

INST 327-0201

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## **Project Report**

### **Introduction**

Group 7 created a database to represent a book collection in a library. It includes book information, similar to that stored in a library database system. More specifically we targeted history books from around the world and highlighted connections based on the author, target audience, and content. The database attempted to encompass history books from and about every major world region from the 1600s to the present. We will attempt to gather this information by pulling from McKeldin Library and its database as it will provide accurate and public information.

Group 7 agreed on this topic because we thought it might be intuitive to create the connections necessary in order to represent this information in the form of a database. History has many overlapping points, this would allow us to create multiple many to many relationships and allow for more flexibility when presented with complex questions. Another reason for our choice was our collective familiarity with library systems. Everyone in the group has been to McKeldin Library and knows how to interface with its online resources. On top of that, many of us are interested in history and have background knowledge in the subject which will aid in our creation of the database.

### **Database Description**

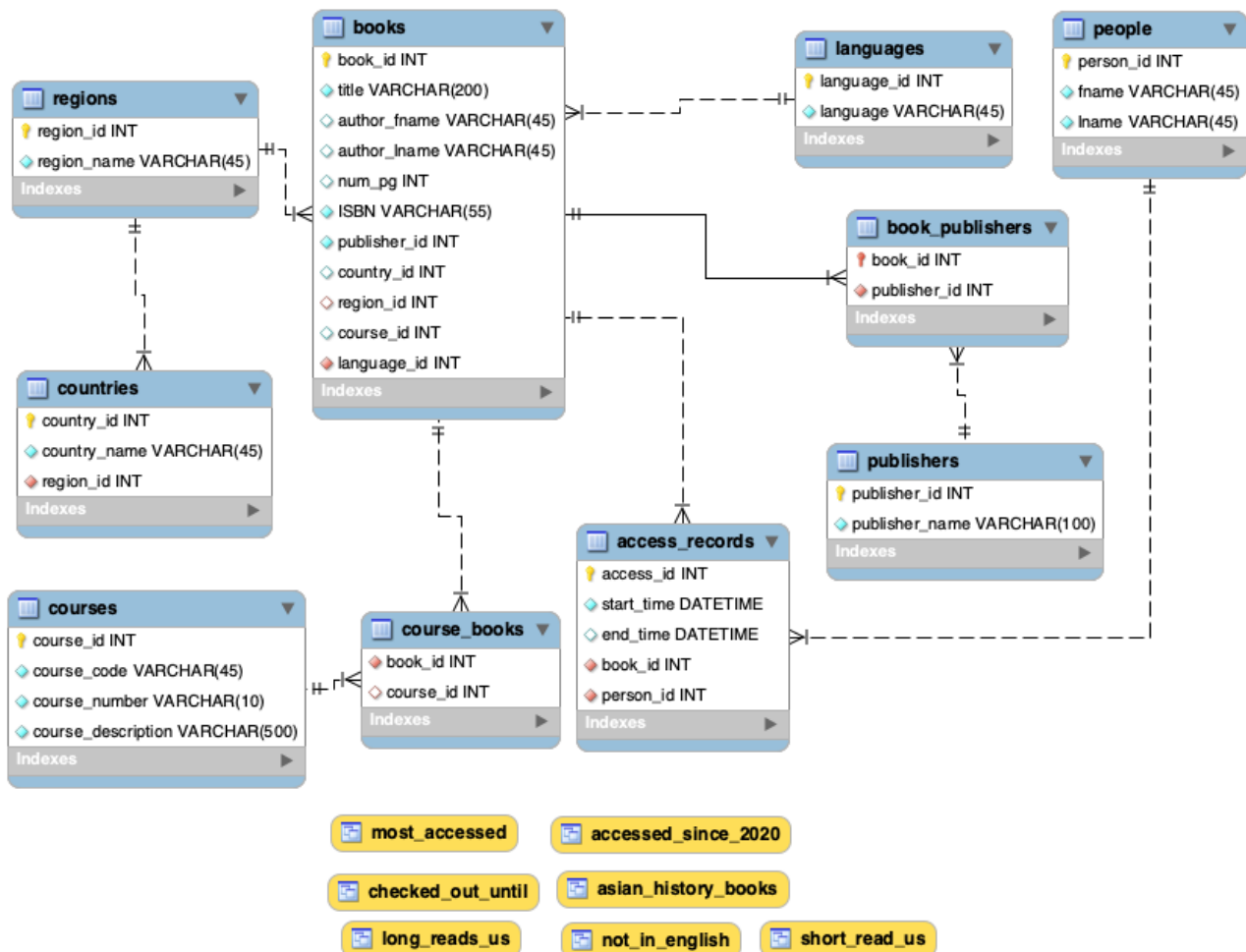
Group 7 has created a database containing history books about different places around the world. The scope of the books encompasses different geographical regions, countries, cultures, and time periods. We have included book information similar to what would be found in a library database. The database allows users to locate books from different regions or countries by filtering. Users can also search for and retrieve books based on specific titles, authors, publishers, or publishing years.

To make this database more unique, Group 7 connected the database to the University of Maryland's History Department. We went through the Schedule of Classes feature on Testudo to deliberately populate the database with books that are used in courses offered at the University of

Maryland. This way users of the database will be able to look up classes that relate to or use the books in the database.

