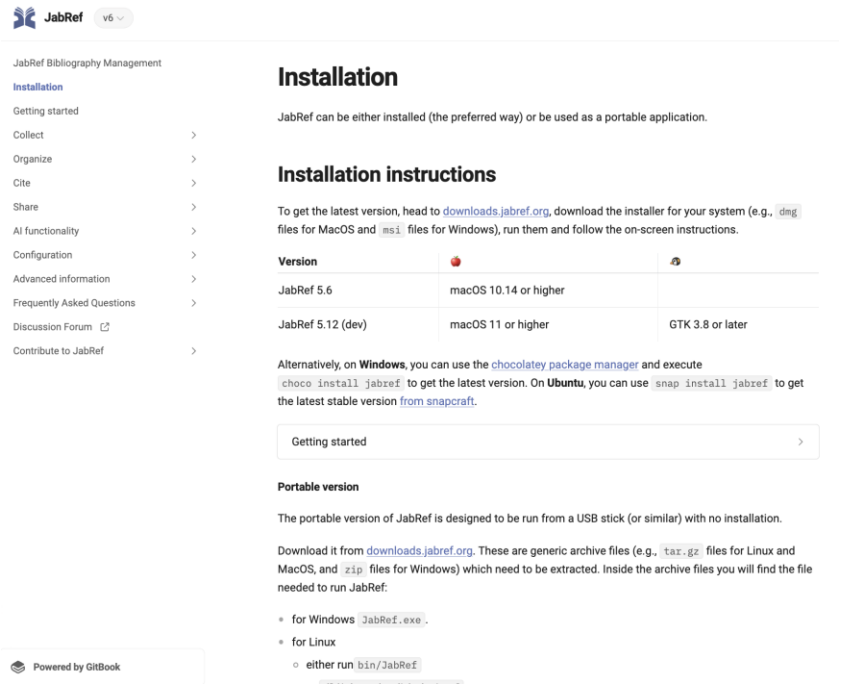
Activity 1 - OSS Project Selection

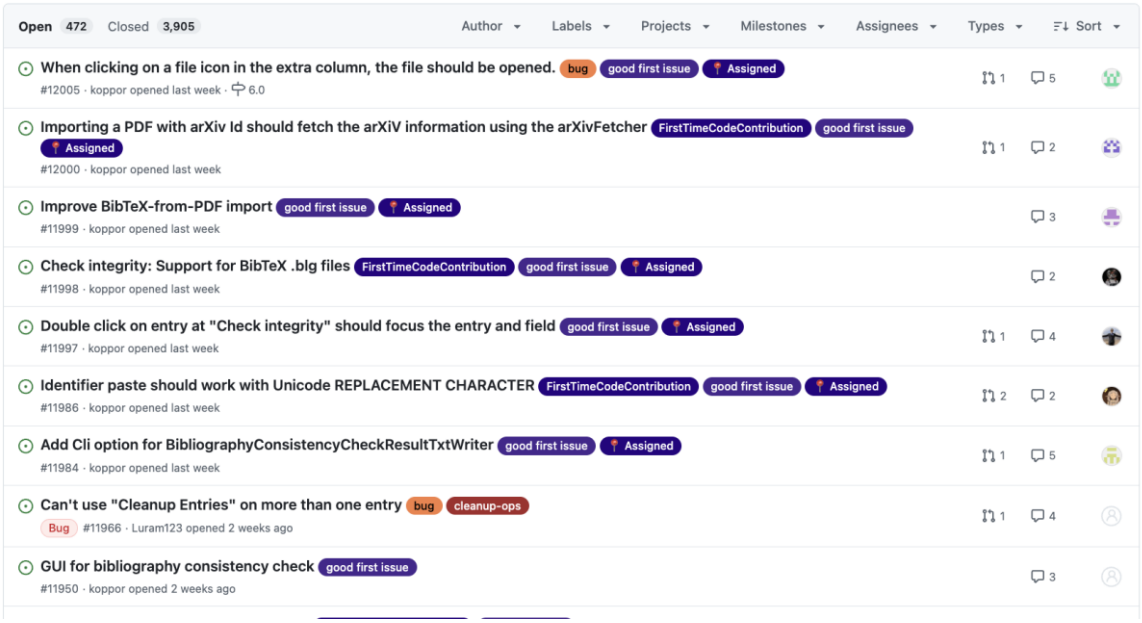
Selecting a Repository

After discussing with my tutor, we decided to work on the JabRef repository (https://github.com/JabRef/jabref). The selection process involved evaluating multiple repositories to find one that met the following criteria:

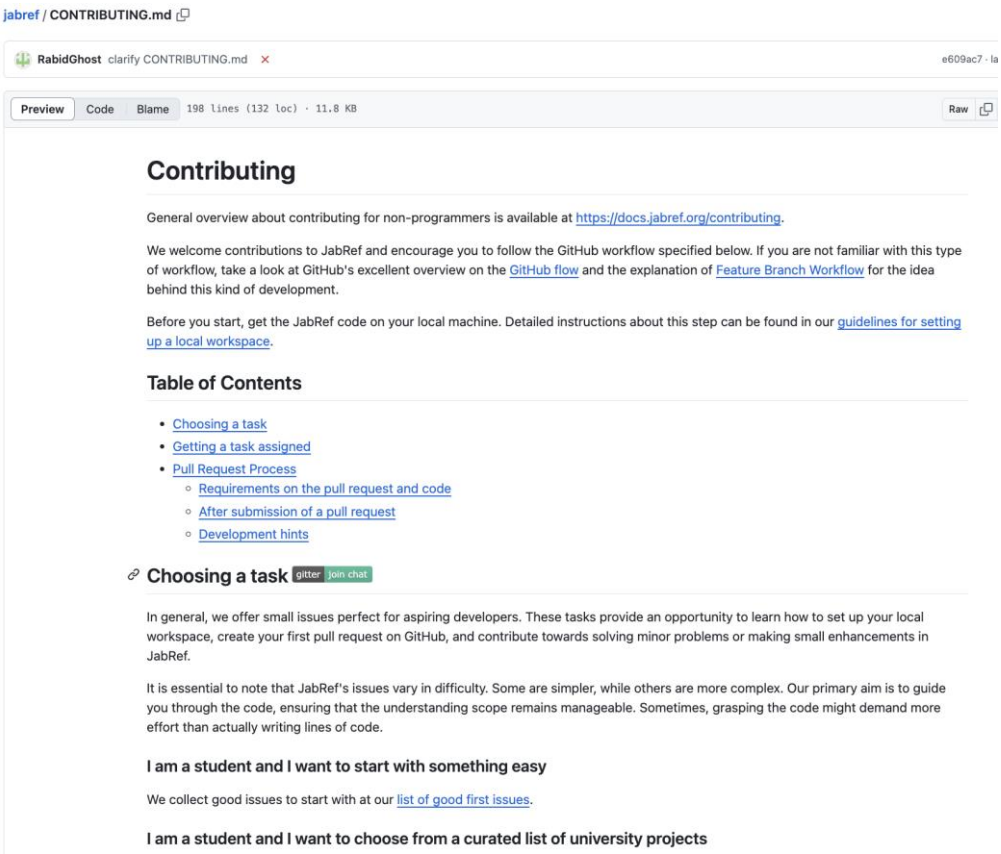
1. **Good Documentation and Setup Instructions**: The JabRef repository provided clear and well-documented setup/installation instructions, which made it easier to get started.



2. **Active Repository**: We ensured that the repository was active, with recent commits and issues, to avoid challenges with inactive maintainers. This was confirmed by checking the commit history and the activity on open issues. An active repository meant I would have a better chance of receiving timely feedback from maintainers.

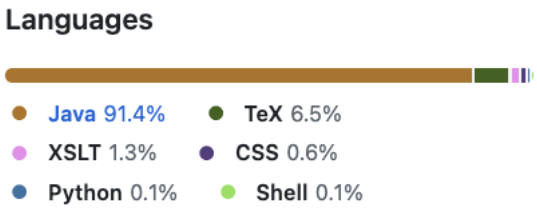


3. **Understandable Codebase**: I reviewed the repository and found it to be straightforward and understandable, with a clear structure that made it easy to navigate. The documentation was comprehensive, and the issues were well-defined, which allowed me to effectively contribute.



4. **Language Familiarity**: The repository's content was in a language I was comfortable

with—Markdown for documentation updates—ensuring I didn't have to learn a new language while working on the project.



How Do We Choose Issues #10557

- **Difficulty**: This issue presents a moderate level of technical challenge. It requires understanding JabRef's data storage structure, directory management, and Windows file path handling. Additionally, knowledge of CSV file processing and user preference implementation is necessary, but these concepts are well-documented and approachable.
- **Size**: The scope of this task is medium-sized, encompassing several key components. The work involves creating a new directory structure, implementing file auto-detection and conversion functionality, modifying the preference dialog, and updating journal abbreviation-related components. Each component is well-defined and modular in nature.
- **Time**: I estimate this issue will take approximately 8-10 hours to complete. This includes time for understanding the existing codebase, implementing core functionality, testing, and review processes. The timeline accounts for potential challenges in integration and ensuring backward compatibility.
- **Workload**: The workload is focused and manageable, consisting primarily of implementing directory management logic, file handling features, and user interface updates. Additional tasks include collaboration with team members for code review, ensuring adherence to project standards, and maintaining documentation. The clear requirements and modular nature of the changes make this workload structured and achievable.

How Do We Choose Issues #468

- **Difficulty**: The issue was quite easy. It involved understanding the structure of the documentation and locating the corresponding changes in the software.

- **Size**: The issue was relatively small, involving minor updates to two documentation files. It did not require large-scale changes to the codebase.
- **Time**: I anticipated needing around 1 hour to fully understand the context, make the necessary changes, and verify their accuracy. This included time for collaboration and review.
- **Workload**: The workload was manageable, mainly involving updating text and images in the documentation. The potential workload included collaborating with my group members for reviews and ensuring that the changes met the repository's standards.

How Do We Choose Issues #549: Eric Liehne

- **Difficulty**: This issue was not too hard for me. It involved understanding the structure of the software and how functions were handled, and a decent knowledge of Java's functions and classes.
- **Size**: The issue was somewhat significant in size. It involved updating multiple functions throughout the repository, as well as adding new tests to ensure that I was writing something that worked.
- **Time**: I expected this issue to take around 6 hours to implement, including understanding the context, making necessary changes, and confirming my work through implementing tests.
- **Workload**: The workload was manageable, entirely focused on updating functions and adding tests to check the validity of my work. The potential workload included collaborating with my group members for reviews and ensuring that the changes met the repository's standards.

How Do We Choose Issues #11316

- **Difficulty:** The issue was moderately complex. It involved implementing a new feature—automatic renaming of linked files when entry data changes—which required understanding and integrating with existing file handling and pattern parsing mechanisms in the application.
- **Size:** The issue was of medium size. It was more than a simple bug fix but less than a large feature addition. It required adding new functionality, modifying several classes, and ensuring consistency across the application.
- **Time:** I anticipated needing around 15 hours to complete the issue, including

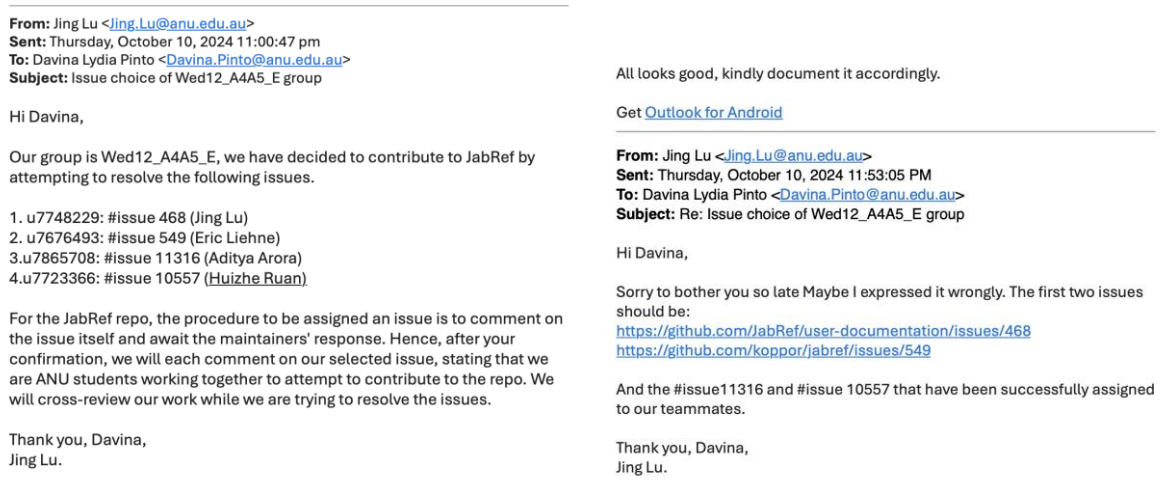
understanding the codebase, implementation, and testing.

- **Workload:** The workload was manageable and included designing the checkbox to update user preferences, implementing the automatic renaming feature, integrating it with existing code to utilize current file naming patterns, refactoring to eliminate code duplication and testing the new functionality.

Activity 2 - Working on the OSS Project

Checking with our tutor

We sent an email to the tutor to confirm whether the issue we selected meets the requirements. The picture is a screenshot of the agreement.



From: Jing Lu <Jing.Lu@anu.edu.au>
Sent: Thursday, October 10, 2024 11:00:47 pm
To: Davina Lydia Pinto <Davina.Pinto@anu.edu.au>
Subject: Issue choice of Wed12_A4A5_E group

Hi Davina,

Our group is Wed12_A4A5_E, we have decided to contribute to JabRef by attempting to resolve the following issues.

