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Institute of Engineering

PULCHOWK CAMPUS

Pulchowk, Nepal

A

PROJECT REPORT

on

PERSONAL PUBLICATION REPOSITORY

[Software Engineering]

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1 Introduction

Personal publication repository is a platform for academics to track research papers. Academics use publication repository to save their research and monitor deep analytics around the evolution of their research. It fulfills the goals by collecting, classifying, cataloging, curating, preserving, and providing access to digital content.

2 Problem Statement

It's difficult to find information when research piles up. Losing reports, traceability of data, and difficulties regarding the comparison of data are issues a well-thought-out research system can help solve.

1. **No one actually reads reports and they get lost**

   Even if they're the go-to format for sharing research results, reports often go unread. Once reviewed, research reports often get lost in Google Drive, Dropbox, or whatever document management system you're using..

2. **Comparing insights is time-consuming**

   Reports and the information they convey become buried and lost in file-sharing networks.

3. **Repeated Research** When a new researcher joins the team and they start performing studies. Chances are they will come back with something that is already known. This is understandable in a way – they're new to the team and they didn't know.

4. **Reports are disconnected from the raw data**

   Reports present the conclusions or the findings from a study. More often than not, this means they leave out the raw data and the evidence that supports those findings.

5. **Secondary insights get lost**

   While you're running a study, you probably find additional insights and observations. These could be very valuable later on. But if you don't have a system to track them, you cannot reuse them.

3 Objectives

From onboarding new colleagues to speeding up research, capacitating user-based decision making, and bringing user-centric work culture into the entire organization, a well-maintained research repository brings value to any organization or an individual in the long term.

1. **Speeding up the research**

   Whenever you have a new research question, you can start by reviewing existing data.

2. **No more repeated research.**

   If, on the other hand, all the research data is centralized, you can see what questions have already been asked.

3. **Enable evidence-based decisions.**

   Probably this is one of the biggest wins for a research repository. It allows teams to see the big issues that need to be solved. On top of that, they can now use that data to prioritize projects and resources.

4. **You can prioritise your roadmap**

   Putting all the data together will give you an overall view of the user experience. This, in turn, will help you see what areas you need to prioritize on your roadmap.

4 Literature Review

DSpace@MIT is a digital repository for MIT's research, including peer-reviewed articles, technical reports, working papers, theses, and more. Search MIT. Browse by Communities & collections.

Figure 1: DSpace@MIT

The PsyDok disciplinary repository holds German-language research in psychology.

Figure 2: PsyDok repository

5 Methodology

5.1 Agile Model

The publication repository is often difficult or impossible to predict how it will evolve as time passes. Institutions change rapidly, researchers' needs evolve and new competitive threats emerge without warning. Students and upcoming batches must be quick on their feet if they are to accommodate the rapid changes. Agility can be applied to any software process. However, to accomplish this, it is essential that the process be designed in a way that allows the project team to adapt tasks and to streamline them, conduct planning in a way that understands the fluidity of an agile development approach, eliminate all but the most essential work products and keep them lean, and emphasize an incremental delivery strategy that gets working software to the customer as rapidly as feasible for the product type and operational environment

Figure 3: Agile incremental model

5.2 Use cases

A use case diagram is a graphical depiction of a user's possible interactions with a system. A use case itself might drill into a lot of detail about every possibility, and can help provide a higher-level view of the system. Use case diagrams are the blueprints for the system:

