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**MCDA5540**  
**TEAM PROJECT**

**FINAL REPORT**

Submitted by

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**Submitted to**  
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## Introduction:

The Halifax Science Library (HSL) maintains an SQL database containing tables about various publications. HSL now wants to implement the following requirements:

- To sell library Items Store transaction of sales of items in library.
- Maintain records of all magazines, volumes and articles.
- Record monthly expenses of HSL.

## Approach:

A Data model has been designed for HSL. Information about magazines, articles, customers, transactions and monthly expenses are stored. We started from creating ER/EER diagrams and continued to relational schema. All tables are normalized till 3NF as per the requirements. A file named articles.json has been extracted, transformation has been done using python and java scripts which are triggered by bash scripts. Thus, loading all information from source json file to MySQL tables. PHP application has been created from this data model through which we can see total number of tables available, create customer, create transaction, cancel transaction and much more.

## Php web Application:

### Description:

The final part of the task is to provide an interface for the users to perform specific function for the end user. To perform specific functionalities for the end user we choose to create a web application with PHP. The functionalities which are attained through this application are:

- Show Tables
- Add new article
- Add new customer
- Add new transaction
- Cancel transaction

## Home Page:

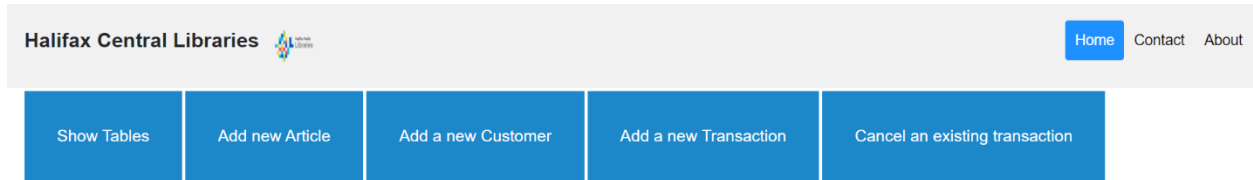


Figure 1-Home Page

## Show Tables:

The Home page has an option to click for show all tables which will display all tables names and giving the table name below will give you the data in each table. Each section will display the data according to the business requirements.

