LAB 1

Free and Open-Source Software

Fullname: Trương Đặng Trúc Lâm

Student ID: B2111933

- Note: Screenshots need to be clear and good-looking; submissions must be in PDF format.

1. **Using OSS Methods to Produce Better Products**

   Enumerate a few reasons how adopting OSS methods can improve and accelerate a product's success.

   Answer:

   1. **Collaborative Development:**
      OSS Methods enables software projects to build better software while everyone does not have to solve the same problems and make the same mistakes. Softwares can be made much faster and costs can be reduced. With more eyeballs viewing code and more groups testing, they can provide stronger and more secure code. Moreover, it is often hard for competitors to get used to the idea of sharing. Competitors can compete on user-facing interfaces, while end users still see plenty of product differentiation and have varying experiences.
   2. **Security and Reliability**
      When you open your code to developers, they can find bugs you never saw in the first place when looking at the code raw or developing yourself without outside help. The more eyes on the source code, the more its security and reliability increase - that is why OSS vulnerabilities are often addressed and fixed immediately. Open source communities, like GitHub, exist to drive this bug testing and reporting on a constant basis. They can truly automate the process of product updates. No *security through obscurity*. No *just trust me.*
   3. **Quality of Source Code**
      Code published openly tends to be cleaner with potentially faster bug repair. More people have to understand and work on the code, so there is more input in original design to avoid bad ideas.Beside, it is embarrassing to show ugly, sloppy code With OSS Methods, coding standards and styles tend to be cleaner and more consistent on community projects.
   4. **Freedom of Operation**
      Open source code gives you a greater freedom of operation. You're no longer dependent on particular software vendors and their internal processes and politics. You're free to innovate at your own pace and adjust your software to future needs as they appear.

5. **Cost and Time Effectiveness**

   Honestly, it would take you a lot of time to develop a particular software component from scratch? If you want a more efficient workflow in developing something from scratch, consider the open source development model even as a software foundation in order to develop software. It will lower the total cost of ownership for you as a result. Embracing open source should be a priority of any modern business. It will improve your development and testing workload, automation, and fix security vulnerabilities much quicker by teams from all over the world having access to the source code. A good open-source strategy values transparency and working with others.

6. **Advantages for Various Stakeholders**

   Individual users:

   ○ Can mix and match software from different sources
   ○ Can save money on buying and leasing software
   ○ Can avoid vendor lock-in, maintaining choice
   ○ Can look under the hook (“trust, but verify”)
   ○ More funs

   Business:

   ○ Collaborative development
   ■ Lowers total cost of development
   ■ Speeds up time to market
   ■ Work is submitted to wider community for criticism, suggestions and contributions
   ■ Uses well-delineated application programming interface (API)
   ○ Marketing
   ■ Customers know what they are getting - They have confidence in quality, there are no secrets
   ■ Product is seen as part a large ecosystem of related products
   ■ More flexible, possibly modular construction
   ■ Adoption by larger community can help build customer’s confidence about product’s durability and stability

   Education:

   ● Elementary, High school and Public systems:
   ○ Very large amount of available teaching resources at little and no cost
   ○ Very wide range of areas available for using, operating and system administration, and programming
   ○ Students do not become locked into vendor products
   ○ Generally lower hardware cost, and easier to use old hardware ○ Student are learning the skills they will need in the workforce
   ○ Unleashes student creativity: more fun!
   ● University:

○ Students can study and work on the internal of operating systems, applications and libraries, system administrator utilities
○ Student are ready to enter to the workforce where they are most needed
○ Good habits are developed, including how to work with the open source community
○ Student work is easy for prospective employers to evaluate, since it is publicly accessible

Developer:
○ No need to reinvent everything
○ Help to make good, early decisions on product design
○ More eyeballs on code can fix bugs faster
○ Suggestions and contributions are provided by a large group of developers
○ Great for finding next job
■ Code is readily available for evaluation
■ Can demonstrate how well you work and play with others
■ Can show how good you are at mentoring and maintaining projects and subprojects
■ Know you are not alone

2. What OSS Products Do You Use?

- Choose 5 pieces of proprietary software that you use regularly, and find a FOSS equivalent for each of them. What license (like GPL, MIT, a mix of licenses, etc.) do the FOSS products fall into?

Answer:

1. **Proprietary software:** *Windows* 11
   FOSS equivalent: *Kali Linux* **License:** *GNU GPL*

2. **Proprietary software:** *Microsoft Offices*
   FOSS equivalent: *LibreOffice* **License:** *Mozilla Public License v2.0*

3. **Proprietary software:** *Oracle JDK*
   FOSS equivalent: *OpenJDK* **License:** *GNU GPL*

4. **Proprietary software:** *Windows Media Player*
   FOSS equivalent: *VLC media player* **License:** *Apache License*

5. **Proprietary software:** Internet Explorer
   FOSS equivalent: *Firefox* **License:** *Mozilla Public License v2.0*

- Write a short comparison (about the UI, the documentation, the bugginess, etc.) for each pair of proprietary and FOSS software

Answer:

1. **Windows 11 vs Kali Linux**

- Windows 11 is the most secure Windows ever built. It is the latest iteration of the Microsoft operating systems and has been optimized for home PC performance.

- Kali Linux is a Debian-based Linux distribution aimed at advanced Penetration Testing and Security Auditing. It contains several hundred tools which are geared towards various information security tasks.

2. **Microsoft Offices & LibreOffice**

- Microsoft Office is a proprietary software which has better technical support and resources available compared to LibreOffice. However, Microsoft Office requires a paid subscription to access the full suite of features.

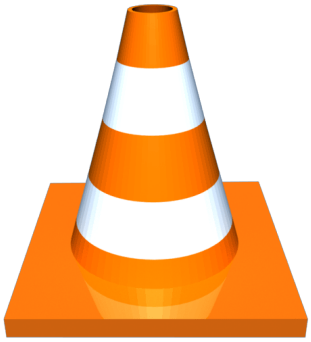
- LibreOffice is an open-source alternative to Microsoft Office. While it has many of the same features, such as word processing, spreadsheets, and presentation software, it may not have all of the advanced features and capabilities of Microsoft Office.

3. **Oracle JDK & OpenJDK**

- Oracle JDK delivers releases every three years, it focuses more on stability due to its importance to its enterprise customers. Oracle JDK is much better than OpenJDK in responsiveness and JVM performance. About features and options, The Oracle product has Flight Recorder, Java Mission Control, and Application Class-Data Sharing features.

- OpenJDK delivers releases every six months, more often than Oracle JDK. As a result, we can encounter problems with instability. Based on community feedback, we know some OpenJDK users have encountered performance issues. OpenJDK has the Font Renderer feature.