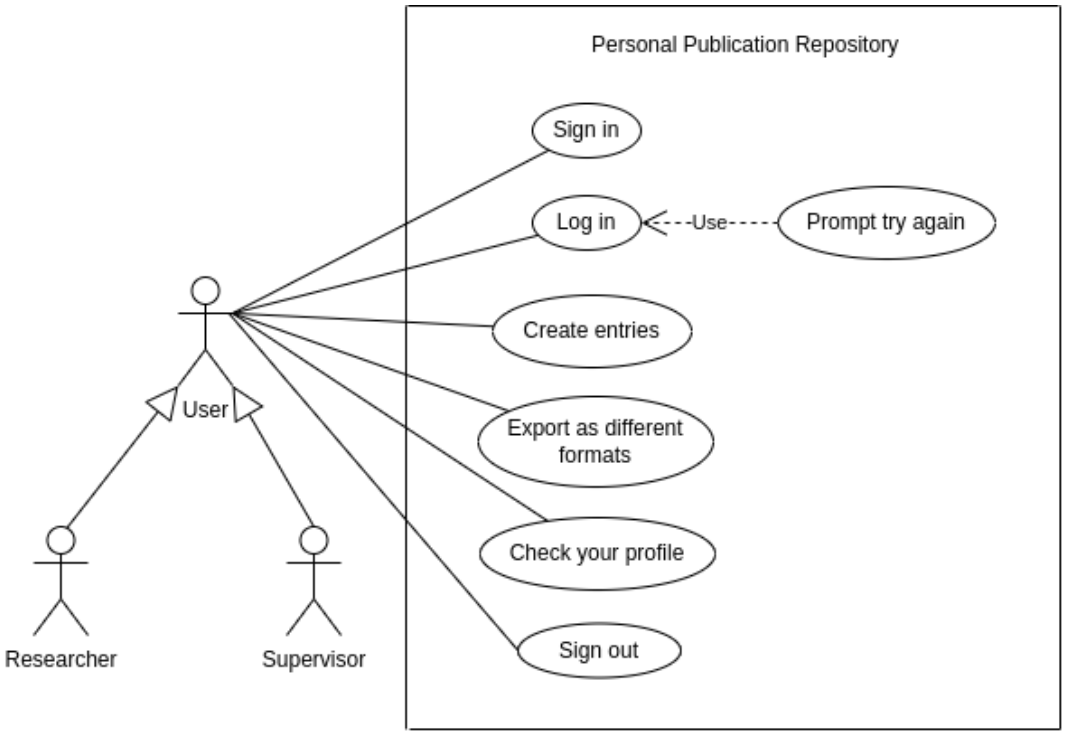

Figure 4: Use case diagram to meet major requirements

5.3 Context diagram

A system context diagram (SCD) defines the boundary between the system, or part of a system, and its environment, showing the entities that interact with it. This diagram is a high level view of a system. It is similar to a block diagram.

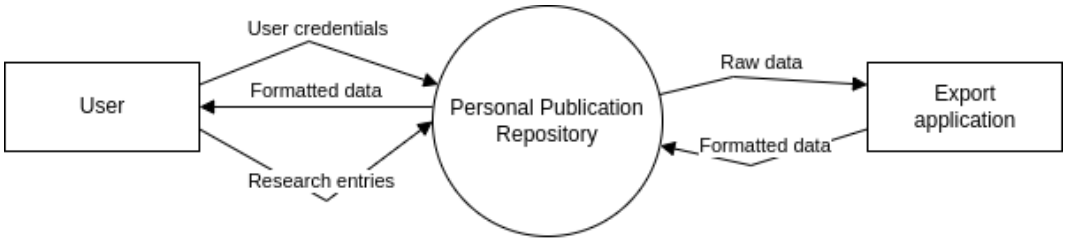

Figure 5: Context diagram

5.4 Level one- DFD

In 1-level DFD, the context diagram is decomposed into multiple bubbles/processes. In this level, we highlight the main functions of the system and breakdown the high-level process of 0-level DFD into subprocesses.