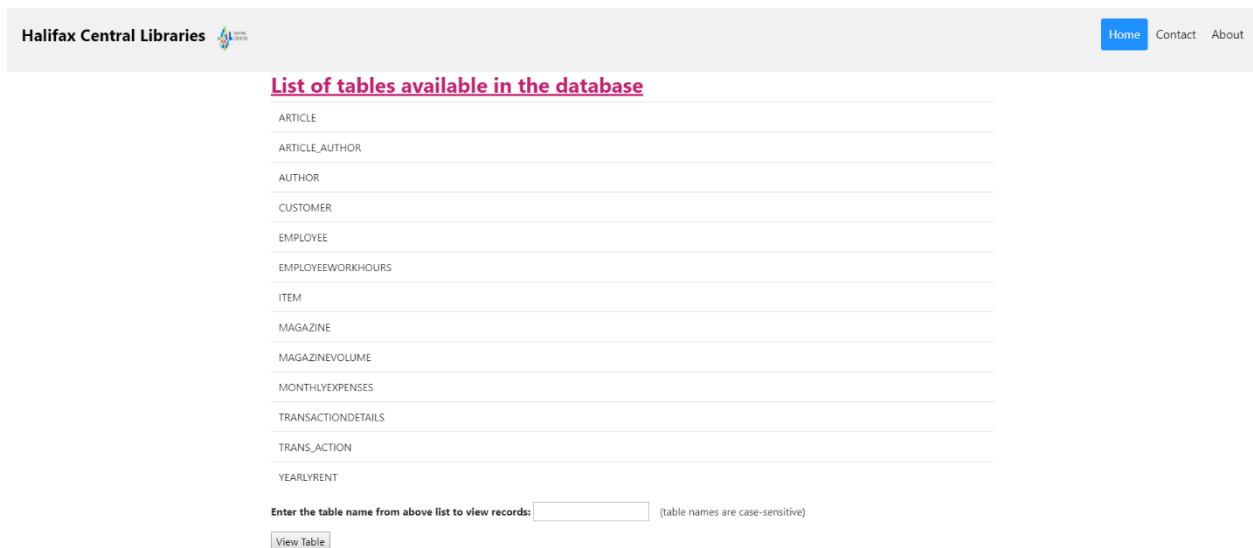
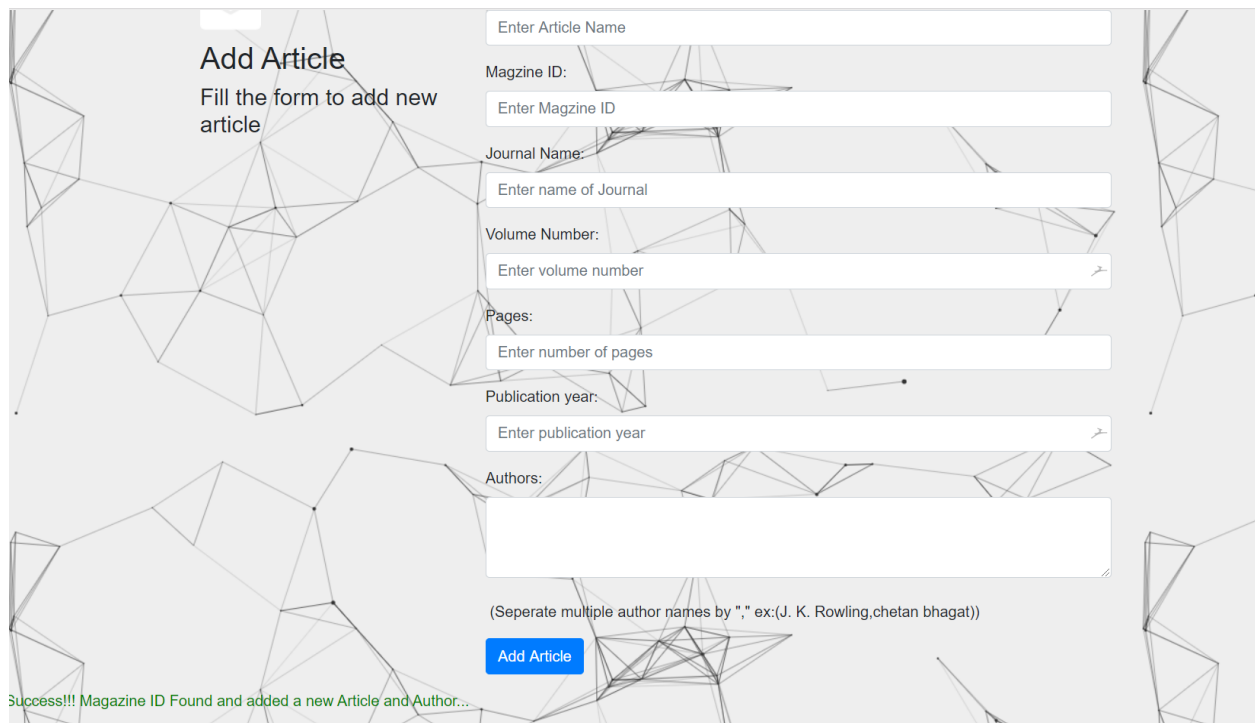


Figure 2-Show Tables

## Add new article:

### Description:

- We will use this php file to enter information about article into database.
- “Add new article” gives you the prompt shown below where user will add the attributes of the article which are required.
- In the author names section, if article is written by multiple author’s user should enter the author names with (,) separated.
- Clicking on the create button will insert a new article into database.



The screenshot shows a web form titled "Add Article" with the instruction "Fill the form to add new article". The form contains several input fields: "Enter Article Name", "Magzine ID:" (with a sub-field "Enter Magzine ID"), "Journal Name:" (with a sub-field "Enter name of Journal"), "Volume Number:" (with a sub-field "Enter volume number"), "Pages:" (with a sub-field "Enter number of pages"), and "Publication year:" (with a sub-field "Enter publication year"). There is also an "Authors:" section with a large text area and a note: "(Seperate multiple author names by ',' ex:(J. K. Rowling,chetan bhagat))". A blue "Add Article" button is at the bottom. A green success message at the bottom left reads: "Success!!! Magazine ID Found and added a new Article and Author..."

