LIBRARY MANAGEMENT SYSTEM

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Overview

Introduction

With Advancements in Technology , it is now more desirable to update existing systems which uses manual addition of data into a database . For this we implement the following

- Using OCR to recognise characters and then adding to the Database
- Scanning the barcode getting url and adding to the Database.
- Both the methods minimises time taken to enter data and reduces human effort

Basically the goal of the project is to make the system less user dependent which would also drastically help in reducing induced costs and improves accessibility .

Why L.M.S again ?

You may think about the following

- Hasn't this Project already been done ?
- How is this different from basic LMS ?
- Is this of any use to the Department ?

The Motivation Behind Choosing this Specific Project is to be able to tackle the questions proposed above successfully and to provide an optimised and more user friendly version of LMS.

Problem Definition

The current system is not efficient and user friendly.We are trying to reduce the Manual effort in the normal library management system and to make management easy ,Ultimately reduce the cost.

Problem Description

1. Who?
2. What?
3. When,where?
4. Why?

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Improvise , Adapt , overcome

End Goals

- Eliminate the manual effort in adding the details of a book.
- Searching the same book or similar books by scanning the book we have.
- Drive down cost

Koha

koha

OPEN-SOURCE INTEGRATED LIBRARY SYSTEM

Koha is the first free software library automation package. In use worldwide,
its development is steered by a growing community of users collaborating to achieve their technology goals

Book Cover recognition.

Linfeng Yang ,Xinyu Shen

1. image caption
2. skew correction
3. MSER
4. Morphological filter
5. positional filter
6. bounding boxes merging
7. False detection inhibition and words auto correction

Accuracy	text accuracy
Matlab OCR	57.3%
Tesseract OCR	78.2%

Web scrapping.

Jonathan oheix

`https://towardsdatascience.com/`

1. What is the structure of the web pages that contain relevant data?
2. How can we get to those web pages?

What should we meet

- Able to add book details by scanning bar-code or cover page.
- Search for the availability of a book using ISBN ,bar-code.
- without manually typing, we should be able to retrieve similar books ,other books of same author .

proposed system

Advanced library management system with OCR / Bar code for data insertion as well as manipulation.

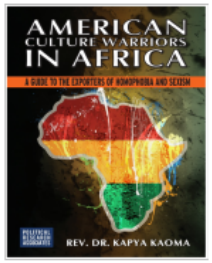
- Image recognition OpenCV OCR Tesseract
- Bar-code website content web Scrapping with Python
  - requests with beatifulSoup.
- Database Integration MYSQL.

