

MUSIC LIBRARY ORGANIZATION

An Interactive Qualifying Project Report

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by

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Abstract

The aim of this interactive qualifying project is help the WPI Music Department organize the Choral Music Library. This project consists of organizing the sheet music into boxes and of cataloguing all the music in a digital database with search capabilities built on a database system. Academically, the focus of this project will be to learn collaborative effort which is required in our successful research, planning, and documented achievement. While the focus of the work will be to design and create the library system with the needed functionality, high ease of use, and a simple mechanism to update the database.

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Introduction

This project intends to organize the music library as previous IQPs have done. We will use a numbering system simple enough that it will be possible to maintain by future students. A digital catalog system built on Microsoft Access will be used to catalog every piece of music in the library. This project will also move the music out of old folders and put them in boxes.

Library Status

Prior to this project the Music Library was organized into alphabetical order. Although an intuitively exemplar means of organization, in the case of the Music Library, this categorizing method has been woefully impractical as it has been the likely cause for the state of disarray. This is because such an order requires the user of the Music Library to alphabetize new or returned music before or after every use. These hard to preserve guidelines have left a large collection of relatively new or otherwise often-used music, literally, piling up in rehearsal areas.

The numbering system we found at the beginning of this project made no sense whatsoever. We found folders, old and new with the name of the piece written in any part of the folder. This is why a new more straightforward numbering system was required.

Besides this, and despite the library being supposedly organized in alphabetical order, we found that the TTBB music wasn't stored correctly. The scores jumped from one shelf on to a different one in another part of the library. This was easily fixed as part of the boxing process. Besides, we found that in some parts of the library there were a large number of pieces in complete disarray.

The card catalog was found to be in reasonable shape, except for a very few missing pieces, and the occasional piece with no catalog record whatsoever. Thanks to this fairly comprehensive card based

system, the catalog was easily digitalized. In addition to this paper catalog, we had an outdated but otherwise accurate excel file to fall back on in case of missing data.

Literature Review/Background

In order to complete the project, and in order to satisfy the Choral Music Library's organizational needs, research had to be conducted in order to find out which particular design requirements were most apt to result in the best-organized use of the library. The needed organization benefits are largely provided by the results of two previous projects to (re)organize/catalog the Music Library. As both prior projects were related to separate IQP's the efforts were recorded alongside the rationale for the work within the IQP reports. Much of the rationale used in previous reports has proved to be of value in understanding the tangible needs of the Music Library.

It is clear that the less maintenance needed to maintain order the better, and that an ordered system that does not require the user to provide thoughtful maintenance of the rank while it is used would be best suited for the Music Library. The hope is that the user with the right system and technology can accomplish more of the cataloging responsibilities.

Also of large importance for this project is the previous experience of those who now make use of the Library and who have worked to better organize it in the past. The source of the most explicit demands upon the Library no doubt has to come from those who use it on a regular basis. It is the hope of the project to be able to meet those demands and more through the application of the chosen technical solutions.

Organization and Storage

After the completion of this project, the sheet music will be stored in specially designed boxes. The reason for this is that a few years ago, around 500 musical scores worth an estimated 2000 Dollars suffered varying degrees of water damage from a burst heating pipe in the music library. This loss combined with the need for a better organizational system was the motivating factor behind moving away from the folder based system.

Because of the fact that boxes come only in three sizes (1, 2 and 3 inches) and that folders can vary their width accordingly, we found that the same amount of sheet music consumed over twice as much shelf space. In order to be able to better manage the available space, we selected the pieces with an exceptional number of copies, and labeled them as being oversized (for the catalog's identification purposes). These pieces were then moved them to a different storage space specifically designated for that purpose.

In the process of re-cataloging the library, we came across a small number of pieces that had a catalog entry, but no corresponding piece of music. We made a note of this in the catalog, so that if they are found at a future date they can be added back to the library.

