Certificate

This is to certify that this project is a record of the bona fide work done by **Akash Kumar Singh** (Reg No:219310279) submitted for the partial fulfilment of the requirements for the completion of the Project Based Learning (AI2170) course in the **Department of Artificial Intelligence & Machine Learning** of **Manipal University Jaipur,** during the academic session August - December 2022.

Signature of the mentor

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Abstract

The main focus of this project is towards learning about natural language processing. I have implemented it at the search part of the library database. Users/ College Students trying to search for a particular book often don't remember the exact name. Some spelling error may be present during searching. This project tries to facilitate users to search for a book by writing some important keywords related to the book or author name or even some spelling mistake and tries to give relevant results.

This project has also implemented the concept of database management using sql server. The database is hosted on phpMyAdmin which helps us to fetch data anytime, anywhere online.

Introduction

Purpose: The objective of the portal is to make it easier for the students to search for books in the library especially college students as their books have all kinds of names. It also tries to automate the process of borrowing books from the library.
Overall, this portal will help the students and faculty better manage the books in the library and also help students in searching for books.

Scope: Without this Portal search for any kind of book will become a tedious job for any Student as they'll have to know the exact name of the book.

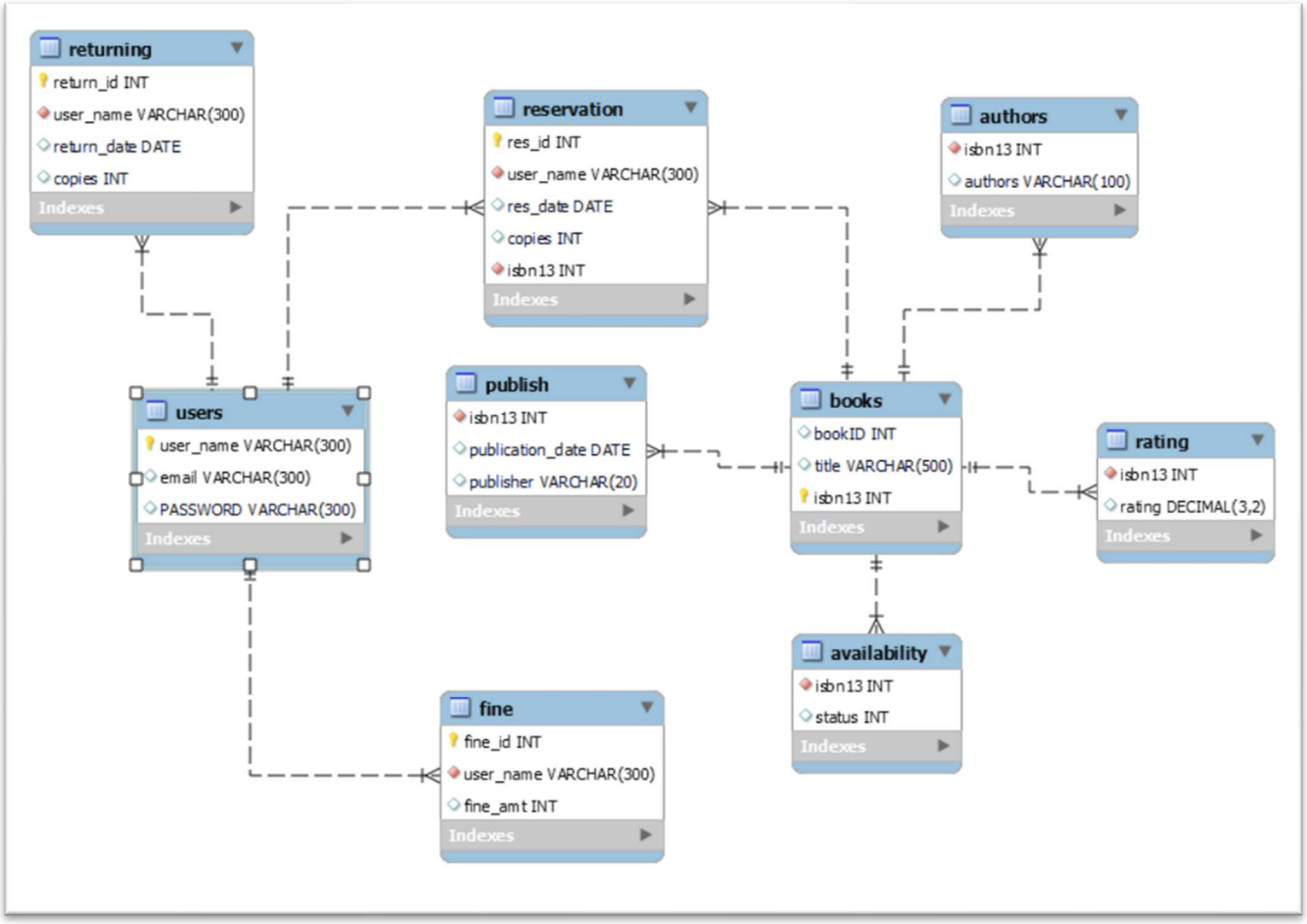
Login module: Login module will help in authentication of user accounts. Users who have valid login id and password can only login into their respective accounts.

