

Student Name	Ajit Jaywant Jadhav
Project	Bibliography management and display
Organization	CDLI

ABSTRACT

CDLI is moving away from its older flat database and, for the occasion, has designed a full model for bibliographic data management. This challenge concerns in the first place, the conception of the management pages for this data, and in second, the display of bibliographic data. In order to make CDLI's bibliographic data more useful, it should be easily manageable by the admin, but also have a nice linked display and be exportable in BibTeX and other formats for the users.

ABSTRACT	1
OUTLINE AND METHODOLOGY	2
Necessary components for the task:	2
Linking artifacts and publications	2
Linking authors and publications	6
Modifying the existing add and edit functions	9
Bulk export citations	11
Documentation	15
Good to have features:	15
Bulk upload publications	15
SCHEDULE	18
DELIVERABLES	21
TECH-STACK	21

BONUS TASK	21
Merge Publications Feature	22
Merge Feature for Other Tables	24
FALLBACK PLAN	24
CDLI CONTRIBUTIONS	25
WHY I AM BEST SUITED FOR THE PROJECT	25
PAST RELEVANT PROJECTS	26
ABOUT ME	27
Details	27
Profiles	27
Current Education Details	27
Time commitment for the project and other commitments	27

OUTLINE AND METHODOLOGY

Necessary components for the task:

Linking artifacts and publications

There will be three ways for the admin to link the artifacts and publications to each other.

1. From the view page of the publication, where we can link artifacts to the given publication.

VIEW PUBLICATION

Year	
Entry Type	req
Address	
Annote	
Book Title	In Honor of Ernest R. Lacheman on His Seventy-fifth Birthday, April 29, 1981
Chapter	
Crossref	
Edition	
Editor	
How Published	
Institution	
Journal	
Month	
Note	
Number	
Organization	
Pages	1-9

RELATED ACTIONS

[Edit Publication](#)
[Delete Publication](#)

[List Publications](#)
[New Publication](#)

[List Entry Types](#)
[New Entry Type](#)

[List Journals](#)
[New Journal](#)

[List Abbreviations](#)
[New Abbreviation](#)


[List Artifacts](#)
[New Artifact](#)

[List Authors](#)
[New Author](#)

For the above shown publication view, we will add a “Link Artifacts” function to the “Related Actions” section.

This will lead to a page for linking the publication to the artifacts as shown:

Linking artifacts using their artifact ids to the Publication <selected publication id>:

Artifact ids:	Publication type:	Exact reference:	
<input type="text"/>	(Dropdown)	<input type="text"/>	
<input type="text"/>	(Dropdown)	<input type="text"/>	 Add slot

Bulk linking of publications and artifacts using file uploads:

As shown in the upper part of the page, admin can input the list of all artifact ids that need to be linked to the selected publication.

Increasing the number of artifact id input fields for linking more artifacts can be done using the “Add slot” button, clicking on which will lead to more input boxes showing up.

Technical details:

- Checking if the input artifact ids are valid.
2. From the view page of the artifact, where we can link the publications to the given artifact.


VIEW ARTIFACT		RELATED ACTIONS
Ark No	21198/zz001q0dtm	Edit Artifact Delete Artifact List Artifacts
Primary Publication Comments	31x61x18; Lü A 14-16.30-32.48-50; M XVIII, auf Hügeloberfläche in der Nähe des Irigai; veröffentlicht in: ATU 1, 594; vgl. ATU 1, S. 44-45.	New Artifact
Cdli Collation		List Proveniences New Provenience
Composite No		List Periods New Period
Condition Description		List Artifact Types New Artifact Type
Created	12/4/2001	List Archives New Archive
Date Comments		List Artifacts Composites New Artifacts Composite
Modified	9/4/2017	List Artifacts Seals New Artifacts Seal
Designation	CDLI Lexical 000002, ex. 065	List Artifacts Shadow New Artifacts Shadow
Electronic Publication		List Inscriptions New Inscription
Elevation		List Retired Artifacts New Retired Artifact
Excavation No	W 06435.a	List Credits New Credit
Findspot Square	M XVIII,?	List Collections New Collection
Join Information		List Dates New Date
Museum No	VAT 01533	List External Resources New External Resource
Artifact Preservation		List Genres New Genre
Seal No		List Languages New Language
Stratigraphic		List Materials New Material
		List Publications New Publication

Similar to the first case, for the above shown artifact view, we will add a “Link Publications” function to the “Related Actions” section.

This will lead to a page for linking the publications to the artifacts as shown:

Linking publications using their bibtex keys to the Artifact <selected artifact id>:

Bibtex keys:	Publication type:	Exact reference:
<input type="text"/>	(Dropdown)	<input type="text"/>
<input type="text"/>	(Dropdown)	<input type="text"/>

 Add slot

Link Publications

Bulk linking of publications and artifacts using file uploads:

Select file from local system

Upload file

Save Links

Technical details:

- Checking if the bibtex keys are valid.
- Enforcing unique bibtex keys for the publications.
- Fetching the publication id using the bibtex key and performing linking.