1. u7748229: #issue 468 (Jing Lu)
2. u7676493: #issue 549 (Eric Liehne)
3.u7865708: #issue 11316 (Aditya Arora)
4.u7723366: #issue 10557 (Huizhe Ruan)

For the JabRef repo, the procedure to be assigned an issue is to comment on the issue itself and await the maintainers' response. Hence, after your confirmation, we will each comment on our selected issue, stating that we are ANU students working together to attempt to contribute to the repo. We will cross-review our work while we are trying to resolve the issues.

Thank you, Davina,
Jing Lu.

All looks good, kindly document it accordingly.

Get Outlook for Android

From: Jing Lu <Jing.Lu@anu.edu.au>
Sent: Thursday, October 10, 2024 11:53:05 PM
To: Davina Lydia Pinto <Davina.Pinto@anu.edu.au>
Subject: Re: Issue choice of Wed12_A4A5_E group

Hi Davina,

Sorry to bother you so late Maybe I expressed it wrongly. The first two issues should be:
https://github.com/JabRef/user-documentation/issues/468
https://github.com/koppor/jabref/issues/549

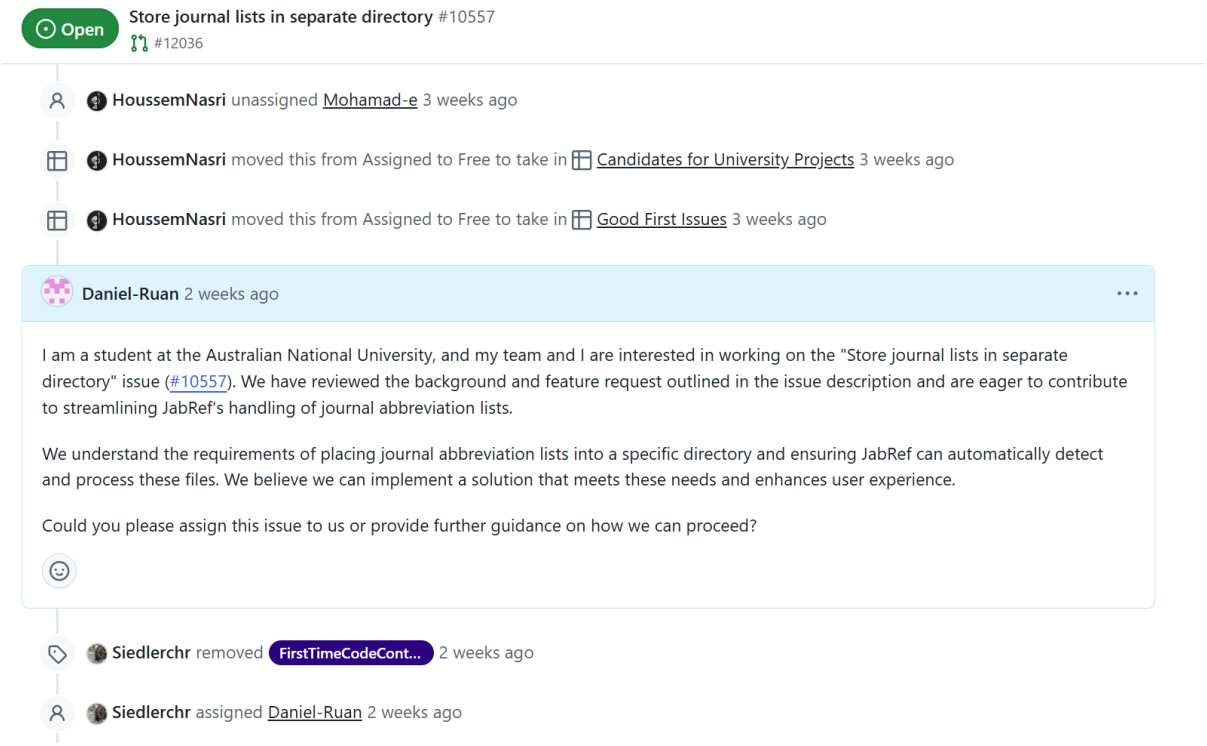
And the #issue11316 and #issue 10557 that have been successfully assigned to our teammates.

Thank you, Davina,
Jing Lu.

Issue #10557:

https://github.com/JabRef/jabref/issues/10557

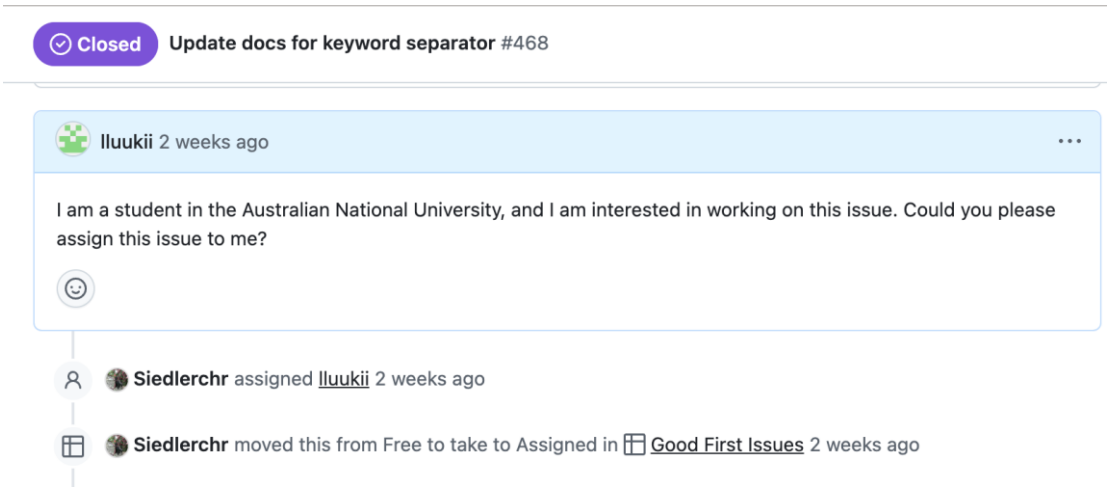
After selecting issue 10557, I immediately sent a request to the maintainer in the comment section and got assigned.



Issue #468:

https://github.com/JabRef/user-documentation/issues/468

After selecting issue 468, I immediately sent a request to the maintainer in the comment section and got assigned.



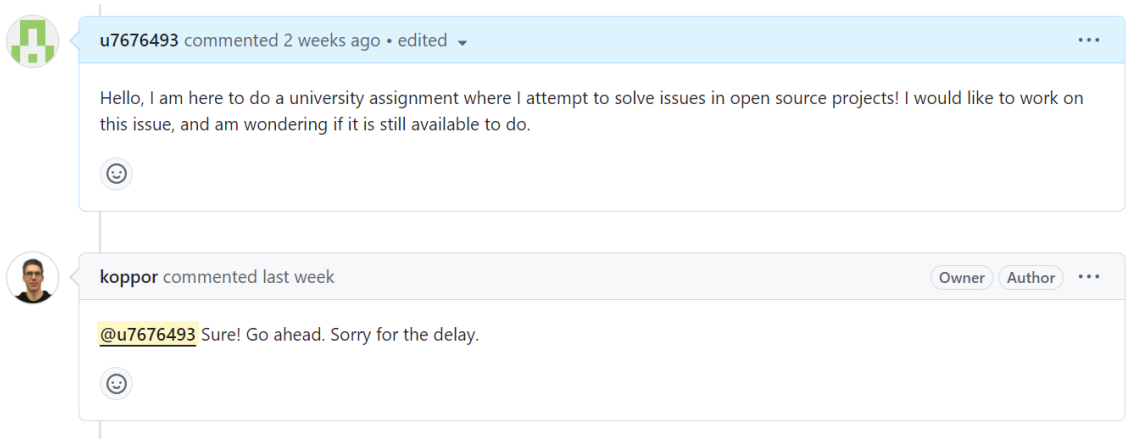
(https://github.com/JabRef/user-documentation/issues/468#issuecomment-2402233741)

Issue #549: Eric Liehne

https://github.com/koppor/jabref/issues/549

After selecting Issue 549, I sent a request to the maintainer in the comment section and my

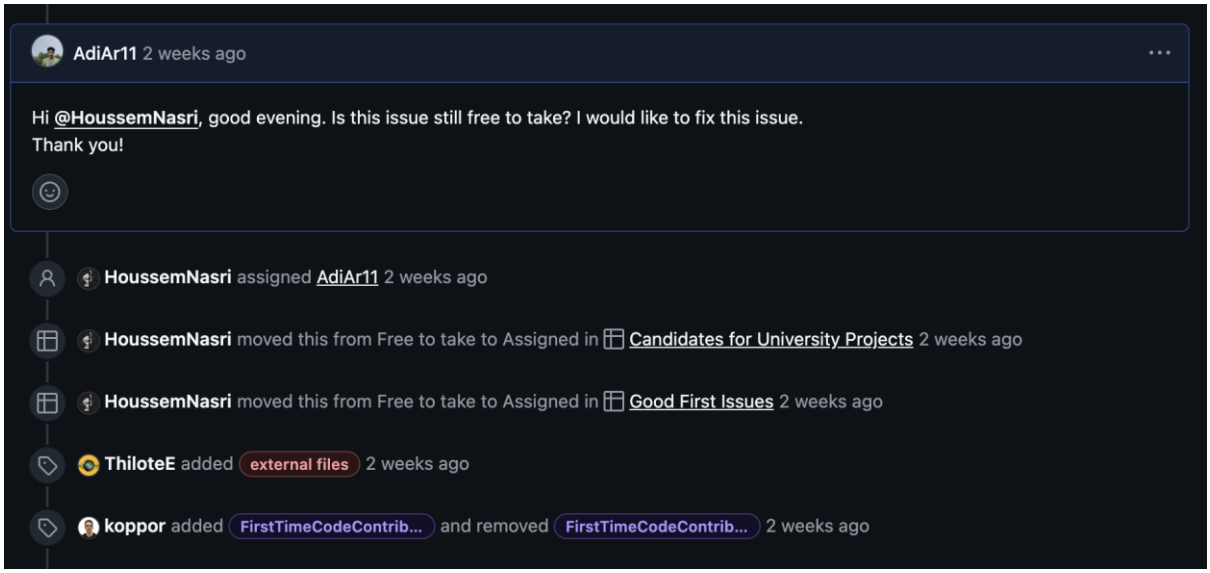
assignment was approved.



Issues #11316:

https://github.com/JabRef/jabref/issues/11316

After shortlisting this issue, I asked if the issue was still available to take and mentioned that I would like to work on this issue. This issue was previously assigned to other people, but they did not have any updates, so they were removed from assignee and the issue became free to take. I was later assigned to this issue.

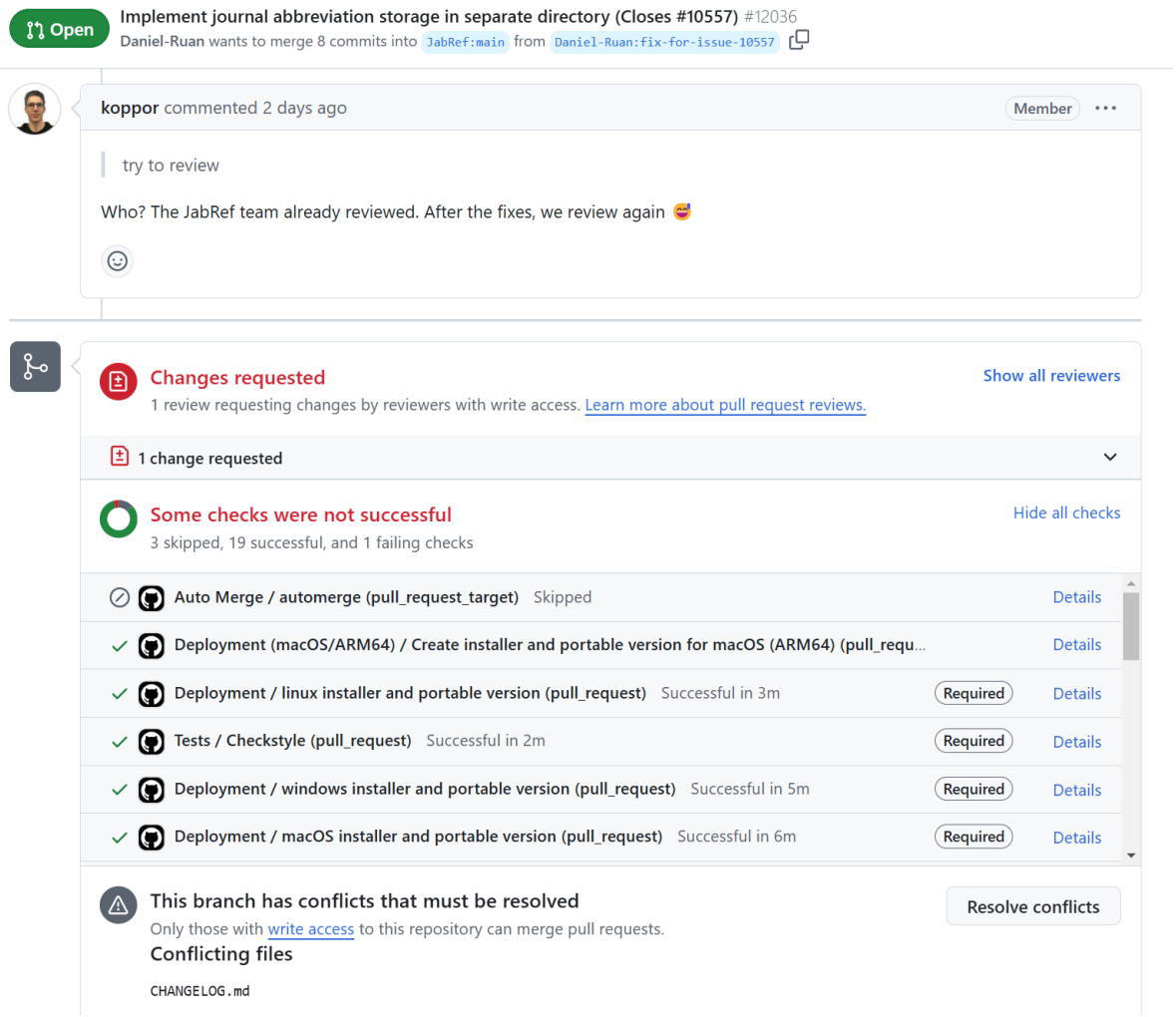


Activity 3 - Opening and Submit a PR to the project

Issue #10557:

Submitted the PR as required; however, it was not successfully merged because some unit tests did not pass.