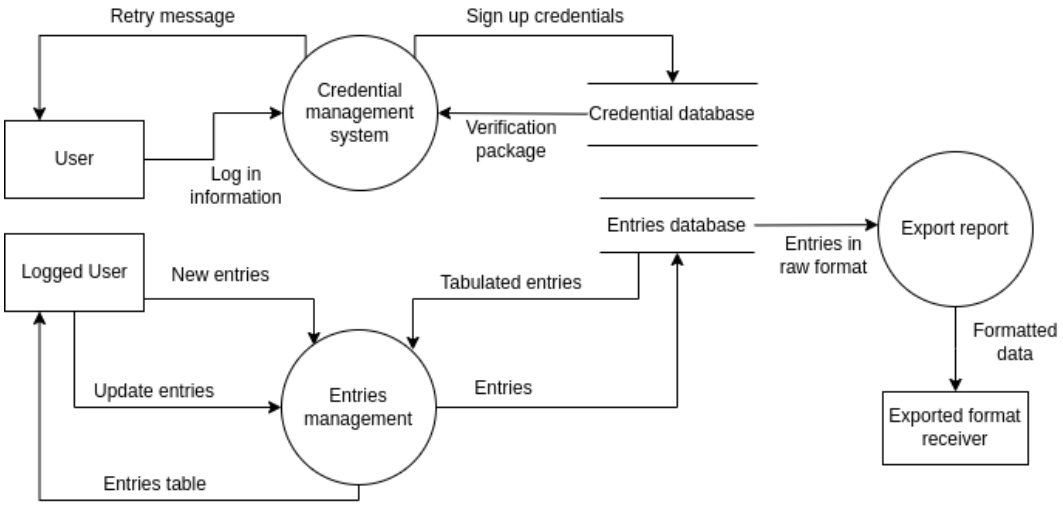

Figure 6: 1-level DFD

5.5 Level two- DFD

2-level DFD goes one step deeper into parts of 1-level DFD. It can be used to plan or record the specific/necessary detail about the system's functioning.

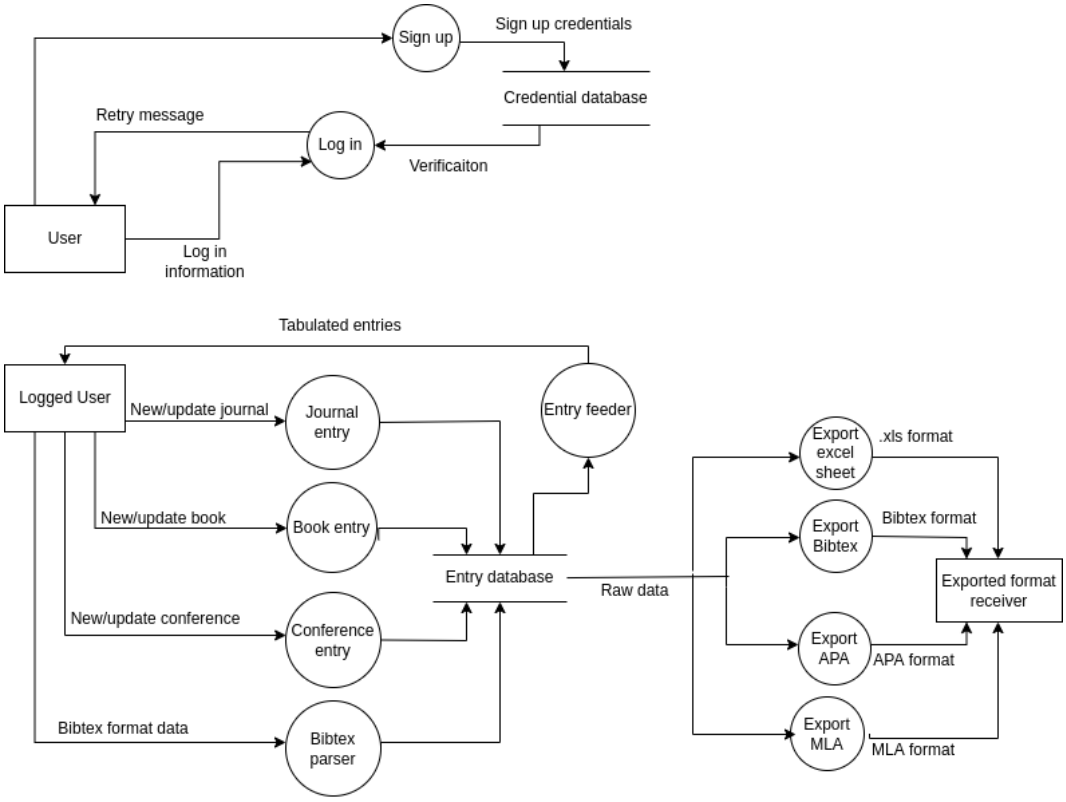

Figure 7: 2-level DFD

6 Technologies

The personal publication repository is application software that runs in a web browser, unlike software programs that run locally and natively on the operating system (OS) of the device.

6.1 Front End

Front-end web development of the project that deals with the graphical user interface of a website, is implemented through the use of HTML, CSS, and JavaScript, so that users can view and interact with that website.