4. **Windows Media Player & VLC media player**



- Windows Media Player is supported by Microsoft and therefore has a lot of supportive documents and an assistance community. Windows Media Player can be customized to appear transparent compared to the traditional outlook of VLC player.

- VLC media player is a French academic project and supported by individuals. It is known popularly thanks to the variety of formats it is compatible with.The main advantage of the VLC Player is the fact that it is codec independent. However, it suffers from occasional bugs.

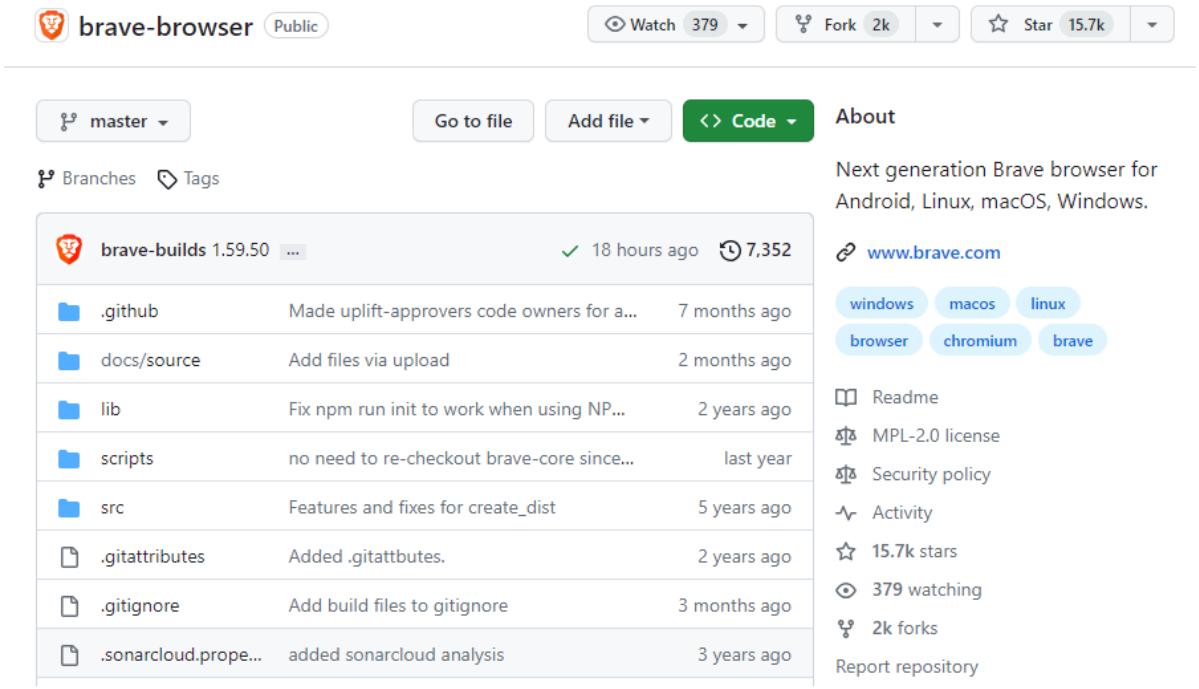
5. Internet Explorer & Firefox

- Firefox (a.k.a. Mozilla Firefox) is an open source and free web browser. It offers features such as tabbed browsing, incremental find, spell checking, live bookmarking, a download manager, smart bookmarks, private browsing, and location-aware browsing, along with compatibility with third party add-ons. Firefox can also be paired with any operating system.

- Internet Explorer is a free web browser developed by Microsoft but it's not an open source software. The newest version IE 9 offers features such as faster responses, tracking protection, pinned site for favorite sites, location capabilities, one search box and more viewing space. According to some experts, although Microsoft has released a number of patches, Internet Explorer is still vulnerable to security threats from spywares and viruses.

3. Contribute to OSS projects

Find an **active** OSS project hosted on GitHub that you are interested in, and spend some time figuring out some important information about the project:



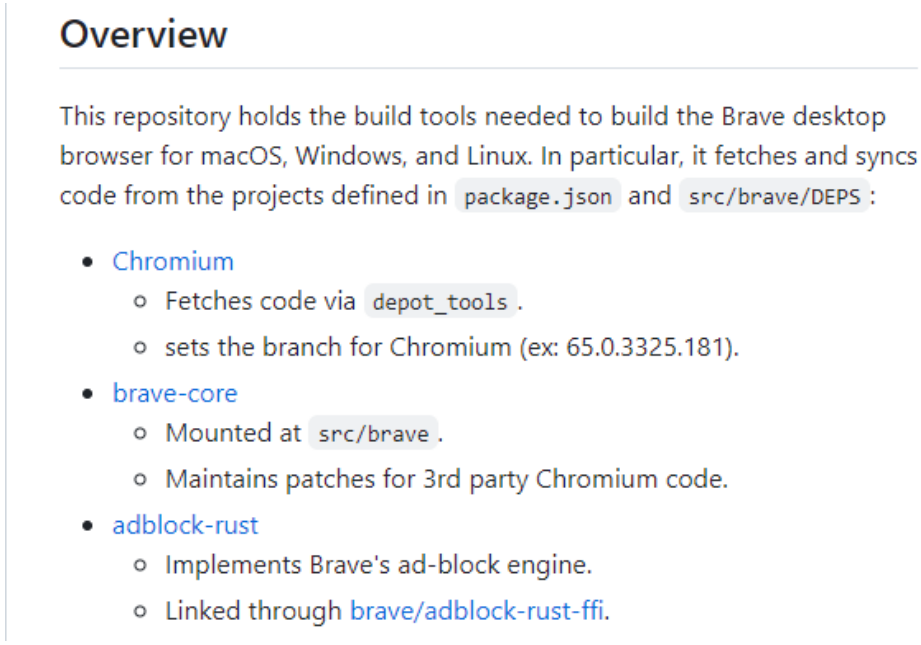
I choose Brave for my research.

- Who are the project leaders?
  Answer: The project leaders are Brave Software, Inc.

- When did the project start?
  Answer: It started from 28/5/2015.

- What license does the project fall into?
  Answer: Mozilla Public License v. 2.0.

- Answer the following questions using README file
  + What does this project do?
    Answer: This repository holds the build tools needed to build the Brave desktop browser



Overview

This repository holds the build tools needed to build the Brave desktop browser for macOS, Windows, and Linux. In particular, it fetches and syncs code from the projects defined in `package.json` and `src/brave/DEPS`:

- Chromium
  - Fetches code via `depot_tools`.
  - sets the branch for Chromium (ex: 65.0.3325.181).
- brave-core
  - Mounted at `src/brave`.
  - Maintains patches for 3rd party Chromium code.
- adblock-rust
  - Implements Brave's ad-block engine.
  - Linked through brave/adblock-rust-ffi.