Proposed System

Overview of Algorithms

Step 1: Image Preprocessing

Input image



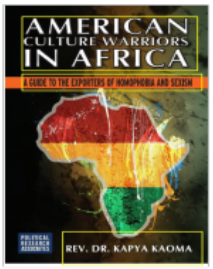
de-skew

detect regions

bounding box

merge

preprocessed image



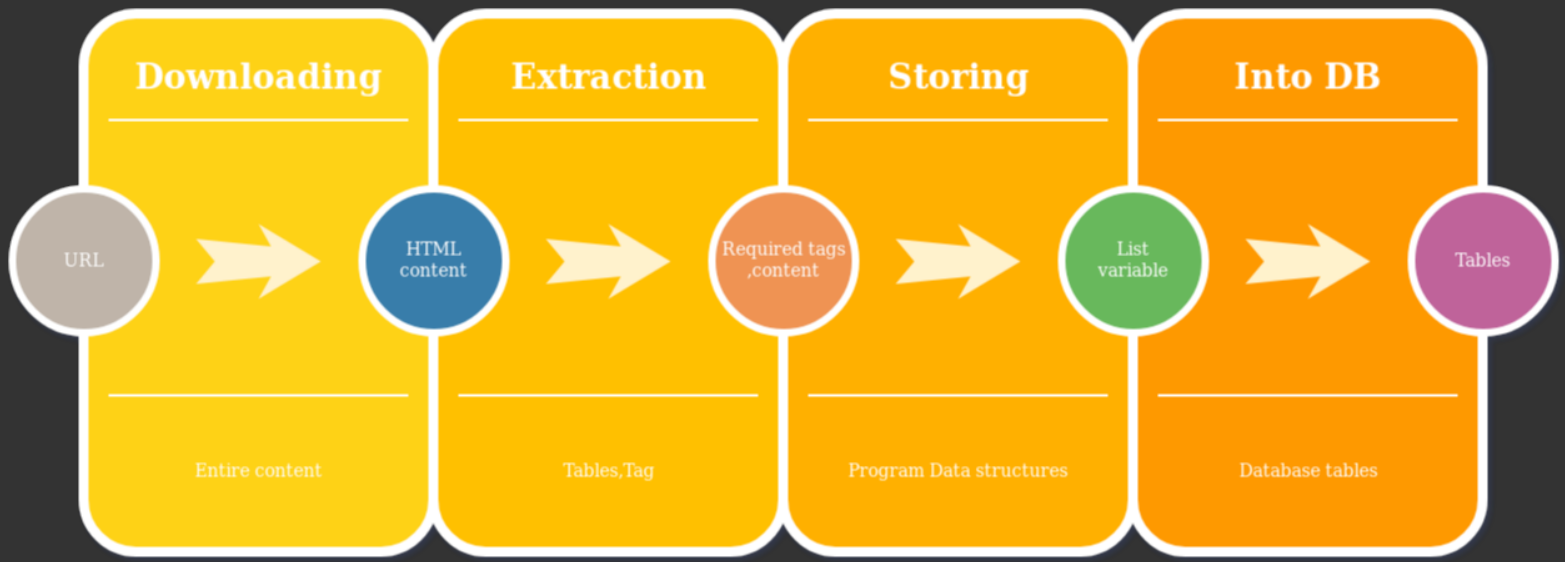
Step 2: Character Recognition

Matlab OCR **VS** Tesseract OCR

Step 3: Typo Correction
Step 4: Adding into Database

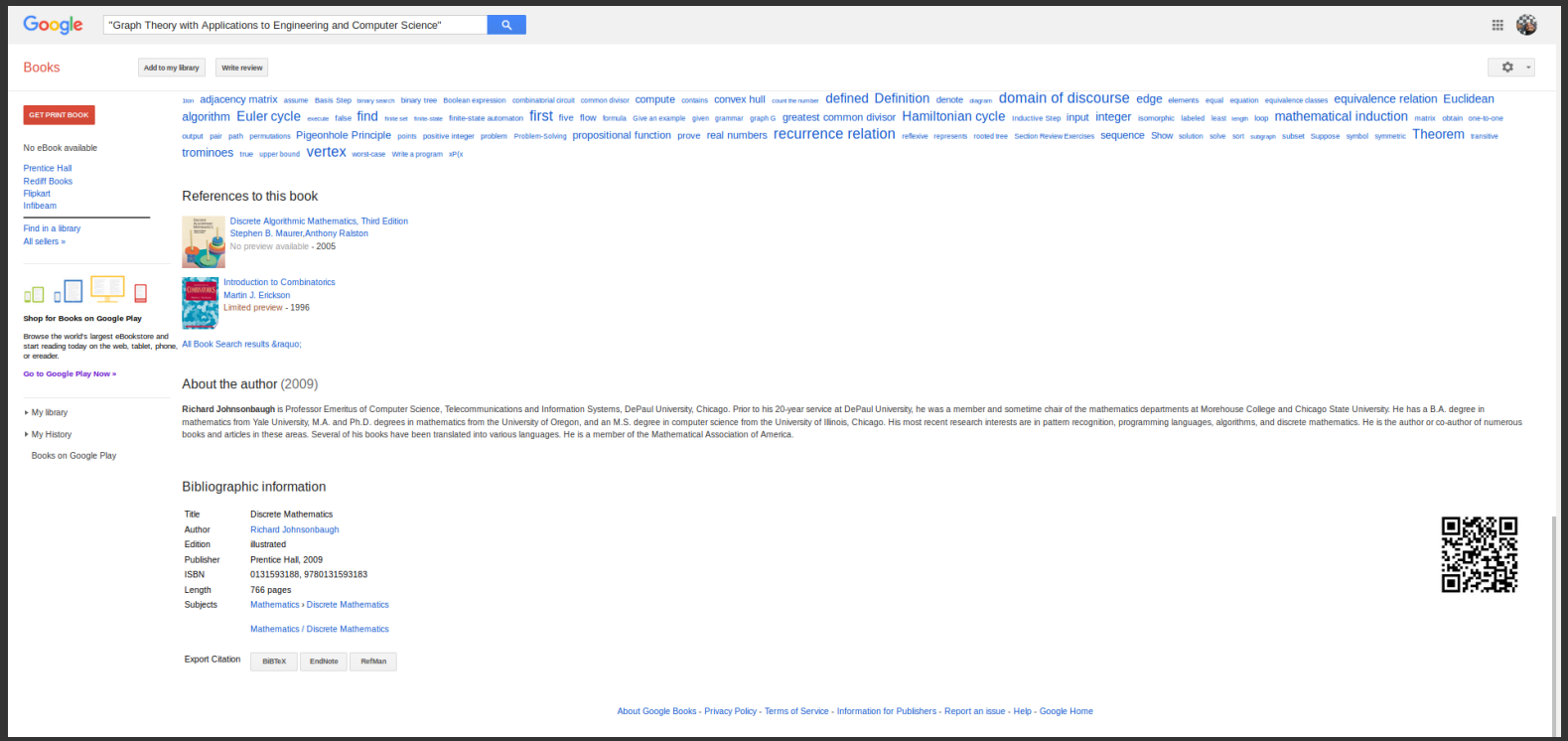
Use text information as keywords → ***MySQL***