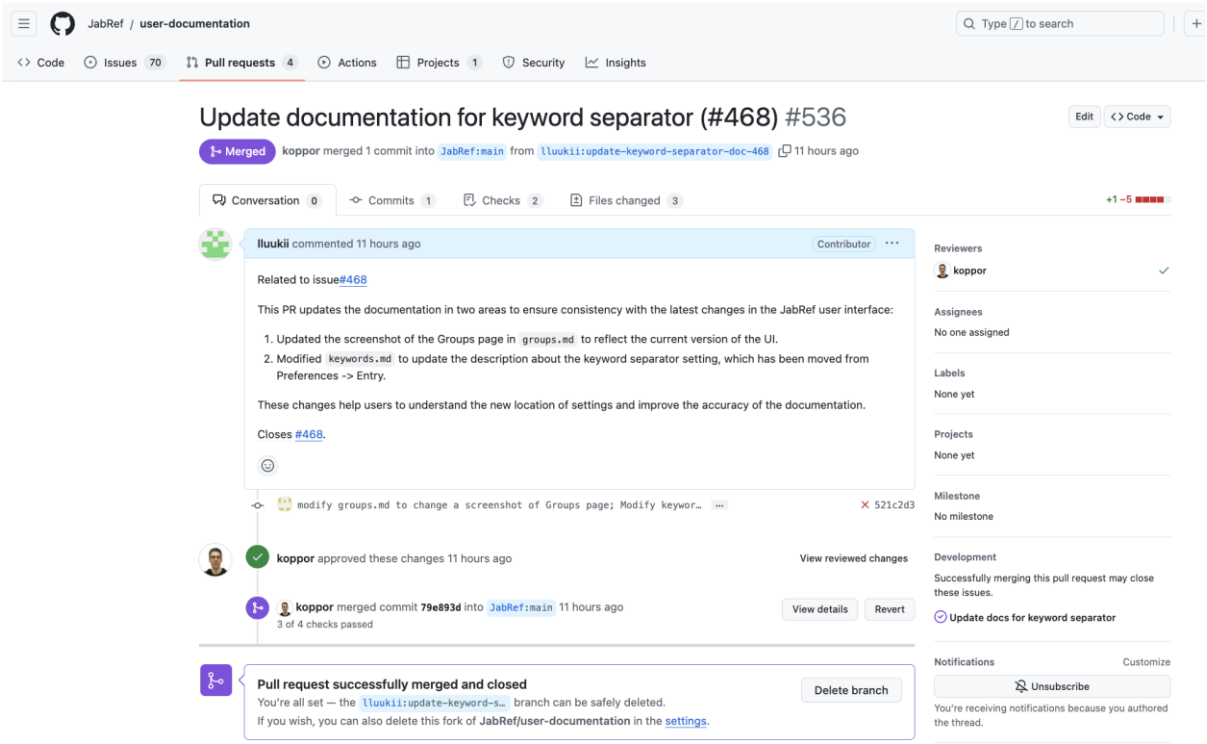
https://github.com/JabRef/jabref/pull/12036



Issue #468:

Submit PR as required, and it is successfully accepted.

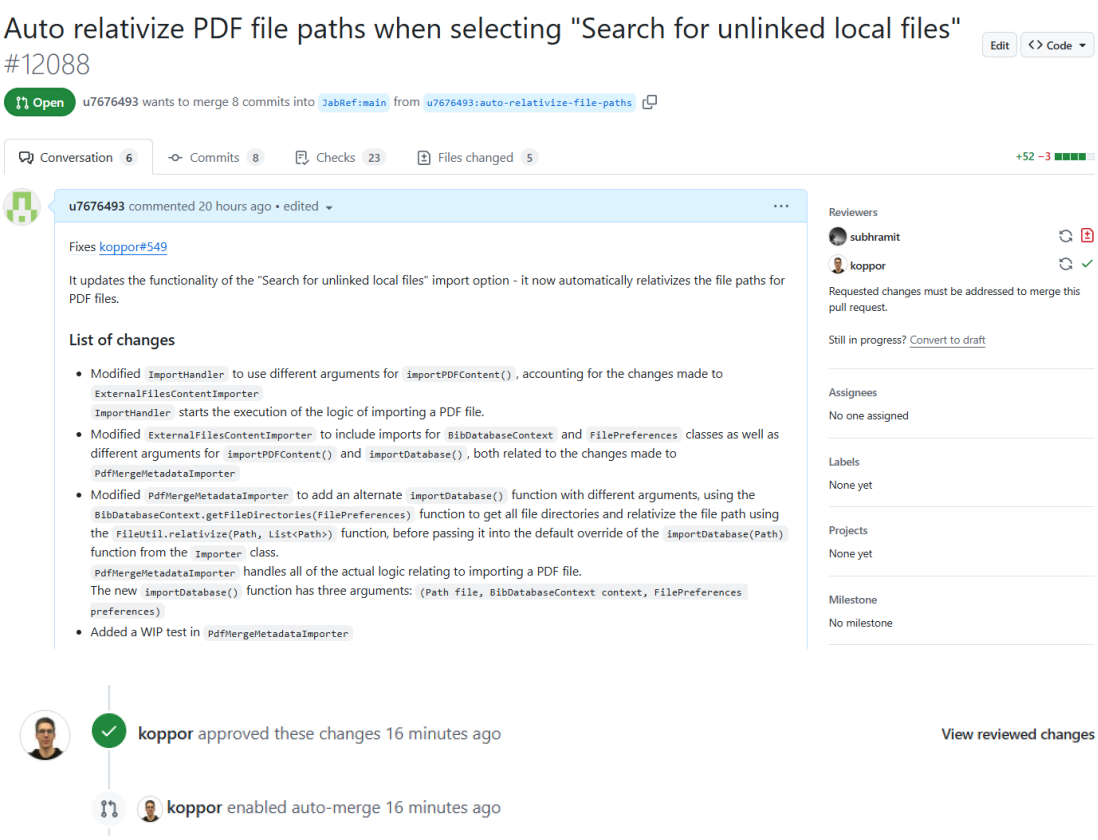
(https://github.com/JabRef/user-documentation/pull/536)



Issue #549: Eric Liehne

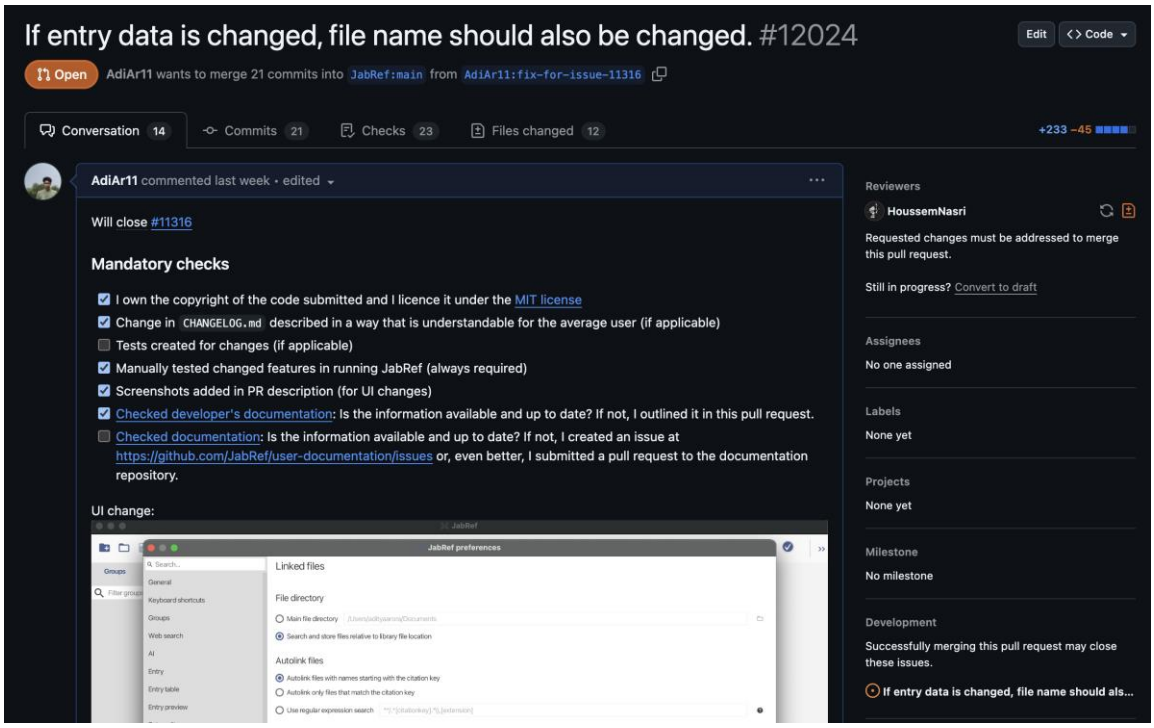
https://github.com/JabRef/jabref/pull/12088

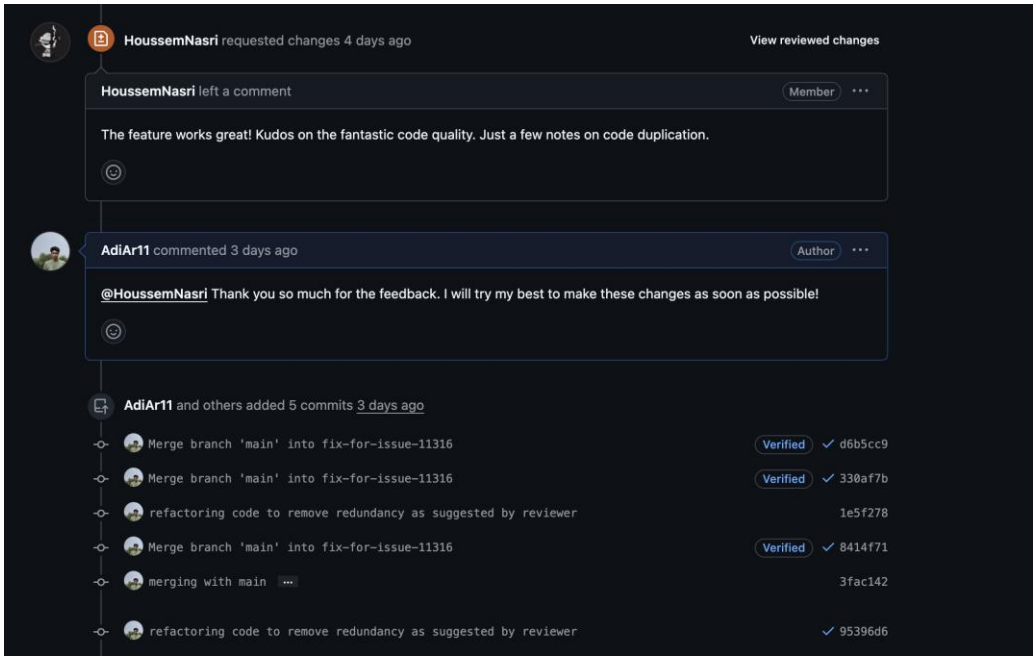
I submitted the PR as requested, and as of 27/10, it is partially approved.



Issues #11316:

https://github.com/JabRef/jabref/pull/12024





The PR is still open. I was asked to make some changes, which I did. Waiting to hear back from the reviewer. It should get merged soon once the reviewer reviews it.

Activity 4 - Documenting the Process

Documenting Issue #10557: Huizhe Ruan

Issue Analysis and Implementation

The issue "#10557: Store journal lists in separate directory" addresses the management of journal abbreviation lists in JabRef. Currently, users must manually select directories for each journal abbreviation file, making the process cumbersome. The issue proposes centralizing these lists in a single, configurable directory with automatic file detection and processing capabilities.