+ Why is this project useful?
  Answer: According to some experts, the Brave Browser is 3x faster than Google Chrome. By blocking privacy-invading ads & trackers by default, there's less stuff to load on every single webpage you visit. That means pages load much faster, saving you time, money, and battery life. It also means you're much safer online.

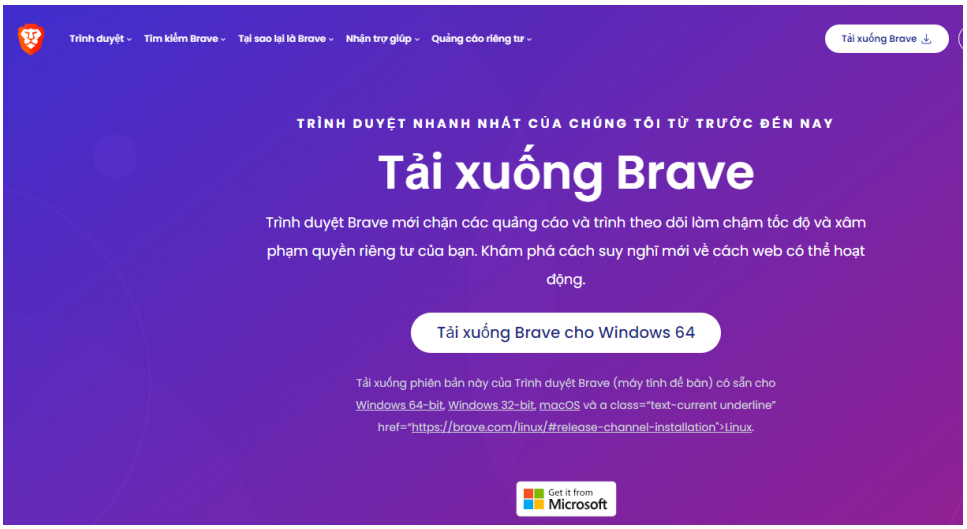
+ How do I get started?
  Answer: You can take a visit to their website, where you can get all you need: https://brave.com,

+ Where can I get more help, if I need it?
  Answer: You can join the Q&A community if you'd like to get more involved with Brave.

- Answer the following questions using the project contribution guidelines
  + How to file a bug report
    Answer: We can file a bug report by upload it to
    Brave community - feature requests

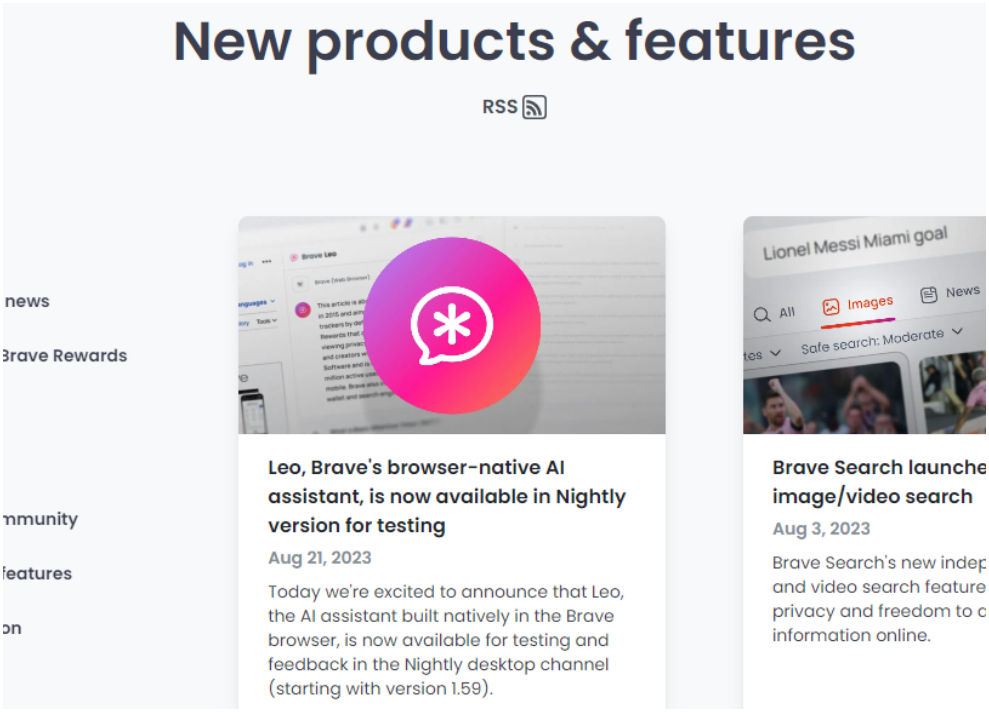
  + How to suggest a new feature
    Answer: We can also suggest a new feature to the link above too

+ How to set up your environment and run tests
  Answer: you can download Brave browser from their website: https://brave.com/vi/download/



+ The types of contributions the project is looking for
  Answer: According to their contribution guidelines, Brave project welcomes all forms of contributions.

+ The roadmap or vision of the project
  Answer: Leo, Brave's browser-native AI assistant, should be officially available in Nightly version for users convinience.



4. Selecting a License

The OSSWatch tool attempts to help its users understand their own preferences in relation to free and open source software licences. There are 7 choices that you need to make.

- What question do you need to answer when making a choice?
  Answer: There are 7 choices corresponding to 7 questions.

  Question 1: Do you want to limit the results to licenses that the Open Source Initiative describes as being "popular and widely used or with strong communities"?

  Question 2: Do you want to include licensing conditions on reuse?

  Question 3: How would you like your license to handle the issue of jurisdiction?

  Question 4: What is your attitude to the issue of patent grants in relation to your desired license?

  Question 5: Do you want your license to specify enhanced attribution?