6.1.1 HTML

HyperText Markup Language (HTML) is the backbone of the website development process. Hypertext provides links, termed hyperlinks. When a user clicks on a word or a phrase that has a hyperlink, it will bring another web-page. A markup language indicates text can be turned into images, tables, links, and other representations. It is the HTML code that provides an overall framework of how the site will look.

The latest version of HTML is called HTML5 and was published on October 28, 2014 by the W3C recommendation. This version contains new and efficient ways of handling elements such as video and audio files.

6.1.2 CSS

Cascading Style Sheets (CSS) controls the presentation aspect of the site and allows your site to have its own unique look. It does this by maintaining style sheets that sit on top of other style rules and are triggered based on other inputs, such as device screen size and resolution.

6.1.3 Javascript

JavaScript is an event-based imperative programming language (as opposed to HTML's declarative language model) that is used to transform a static HTML page into a dynamic interface. JavaScript code can use the Document Object Model (DOM), provided by the HTML standard, to manipulate a web page in response to events, like user input.

6.2 Back End

6.2.1 Jinja

inja is a web template engine for the Python programming language. Jinja is similar to the Django template engine but provides Python-like expressions while ensuring that the templates are evaluated in a sandbox. It is a text-based template language and thus can be used to generate any markup as well as source code.

6.2.2 Django

Django's primary goal is to ease the creation of complex, database-driven websites. The framework emphasizes reusability and "pluggability" of components, less code, low coupling, rapid development, and the principle of don't repeat yourself.[9] Python is used throughout, even for settings, files, and data models. Django also provides an optional administrative create, read, update and delete interface that is generated dynamically through introspection and configured via admin models.

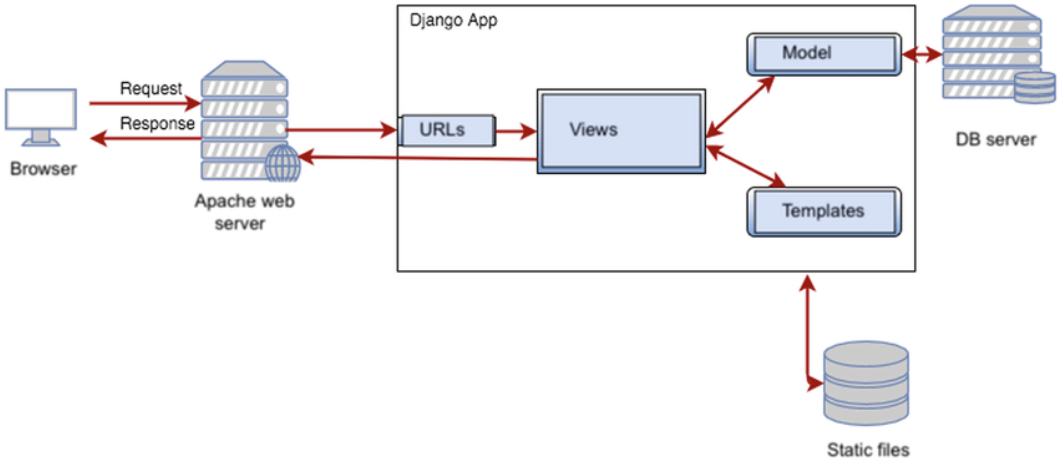

Figure 8: Django MVC archicture

6.2.3 SQLite

SQLite is a database engine written in the C programming language. It is not a standalone app; rather, it is a library that software developers embed in their apps. As such, it belongs to the family of embedded databases.