Personal Identification:

ANU Student ID: u7723366

GitHub Username: Daniel-Ruan

GitHub Profile: https://github.com/Daniel-Ruan

Project Guidelines and Standards:

- **Code Conventions:**

  Followed JabRef's MVC architecture pattern

  Maintained consistent code formatting and naming conventions

  Referenced existing implementations for similar functionality

- **Contribution Process:**

  Branch naming follows project convention ('fix-for-issue-10557')

  PR documentation includes clear description and implementation details

  Actively engaged with maintainers' feedback

- **Documentation:**

  Added inline code comments following project standards

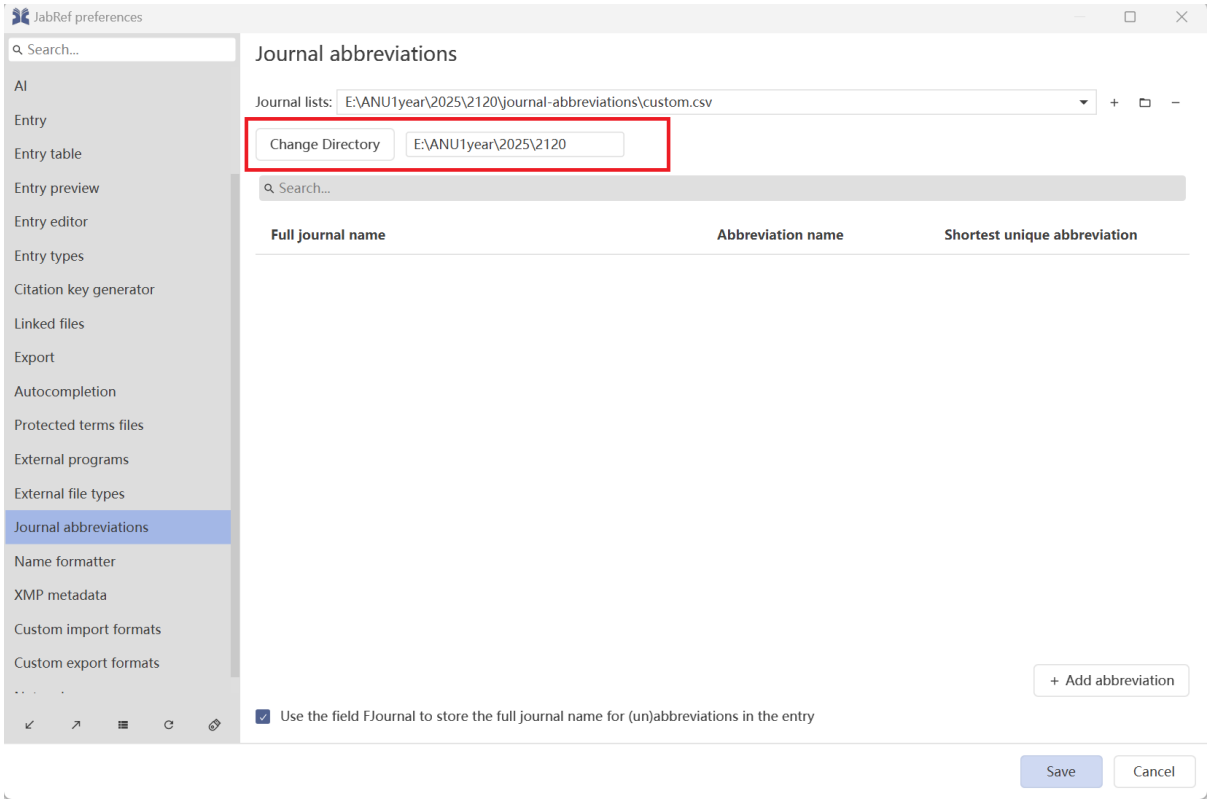
  Updated relevant documentation for new features

  Included screenshots demonstrating UI changes

Implementation Details:

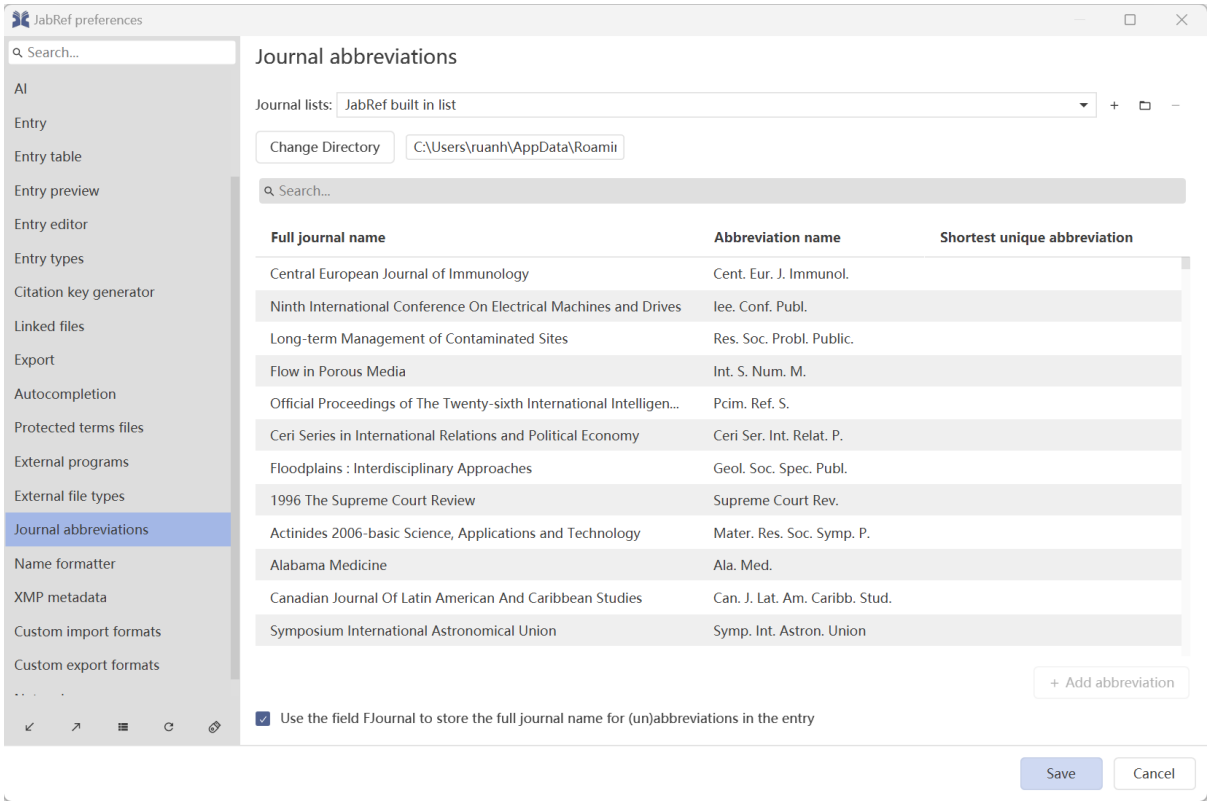
- **User Interface Changes**

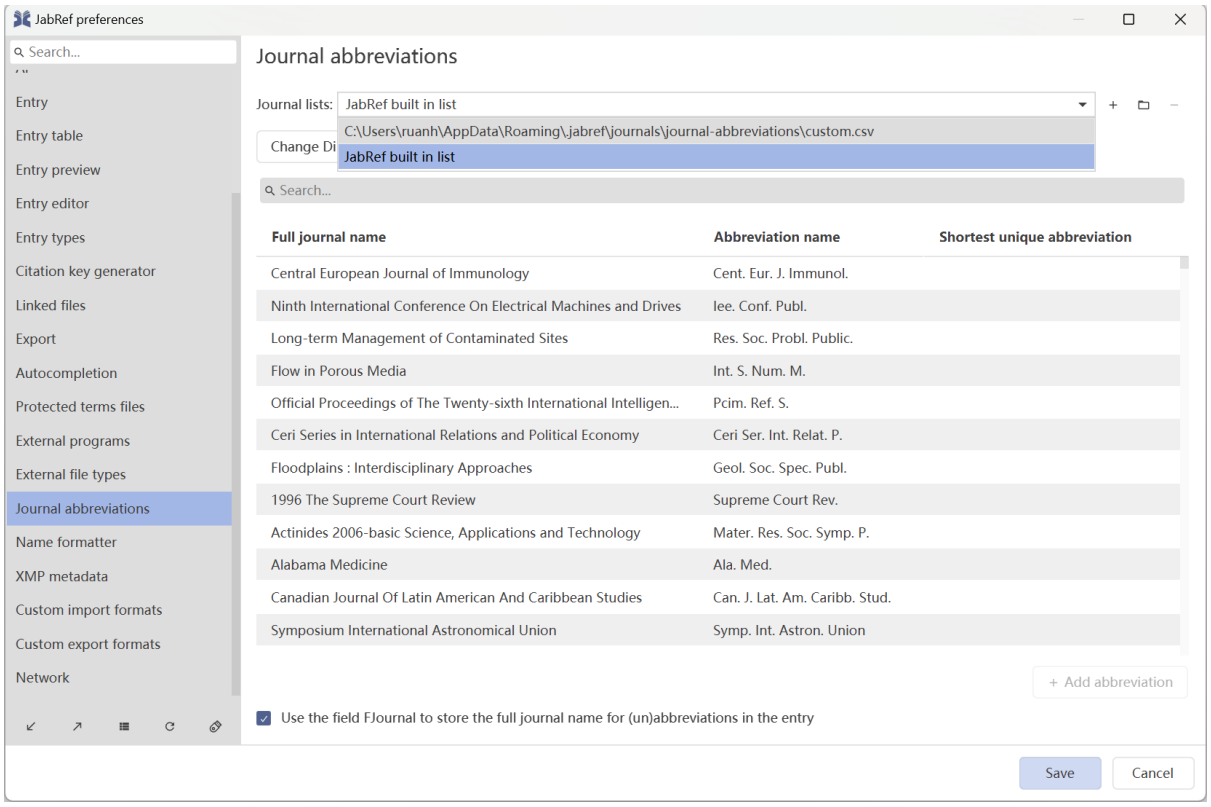
1. Added a directory selection button and text display in the preferences dialog
2. Implemented following MVC (Model-View-Controller) pattern to maintain code consistency
3. New UI elements allow users to view and modify the journal lists directory path



As shown in the screenshot, I have added content in the red area which includes:

1. A new UI component for directory selection and management:
2. Added a directory selection button
3. Added a text field displaying the current directory path
4. Implemented these changes following JabRef's established MVC pattern





New functionality for journal abbreviation management:

1. Users can now select a custom directory for storing journal lists
2. The application automatically creates a custom.csv file if none exists

3. The selected directory path is saved in user preferences
4. All journal abbreviation lists from this directory are automatically loaded

- **Logic Implementation**

1. Created getDefaultAbbreviationDir() method to manage default directory paths
2. Implemented automatic CSV file creation functionality
3. Added logic to detect and process journal lists in the specified directory

Codebase Integration:

- **Key files modified include**:

1. JournalAbbreviationPreferences.java: Added directory management functionality
2. UI components for directory selection and display
3. Logic layer modifications for file handling and preference storage

Development Process:

1. Forked and cloned the JabRef repository
2. Created branch 'fix-for-issue-10557' following project conventions
3. Implemented UI changes following MVC pattern
4. Added backend logic for directory management
5. Submitted PR with detailed documentation

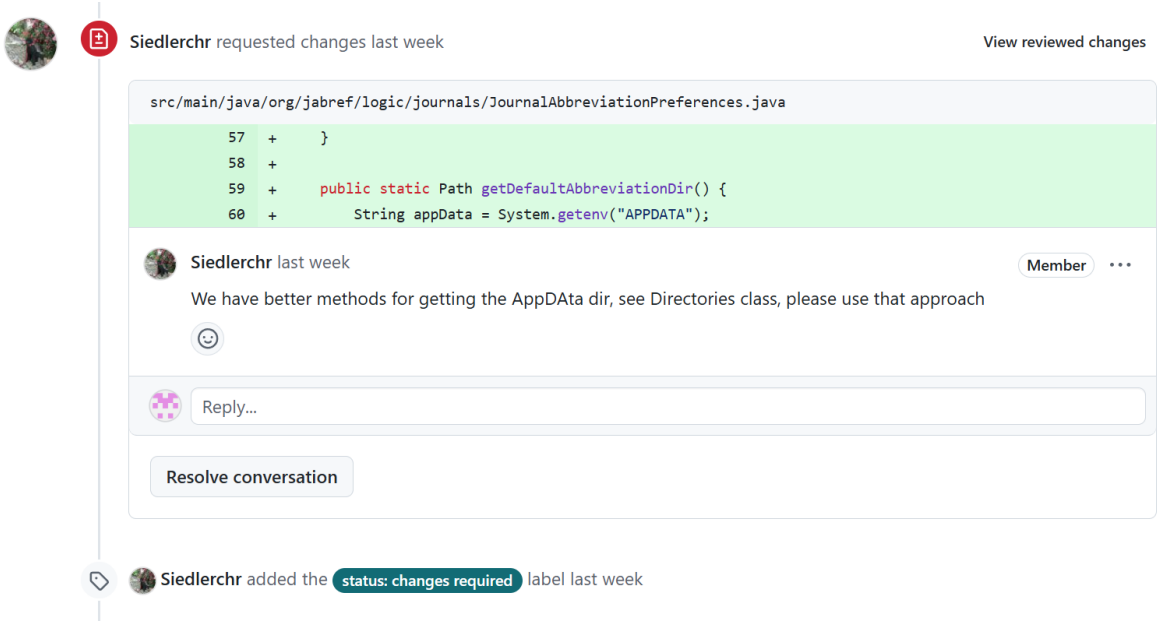
Areas for Improvement:

Current unit tests failures related to getDefaultAbbreviationDir() implementation

Code URL:

https://github.com/Daniel-Ruan/jabref/blob/fix-for-issue-10557/src/main/java/org/jabref/logic/journals/JournalAbbreviationPreferences.java#L59-L65

Need to utilize existing directory code as suggested by maintainers



As noted by the JabRef maintainers, they suggested using the existing directory code for creating the default directory. I am currently studying and researching this approach to better understand the existing codebase implementation. While my current implementation creates a functional solution, it doesn't fully align with the project's established patterns for directory management.

I remain hopeful and enthusiastic about eventually resolving these issues and successfully merging my contribution into the JabRef project.