## Logical Design

### ERD Image



Group 7 designed the database in order to link history books from all over the world to specific classes at the University of Maryland. The regions, course\_books, and publishers tables all act as linking tables in order to connect specific source tables together. Group 7's original design included eight tables, but after normalizing the database and adding some more information to make the database more informative and unique, the final database consists of ten tables.

## Physical Database

A backup self-contained file for the database including all tables, views, and sample data has been submitted separately.

### ***Sample Data***

All book and University course information was taken from Testudo's Schedule of Classes feature and McKeldin Library. Some supplemental information, such as publisher, was found on similar public websites.

### ***Views / Queries***

View Name	Req. A	Req. B	Req. C	Req. D	Req. E
asian_history_books	✓	✓			
long_reads_US		✓	✓		✓
not_in_english	✓	✓			
most_accessed	✓		✓		
accessed_since_2020	✓	✓		✓	

### **Changes from Original Design**

While working on the ERD and database, Group 7 made several changes from the original design that add to the overall structure and accessibility of the database. One of the major changes Group 7 made was the addition of linking tables between books and publishers and books and courses. We realized the ERD was not fully normalized during the data import process when we got frequent foreign key error messages. To fix the issue and successfully import data, we examined the data and saw the necessity of linking tables. Another change we made was a streamlining of the overall database. We removed the book cover table, changed call numbers to ISBN numbers, and added a greater total number of books. One thing that we noticed in this pursuit was the final database has a smaller variety of books than we intended. However, we believe that the database is substantially populated for the sake of demonstration. The final change we made was the inclusion of a language table to increase the number and kinds of queries we could create. With these changes made to the database, we hope that the final product will be thorough and allow for interesting questions to be asked and answered.

### **Diversity and Equity**

The database seems to be an inclusive information resource. In order to encourage diversity on social, historical, and demographic scales, Group 7 chose to form the database around history books from a multitude of countries. The goal was to gather books focusing on different countries and regions, by authors with drastically varying backgrounds, and from different periods in time. This is important in order to view history as objectively and unbiased as possible. As previously stated, history is a topic that can be biased depending on the source as society is ever-changing and evolving, with there being different societal norms than there were hundreds of years ago.

The main way that biases could've come up within the database would be if history books from one country shed a negative light on a different country or region. To combat this, another point of view would need to be included. For this reason, group 7 purposefully included history books from different countries to create a well-rounded and informed picture of history that incorporates differing perspectives in order to broaden the historical narrative.

### **Data Privacy, Fair Use, Other Ethical Considerations**

Group 7 has created a database to represent history books from given countries. The idea did not pose any potential privacy, copyright, fair use, or other ethical or legal concerns as Group 7 only included publicly available book information. The books and information that populate the database are from McKeldin Library at the University of Maryland Schedule of Classes. As McKeldin Library is open to the public, there are no copyright or fair use problems using the books to fill a database. There are not any privately published works in the database or any works that are not publicly available in the database. This alleviates any privacy and ethical concerns as all information included in the database will already have been made accessible to the public through McKeldin Library. The database does not use direct quotes or pull a large amount of content from the books, therefore there are no fair use issues. Group 7 did not store any private or sensitive information in the database. Thus, there are no concerns about compromised privacy as all information will be publicly accessible in other ways.

### **Lessons Learned**

As group 7 was formulating ideas for the database we would go on to make in our final project, an issue that took many weeks for us to address was how we would make our database more unique than a simple library. In efforts to populate the database with interesting information, we struggled to find data that would display our understanding of SQL principles.

As we honed in on our data retrieval methods, we realized we could specify the database to relate to books directly related to coursework at UMD, making our database have more practical utility than a compilation of random history books. Our work to find practical utility for our database, and making a database we feel we would personally want helped us think more creatively about relations that we can include in databases. A similar lesson that Group 7 learned was leveraging human interaction with the database as a useful table of data. To do this, we made the `access_records` table, which helps to keep track of who is accessing library contents at any given time. There were also some technical difficulties during the creation of the database that were overcome with perseverance. It took several tries to forward engineer the database and import all of the data. Overall, this database project offered the members of Group 7 insights into the process, struggle, and satisfaction of creating a database from scratch.

### **Potential Future Work**

In the library database Group 7 created, there is room for improvement to enhance the utility and inclusivity of the database. To expand the utility of the database, Group 7 could add more books by authors and publishers already in the database so that queries against certain authors and publishers would yield more results. Additionally, adding books with new authors and publishers increases the variety of entries in the database. This can be done by searching previous semesters in the Schedule of Classes to encompass history courses that are not taught every semester or courses that are no longer taught at all. Another idea is to branch out into other departments at the university such as the Classics department to see if any of their courses relate to global history. In regards to inclusivity, Group 7 can continue to populate the database with an increasing variety of language options, as well as represent more regions of the world in the database. The current data is a small sample of our greater intentions, one that was limited by the time and resources of our team during the semester. Interestingly, our search to include as many regions as possible highlighted a seeming lack of coverage of Latin/South America for the spring 2022 semester at UMD. Should Group 7 decide to expand the database, careful consideration will be given to including books about different countries and regions as well as books written in different languages.