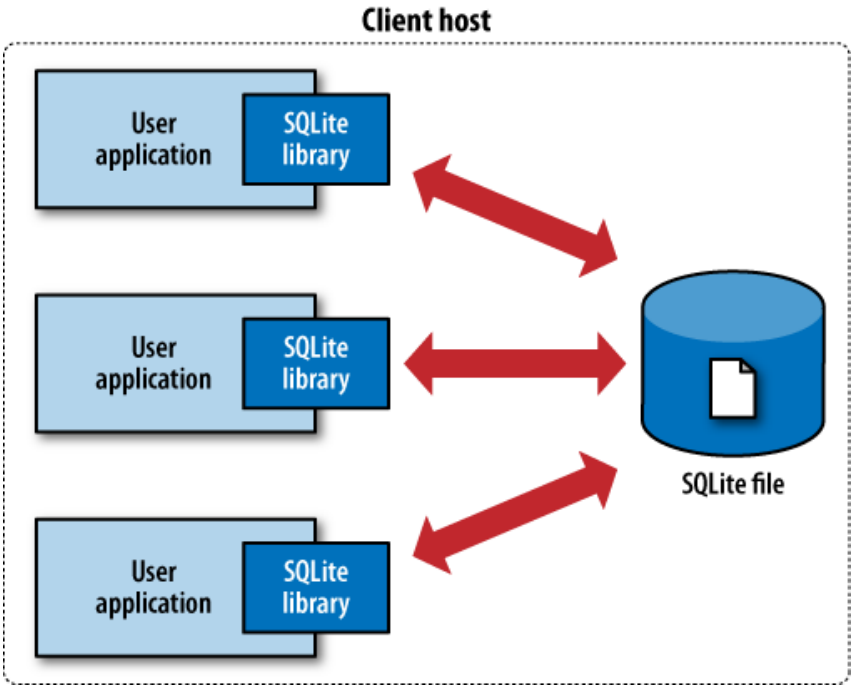

Figure 9: Architecture of SQLite

7 User Guide

7.1 Setup

1. Use the package manager pip to install virtual environment manager:

```
pip install virtualenvwrapper-win
```

2. First create a virtual environment:

```
mkvirtualenv <env name>
```

3. Inside the virtual environment clone the repo:

```
git clone https://github.com/name_/Project-Name.git
```

4. Install dependencies:

```
pip install -r requirements.txt
```

5. Make migrations:

```
python manage.py makemigrations
```

6. Run the server:

```
python manage.py runserver
```

The project will be hosted in local host http://127.0.0.1:8000/

7.2 Usage

7.2.1 Landing Page

The user is prompted to a landing page where they can log in or sign up if they are new to the site.

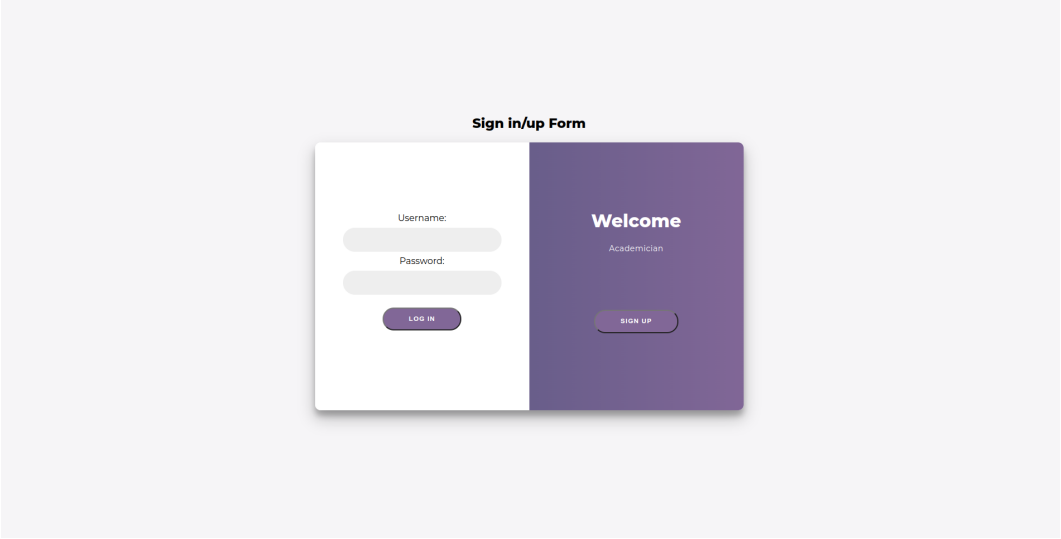

Figure 10: Landing page

7.2.2 Sign Up

You can enter your name, email and passwords to sign up. Make sure you match your passwords.