Documenting Issue #468: Jing Lu

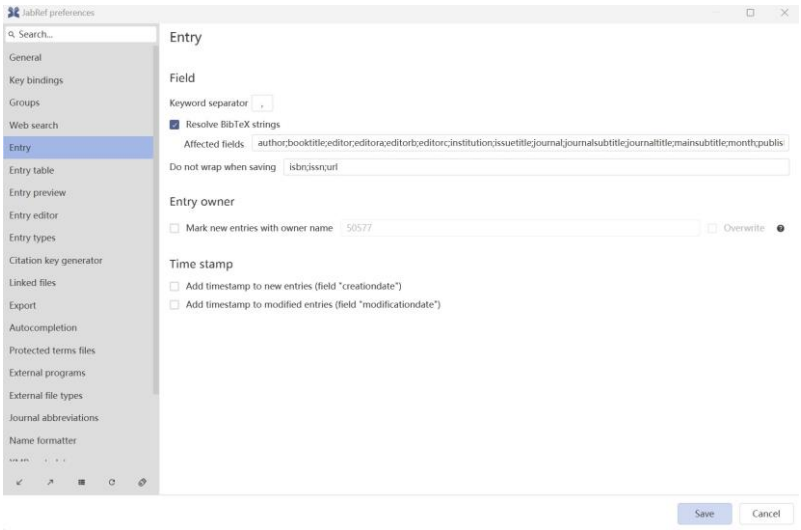
What the issue is:

The issue I worked on, Issue #468 involved updating the user documentation for JabRef's "Keyword Separator" setting. The issue at hand involved outdated documentation for the "keyword separator" setting. It required updating both textual descriptions and screenshots.

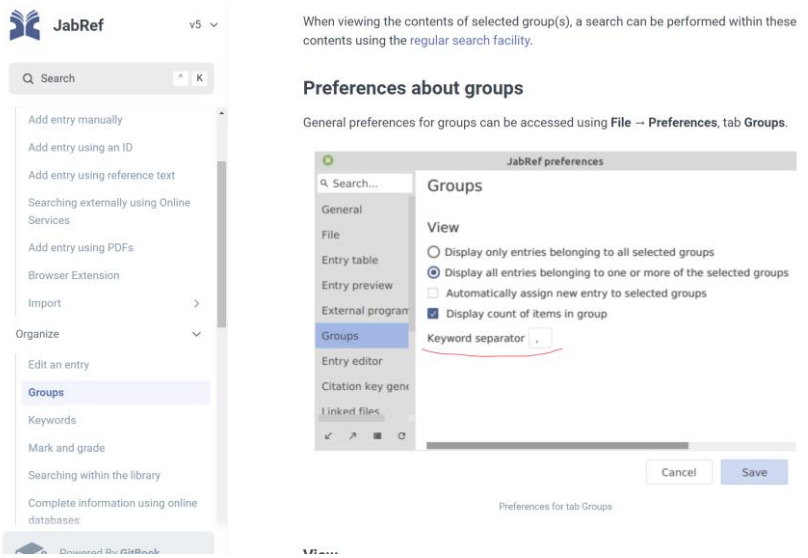
The need for this update was initially identified through Issue #177, which introduced changes

to the keyword separator feature, including limiting it to a single character and relocating the setting from Preferences -> Group to Preferences -> Entry.

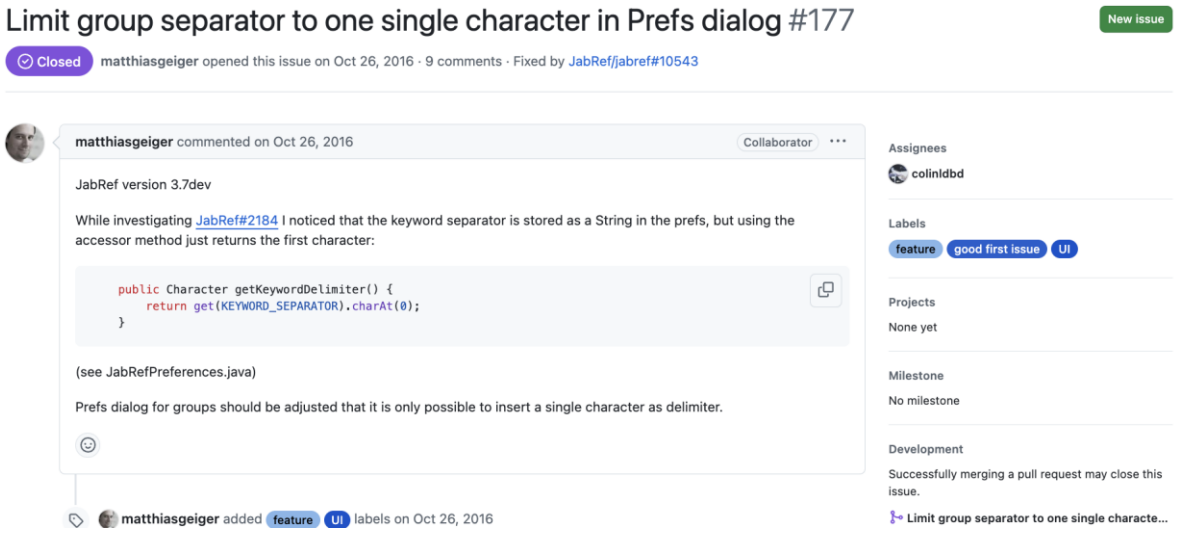
I studied the existing documentation files (groups.md and keywords.md) and navigated through the software to verify the correct settings location. By understanding how these files are structured and how they fit within the overall documentation, I was able to plan the necessary changes.



Also, the screenshots for the page under the groups section were incorrect.



The issue was triggered by an inconsistency between the current software interface and the existing documentation. This issue was discovered because of the resolution of #issue177: https://github.com/koppor/jabref/issues/177.



My original plan to resolve the issue, and the specifics of my implementation:

To address this issue, I planned to:

- Run the Jabref project, open preferences, view the current keyword location, and check the existing information for groups.
- Update the Text Descriptions: Update the relevant text in the documentation to accurately reflect the current location of the "keyword separator" setting.
- Update Screenshots: Replace outdated screenshots with new ones showing the current UI to avoid further confusion.

The specifics of my implementation included editing two files: groups.md and keywords.md, where both the descriptions and screenshots needed updates.

What relevant parts of the codebase are involved in the issue?

- Repository URL: JabRef User Documentation
- Issue URL: Issue #468
- Related Issue: Issue #177

The files involved were:

- groups.md: This file contained outdated screenshots related to the keyword separator setting.
- keywords.md: This file had the incorrect textual description of where the keyword

separator setting was located.

```
11        - By default, the keyword separator is a comma. It can be redefined in the preferences (**File → Preferences → Groups**).
      11  + By default, the keyword separator is a comma. It can be redefined in the preferences (**File → Preferences → Entry**).
12    12
```

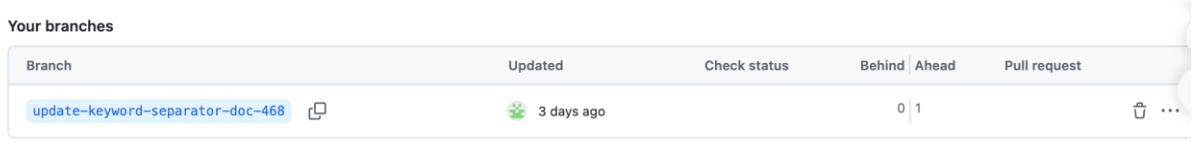
- En/.gitbook/assets: The screenshot needs to be replaced.

These files were part of the JabRef user documentation, which aims to assist users in configuring and using the software effectively.

What was involved in opening and submitting the PR?

The process of opening and submitting the Pull Request (PR) involved:

- Creating a branch: First, I created a new branch called update-keyword-separator-doc-#468 in my forked repository to implement the changes.



- Making the changes: After editing the file and testing it for accuracy, I staged the changes, committed them, and pushed them to the forked repository.
- Checking with others: After making the changes, I checked my changes with the group members in the week12 tutorial and asked the tutor for feedback after the presentation.
- PR submission: I then opened a PR to merge these changes into the main repository. The PR was titled "Update keyword separator documentation (#468)" and contained a detailed description of the changes made, why the changes were necessary, and how the changes would benefit users.

Can you explain all the relevant parts within the repository that relate to, rely on, are impacted by, or anything else by the issue you are working on? And What would solving this mean to the project?

Fixing this issue meant:

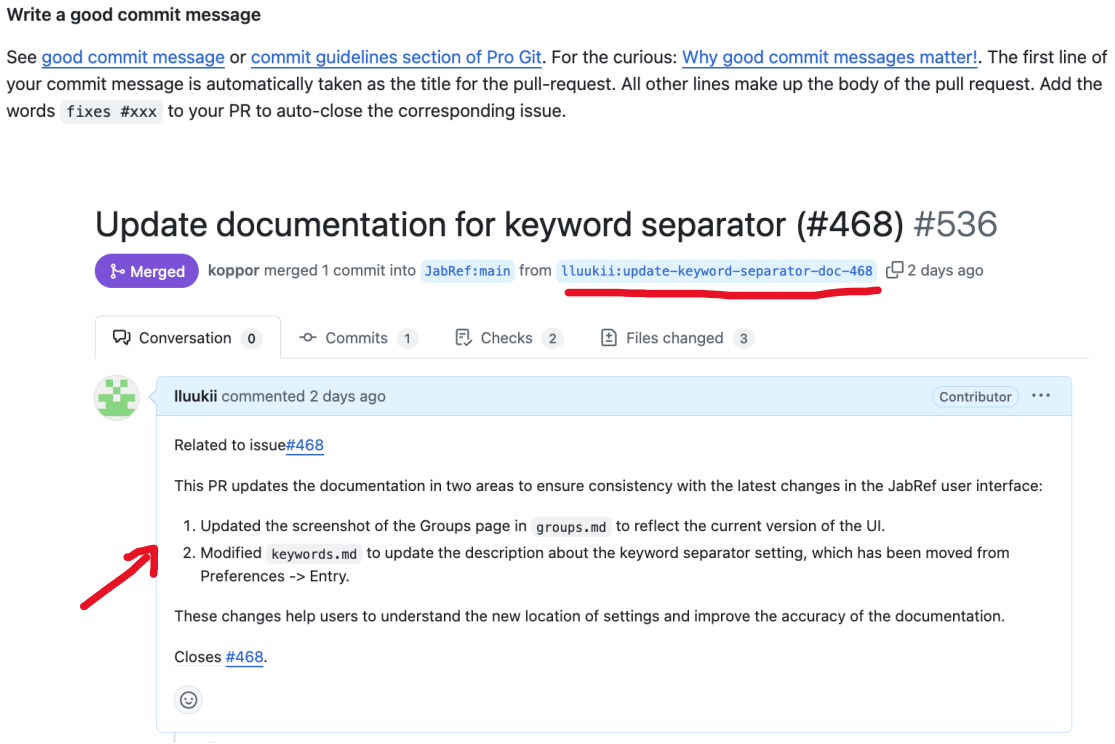
- Improved User Experience: Users would be able to follow the instructions accurately without confusion.

- Up-to-date Documentation: The documentation now accurately reflects the current state of the software, ensuring users have reliable and helpful resources.

Does your solution fit neatly into the rest of the project? Does it follow the conventions of the project?

My solution followed all project conventions:

- Consistent Formatting: The updated documentation maintained the same formatting and structure as other parts of the user manual.
- Branch Naming and Commit Messages: I used descriptive branch names and commit messages that adhered to the project's contributing guidelines.



(https://github.com/JabRef/user-documentation/pull/536#issue-2610684039)

Is it easy to understand what you have done/propose to do?

The changes I made were easy to understand:

- The PR provided a detailed explanation of what was changed, along with updated screenshots for visual reference.
- The edits were straightforward: updating screenshots and a few textual descriptions.

Are there edge cases / performance problems / other things that you (or they - the individual who opened the issue) have not considered/addressed?

There were a few things I considered:

- Accuracy of UI Descriptions: I verified that the new screenshots matched the current UI to avoid misleading users.
- Potential Updates: I also considered that the UI could change again in the future, so I made the descriptions general enough to accommodate minor adjustments without becoming immediately outdated.

Was there anything you could have improved on?

One area I could improve on would be to automate the process of validating the documentation against software updates. This would reduce the risk of the documentation becoming outdated after future software changes. Implementing a script to verify that settings descriptions match the actual UI could help maintain documentation accuracy over time.

Another area for improvement was the review process. In the process of solving this issue, the hastiest part was the review. I did not consider requesting the review of my teammates through the function on GitHub, but instead submitted the PR immediately after seeking their consent offline. Using GitHub's built-in review request feature would have formalized the process, ensured a documented review trail and made it easier for maintainers and other contributors to see who reviewed the changes and what feedback was provided.

Contributions to the issue and GitHub usernames:

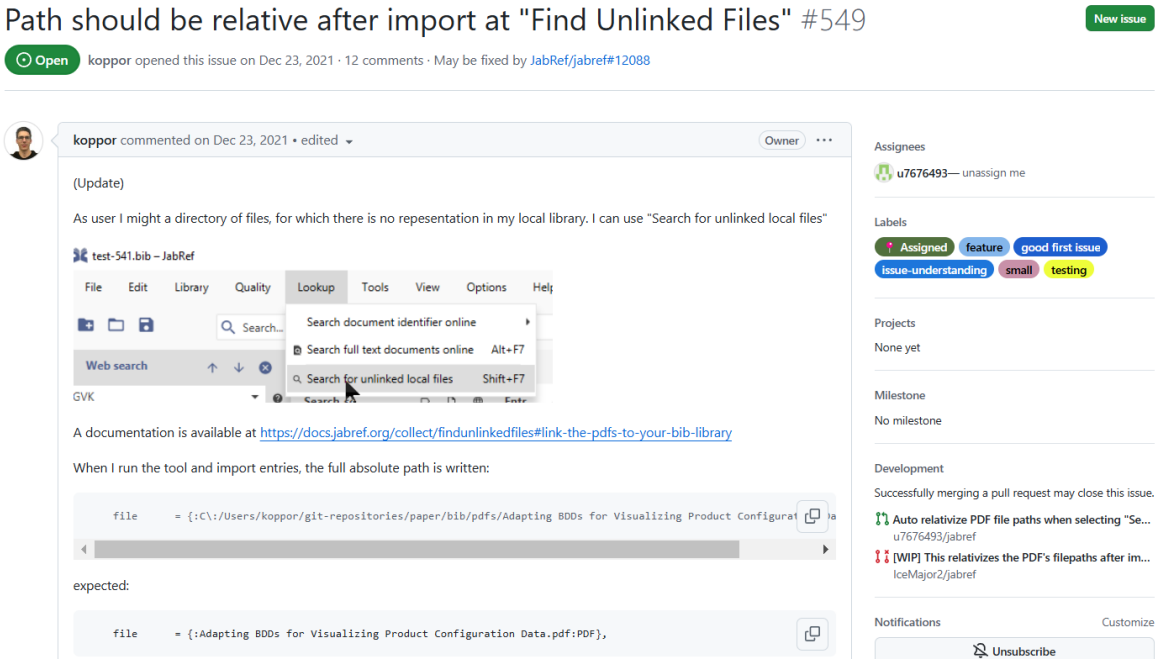
- **My Contributions**: I implemented the changes by updating both the text and images to match the current JabRef interface. I also documented the process thoroughly and ensured that the PR followed the project's conventions.
- **Collaborator Contributions**: I worked with koppor(@koppor-GitHub), who reviewed my proposed changes.
- **GitHub usernames:** lluukii(https://github.com/lluukii) and Jing Lu

(https://github.com/lluuki). Both of them are mine.