3. From a separate page where we can upload CSV files storing the link between different artifacts and publications.

As shown in the above two cases, we have an option to link artifacts and publications using a file (depicted at the bottom half of the page), which will be the exact same for both the pages.

We can select a file from the local system to upload and based on the file content, links will be made.

Technical details:

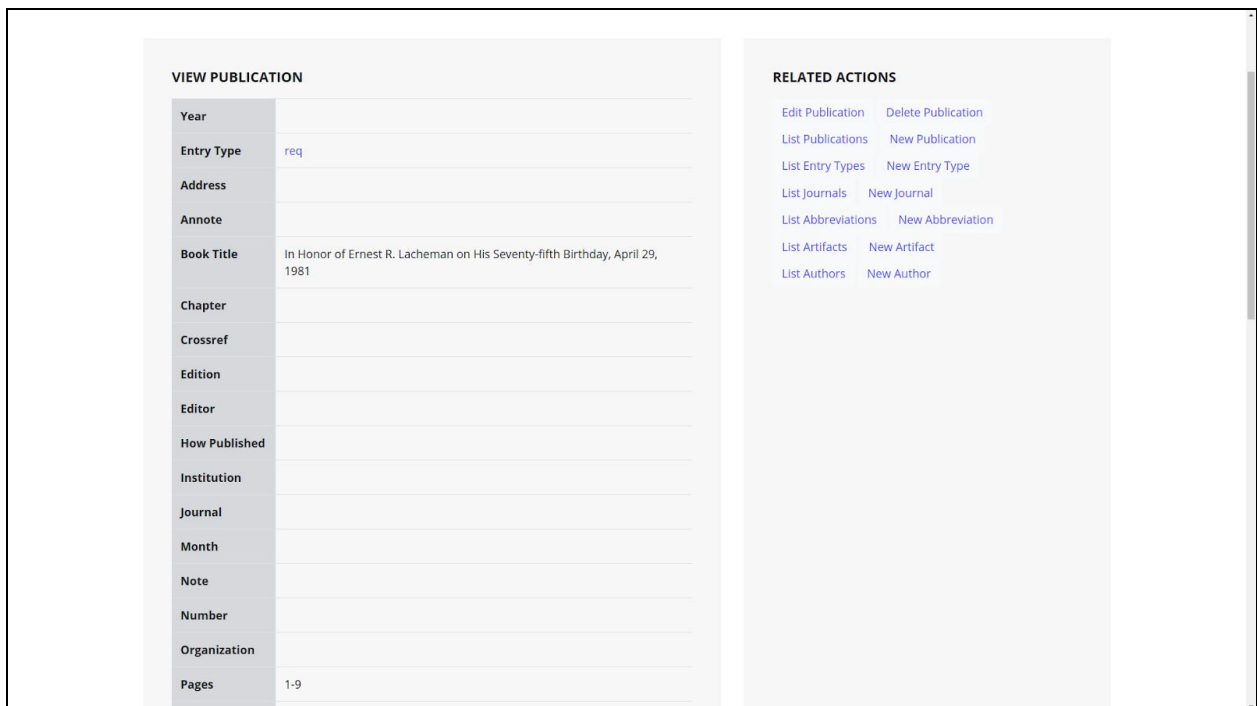
- Checking if the uploaded file is saved in the valid required format.
- On clicking “Save Links” for the bulk file linking, checking if all the artifact ids and the bibtex publication keys are valid and only then proceeding to link them.

- File format:
 - Each line will correspond to one entry linking a certain artifact to a certain publication.
 - For each line, the format will be: (artifact id, publication bibtex key, publication type, exact reference).

Linking authors and publications

Similar to the previous task, there will be three ways for the admin to link the authors and publications to each other.

1. From the view page of the publication, where we can link authors to the given publication.



The screenshot shows a web interface for viewing a publication. On the left is a form titled "VIEW PUBLICATION" with various fields. The "Entry Type" field is filled with "req". The "Book Title" field contains the text "In Honor of Ernest R. Lacheman on His Seventy-fifth Birthday, April 29, 1981". The "Pages" field is filled with "1-9". On the right is a sidebar titled "RELATED ACTIONS" containing several links for managing publications, entry types, journals, abbreviations, artifacts, and authors.

