

# OS Lab – Session 1

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# What is Open Source Software?

- **Open Source software is software licensed under an agreement that conforms to the Open Source Definition**
  - Access to Source Code
  - Freedom to Redistribute
  - Freedom to Modify
  - Non-Discriminatory Licensing (licensee/product)
  - Integrity of Authorship
  - Redistribution in accordance with the Open Source
  - License Agreement



## What is Open Source Software?

- **Any developer/licensor can draft an agreement that conforms to the OSD, though most licensors use existing agreements**
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  - Berkeley Software Distribution license (“BSD”)
  - Apache Software License
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# Proprietary vs. Open Source Licensing Models

Proprietary Model	Open Source Model
Licensors distribute object code only; source code is kept a trade secret	Licensors distribute source code
Modifications are prohibited	Modifications are permitted
All upgrades, support and development are done by licensor	Licensee may do its own development and support or hire any third party to do it
Fees are for the software license, maintenance, and upgrades	Fees, if any, are for integration, packaging, support, and consulting
Sublicensing is prohibited, or is a very limited right	Sublicensing is permitted; licensee may have to distribute the source code to program and modifications



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  - also distribute the source code for the Program and for the work based on the Program, and
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# GNU/Linux Operating System

- GNU
  - a recursive acronym for “GNU's Not Unix!”
  - it is pronounced *g-noo*
  - is a computer operating system composed entirely of free software
  - Development of GNU was initiated by Richard Stallman
  - GNU's Basic Components
    - The GNU Compiler Collection (GCC)
    - the GNU Binary Utilities (binutils)
    - the bash shell
    - the GNU C library (glibc)
    - GNU Core Utilities (coreutils)



# GNU/Linux Operating System

- GNU OS
  - Its official kernel, GNU Hurd, is incomplete
  - the third-party Linux kernel is most commonly used instead
    - GNU/Linux Operating System
- Linux Kernel
  - Linus Torvalds (1991)
  - Monolithic Kernel
  - Open Source Project (GPLv2)
  - POSIX Standard
    - For user and software interfaces to an operating system
    - A family of related standards specified by the IEEE
    - To define the application programming interface (API), along with shell and utilities interfaces for software compatible with variants of the Unix operating system

# GNU/Linux Operating System

- GNU/Linux Distribution
  - Commercially backed distributions
    - Fedora (Red Hat),
    - openSUSE (pronounced /ˌoʊpənˈsuːzə/) (Novell),
    - Ubuntu (Canonical Ltd.),
  - Community-driven distributions
    - Debian and
    - Gentoo (pronounced /ˈdʒɛntuː/)
  - Neither
    - Slackware
- See [www.distrowatch.com](http://www.distrowatch.com)