Documenting Issue #549: Eric Liehne

What is the issue?

https://github.com/koppor/jabref/issues/549

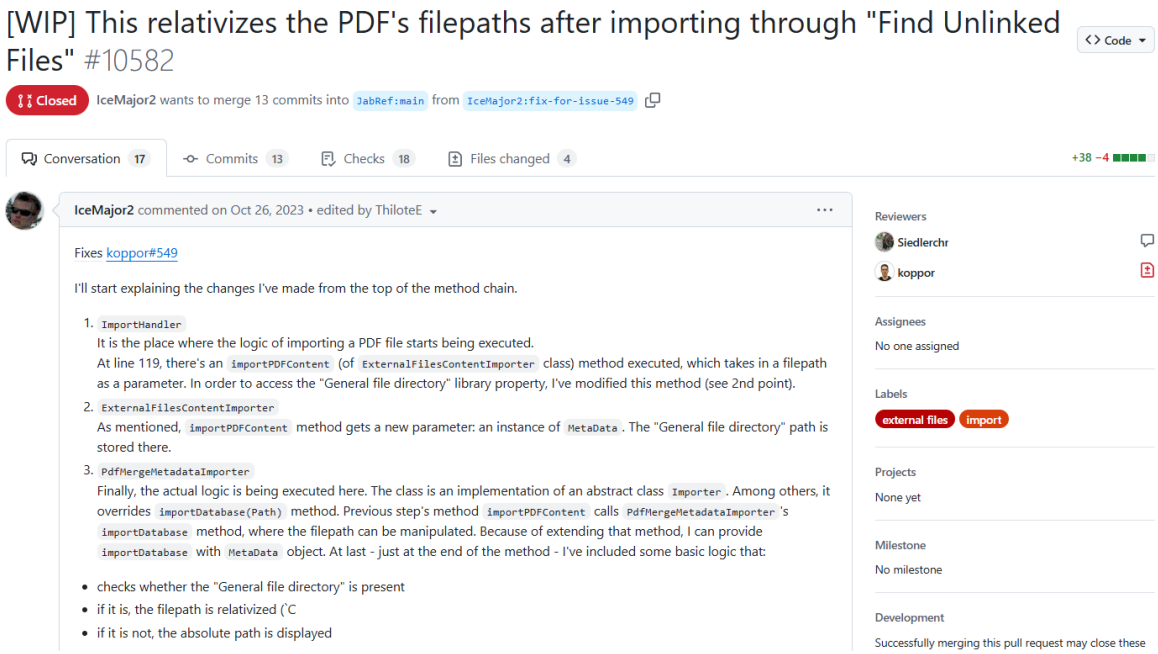


This issue involves importing files using the “Search for unlinked local files” option as outlined in the following documentation: https://docs.jabref.org/collect/findunlinkedfiles#link-the-pdfs-to-your-bib-library - attempting to import a file will not relativise the file path.

This happens because the file path is not changed by any of the functions that are used to import the file.

How I planned to solve the issue

I planned to mostly follow the previous PR (https://github.com/JabRef/jabref/pull/10582) that attempted to solve this issue (created by IceMajor2), whilst also looking at the feedback and reviews for that PR to see how I could improve on it.



[WIP] This relativizes the PDF's filepaths after importing through "Find Unlinked Files" #10582

Code

Closed IceMajor2 wants to merge 13 commits into JabRef:main from IceMajor2:fix-for-issue-549

Conversation 17 Commits 13 Checks 18 Files changed 4 +38 −4

IceMajor2 commented on Oct 26, 2023 • edited by ThiloteE

Fixes koppor#549

I'll start explaining the changes I've made from the top of the method chain.

1. `ImportHandler`
   It is the place where the logic of importing a PDF file starts being executed.
   At line 119, there's an `importPDFContent` (of `ExternalFilesContentImporter` class) method executed, which takes in a filepath as a parameter. In order to access the "General file directory" library property, I've modified this method (see 2nd point).
2. `ExternalFilesContentImporter`
   As mentioned, `importPDFContent` method gets a new parameter: an instance of `MetaData`. The "General file directory" path is stored there.
3. `PdfMergeMetadataImporter`
   Finally, the actual logic is being executed here. The class is an implementation of an abstract class `Importer`. Among others, it overrides `importDatabase(Path)` method. Previous step's method `importPDFContent` calls `PdfMergeMetadataImporter`'s `importDatabase` method, where the filepath can be manipulated. Because of extending that method, I can provide `importDatabase` with `MetaData` object. At last - just at the end of the method - I've included some basic logic that:

- checks whether the "General file directory" is present
- if it is, the filepath is relativized (`C
- if it is not, the absolute path is displayed

Reviewers
Siedlerchr
koppor

Assignees
No one assigned

Labels
external files import

Projects
None yet

Milestone
No milestone

Development
Successfully merging this pull request may close these

Relevant parts of the codebase

To improve my understanding of the codebase, I read through the changes in the previous PR for this issue, as well as comments made on and reviews of these changes.

Through this, I was able to determine that the `PdfMergeMetadataImporter`, `ExternalFilesContentImporter`, and `ImportHandler` classes would have to be modified to start the solution to this issue. I was able to determine this thanks to reading the previous PR.

```
64
65  public class ImportHandler {  Christoph +15
66
67      private static final Logger LOGGER = LoggerFactory.getLogger(ImportHandler.class);  8 usages
68      private final BibDatabaseContext bibDatabaseContext;  8 usages
69      private final GuiPreferences preferences;  20 usages
70      private final FileUpdateMonitor fileUpdateMonitor;  4 usages
71      private final ExternalFilesEntryLinker fileLinker;  4 usages
72      private final ExternalFilesContentImporter contentImporter;  3 usages
73      private final UndoManager undoManager;  2 usages
74      private final StateManager stateManager;  3 usages
75      private final DialogService dialogService;  6 usages
76      private final TaskExecutor taskExecutor;  3 usages
77
78  @   public ImportHandler(BibDatabaseContext database,  Tobias Diez +4
79                           GuiPreferences preferences,
80                           FileUpdateMonitor fileupdateMonitor,
81                           UndoManager undoManager,
82                           StateManager stateManager,
83                           DialogService dialogService,
84                           TaskExecutor taskExecutor) {
```

The start of the `ImportHandler` class as shown in IntelliJ, including the parameters for the constructor.

```
public BackgroundTask<List<ImportFilesResultItemViewModel>> importFilesInBackground(final List<Path> files, final BibDatabaseContext bib
    return new BackgroundTask<>() {  Oliver Kopp +4
        private int counter;  3 usages
        private final List<ImportFilesResultItemViewModel> results = new ArrayList<>();  2 usages

        @Override  Oliver Kopp +4
        public List<ImportFilesResultItemViewModel> call() {
            counter = 1;
            CompoundEdit ce = new CompoundEdit();
            for (final Path file : files) {
                final List<BibEntry> entriesToAdd = new ArrayList<>();

                if (isCancelled()) {
                    break;
                }

                UiTaskExecutor.runInJavaFXThread(() -> {
                    updateMessage(Localization.lang( key: "Processing file %0", file.getFileName()));
                    updateProgress(counter,  max: files.size() - 1d);
                });
```

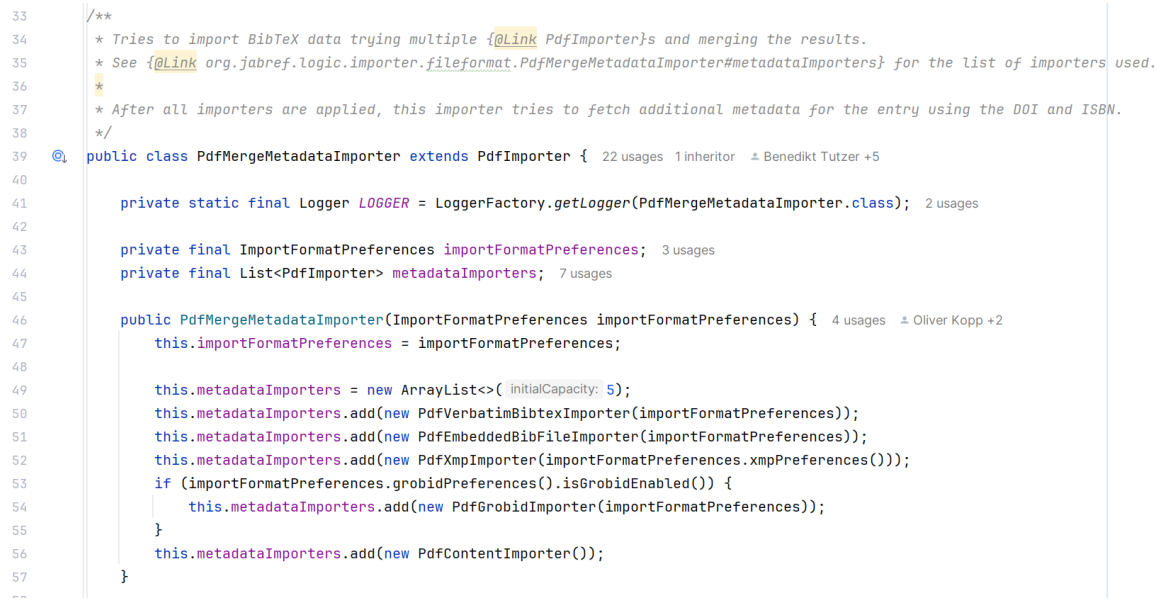
The start of the `importFilesInBackground` function as shown in IntelliJ.

The `ImportHandler` class acts as the initial point where the logic used for importing data is run, serving mostly to call functions from instances of the `Importer` class – or subclasses of it. The function that this issue focuses on is `importFilesInBackground`, which runs the `importPDFContent` function from the `ExternalFilesContentImporter` class.

```
13
14  public class ExternalFilesContentImporter {  3 usages  Christoph +5
15
16      private final ImportFormatPreferences importFormatPreferences;  3 usages
17
18      public ExternalFilesContentImporter(ImportFormatPreferences importFormatPreferences) {  1 usage  Carl Christian Snethlage +1
19          this.importFormatPreferences = importFormatPreferences;
20      }
21
22      public ParserResult importPDFContent(Path file, BibDatabaseContext context, FilePreferences filePreferences) {  1 usage  Benedikt Tutzer +1
23          try {
24              return new PdfMergeMetadataImporter(importFormatPreferences).importDatabase(file, context, filePreferences);
25          } catch (IOException e) {
26              return ParserResult.fromError(e);
27          }
28      }
29
30      public ParserResult importFromBibFile(Path bibFile, FileUpdateMonitor fileUpdateMonitor) throws IOException {  1 usage  Christoph +1
31          return OpenDatabase.loadDatabase(bibFile, importFormatPreferences, fileUpdateMonitor);
32      }
33  }
34
```

The entirety of the `ExternalFilesContentImporter` class, excluding imports and including the updated `importPDFContent` function.

The `ExternalFilesContentImporter` class is small in comparison with the other two involved classes and in this context is used solely to run the importDatabase function from the `PdfMergeMetadataImporter` class (a subclass of `Importer`) via the `importPDFContent` function.



```java
/**
 * Tries to import BibTeX data trying multiple {@Link PdfImporter}s and merging the results.
 * See {@Link org.jabref.logic.importer.fileformat.PdfMergeMetadataImporter#metadataImporters} for the list of importers used.
 *
 * After all importers are applied, this importer tries to fetch additional metadata for the entry using the DOI and ISBN.
 */
public class PdfMergeMetadataImporter extends PdfImporter {  22 usages  1 inheritor  Benedikt Tutzer +5

    private static final Logger LOGGER = LoggerFactory.getLogger(PdfMergeMetadataImporter.class);  2 usages

    private final ImportFormatPreferences importFormatPreferences;  3 usages
    private final List<PdfImporter> metadataImporters;  7 usages

    public PdfMergeMetadataImporter(ImportFormatPreferences importFormatPreferences) {  4 usages  Oliver Kopp +2
        this.importFormatPreferences = importFormatPreferences;

        this.metadataImporters = new ArrayList<>( initialCapacity: 5);
        this.metadataImporters.add(new PdfVerbatimBibtexImporter(importFormatPreferences));
        this.metadataImporters.add(new PdfEmbeddedBibFileImporter(importFormatPreferences));
        this.metadataImporters.add(new PdfXmpImporter(importFormatPreferences.xmpPreferences()));
        if (importFormatPreferences.grobidPreferences().isGrobidEnabled()) {
            this.metadataImporters.add(new PdfGrobidImporter(importFormatPreferences));
        }
        this.metadataImporters.add(new PdfContentImporter());
    }
```

The start of the `PdfMergeMetadataImporter` class, including the constructor and class description.

```java
    @Override  Benedikt Tutzer +4
    public ParserResult importDatabase(Path filePath) throws IOException {
        List<BibEntry> candidates = new ArrayList<>();

        for (PdfImporter metadataImporter : metadataImporters) {
            List<BibEntry> extractedEntries = metadataImporter.importDatabase(filePath).getDatabase().getEntries();
            if (extractedEntries.isEmpty()) {
                continue;
            }
            candidates.add(extractedEntries.getFirst());
        }
        if (candidates.isEmpty()) {
            return new ParserResult();
        }
        List<BibEntry> fetchedCandidates = new ArrayList<>( initialCapacity: 2);
        for (BibEntry candidate : candidates) {
            if (candidate.hasField(StandardField.DOI)) {
                try {
                    new DoiFetcher(importFormatPreferences).performSearchById(candidate.getField(StandardField.DOI).get()).ifPresent(fetch
                } catch (FetcherException e) {
                    LOGGER.error("Fetching failed for DOI \"{}\".", candidate.getField(StandardField.DOI).get(), e);
                }
            }
            if (candidate.hasField(StandardField.ISBN)) {
                try {
                    new IsbnFetcher(importFormatPreferences)
                            // .addRetryFetcher(new EbookDeIsbnFetcher(importFormatPreferences))
```

The start of the `importDatabase(Path)` function – the override of the equivalent function in the base `Importer` class.