Proposed System



What we have done!

- Web scrapping with Python



What we have done!

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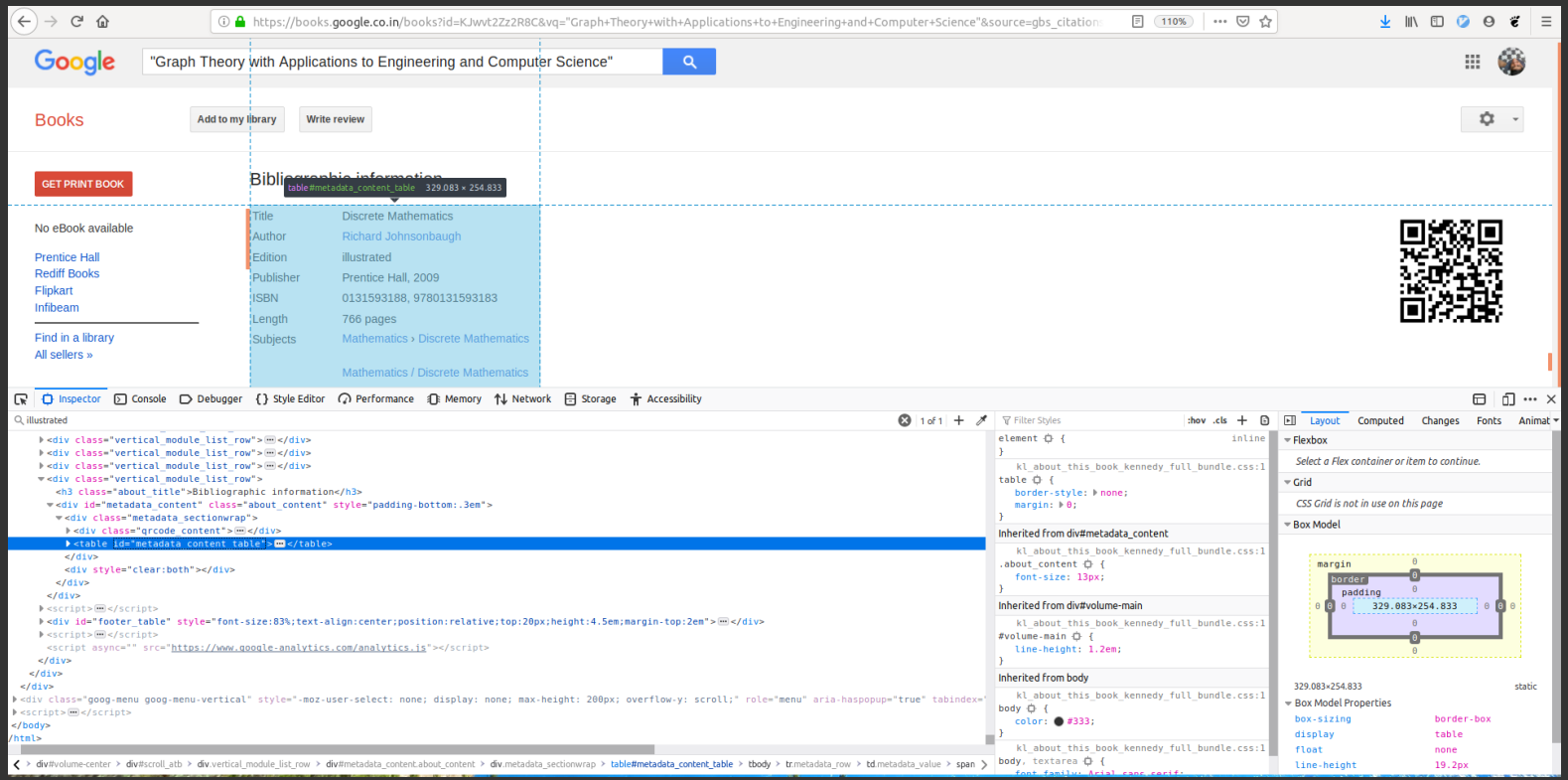