VIEW PUBLICATION	
Year	
Entry Type	req
Address	
Annote	
Book Title	In Honor of Ernest R. Lacheman on His Seventy-fifth Birthday, April 29, 1981
Chapter	
Crossref	
Edition	
Editor	
How Published	
Institution	
Journal	
Month	
Note	
Number	
Organization	
Pages	1-9


RELATED ACTIONS	
Edit Publication	Delete Publication
List Publications	New Publication
List Entry Types	New Entry Type
List Journals	New Journal
List Abbreviations	New Abbreviation
List Artifacts	New Artifact
List Authors	New Author

For the above shown publication view, we will add a “Link Authors” function to the “Related Actions” section.

This will lead to a page for linking the publications to the authors as shown:

Linking authors using their author ids to the Publication <selected publication id>:

Author names:	Author sequence:
<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>

 Add slot

Link Authors

Bulk linking of publications and authors using file uploads:

Select file from local system

Upload file

Save Links

Technical details:

- For the database, adding a field “author_sequence” to the author_publications table which tells the order of a particular author for a publication.
 - Checking if the input author names are valid.
 - Auto completion for the author names.
 - Fetching the author ids from the author names and performing linking to the publication.
2. From the view page of the author, where we can link the publications to the given author.

Publications

Resources

Profile

Logout

CDLI

Cuneiform Digital Library Initiative

Browse

Contribute

About

Search

VAN DIJK, JOHANNES J. A.

Author

van Dijk, Johannes J. A.

RELATED ACTIONS

[List Authors](#)
[List Cdl Notes](#)
[List Credits](#)
[List Users](#)
[List Publications](#)

RELATED PUBLICATIONS

BIBTEXKEY	YEAR	ENTRY TYPE	ADDRESS	ANNOTE	BOOK TITLE	CHAPTER	CROSSREF	EDITION	EDITOR	HOW PUBLISHED	INSTITUTION	JOURNAL ID	MONTH	NOTE	NUMBER	ORGANIZATION	PAGES	PUBLISHER
	1960																	
	1960																	
	1960																	
	1960																	
	1960																	
	1960																	


Similar to the first case, for the above shown author view, we will add a “Link Publications” function to the “Related Actions” section.

This will lead to a page for linking the publications to the author as shown:

Linking publications using their bibtex keys to the Author <selected author name>:

Bibtex keys:

Author sequence:

 Add slot

Link Publications

Bulk linking of publications and authors using file uploads:

Select file from local system

Upload file

Save Links

Technical details:

- Checking if the bibtex keys are valid.
 - Fetching the publication id using the bibtex key and performing linking.
3. From a separate page where we can upload CSV files storing the link between different authors and publications.

As shown in the above two cases, we have an option to link authors and publications using a file at the bottom half of the page, which will be the exact same for both the pages.

We can select a file from the local system to upload and based on the file content, links will be made.

Technical details:

- Checking if the uploaded file is saved in the valid required format.
- On clicking “Save Links” for the bulk file linking, checking if all the author names and the bibtex publication keys are valid.
- Fetching the author ids from the author names and the publication ids from the publication names and then performing linking.
- File format:
 - Each line will correspond to one entry linking a certain author to a certain publication.
 - For each line, the format will be: (author name, publication bibtex key).

Note:

- For both the above linking tasks, similar to adding the link option to the related actions for the add page, we will add it to the edit page in the same way to offer a better user experience.
- Also, we need to enforce unique bibtex keys for the publications for the above linking to work.

Modifying the existing add and edit functions

Publication view:

Publication History

Abbreviation

Series

Oclc

Designation

Artifacts

218280
273293
273294
273295

Authors

192
193
194
195

Submit

Author view:

Administrator

PublicationsResourcesLoginLogout

CDLI

Cuneiform Digital Library Initiative

BrowseContributeAboutSearch

ADD AUTHOR

Author

Publications

Notes on a Pair of Matching Texts: A Shepherd's Bulla and an Owner's Receipt
Labor Assenments from the City of Girsu

Submit

RELATED ACTIONS

List Authors
List Cdl Notes New Cdl Note
List Credits New Credit
List Users New User
List Publications New Publication