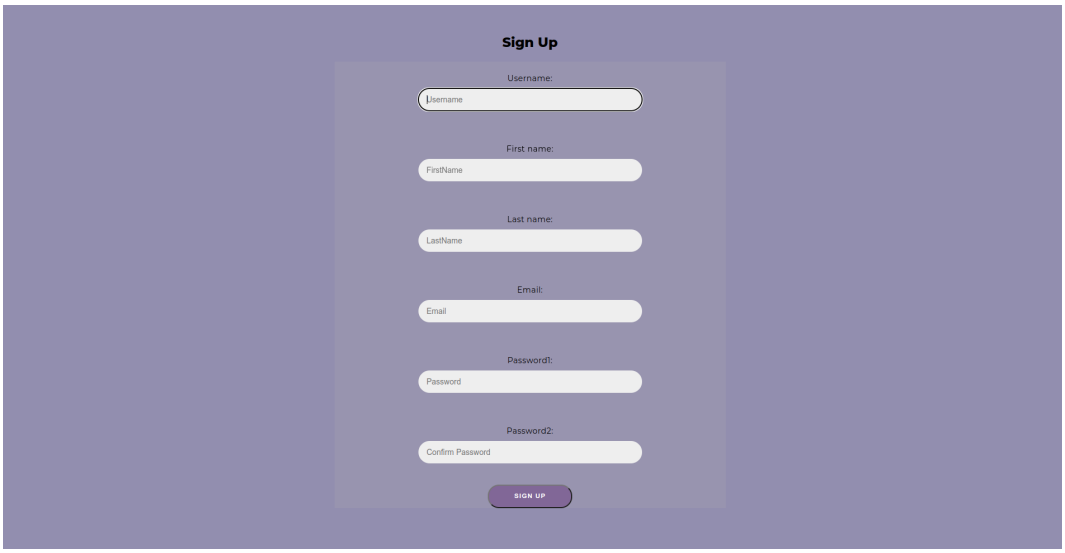

Figure 11: Sign up page

7.2.3 Feed

If you are a user already, you will see your feed as soon as you log in. It will be empty if you have not uploaded any entries.

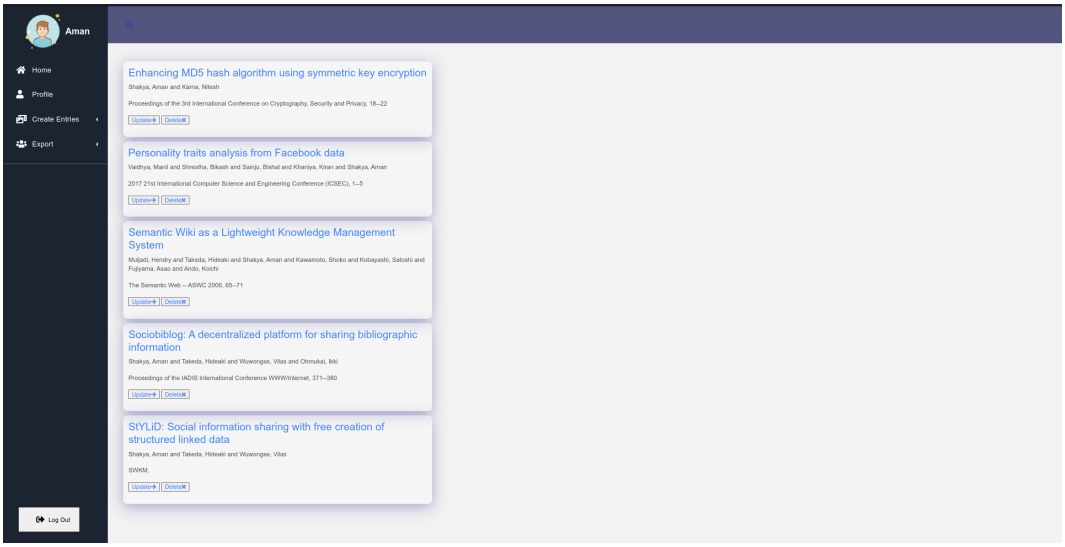

Figure 12: Feed page

7.2.4 Create Entries

Now you can upload your entries: journal, book or conference. You can also upload the Bibtex format directly