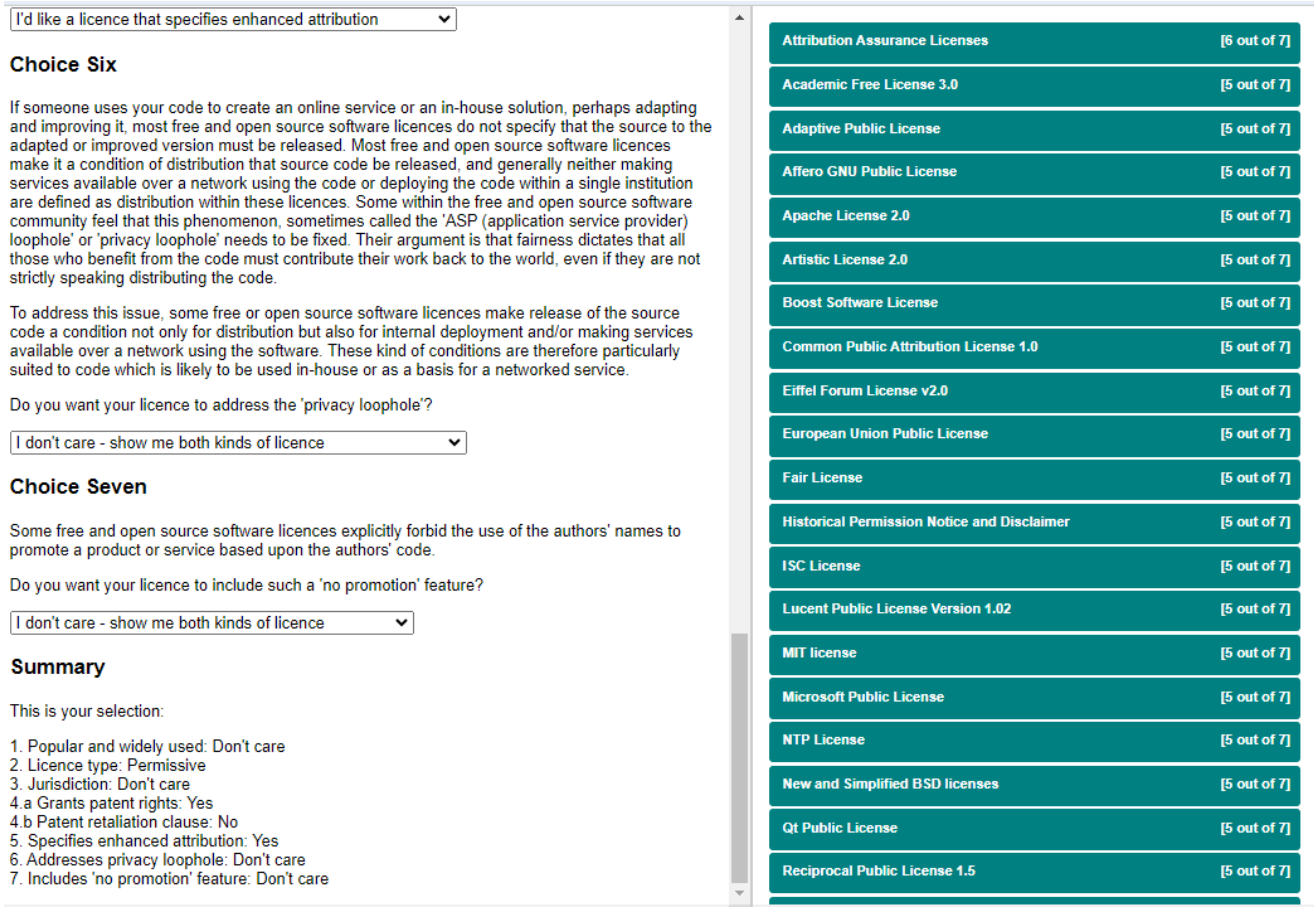
  Question 6: Do you want your license to address the 'privacy loophole'?

  Question 7: Do you want your license to include such a 'no promotion' feature?

- What license(s) match ALL below requirements (other choices are “I don’t care”)?
  - Permissive, exclusively patent grants, specify enhanced attribution

  Answer: Sorry but I couldn’t see any license match ALL below requirements (permissive, exclusively patent grants, specify enhanced attribution).

Take screenshots to show that you finish this exercise

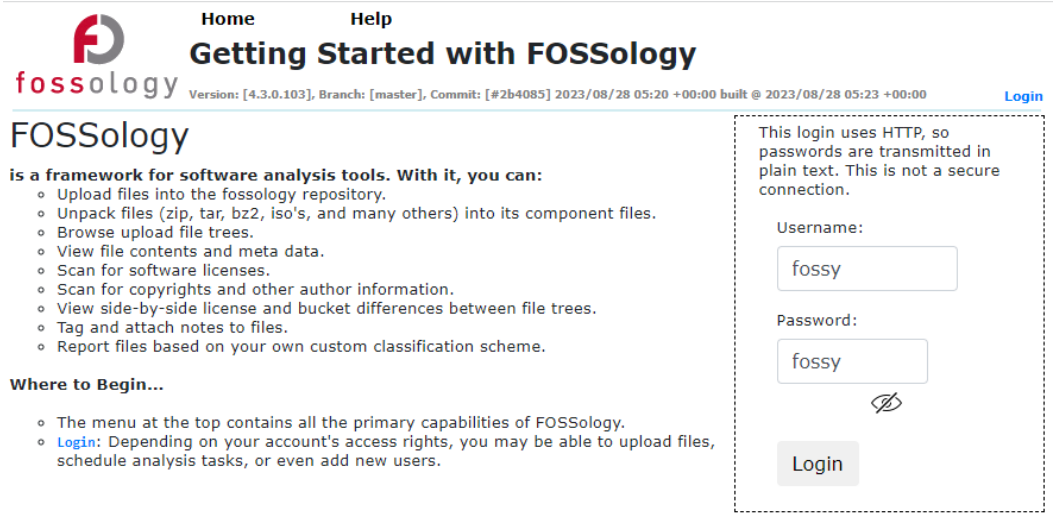


Result.

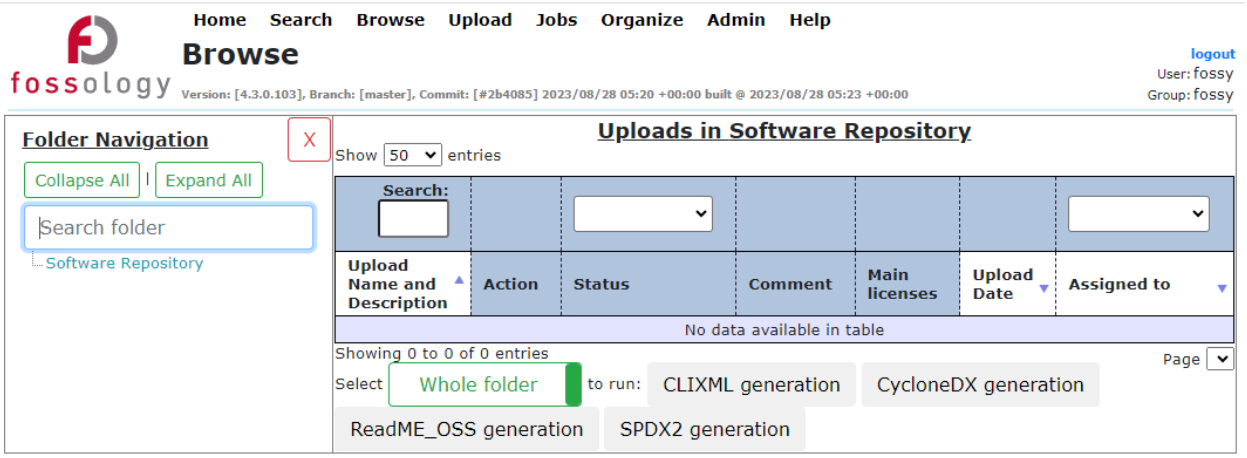
5. Experimenting with FOSSology

The FOSSology project offers easy to understand options for learning the basics of how to use the tools. The easiest way is to use the project's online testing facility. To do this:

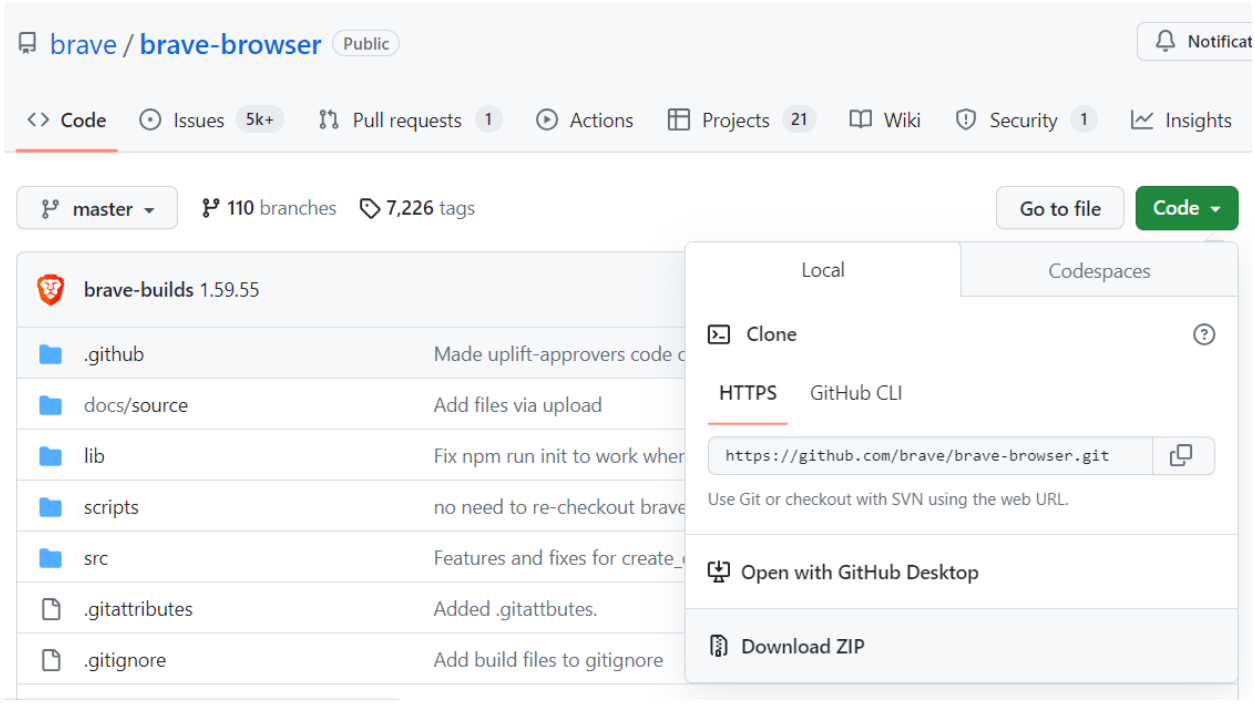
1. Point your browser to https://fossology.osuosl.org/repo/



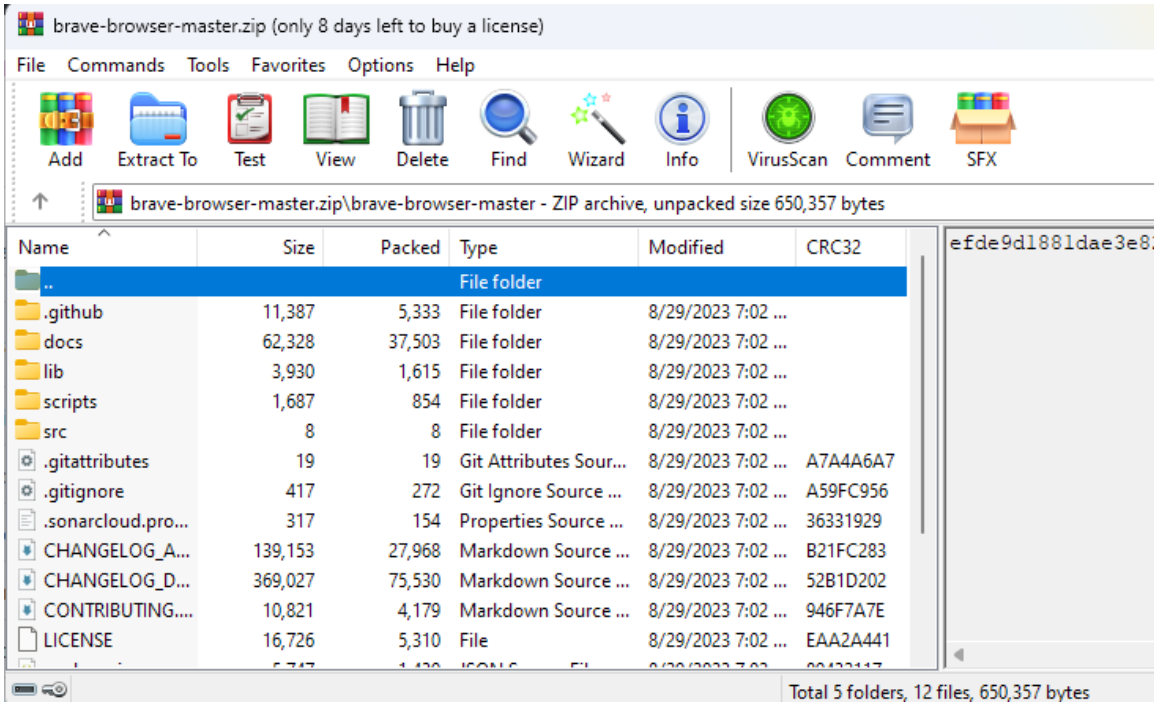
2. Login with username=fossy and password=fossy.