SITEMAP

Browse collection
Contribute
About CDLI
Search collection

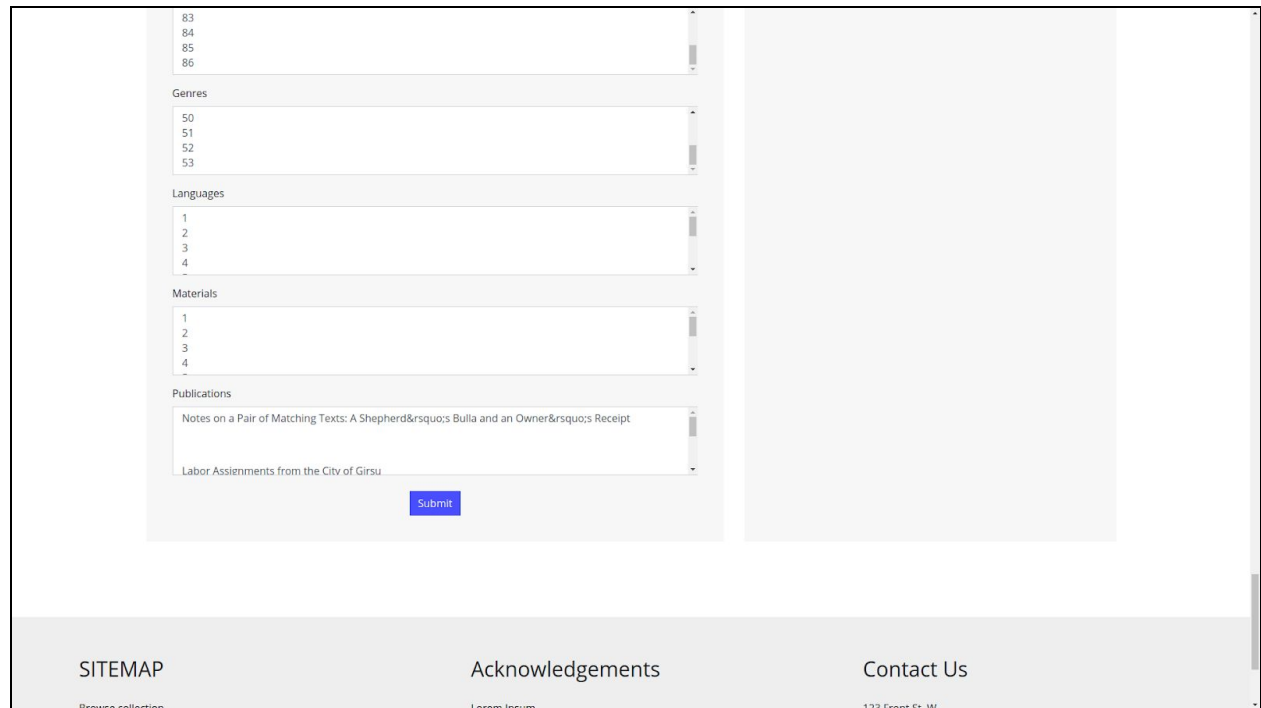
Acknowledgements

Lorem Ipsum
Lorem Ipsum
Lorem Ipsum
Lorem Ipsum

Contact Us

123 Front St. W.
Toronto, CA
1A2 3R4
(123)-456-7890
contact@cdli.com

Artifact view:



The image shows a web form for adding or editing an artifact. The form is divided into several sections, each with a list of items to choose from:

- Genres:** A list with items 50, 51, 52, and 53.
- Languages:** A list with items 1, 2, 3, and 4.
- Materials:** A list with items 1, 2, 3, and 4.
- Publications:** A list with two items: "Notes on a Pair of Matching Texts: A Shepherd's Bulla and an Owner's Receipt" and "Labor Assignments from the City of Girsu".

At the bottom of the form is a blue "Submit" button. Below the form is a footer with three links: "SITEMAP", "Acknowledgements", and "Contact Us".

When the new features for linking are in place, the existing functionality for linking using a list shown in the above images (which is infeasible due to a huge amount of entries) will be removed from the add and edit pages for publication, author and artifact.

Bulk export citations

Following are the design pages for the search results:

Full view ([design page link](#)):

Publications

Resources

Login

CDLI

Cuneiform Digital Library Initiative

Browse

Contribute

About

Search

Search the CDLI collection

AND

X

Advanced search

Search settings

Add search field

Search

Sort by: Relevance

Showing 200,000 entries

Download

<

1

2

3

>

APPLIED FILTERS:

Clay

Tablet

Clear all

FILTER OPTIONS

Expand all

Contract All

Show entries with

☐ Images
 ☐ Translations
 ☐ Transliterations

Object data

Material

☐ Lorem ipsum (123)
 ☐ Lorem ipsum (123)
 ☐ Lorem ipsum (123)

Museum collections

Object type

Period

Provenience

Textual data

Genre

Language

Publication

Authors

Date of publication

Apply

View full image

View line art

View RTI: Obverse

Reverse

MSVO 1, 010

Author: Englund Robert

Publication date: 1991

Collection: Oriental Institute, University of Chicago, Chicago, Illinois, USA

Provenience: Uncertain (mod. Jemdet Nasr)

Period: Uruk III (ca. 3200 - 3000 BC)

Object type: Tablet

Material: Clay

CDLI no.: P005077

TRANSLITERATION/TRANSLATION

obverse

1, 2(N45) 5(N14)# , SZE~a

en: 150 N1 units of barley.