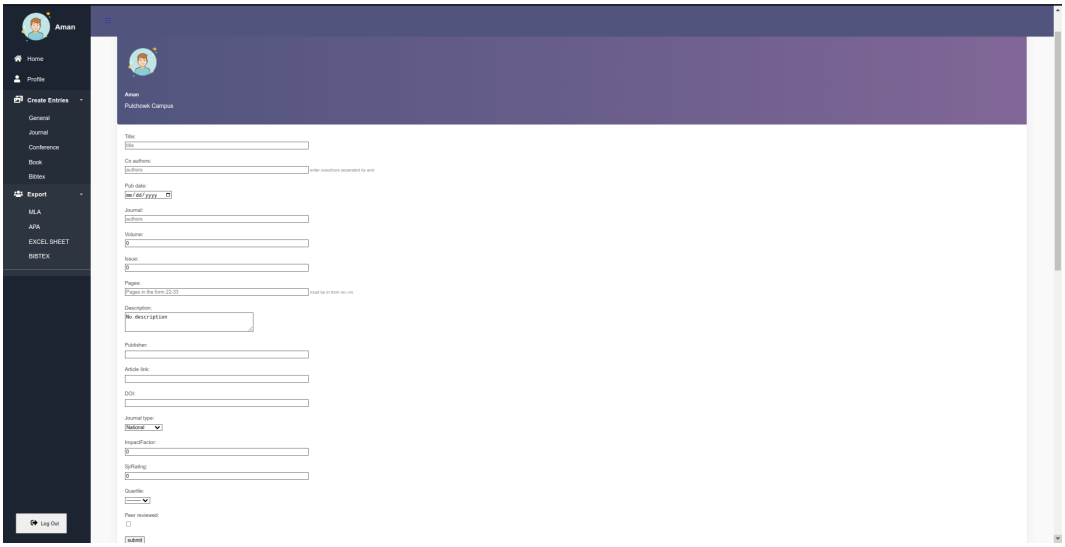

Figure 13: Create entries

7.2.5 Export as MLA

The entries can be exported as MLAin a pdf format which can be downloaded right away.

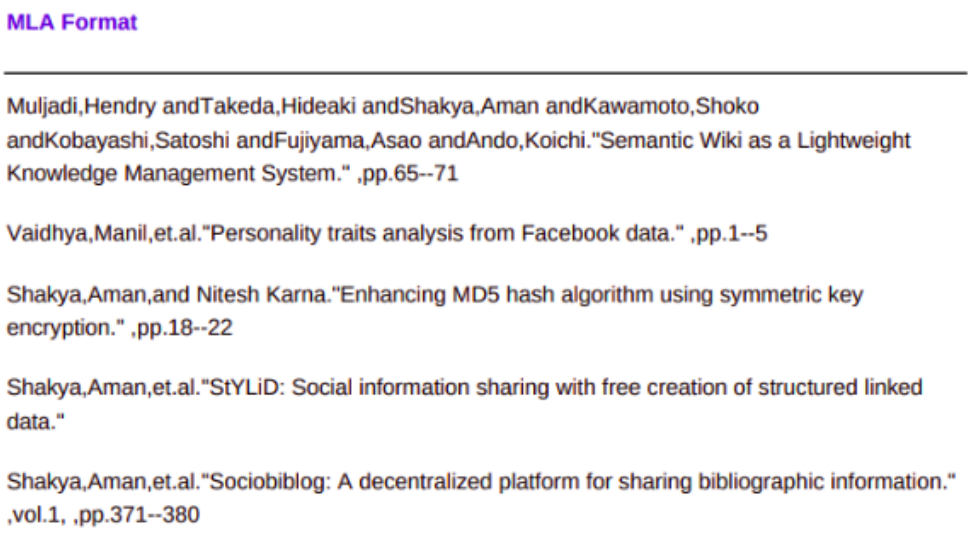

Figure 14: Export as MLA

7.2.6 Export as APA

The entries can be exported as APA in a pdf format which can be downloaded right away.