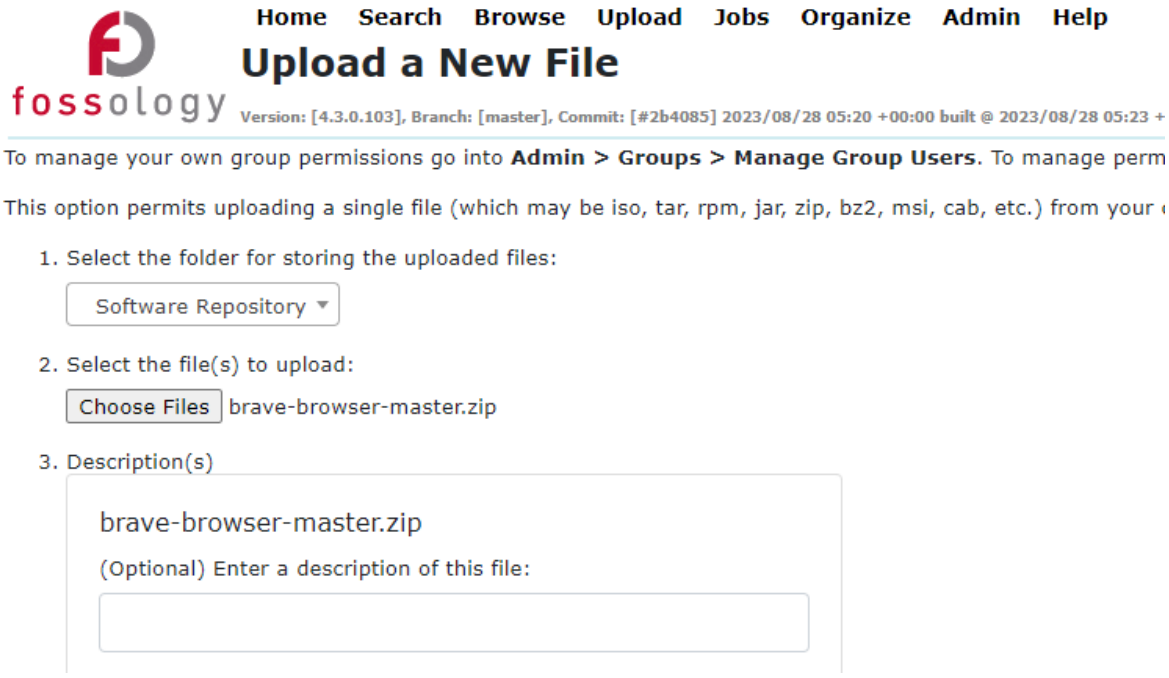
3. Download the source code of the project in **exercise 3**, then upload it to FOSSology.



Source code of brave-browser.

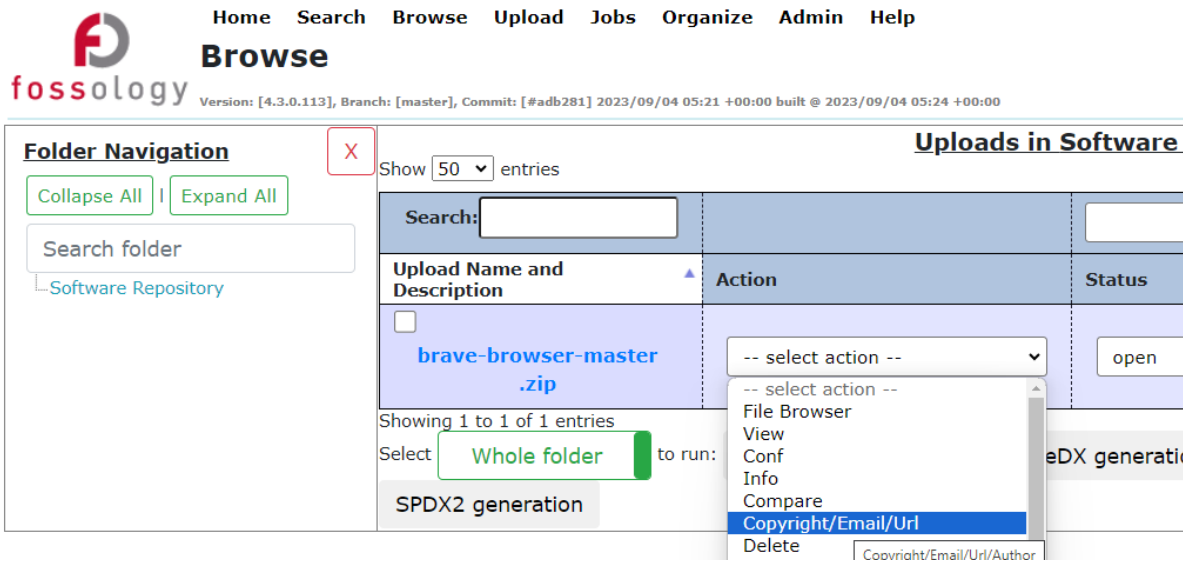


Downloaded archive.