The `PdfMergeMetadataImporter` class is where most of the logic is run. In the `importDatabase` function, it takes a `Path` variable (`filePath`) as its argument and parses the database in the location specified by `filePath`.

The issue I was assigned involves this function – the code does not relativize the `filePath` variable. This issue affects the "Search for unlinked local files" function, handled by the `FindUnlinkedFilesAction` class.

How I solved the issue

I mostly followed the plan I had made, updating all the required functions and considering the reviews and feedback from the previous PR.

In `ExternalFileContentImporter`, I updated `importPDFContent` to include parameters for the .bib file and preferences for linked files and created a separate `importDatabase` function in `PdfMergeMetadataImporter`, so that I could use the `getFileDirectories` function for relativising the file paths. The arguments used for the `importPDFContent` call in `ImportHandler` were changed accordingly.

The separate `importDatabase` function was created because the main `importDatabase` function serves to override the function of the same name from the superclass `Importer`. By keeping the functionality of the overriding function identical, I can avoid modifying the arguments for all uses of that function (when it is being used from `PdfMergeMetadataImporter`) and can instead just focus on changing the arguments for the most important instances of the function for the issue.

This version of the `importDatabase` function uses the same parameters as `importPDFContent(Path filePath, BibDatabaseContext context, FilePreferences filePreferences)` to allow access to the `getFileDirectories` function (which requires both `BibDatabaseContext` (as the class where the function is defined) and `FilePreferences` (as the function's sole parameter)). This is needed because the directories form the required parameter for `FileUtil.relativize` – the key function that relativises `filePath` and forms the solution for this issue.

My attempt at automated testing of the solution was not successful. I can confirm via both comments made by koppor and my own manual testing that my solution works, but the automated test I wrote exemplifies a significant problem I ended up experiencing while making this PR – I was mostly reliant on the previous PR when it came to understanding the codebase, even though the solution I had written contained a number of significant differences in how it was handled. This meant that I ended up having to use guesswork to create an automatic test for relativisation (which is necessary for updates to functionality), which lead to a test that did not run correctly.

Opening and Submitting the PR

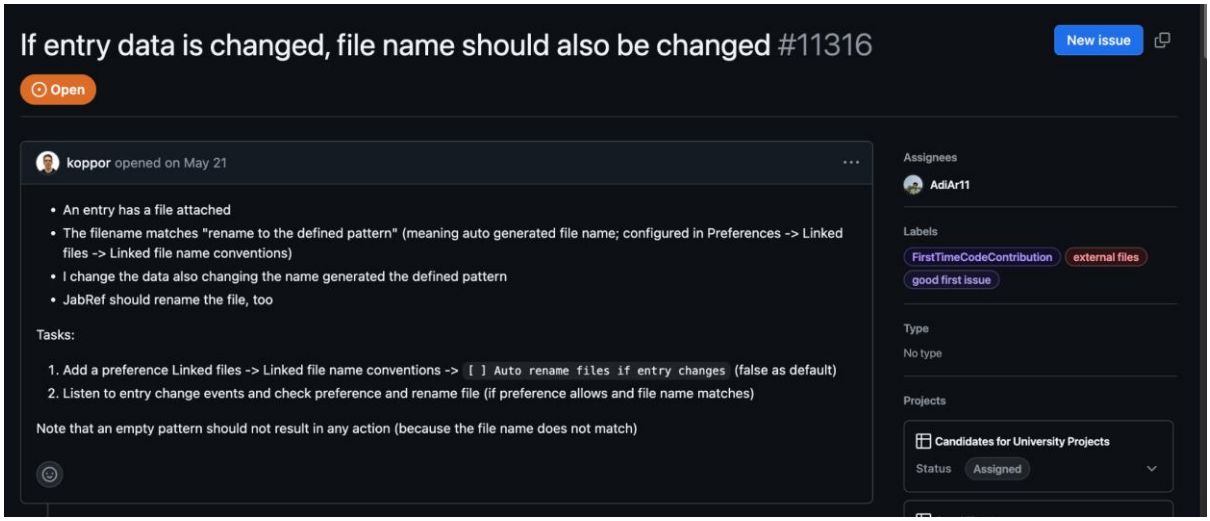
It was very easy to open and submit the PR.

GitHub Username: u7676493 (https://github.com/u7676493)

Collaborator Contributions: subhramit - Reviewed my work and suggested changes, koppor

– Reviewed my work and approved of changes

Documenting Issues #11316: Aditya Arora



Issue: https://github.com/JabRef/jabref/issues/11316

Pull Request: https://github.com/JabRef/jabref/pull/12024

Complete code on my Fork: AdiAr11/jabref at fix-for-issue-11316

GitHub Profile: AdiAr11 (Aditya Arora)

Code changes, as there are many and it is difficult to write in the report.

Issue Description

Automatic Renaming of Linked Files when Entry Data Changes

In the JabRef reference manager, users can link external files (e.g., PDFs) to bibliographic entries. The user can rename these files based on the data entries and the selected “Filename format pattern” in the settings. However, when users update the entry data (e.g., changing the tile), the linked file names do not automatically update to reflect these changes.

Current Behavior

1. An entry in JabRef can have attached files

2. These files can be named according to a defined pattern (configured in Preferences -> Linked files -> Linked file name conventions)
3. Currently, if you change the entry data (like author, title, year, etc.), the attached file name doesn't automatically update to match the new pattern

This results in a discrepancy between the file names and the updated metadata.

How the Issue Is Triggered:

1. **Initial Setup:**
    a. The user defines a filename pattern (e.g., [bibtexkey] - [title]) in the preferences.
    b. Users fills the required entry fields and links a file to an entry. The user then right clicks on the file and selects “Rename file to defined pattern” and it is named according to the current entry data.
2. **Updating Entry Data:**
    a. The user edits the entry's fields that are part of the filename pattern (e.g., updates the citation key or modifies the title).
3. **Resulting Discrepancy:**
    a. Despite the changes, the linked file's name does not update to reflect the new metadata.
    b. This causes the file name to be out of sync with the entry's data.

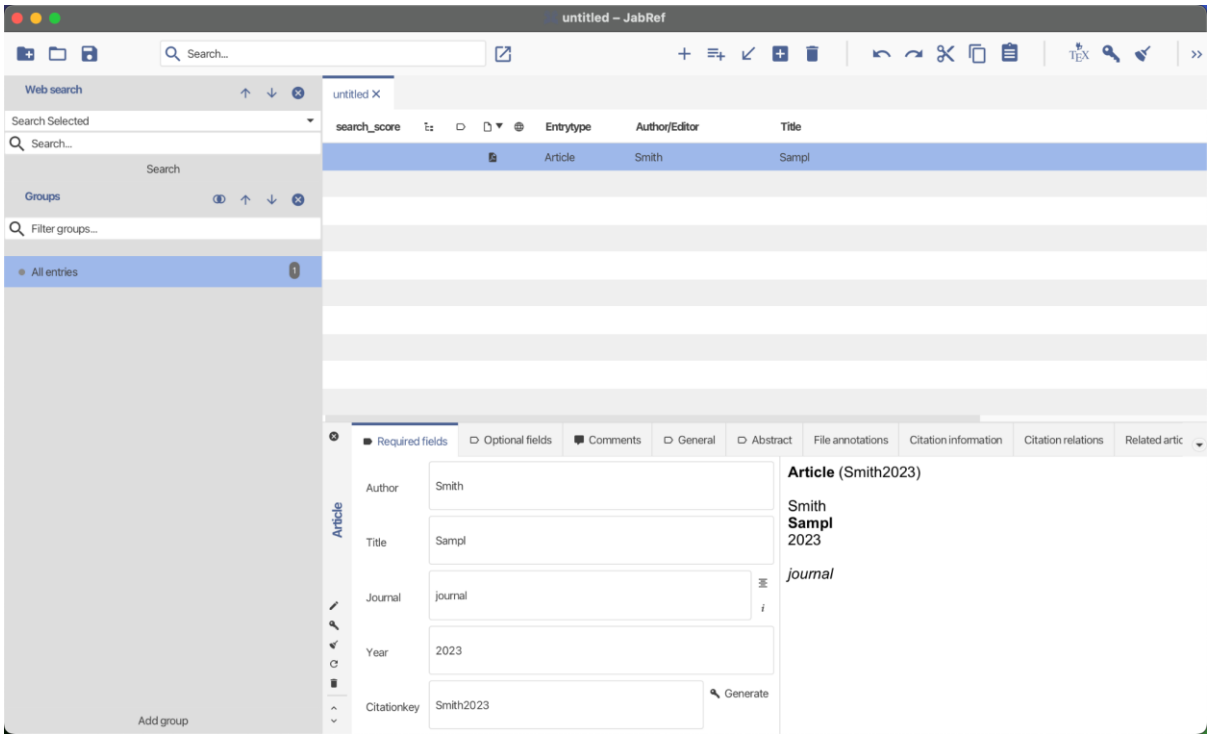


Figure: User creates a new Library and creates a new Entry of type Article by clicking Command + N and fills in the required fields.

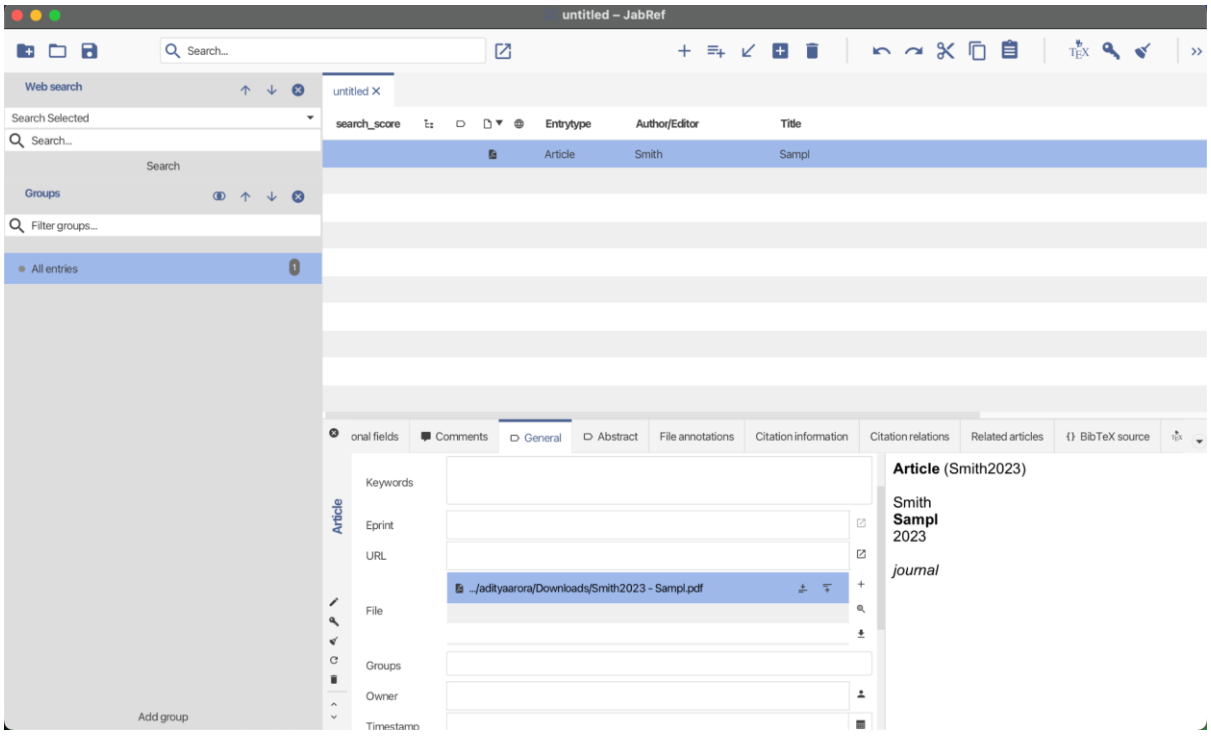


Figure: User links a file, right clicks on it and selects" Rename file to defined pattern"