Show more

View full image

View line art

View RTI: Obverse

Reverse

MSVO 1, 010

Author: Englund Robert

Publication date: 1991

Collection: Oriental Institute, University of Chicago, Chicago, Illinois, USA

Provenience: Uncertain (mod. Jemdet Nasr)

Period: Uruk III (ca. 3200 - 3000 BC)

Object type: Tablet

Material: Clay

CDLI no.: P005077

TRANSLITERATION/TRANSLATION

obverse

1, 2(N45) 5(N14)# , SZE~a

en: 150 N1 units of barley.

Show more

Results per page: 10 100 All

<

1

2

3

>

Back to top

SITEMAP

[Browse collection](#)
[Contribute](#)
[About CDLI](#)
[Search collection](#)

Acknowledgments

[Lorem ipsum dolor sit amet](#)
[Lorem ipsum dolor sit amet](#)
[Lorem ipsum dolor sit amet](#)
[Lorem ipsum dolor sit amet](#)

Contact us


[Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque lobortis urna dolor, non sagittis velit posuere non.](#)

Donate

© 2019 Cuneiform Digital Library Initiative.

Compact view ([design page link](#)):

[Publications](#)
[Resources](#)
[Login](#)




Cuneiform Digital
Library Initiative

[Browse](#)
[Contribute](#)
[About](#)
[Search](#)

Search the CDLI collection

AND

[Advanced search](#)
[Search settings](#)

Showing 200,000 entries

« 1 2 3 »

SORT OPTIONS: 1. 2. 3.


PRIMARY PUBLICATION	CDLI NO.	MUSEUM NO.	PERIOD	DATES REFERENCED	PROVENIENCE	GENRE	OBJECT TYPE
MSVO 1, 010	P0050	OIM A025	Uruk III (ca. 3200-3000 BC)	Hallutash-inshus hinak2.00.00.00	Uncertain (mod. Jemdet Nasr)	Administrative	Tablet
MSVO 1, 010	P0050	OIM A025	Uruk III (ca. 3200-3000 BC)	Hallutash-inshus hinak2.00.00.00	Uncertain (mod. Jemdet Nasr)	Administrative	Tablet
MSVO 1, 010	P0050	OIM A025	Uruk III (ca. 3200-3000 BC)	Hallutash-inshus hinak2.00.00.00	Uncertain (mod. Jemdet Nasr)	Administrative	Tablet
MSVO 1, 010	P0050	OIM A025	Uruk III (ca. 3200-3000 BC)	Hallutash-inshus hinak2.00.00.00	Uncertain (mod. Jemdet Nasr)	Administrative	Tablet

Results per page: 10 100 All

« 1 2 3 »

SITEMAP
[Browse collection](#)
[Contribute](#)
[About CDLI](#)
[Search collection](#)

Acknowledgments
 Lorem ipsum dolor sit amet
 Lorem ipsum dolor sit amet
 Lorem ipsum dolor sit amet
 Lorem ipsum dolor sit amet

Contact us
 Lorem ipsum dolor sit amet,
 consectetur adipiscing elit.
 Pellentesque lobortis urna dolor, non
 sagittis velit posuere non.


© 2019 Cuneiform Digital Library Initiative.

On top of the search results for both, a tab to view all citations related to all the artifacts in the search results will be added.

Also, the view page for the artifact (on selecting a particular artifact from the shown results) will show all the publications related to that particular artifact.

Both these pages will have the same structure as shown below:

Related Publications:

(Table showing list of all related publications with their information)

Export citations:

Bibtex format: <div>Download file</div> <div>Copy to clipboard</div>	CSV format: <div>Download file</div> <div>Copy to clipboard</div>	TSV format: <div>Download file</div> <div>Copy to clipboard</div>
---	--	--

Details for the publications table shown in the above page:

- Each table entry will link to its view page (containing all the related artifacts and authors).
- Display all the columns in the “publications” table with appropriate formatting.

Export Data Formats:

- Bibtex
- CSV
- TSV
- XLSX
- RDF

Data formats source: <https://harzing.com/pophelp/exporting.htm>

The format details are mentioned in the above mentioned source.

Design pages source: <https://scene.zeplin.io/project/5cd250d2e18bd568686fa597>

Note: This task requires the search results display to be ready, it can only be started once those pages are done by the person responsible for the task. Appropriate measures for coordinating the task will be taken with that person. In case, no one ends up working on the project during GSoC, I will be taking over the task of making the display for search results and the schedule will be tweaked to give priority to this task over the tasks mentioned below.

Documentation

- Feature Documentation:
 - Admin documentation: Will contain detailed instructions for using the new admin only features. This includes details about the file upload formats, linking operations and other features.
 - User documentation: Will contain detailed instructions for using the new public side features which will mostly include displays for different types of data and citations export.
- Developer documentation: Will contain an overview of the architecture of all the added features. This will be helpful for developers wanting to work on these features in the future.

