-2.0)

### **2. Licenses and Short Description Table**

License	Short Description
No License	Code is fully copyrighted; others cannot legally use, modify, or distribute it without permission.
Apache License 2.0	Permissive license allowing commercial use, modification, and distribution; includes explicit patent protection.
GNU General Public License v3.0 (GPL-3.0)	Strong copyleft license; derivatives must also be GPL-licensed and source code must be shared.
MIT License	Very permissive and simple; allows reuse with minimal restrictions, only requiring attribution.
BSD 3-Clause "New" or "Revised" License	Like BSD 2-Clause, but adds a clause preventing endorsement using the author's name.
Boost Software License 1.0	Permissive license designed for libraries; allows commercial and closed-source use with attribution.
Creative Commons Zero v1.0 (CC0)	Public-domain equivalent; no restrictions, users can do anything without attribution.

Eclipse Public License 2.0 (EPL-2.0)	Weak copyleft; modifications to EPL-licensed code must be shared, but can be used in proprietary software.
GNU Affero General Public License v3.0 (AGPL-3.0)	Like GPL-3.0, but requires source disclosure for network/server use.
GNU General Public License v2.0 (GPL-2.0)	Strong copyleft license; source code must be shared, but no explicit patent protection.
GNU Lesser General Public License v2.1 (LGPL-2.1)	Weak copyleft; allows linking with proprietary software while protecting library modifications.
Mozilla Public License 2.0 (MPL-2.0)	File-level copyleft; only modified files must be open-sourced, allowing proprietary combinations.
The Unlicense	Explicitly places code into the public domain, with no conditions or attribution required.

### 3. Licenses Comparison Table

License	Type	Commercial Use	Modification	Distribution	Source Disclosure Required	Patent Grant	Copyleft Strength
No License	Proprietary	✗ No	✗ No	✗ No	✗ Yes (fully restricted)	✗ No	N/A
MIT License	Permissive	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
Apache License 2.0	Permissive	✓ Yes	✓ Yes	✓ Yes	✗ No	✓ Yes	None
BSD 2-Clause	Permissive	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
BSD 3-Clause	Permissive	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
Boost Software License 1.0	Permissive	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
Creative Commons Zero (CC0)	Public Domain	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
The Unlicense	Public Domain	✓ Yes	✓ Yes	✓ Yes	✗ No	✗ No	None
Mozilla Public License 2.0 (MPL-2.0)	Weak Copyleft	✓ Yes	✓ Yes	✓ Yes	⚠ Partial (modified files only)	✓ Yes	Weak
Eclipse Public License 2.0 (EPL-2.0)	Weak Copyleft	✓ Yes	✓ Yes	✓ Yes	⚠ Partial (module-level)	✓ Yes	Weak
GNU LGPL v2.1	Weak Copyleft	✓ Yes	✓ Yes	✓ Yes	⚠ Partial (library changes)	✗ No	Weak
GNU GPL v2.0	Strong Copyleft	✗ Limited*	✓ Yes	✓ Yes	✓ Yes	✗ No	Strong
GNU GPL v3.0	Strong Copyleft	✗ Limited*	✓ Yes	✓ Yes	✓ Yes	✓ Yes	Strong
GNU AGPL v3.0	Network Copyleft	✗ Limited*	✓ Yes	✓ Yes	✓ Yes (even over network)	✓ Yes	Very Strong

#### 4. List of GitHub Alternatives

- GitLab – All-in-one DevOps platform (code + CI/CD)
- Bitbucket – Good for teams using Jira
- Gitea – Lightweight, self-hosted
- Gogs – Very minimal, self-hosted
- SourceForge – Old but still used for downloads
- Azure DevOps – Strong Microsoft ecosystem integration
- Codeberg – Open-source friendly, non-profit

#### 5. GitHub vs GitLab Table

Feature	GitHub	GitLab
Core Philosophy	Collaboration & Community: Focuses on hosting code and integrating with 3rd-party tools.	All-in-One DevOps: A complete platform covering the entire software lifecycle (Plan, Code, Build, Test, Deploy).
CI/CD	GitHub Actions: Event-driven; massive marketplace of pre-built community actions.	GitLab CI: Built-in and highly mature; uses a single configuration file (.gitlab-ci.yml); excellent for complex pipelines.
Self-Hosting	Enterprise Only: Self-hosting is available but typically reserved for the expensive "Enterprise Server" plan.	Core Feature: First-class support for self-hosting on your own servers (even on the free tier).
Project Management	Lightweight: Issues, Projects (Kanban), and Discussions. Great for developers but less feature-rich for managers.	Robust: Includes Epics, Roadmaps, Milestones, and time tracking natively. Better for Agile/Scrum management.
Free Tier	Generous: Unlimited public/private repos. 2,000 CI/CD minutes/month. 500MB storage.	Restricted: Unlimited public/private repos. 400 CI/CD minutes/month. 5GB storage per repo.
Security	Add-on Focused: Dependabot is free; Advanced Security (scanning) is an extra cost for Enterprise.	Integrated: Built-in SAST, DAST, and container scanning (though mostly in Ultimate tiers).
AI Assistant	GitHub Copilot: The market leader in code completion; separate subscription.	GitLab Duo: Integrated AI throughout the lifecycle (planning to security), not just coding.
InnerSource	Excellent for open-source visibility and community contribution.	Excellent for keeping code private and controlled within an organization.

## 6. Open-Source vs Proprietary vs Freeware

Feature	Open-Source Software	Proprietary Software	Freeware
Definition	Software with source code that anyone can inspect, modify, and enhance.	Software owned by a company/individual with restrictions on use and private source code.	Proprietary software that is available for use at no monetary cost.
Source Code	Public: Available to everyone.	Closed: Kept secret; only the vendor can see it.	Closed: Kept secret; users cannot view or edit it.
Cost	Usually free (but can be commercial/paid).	Paid (Subscription or One-time license).	Free of charge (Gratis).
Modification	Allowed (and encouraged).	Prohibited by law and EULA.	Prohibited.
Redistribution	Allowed (depending on license).	Strictly prohibited.	Often allowed for personal use, but commercial distribution is usually restricted.
Support	Community-driven (forums) or paid enterprise support (e.g., Red Hat).	Dedicated vendor support team included in the price.	Limited or non-existent; usually "use at your own risk."
Security	Transparent; anyone can find and fix bugs (many eyes on code).	"Security through obscurity"; users rely on the vendor to find and fix bugs.	Variable; users rely entirely on the developer's updates.
Examples	Linux, Firefox, VLC Media Player, WordPress, GIMP.	Microsoft Windows, Adobe Photoshop, macOS, iOS.	Skype (basic), Adobe Reader, Google Chrome.