

# SENG 403 - Group 2 Open Source Software Development

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## Introduction



## What is open source software?

- The term "open source" refers to something that can be modified because it's design is publicly accessible.
- "Open source software" is software whose source code is available for modification or enhancement by anyone

## What is open source software?

Open source software is defined as any computer software, generally developed as a public collaboration, whose source code is made freely available.

## What is open source software?

### Example: Eclipse

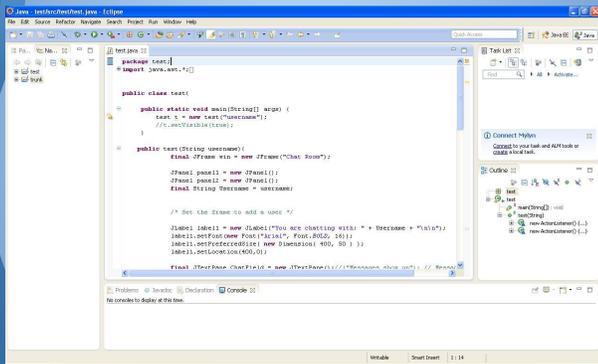
*What is it:* Integrated Development Environment (IDE)

*Purpose:* Aids programmers in software development.

*Key Features:* source code editor, build automation tools, debugger, compiler, interpreter

# What is open source software?

## Example: Eclipse



# What is open source software?

## Example: Linux

*What is it:* Computer Operating System

*Purpose:* Runs on top of computer hardware devices

*Key Features:* monolithic kernel, utilities, libraries, light-weight

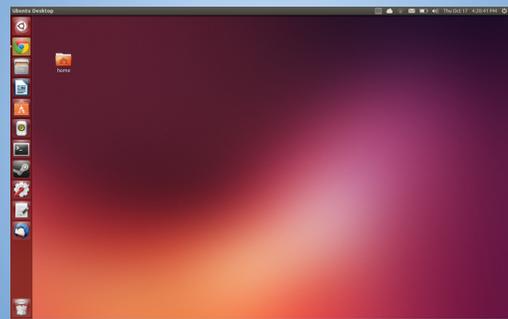
# What is open source software?

## Example: Scientific Linux



# What is open source software?

## Example: Ubuntu



[http://en.wikipedia.org/wiki/File:Ubuntu\\_13.10\\_release.png](http://en.wikipedia.org/wiki/File:Ubuntu_13.10_release.png)

# What is open source software?

## Example: Android

*What is it:* Computer Operating System

*Purpose:* Mainly for touchscreen mobile devices.

*Key Features:* based on the Linux kernel, direct manipulation user interface

# What is open source software?

## Example: Android



## Brief History

- Open source software began in the 1970's.
- In 1953's - UNIVAC division of Remington Rand source code was released.
- In 1967, IBM distributed the source code for Airline Control program ("SHARE")
- AT&T distributed early version of unix.

## Brief History

- In 1997, Eric Raymond published "The Cathedral and the Bazaar."
- in early 1980's Richard Stallman and CSRG establish open source movement.
- The word "Open source" was adopted in session held at Palo Alto, California.

## Why People Prefer Open Source

Social Benefits

Economic Benefits

Technical Benefits



[http://en.wikipedia.org/wiki/File:Blender\\_2.59\\_Startup.png](http://en.wikipedia.org/wiki/File:Blender_2.59_Startup.png)

## Social Benefits

Sharing Knowledge

Helping People

Skill Development

Community development



## Economic Benefits

- Implemented functionalities based on reused source code
- Reduce staffing, time and effort
- Gartner - 26% of code deployed was open source
- Koders - 44% open source code

## Technical Benefits

- People can legally use and modify code
- New model for enabling innovation for sustainable development
- Increases Reliability
- Fast deployment
- Less hardware cost
- Less software cost - save maintenance and licensing

## Drawbacks

- Legal Challenges
- Unfamiliarity
- Licensing issues
- Insufficient resources
- multiple sources

## Case Study: Linux

- One of the largest open source projects
- Major influence on both technology and its users
- Can be studied through distributions and the communities surrounding them



## Technological Influences

- Many different distributions
- Most are designed to perform optimally for specific computations
- Allows to advance other scientific fields through the specialised computations



## Backtrack Linux

- Specialized for computer security
- Focus on penetration testing for networks
- OS comes with many tools pre-packaged and optimized for the system



## Scientific Linux

- Specialized for bringing together scientists and engineers
- Focus on reducing duplicate work
- OS is designed to be customized to handle large scale computations in many fields



## Android

- Specialized for the mobile smartphone market
- Focus on the ability to customize at both a user and industrial level
- Has allowed it to become the most used OS for smartphones



ANDROID

## Human Aspect

- A main draw to using open source software is the social aspects of them
- Linux has thousands of developers and millions of users
- Is a vast community eager to help each other and share their experiences

## Ubuntu

- Is a Debian-based Linux OS - it is a shared work between Canonical, other companies, and thousands of volunteers
- Have a free, high quality release
- Canonical added surveillance code which was discovered quickly due to Ubuntu's open nature



## Ubuntu Forums

- Massive community with almost 2 million users
- Users ask questions and share tutorials with each other
- Community has specialized support and discussions



## Linux.org Forums

- Community of users who enjoy Linux
- Large number of tutorials encompassing many skill levels and complexities
- People take pride in sharing their accomplishments and teaching others

## Business Models

Some people do it for free

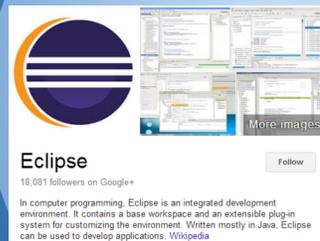


But this doesn't mean you cannot make money



## Business Models - Donation

The Eclipse Foundation rely on donations



## Business Model - Donation

Large user base -> enough donations to sustain the foundation



## Business Models - Freemium

Oracle Inc. sells premium versions of MySQL



### MySQL Cluster Carrier Grade Edition Subscription

With its real-time design, MySQL Cluster Carrier Grade Edition (MySQL Cluster CGE) delivers millisecond response times that enable it to service tens of thousands of transactions per second. Its "shared-nothing" distributed architecture with no single point of failure to assure 99.999% availability provides linear database scalability to handle the most unpredictable workloads by providing memory and disk-based data, automatic data partitioning with load balancing, and the ability to run a cluster with zero downtime.

With the subscription, you also receive 24x7 support with Premier Support for Operating Systems. This lowers the total cost and risk of owning your MySQL solutions, improves the return from your MySQL investments, and optimizes the business value of your IT solutions.

> Learn More

> Technical Specifications

**US\$20,000.00**

Quantity:

1

Metric:

Server

Term:

1 Year

## Business Model - Freemium

We (the free users) are free testers and marketers



## Business Model Comparison

Donations vs. "Freemium"

More freedom  
(support large number of extensions)



Better quality control  
(less bugs and better performance)



## Conclusion

vs.

### Benefits

- reliability
- sharing
- helping
- skill development
- jobs
- experience
- make money
- fast deployment

### Drawbacks

- legal challenges
- unfamiliarity
- licensing issues
- insufficient resources
- multiple sources

## Conclusion



# Questions