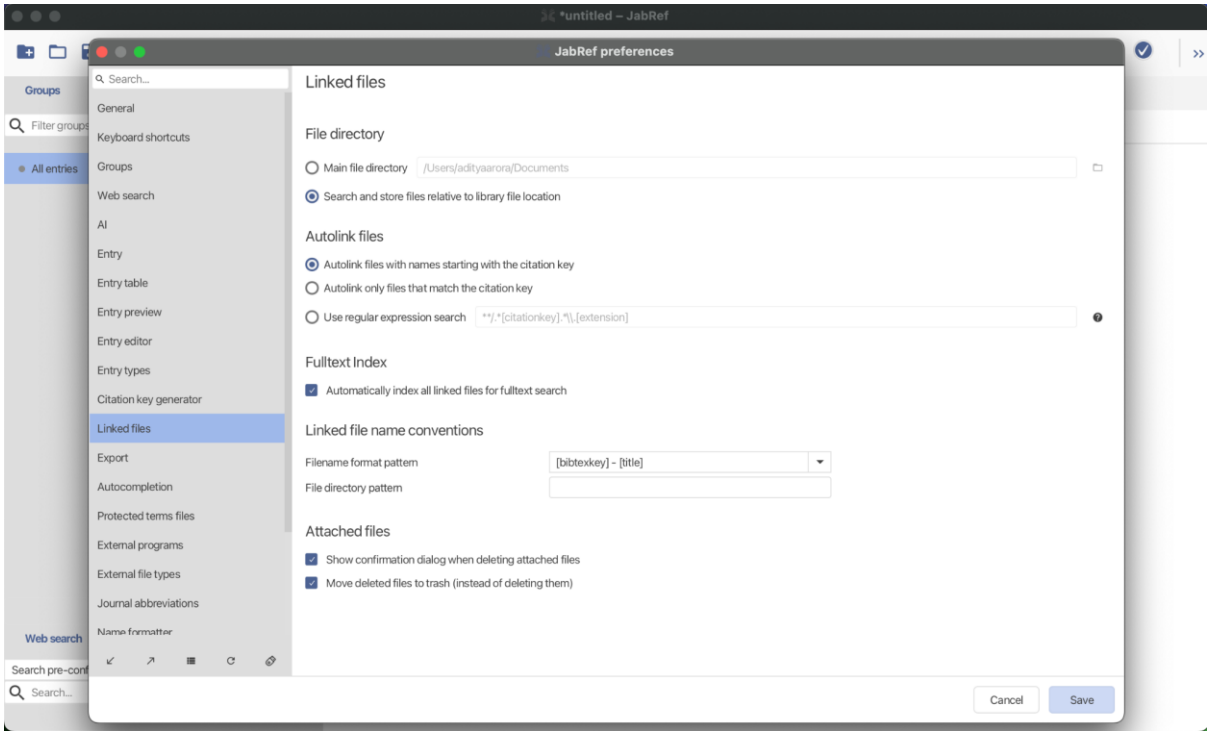


Figure: Linked file name gets changed to the selected Filename format pattern.

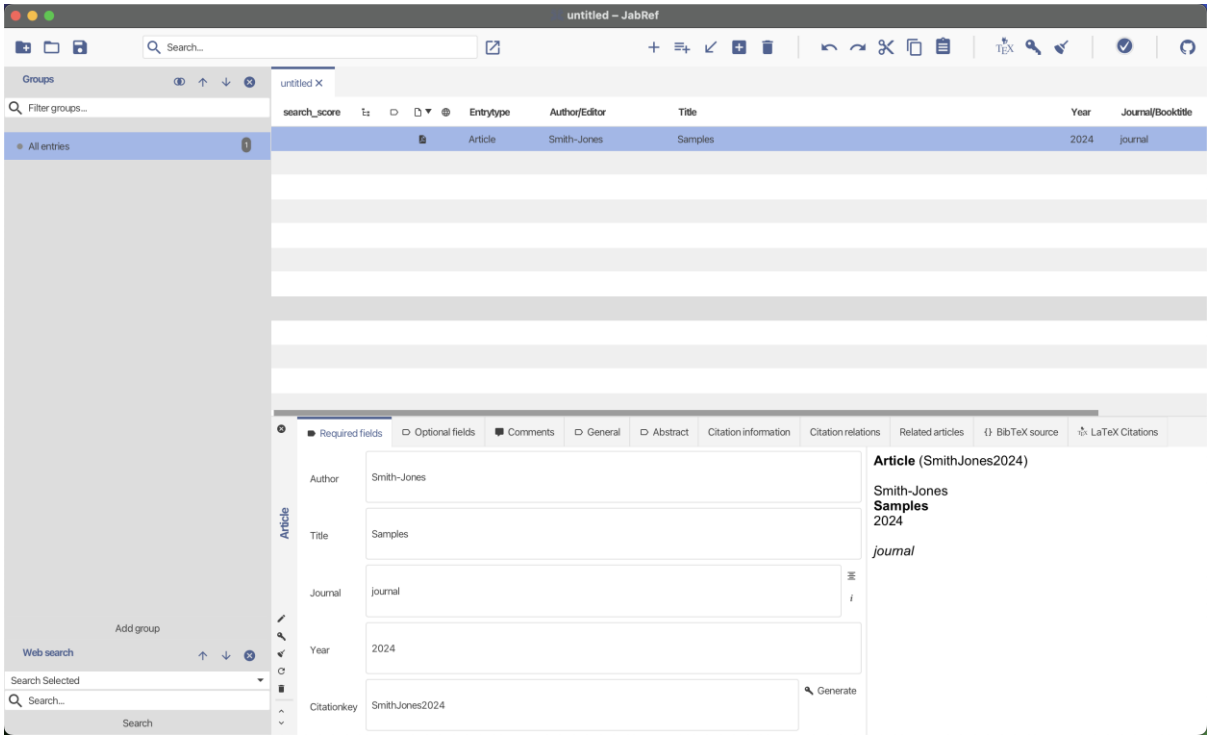


Figure: User changes the entry fields. The Linked filename does not change, creating discrepancy.

Example Scenario

1. **Before Change:**
    a. Entry has bibtexkey: Smith2023
    b. Entry has title: Sampl
2. Linked file name after selecting “Rename file to defined pattern” (using pattern [bibtexkey] - [title]): Smith – Sampl.pdf
3. **After Change:**
    a. User updates bibtexkey to SmithJones2024
    b. User updates title to Samples
    c. Linked file name remains: Smith – Sampl.pdf

Requested Solution:

- Add a new preference checkbox option (at Location: Preferences -> Linked files -> Linked file name conventions).
- Implement an automatic renaming feature that updates linked file names whenever the relevant entry data changes.

After understanding the issue, I planned my approach at a high level before starting the actual implementation. My strategy was as follows:

1. **Add a User Preference Checkbox**: Introduce a new checkbox in the preferences under **"Preferences → Linked files → Linked file name conventions"** to allow users to enable or disable the automatic renaming feature.
2. **Listen for Entry Field Changes**: Implement an event listener that detects when any relevant field in a bibliographic entry changes. I intended to use print statements to trace where these events occur in the codebase.
3. Change the filename to the Selected “Filename format pattern”

- I had to go through the following documentation, which was provided in the issue only, to understand how this worked:
    - https://docs.jabref.org/advanced/externalfiles
    - https://docs.jabref.org/finding-sorting-and-cleaning-entries/filelinks
- I also went through all the steps in their developer documentation to setup the project and get it running on my local machine
    - https://devdocs.jabref.org/getting-into-the-code/guidelines-for-setting-up-a-

local-workspace/

- Even JabRef's code style: https://devdocs.jabref.org/getting-into-the-code/guidelines-for-setting-up-a-local-workspace/intellij-13-code-style.html

- Also went through their Contribution documentation:
  - https://github.com/JabRef/jabref/blob/main/CONTRIBUTING.md

Brief Overview of Specifics of my Implementation

1. **Adding the Preference Checkbox:**

   a. Locating UI File:

      i. Used global search for "Linked file name conventions"

      ii. Found text in LinkedFilesTab.fxml

      iii. Located related files:

         1. LinkedFilesTab.java
         2. LinkedFilesTabViewModel.java

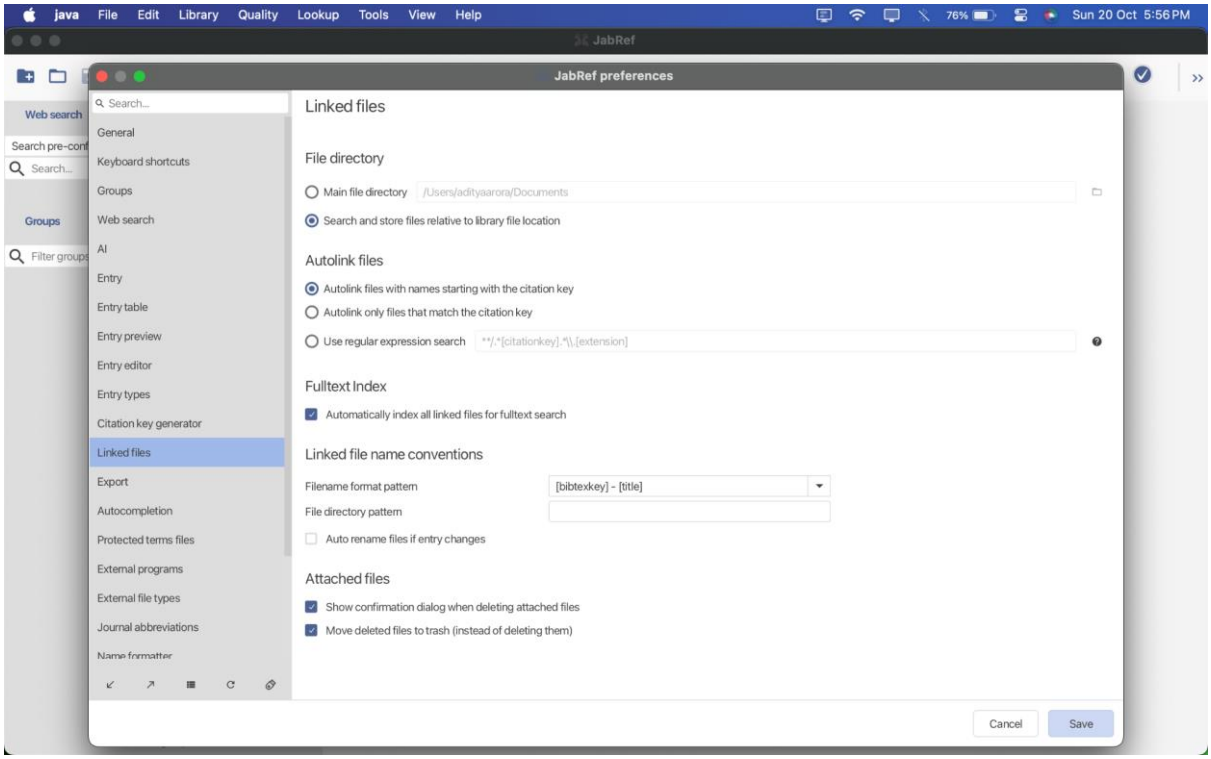
   b. **Adding the Checkbox**:

      i. I noticed that the fxml UI file already had existing checkboxes for other preferences.

      ii. To maintain consistency, I copied one of the existing checkbox elements and modified it's: *id* and *text*

```
<CheckBox fx:id="autoRenameLinkedFiles" text="%Auto rename files if entry changes" />
```

      iii. Connected it to the appropriate property in the LinkedFilesTabViewModel.java to store the user's preference.



2. Listening for Entry Field Changes:

a. Identify Event Dispatch Points:
   i. Inserted print statements in the code to trace where event is triggered when a field changes.
   ii. It is determined that this event is dispatched when relevant fields in a BibEntry are modified.

b. Implement Event Listener:
   i. Created a new class LinkedFileAutoRenamer.java
   ii. Added a method annotated with @Subscribe to listen for this event.
   iii. Registered this listener with the database in LibraryTab.java to receive events.

3. Renaming Linked Files:

a. **Extract Relevant Fields from Pattern:**
   i. Used BracketedPattern.expandBrackets with a custom function to extract field names from the filename pattern.
   ii. Enhanced FileUtil.java with renameLinkedFileToName method.
   iii. Utilized this function in the data entry change event listener to change the file names of all linked files.

PR Process:

1. **Forking and Cloning the Repository:**
    a. **Forked** the JabRef main repository on GitHub to create a personal copy.
    b. **Cloned** the forked repository to my local machine to begin development.
2. **Setting Up the Local Workspace:**
    a. Followed JabRef's setup-guide to configure my environment in IntelliJ IDEA.
    b. Ensured that the project ran correctly and adhered to JabRef's code style conventions.
3. **Creating a New Branch:**
    a. Created a dedicated branch for the feature, named fix-for-issue-11316
    b. git checkout -b fix-for-issue-11316
4. **Implemented the Code Changes and regularly made commits with good message description.**
5. **Manually tested the implementation**
6. **Pull Request Submission**
    a. Created PR #12024, which was a Draft Pull Request initially, when I was still working on implementing the feature.
    b. Opened the Draft Pull Request for Review when I was done with my changes
    c. Added "fixes #11316" to auto-close the issue
    d. Attached Screenshots for UI changes
7. **Review Process**
    a. Monitored the PR for comments and feedback from maintainers.
    b. Made requested changes promptly, such as refining code logic and removing code duplicity.
    c. Pushed additional commits to the same branch, which automatically updated the PR.

- I don’t think I can explain all relevant parts of the repository that relate to my issue. For example, I found a method already existing in FileUtil.java to parse file name pattern. I do not understand how it works, I just apply Abstraction principle of OOP, where I believe that it will work, and use it to implement the feature requested.
- My solution integrates neatly with the JabRef project by utilizing existing classes like BracketedPattern.java and LinkedFileHandler.java, ensuring consistency and trying to avoid code duplication. I adhered to the project's coding standards and UI patterns when adding the new preference checkbox in LinkedFilesTab.fxml.
- The solution I wrote should be easy enough to understand for someone who is already familiar with the codebase, although it can take some time to understand it as it is quite long.

Activity 5 - Work/Consistency in the Repository

It was included in the previous content.