What we have done!

- Web scrapping with Python

```
abhishek@hephaestus:~/Documents/S1 & S2$ python webnewworking_userinput\ .py
Enter the URL: https://books.google.co.in/books?id=F9TIo4yuchoC&source=gbs_similarbooks
Discrete Optimization Algorithms: With Pascal ProgramsDover Books on Computer Science SeriesDover books on mathematics
Maciej M. Sys?o, Narsingh Deo, Janusz S. Kowalik
illustrated, reprint
Courier Corporation, 2006
0486453537, 9780486453538
542 pages
Computers › Programming › AlgorithmsComputers / Programming / AlgorithmsMathematics / Probability & Statistics / General
BiBTeX EndNote RefMan
abhishek@hephaestus:~/Documents/S1 & S2$
```

What we have done!

- Web scrapping with Python

```
abhishek@hephaestus:~/Documents/S1 & S2$ python URL.py
Enter the URL: https://books.google.co.in/books?id=KJwvt2Zz2R8C&vq=%22Graph+Theory+with+Applications+to+Engineering+and+Computer+Science%22&source=gbs_citatio
ns_module_r&cad=4
ISBN 9780131593183 name Discrete Mathematics publisher Prentice Hall year 2009 pages 766
('Connected to MySQL Server version ', u'5.7.27-0ubuntu0.18.04.1')
Data Successfully added
MySQL connection is closed
abhishek@hephaestus:~/Documents/S1 & S2$
```

What we have done!

- Web scrapping with Python

```
mysql> select * from library.Books;
+---------------+----------------------+---------------+------+-------+-------+
| ISBN          | Title                | Publisher     | year | pages | count |
+---------------+----------------------+---------------+------+-------+-------+
| 1234567890123 | dummy                | testing       | 2019 |   400 |     1 |
| 9780131593183 | Discrete Mathematics | Prentice Hall | 2009 |   766 |  NULL |
+---------------+----------------------+---------------+------+-------+-------+
2 rows in set (0.01 sec)

mysql>
```

Work to be done

- Scan Bar-Code and get the corresponding URL for data extraction.
- Extract the book information from the book cover.
- If possible get related price information from the Internet.
- Database Creation & embedded SQL for inserting, updating,retrieving required data.

Conclusion

- As time progresses the technology advances at a high rate. It is with this advancement that we are able to reduce the pressure put on humans to complete various tasks.
- We believe that our project has many applications in the present and in the future.
- The project we designed when implemented will be of great use in the long run. Implementation in the college will provide us the first exposure to the project and can help us further polish it once the first test has been run thus aiding us in updating the project as much as possible

References

- Linfeng Yang(linfeng@stanford.edu),Xinyu Shen(xinyus@stanford.edu) *Book Cover Recognition*.
- Piyush Mankare, 2 Raman Kolekar. [*Advanced library management system*]. IJISET - International Journal of Innovative Science, Engineering Technology, Vol. 3 Issue 6, June 2016
- webscrapping
  `https://linuxhint.com/python-web-scraping-tutorial/`
  https://linuxconfig.org/introduction-to-python-web-scraping-and-the-beautiful-soup-library