Registration Module and Account Management: This module will help the student get registered from anywhere if internet is present. This module will really simplify the task of on paper registration. Also, after successful registration the user can update information and change their password and the registration also requires validation of email address via an otp.

User Management: This module will help the database administrator in enabling/disabling a user account and updating user information as required.

Search Portal: This module is for the staff and students to search for books present in the library.

Enhanced Entity Relationship Diagram:



Print View – Data dictionary:

AUTHORS

Column	Type	Null	Default	Comments
isbn13	int(11)	No		
authors	varchar(100)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
fk_authors_books	BTREE	No	No	isbn13	0	A	No	

AVAILABILITY

Column	Type	Null	Default	Comments
isbn13	int(11)	No		
status	int(1)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
fk_availability_books	BTREE	No	No	isbn13	0	A	No	

BOOKS

Column	Type	Null	Default	Comments
bookID	int(11)	Yes	*NULL*	
title	varchar(500)	Yes	*NULL*	
isbn13 *(Primary)*	int(11)	No	0	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	isbn13	0	A	No	

FINE

Column	Type	Null	Default	Comments
fine_id *(Primary)*	int(11)	No		
user_name	varchar(300)	No		
fine_amt	int(11)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	fine_id	0	A	No	
fk_fine_users	BTREE	No	No	user_name	0	A	No	

PUBLISH

Column	Type	Null	Default	Comments
isbn13	int(11)	No		
publication_date	date	Yes	*NULL*	
publisher	varchar(20)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
fk_publish_books	BTREE	No	No	isbn13	0	A	No	

RATING

Column	Type	Null	Default	Comments
isbn13	int(11)	No		
rating	decimal(3,2)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
fk_rating_books	BTREE	No	No	isbn13	0	A	No	

RESERVATION

Column	Type	Null	Default	Comments
res_id *(Primary)*	int(11)	No		
user_name	varchar(300)	No		
res_date	date	Yes	*NULL*	
copies	int(11)	Yes	*NULL*	
isbn13	int(11)	No		

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	res_id	0	A	No	
fk_reservation_users	BTREE	No	No	user_name	0	A	No	
fk_reservation_books	BTREE	No	No	isbn13	0	A	No	

RETURNING

Column	Type	Null	Default	Comments
return_id *(Primary)*	int(11)	No		
user_name	varchar(300)	No		
return_date	date	Yes	*NULL*	
copies	int(11)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	return_id	0	A	No	
fk_returning_users	BTREE	No	No	user_name	0	A	No	

USERS

Column	Type	Null	Default	Comments
user_name *(Primary)*	varchar(300)	No		
email	varchar(300)	Yes	*NULL*	
PASSWORD	varchar(300)	Yes	*NULL*	

Indexes

Keyname	Type	Unique	Packed	Column	Cardinality	Collation	Null	Comment
PRIMARY	BTREE	Yes	No	user_name	0	A	No	

System requirements

1. Operating system: Linux- Ubuntu 16.04 or higher, or Windows 7 or higher
2. RAM: 2GB (4GB Preferable)
3. Python 3.6 or higher installed on the pc.

Facilities required for proposed work:

1. MySQL Server
2. PHPMyAdmin
3. Python3
4. Tkinter Library for GUI
5. Python Libraries:
    - Fasttext
    - Word2vec
    - Pandas
    - Pillow
    - Pymysql
    - Os
    - Smtplib
    - Ssl
    - Email.message
    - Random
    - Pickle
    - Time