Good to have features:

Bulk upload publications

The existing list view for all publications:

Administrator

Publications Resources Login Logout

CDLI Cuneiform Digital Library Initiative

Browse Contribute About Search

RELATED ACTIONS

New Publication List Entry Types New Entry Type List Journals New Journal List Abbreviations New Abbreviation List Artifacts New Artifact List Authors New Author

Publications

YEAR	ENTRY TYPE	ADDRESS	ANNOTE	BOOK TITLE	CHAPTER	CROSSREF	EDITION	EDITOR	HOW PUBLISHED	INSTITUTION	JOURNAL	MONTH
	req			In Honor of Ernest R. Lacheman on His Seventy-fifth Birthday, April 29, 1981								
	req			Corpus of Mesopotamian Anti-Witchcraft Rituals, vol. 1								
	req			Chogha Mish II: The Development of a Prehistoric Regional Center in Iran								

For bulk uploading the publications, we will add a “Bulk Upload Publications” function to the “Related Actions” section which will lead to the page shown below where the admin can upload the file in the required format.

Bulk upload publication page:

Bulk upload publications using file uploads:

Instructions for the required format of the upload file:

- Instruction 1
- Instruction 2
- ...
- ...
- ...

Select file from local system

Upload file

Bulk upload

Technical details:

- Checking if the uploaded file is saved in the valid required format.
- Parsing the file data and saving it to the database.
- File format:
 - Each line corresponds to a single publication entry.
 - Standard csv file format will be used.
 - All, the fields are shown below:
 - id : int(10) unsigned
 - bibtexkey : text
 - year : varchar(20)
 - entry_type_id : int(10) unsigned
 - address : varchar(45)
 - annote : varchar(45)
 - book_title : varchar(255)
 - chapter : varchar(100)
 - Crossref : varchar(45)
 - edition : varchar(45)
 - editor : varchar(100)
 - how_published : varchar(255)
 - institution : varchar(45)
 - journal_id : int(10) unsigned
 - month : varchar(45)
 - Note : varchar(45)
 - number : varchar(100)
 - organization : varchar(45)
 - pages : varchar(45)
 - publisher : varchar(100)
 - School : varchar(80)
 - title : varchar(255)
 - volume : varchar(50)
 - publication_history : text
 - abbreviation_id : int(10) unsigned
 - series : varchar(100)
 - oclc : int(10)
 - designation : text
- A custom PHP parser needs to be created for parsing and validating the above file format.

- Enforcing the bibtex key to be unique.

SCHEDULE

Community Bonding Period (May 4 - June 1)

- Deciding on communication and work timings.
- Deciding on meetings for tracking progress and regular updates.
- Setting up a weekly blog containing description of the weekly work done and other related things.
- Learning more about advanced CakePHP concepts.

Week 1 (June 1 - June 7)

- Implement linking of artifacts to a particular publication through the view page of the publication.
- Implement the design of the page (Input boxes for the fields with a button for adding additional slots).
- This first page will take more time compared to subsequent linking pages as the components need to be built. On completion of this, the subsequent linking features which follow a similar page design and can be done faster.

Week 2 (June 8 - June 14)

- Implement linking of publications to a particular artifact through the view page of the artifact.
- Implement linking of authors to a particular publication through the view page of the publication.
- Add auto complete feature for the author name in the linking of authors to a particular publication.

Week 3 (June 15 - June 21)

- Implement linking of publications to a particular author through the view page of the artifact.
- Modifying the existing add and edit functions for publication, author and artifact pages to remove the existing linking sections.

- Similar to the view pages of publication, author and artifacts, the respective link tabs will be added to the “Related Actions” section of the edit pages as well.

Week 4 (June 22 - June 28)

- Implement bulk export citations feature.
- Create the view table to display all the related publications views.
- Create backend data parser for parsing the publications data into Bibtex format.
- Create the bulk export feature for Bibtex data format for both download file and copy to clipboard methods.

First Evaluation (June 29 - July 3)

Week 5 (June 29 - July 5)

- Extend bulk export citations feature for other data formats.
- Discuss the additional required data formats.
- Create backend data parser for parsing the publications data into all the additional data formats (TSV, XLSX, RDF formats).
- Create the bulk export feature for the additional data format for both download file and copy to clipboard methods.

Week 6 (July 6 - July 12)

- Implement bulk linking of publications to artifacts using CSV files for the page having the linking of artifacts to a particular publication feature (as shown in the design pages).
- Create a backend data parser for:
 - Validating the file format.
 - Mapping the fields to the respective ids wherever applicable. (Ex. bibtex key to publication id)
 - Validating each field value. (Checking if ids exist)

Week 7 (July 13 - July 19)

- Continuing from the previous week, completing the backend data parser.
- Adding appropriate error handling for the data parser.

- Use the same functionality on page having linking of publications to a particular artifact (similar design as the above feature).