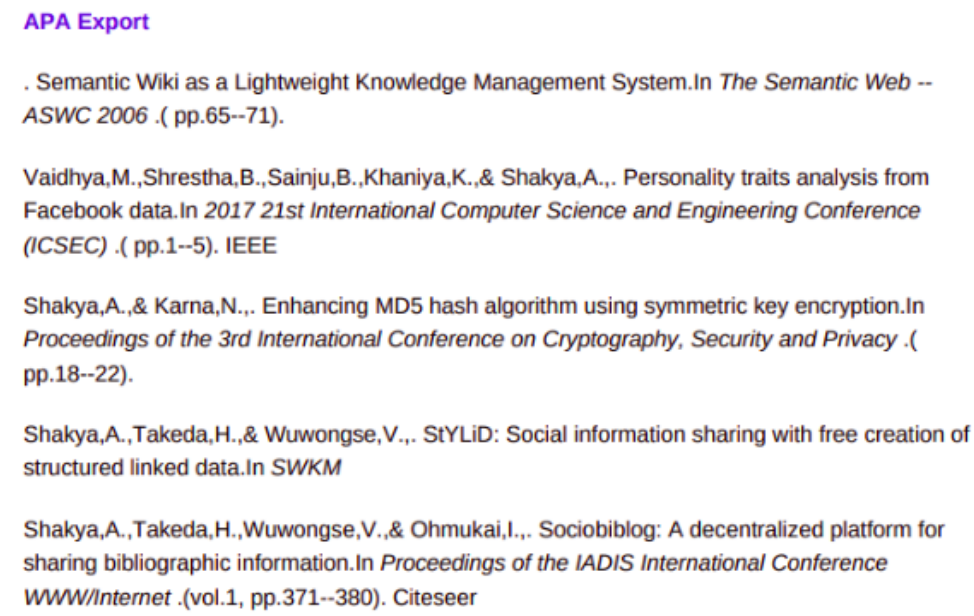

Figure 15: Export as APA

7.2.7 Export as Bibtex

```
@inproceedings{10.1007/11836025_7,
 author = {Muljadi, Hendry
and Takeda, Hideaki
and Shakya, Aman
and Kawamoto, Shoko
and Kobayashi, Satoshi
and Fujiyama, Asao
and Ando, Koichi},
 book_title = {The Semantic Web -- ASWC 2006},
 pages = {65--71},
 title = {Semantic Wiki as a Lightweight Knowledge Management System},
 year = {2006}
}

@inproceedings{shakya2007sociobiblog,
 author = {Shakya, Aman and Takeda, Hideaki and Wuwongse, Vilas and Ohmukai, Ikki},
 book_title = {Proceedings of the IADIS International Conference WWW/Internet},
 pages = {371--380},
 title = {Sociobiblog: A decentralized platform for sharing bibliographic information},
 volume = {1},
 year = {2007}
}

@inproceedings{shakya2008stylid,
 author = {Shakya, Aman and Takeda, Hideaki and Wuwongse, Vilas},
 book_title = {SWKM},
 title = {StYLiD: Social information sharing with free creation of structured linked data},
 year = {2008}
}

@inproceedings{shakya2019enhancing,
 author = {Shakya, Aman and Karna, Nitesh},
 book_title = {Proceedings of the 3rd International Conference on Cryptography, Security and Privacy},
 pages = {18--22},
 title = {Enhancing MD5 hash algorithm using symmetric key encryption},
 year = {2019}
}

@inproceedings{vaidhya2017personality,
 author = {Vaidhya, Manil and Shrestha, Bikash and Sainju, Bishal and Khaniya, Kiran and Shakya, Aman},
 book_title = {2017 21st International Computer Science and Engineering Conference (ICSEC)},
 pages = {1--5},
 title = {Personality traits analysis from Facebook data},
 year = {2017}
}
```

Figure 16: Export as Bibtex

8 Conclusion

The publication repository platform catalogues and preserves the digital content of a research or an academician. It helps in boosting the research career of an individual. An institute can also keep track of their publications through an organizational credentials which would enable centralized control of all research works within an organization. The technologies used are very flexible and are supposed to be relevant for a long time in future.

9 Future Enhancements

Following features can be added to the software in future under the same agile incremental model.

1. To import and export the work on online repositories like researchgate or

academia

2. To get visualization of current research work
3. To analyse progress using the impact factor and citation count.