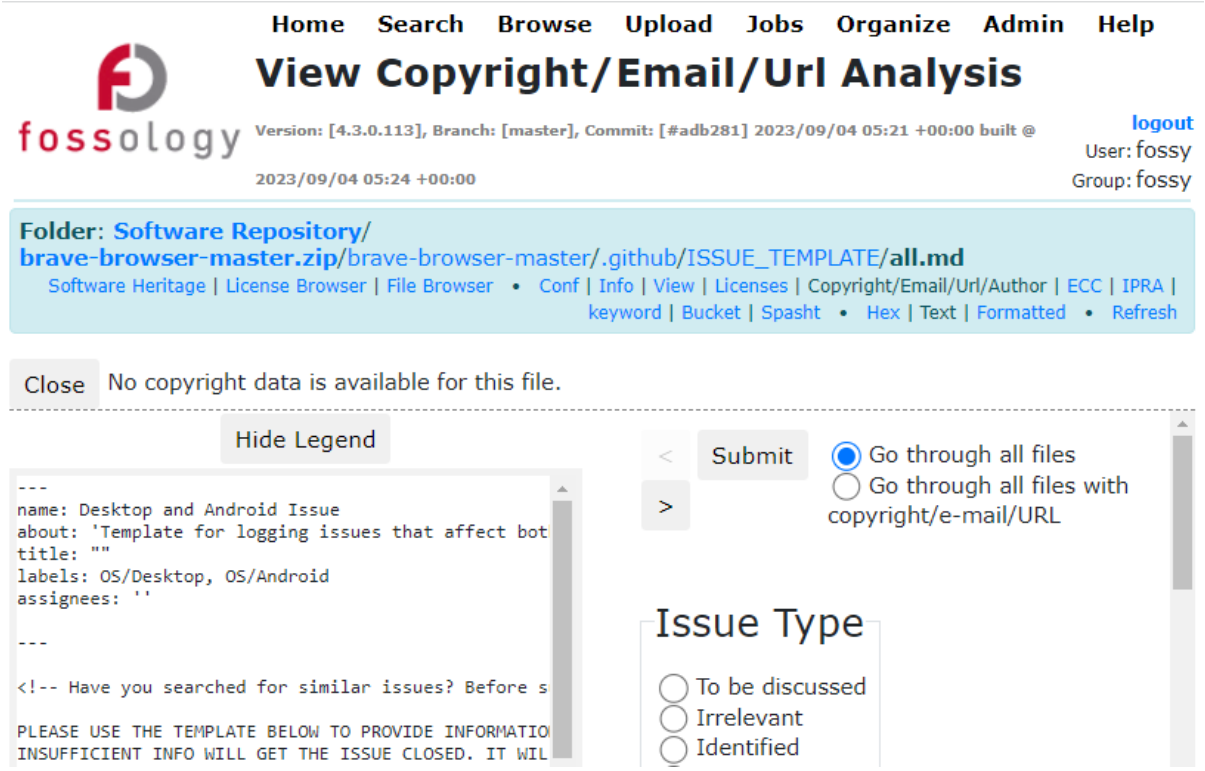


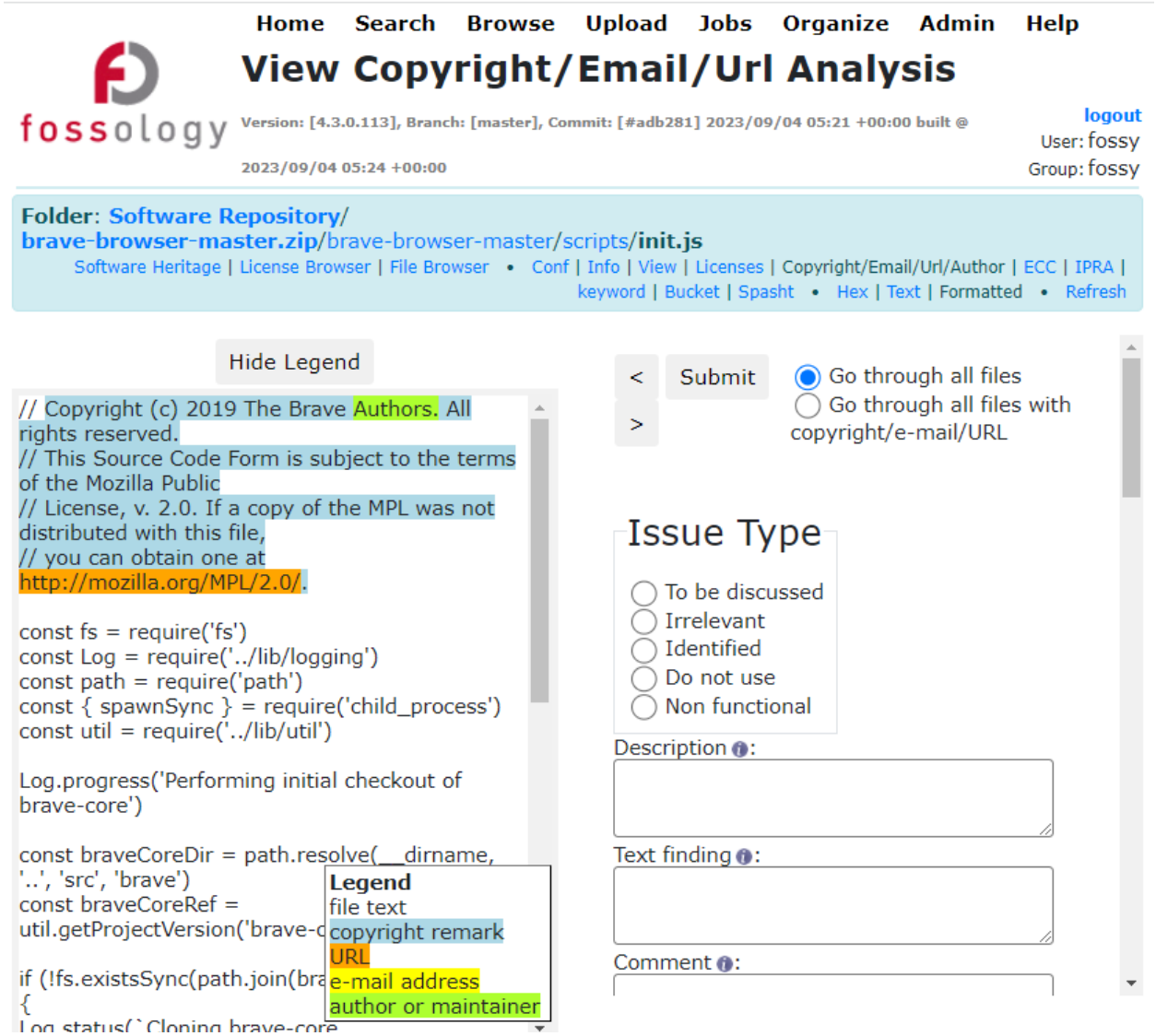
Upload source code to Fossology.

4. After the source code is analyzed, In the select action box, click onCopyright/Email/Urlin the drop down menu. You see the copyright, license and url information highlighted in appropriate colors.