Week 8 (July 20 - July 26)

- Similarly, implement bulk linking of publications to authors using CSV files for the page having the linking of authors to a particular publication feature (as shown in the design pages).
- Create a backend data parser for:
 - Validating the file format.
 - Mapping the fields to the respective ids wherever applicable. (Ex. author name to author id)
 - Validating each field value. (Checking if ids exist)
- Adding appropriate error handling for the above parser.
- Use the same functionality on page having linking of publications to a particular author (similar design as the above feature).

Second Evaluation (July 27 - July 31)

Week 9 (July 27 - August 2)

- Implement bulk upload of publications using CSV files (as per the design).
- Create a backend data parser for validating the file format.
- Adding appropriate error handling.

Week 10 (August 3 - August 9)

- Final thorough testing for all the features.
- Fixing any remaining bugs.

Week 11 (August 10 - August 16)

- Creating and hosting the user documentation under the documentation section of CDLI.
- Creating and hosting the developer documentation with architecture overview for the features under the documentation section of CDLI.

Week 12 (August 17 - August 24)

- Buffer time for any remaining tasks.

Final Evaluation (August 24 - August 31)

DELIVERABLES

I will be developing features for the framework for managing and viewing bibliographical data. The features are listed below:

- Feature for linking artifacts and publications accessible through either artifact and publication view and edit pages.
- Feature for linking authors and publications accessible through either author and publication view and edit pages.
- Modifying the existing add and edit functions to conform with the new features.
- Feature for bulk export citations in bibtex format for the publications related to the selected artifact and also for all the artifacts in the search results.
- Feature for bulk linking of publications and artifacts using a CSV file.
- Feature for bulk linking of publications and authors using a CSV file.
- Feature for bulk upload of publications to the database using a CSV file.
- Documentation for the users as well as developers for all the work done .

TECH-STACK

- HTML/CSS (for designing the web pages).
- PHP (The web framework of CDLI website is in PHP(CakePHP 3)).
- Python 3 (may be required for some related tasks).

BONUS TASK

There are a lot of possible extensions to the project. If time permits, I would like to work on the following additional task:

Merge Publications Feature

Search for Publications:

Search

Search Results:

(Publications display fields)	Merge Select
Publication 1	<input checked="" type="checkbox"/>
Publication 2	<input type="checkbox"/>
•	<input type="checkbox"/>
•	<input checked="" type="checkbox"/>
•	<input type="checkbox"/>
•	<input type="checkbox"/>
•	<input type="checkbox"/>
Publication n	<input type="checkbox"/>

Merge Publications

Admin can search the publications using the search bar. Then, among the results, the duplicates can be selected (using the checkboxes) and then the selected entries can be merged using the “Merge Publications” button.

Technical Details:

- Search results will be displayed such that the duplicates (exact and near) for any publication (if any) are displayed together (So, doing a search without entering any term in the search bar results in displaying all the publications with the duplicates grouped together).

After selecting the publications to merge, clicking on “Merge Publications” will direct the user to the following page (where details for merging will be finalized):

Selected Publications:

(Selected Publications display fields)
Publication 1
Publication 2
.
.
Publication n

Merged Publication entry:

Field Name	Field Value
Year	(Text Field)
Book Title	(Text Field)
.	(Text Field)
.	(Text Field)

Input Exact Artifact References:

(Related Artifacts display fields)	Exact Reference
Artifact 1	(Text Field)
Artifact 2	(Text Field)
.	(Text Field)
.	(Text Field)
Artifact n	(Text Field)

Finalize Merge

Technical details:

1. Selected Publications:
 - a. A table containing details of all the selected publications will be displayed.
2. Merged Publication entry:
 - a. A table with each field name of the publication data along with a text field ("Field Value"), which contains the field entries according to the first publication among the selected publications.
 - b. The admin can edit these entries so that it will contain the final values for the merged publication entry.
 - c. This feature will allow merging publications which are not exact duplicates which will be useful in the future. While for exact duplicates, the fields can be left as is, for the near duplicates, the fields where there are slight differences can be manually set by the admin, allowing a greater flexibility while merging.
3. Input Exact Artifact References:

- a. All artifacts related to all the selected entries will be displayed with their details.
 - b. Each entry will have a text field provided to enter the exact reference by the admin. (If the artifact already has an exact reference, then the field will have that reference, otherwise it will be empty).
4. Finally, clicking on “Finalize Merge” will result in merging the publications (deleting the selected entries and inserting the new merged entry) and modifying the artifact to publication connections along with saving the exact references.
5. For the search bar, the search from the main page will be reused for this page and this will be appropriately coordinated with the person working on implementing the search.

Merge Feature for Other Tables

If further time remains to allow more work, I'll be working on similar tasks as above for other tables like “artifacts”. Based on the time availability, I would try to work on as many tables as possible.