Figure 3-Add new article

## Add new Customer:

- We will use this page to enter information about customer into database.
- The module “Add new customer” gives you the prompt shown above where user will add the attributes of the customer which are required.
- If a customer already exists in the database, we are prompting that customer already exists at the top of field section.
- Clicking on the create button will insert a new customer into database.

**Halifax Central Libraries**

Home Contact About

**Add Customer**  
Fill the form to add new Customer

First Name: Vidhaydhara Teja

Last Name: Katragadda

Phone Number: Enter phone number

Mailing Address:

Add Same customer:

If customer exists with same name, Are you okay to add customer ?

Add new customer

Without Consent : Please provide different firstname/lastname....

Figure 4-Add new Customer

### Add new transaction:

- In this page, user can make a transaction to an existent customer by selecting customer id and his required items in the list box.
- Now, user can view the quantity for the no items also.
- Now, user can view the transaction details from transaction table.
- User can view his totalpurchaseprice, discount code gets updated based on his purchases.

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**Adding a new Transaction...**

Item ID: Enter Item id

ITEM Quantity: Enter Quantity

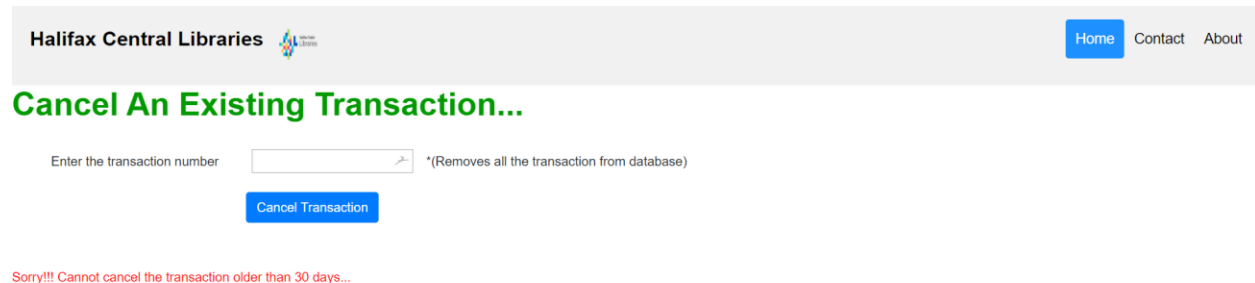
CUSTOMER NAME: CID : 1

Add New Transaction

Figure 5-Add new Transaction

## Cancel Transaction:

The cancel Transaction page, deletes the transaction based on transaction ID, only if the user transaction date is less than 30 days than the current date.



The screenshot shows a web interface for Halifax Central Libraries. At the top, there is a header with the library's name and logo on the left, and navigation links for 'Home', 'Contact', and 'About' on the right. Below the header, the title 'Cancel An Existing Transaction...' is displayed in green. The main form area contains a text input field labeled 'Enter the transaction number' with a small 'x' icon on the right. To the right of the input field is a note: '\*(Removes all the transaction from database)'. Below the input field is a blue button labeled 'Cancel Transaction'. At the bottom of the form, a red error message reads: 'Sorry!!! Cannot cancel the transaction older than 30 days...'.

*Figure 6-Cancel Transaction*

## Conclusion:

As per the problem stated by HSL and by analyzing business requirements of the Halifax Science Library, Design has been made fulfilling all constraints and required attributes. Then looking up to Existing tables, new tables are invented to map them for easy querying.

The source “articles.json” has required data which fits into MySQL newly created tables, before further proceedings as the source has useless data and must be transformed to an efficient manner, we used java for the transformation and took the cleaned output as “articles\_cleaned.json”.

Before loading into MySQL tables, the task is to load the cleaned Json file into mongoDB and to create collection in mongoDB. Further, another BASH script is required to do as per the task and this script exports collection into .csv file.

The .csv file will be imported into master table in the same database and with a trigger on the master table sparks all data into individual tables as per required attributes. All tables in MySQL are populated with data.

Finally, an application has been built for specific functionalities in PHP, which will make HSL personnel to see all tables, add new article, add new customer, add new transaction, Cancel transaction.