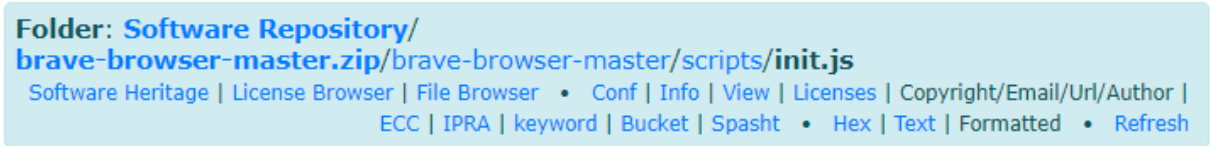


Action box

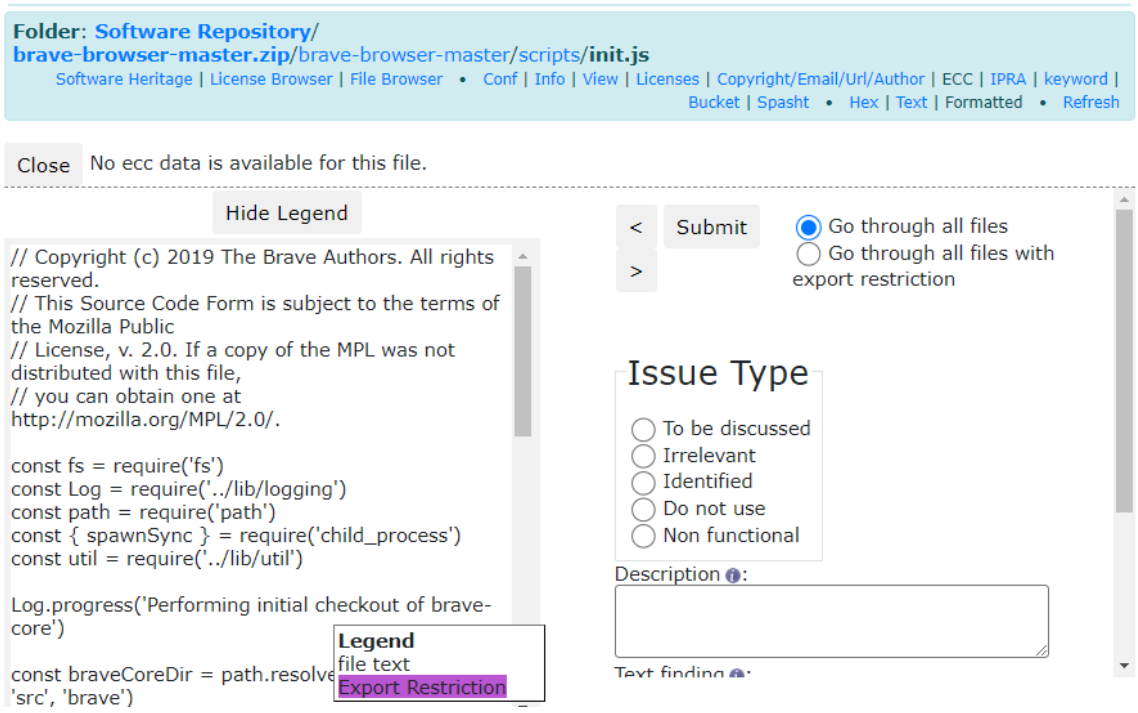


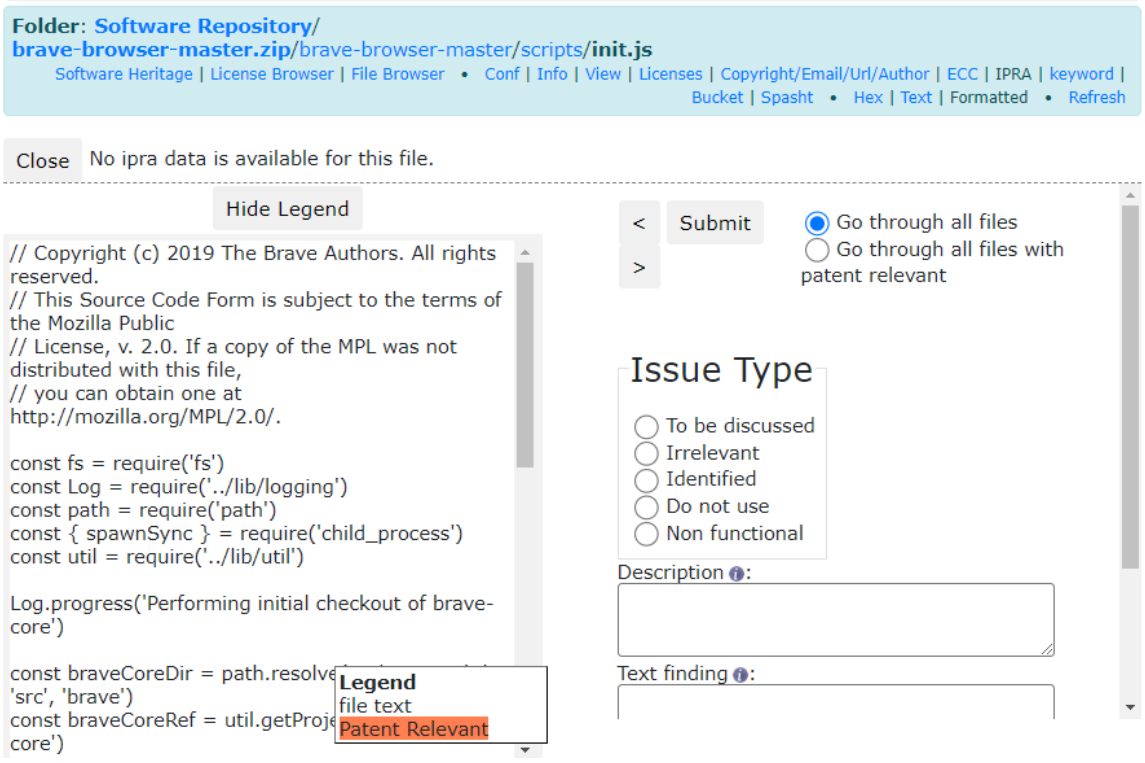


5. Try clicking on some of the other fields in the top ribbon banner to see more useful information.



The top ribbon banner


Folder: Software Repository/
brave-browser-master.zip/brave-browser-master/scripts/init.js
Software Heritage | License Browser | File Browser • Conf | Info | View | Licenses | Copyright/Email/Url/Author | ECC | IPRA | keyword |
Bucket | Spasht • Hex | Text | Formatted • Refresh
Close
No ecc data is available for this file.
Hide Legend
// Copyright (c) 2019 The Brave Authors. All rights reserved.
// This Source Code Form is subject to the terms of the Mozilla Public
// License, v. 2.0. If a copy of the MPL was not distributed with this file,
// you can obtain one at http://mozilla.org/MPL/2.0/.
const fs = require('fs')
const Log = require('../lib/logging')
const path = require('path')
const { spawnSync } = require('child_process')
const util = require('../lib/util')
Log.progress('Performing initial checkout of brave-core')
const braveCoreDir = path.resolve
'src', 'brave')
Legend
file text
Export Restriction
<
Submit
>
Go through all files
Go through all files with export restriction
Issue Type
To be discussed
Irrelevant
Identified
Do not use
Non functional
Description:
Text finding:


Folder: Software Repository/
brave-browser-master.zip/brave-browser-master/scripts/init.js
Software Heritage | License Browser | File Browser • Conf | Info | View | Licenses | Copyright/Email/Url/Author | ECC | IPRA | keyword |
Bucket | Spasht • Hex | Text | Formatted • Refresh
Close
No ipra data is available for this file.
Hide Legend
// Copyright (c) 2019 The Brave Authors. All rights reserved.
// This Source Code Form is subject to the terms of the Mozilla Public
// License, v. 2.0. If a copy of the MPL was not distributed with this file,
// you can obtain one at http://mozilla.org/MPL/2.0/.
const fs = require('fs')
const Log = require('../lib/logging')
const path = require('path')
const { spawnSync } = require('child_process')
const util = require('../lib/util')
Log.progress('Performing initial checkout of brave-core')
const braveCoreDir = path.resolve
'src', 'brave')
const braveCoreRef = util.getProje
core')
Legend
file text
Patent Relevant
<
Submit
>
Go through all files
Go through all files with patent relevant
Issue Type
To be discussed
Irrelevant
Identified
Do not use
Non functional
Description:
Text finding:

Result

---END---