FALLBACK PLAN

If due to unexpected conditions, I am not able to stay on schedule for the plan designed by me, then I would be working on the following fallback plan. I would be shifting to this fallback plan by the end of June, before the second evaluation and would make sure to show results in the second evaluation. The minimal outcome of the project would be:

- Feature for linking artifacts and publications accessible through either artifact and publication view and edit pages.
- Feature for linking authors and publications accessible through either artifact and publication view and edit pages.
- Modifying the existing add and edit functions to better suit the new features.
- Feature for bulk export citations in bibtex format for the publications related to the selected artifact and also for all the artifacts in the search results.
- Documentation for the users as well as developers for all the work done.

In the end, it would be made sure that the admin will have access to basic functionalities for managing the bibliography data and the users will have access to all the functionalities for viewing the bibliography data.

CDLI CONTRIBUTIONS

- [Implement Cooked Agade feature for the framework](#) (Merged)
 - Python 3 script to fetch the email records and store to the database.
 - A container to place the script (as it requires internet access).
 - Feature implementation in the framework on both admin and user side.
- [Improvement to Cooked Agade](#) (Merged)
 - Bug fix and a small design change to the feature.
- [Complete Cooked Agade feature](#) (Merged)
 - Add topic in-house cdli tags to the database and adjust the feature accordingly.
 - Other design and functional changes.
- [Add untracked vendor files to .gitignore](#) (Merged).
- [Fix admin publication view](#) (Merged)
 - A small fix to the namespace for the admin publication controller.

WHY I AM BEST SUITED FOR THE PROJECT

I have been using open source products for the past four years and I feel that working on this project would be a great opportunity for me to contribute to the open source community.

Apart from my proposal, the strongest point for my selection for the project is made by the [issue #115](#) (merge requests [71](#), [79](#), [83](#)) which I worked on for the CDLI framework. I implemented a feature from start to finish. This task consisted of following subtasks:

- [Script to fetch emails and store to the database](#): Gained a good understanding of the database while working on this.
- [A container for script for accessing the internet](#): Understood the working of docker and many of the concepts necessary for running projects.
- [Implementing the view for the fetched mails in the framework](#): Helped me gain experience with CakePHP and PHP. Learned a lot from the official documentation while working.

Before starting contributing to CDLI, I had no experience in CakePHP development and using Docker containers. And though I ran into a lot of issues while working on this, overcoming those have helped me gain a good understanding of the technologies used

as well as the project structure. I am confident that if selected, I can start working on the project right away without needing additional time to learn the required technologies.

Also, I plan to be a long term contributor and would be highly interested in helping the organization by not only solving the issues in the features developed by me but also by helping in development of the framework as a whole even after GSoC 2020 has ended.

PAST RELEVANT PROJECTS

Pollution Monitoring System ([project link](#))

- This project provides a solution for monitoring pollution levels in any area. The hardware setup for the project sends temperature, air pollution index values along with the GPS location to the server.
- Multiple such hardware setups can be placed on transportation systems (like trains, buses), thus making large-scale pollution monitoring possible.
- Data analytics and visualization are provided on the website using google maps and charts.
- The major technologies used are Django, MySQL, bootstrap, javascript, raspberry pi and Arduino Uno.

Web GIS smart irrigation system ([project link](#))

- Automatic web-based irrigation system implemented using micro-controllers which provides a feasible solution for watering the plants for farmers.
- It automatically waters the plants when required and provides the status of the plants, water source as well as weather conditions and weather predictions and notifies the user regarding the refilling of the water tank and the status of the plants via email and SMS.
- The major technologies used are Django, MySQL, bootstrap, javascript, raspberry pi and Arduino Uno.

Library System for educational institutions ([project link](#))

- Created an online platform for students to issue, return, search books and pay fines as well as for the library manager to add, update, view and track library resources.
- The technology stack used was Nodejs, Reactjs, MySQL, Express.

ABOUT ME

1. Details

- a. **Name:** Ajit Jaywant Jadhav
- b. **Email:** jadhavajit.j16@iiits.in
- c. **Telephone:** +91-7893448255
- d. **Timezone:** Indian Standard Time (UTC+5:30)

2. Profiles

- a. **Github Username:** ajitjjadhav
- b. **Gitlab Username:** ajit_jadhav
- c. **Slack Username:** @ajit_jadhav
- d. **Alternative Email Address:** ajitpanvel@gmail.com

3. Current Education Details

- a. **College:** Indian Institute of Information Technology, Sri City, Chittoor
- b. **Degree:** B.Tech. in Computer Science and Engineering
- c. **Current Year:** 4th Year
- d. **Expected to graduate:** May 2020

Time commitment for the project and other commitments

I am not participating in any other internships and I do not have any other commitments for the duration of the GSoC program. I will be able to devote 35-40 hours per week and try for more if required.