Numbering System

The new method to organize the library is based on a simple progression of increasing numbers. The motivation behind this was so that when a piece is to be returned to the library, its place can be easily found by looking for the corresponding number. Furthermore new additions will simply use the next available number regardless of the author or title of the piece, and added at the end of the library. This will make adding new pieces exponentially easier, and due to the search function of the database no functionality will be lost from the current system.

Due to space constraints (as previously noted), many of the pieces with the larger number of copies were moved to a designated storage space and put into a box of the corresponding size. For the purposes of cataloging, we call these pieces Oversized and provide a mechanism for the digital catalog to differentiate them from other pieces. Regardless, these pieces still will be assigned a sequential number and even if by their number they ought to be in the main library. This is indicated in the database; however as an additional means to avoid potential confusion, a placeholder card is placed on the shelf to indicate where the oversized box would be located sequentially, in order to direct the user to its actual location.

The numbering system used to organize the library defines the method by which anybody can find any piece in the library. This numbering system is a simple number progression. The library maintains a consistent organization in these numbers, whereby they are always increasing from left to right. By doing so, the number of any piece, it can be easily found.

Oversized Pieces

In order to deal with pieces of music that consumed too much shelf space, these pieces were separated and moved to a different storage area. Due to the fact that this could lead the users of the library to think that there was a missing number, placeholders were inserted in the corresponding shelf with the number and an indication that the piece is oversized.

Computer Based Card Catalog

The computer-based card catalog was made in order to take advantage of modern Information Technological systems. Mainly we were interested in having a way to easily search the entire database and to filter the search results by any parameter we chose. As opposed to the existing paper based system. The digital card catalog includes the following fields for each piece: Title, Composer, Part (SATB, TTBB, etc), Year, and number of copies. In addition, oversized pieces have the text "OVERSIZED" in the

title. This is to alert the user of the library that the piece they are looking for is not stored with the main collection.

Implementation

With the motivation of ensuring that every piece in the database was actually in a box in the library, we decided to first move the music onto boxes, separate the oversized pieces, and in general organize the library. In addition, pieces by various or unknown composers for which there was only one copy, were separated from the general collection, and consolidated to avoid confusion. Due to the new size constraints associated with putting pieces, which had previously been stored in a flat file folder into 1 inch or larger boxes, boxes were doubled up to fully utilize the available shelf space. This method effectively doubles the amount of shelf space available in the library. In order to ensure that this consolidation did not hinder the ability of someone to find a particular piece of music, the shelves are all labeled with the range of box numbers that they contain, and continuity with the sequential number progression has been maintained.

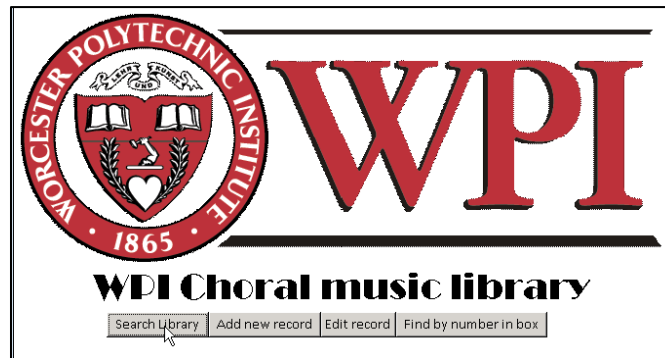
Database Operation

The front end of the database program has several main functions that are available to the end user. The user can search the existing collection for a particular piece by Title, Composer, Part, or by Box Number. In addition, the user can add new pieces to the database, as well as edit an existing entry. Upon loading the database into Microsoft Access, the user should ensure that they enable all content for this project by clicking the security warning options at the top of the page. Once they have done this, the first thing they should open is the switchboard. The switchboard is the main menu of the database, and all user functions can be accessed from it. From here, there are several actions shown at the bottom of the switchboard. From here, the user can choose to Search the database, add a record to the

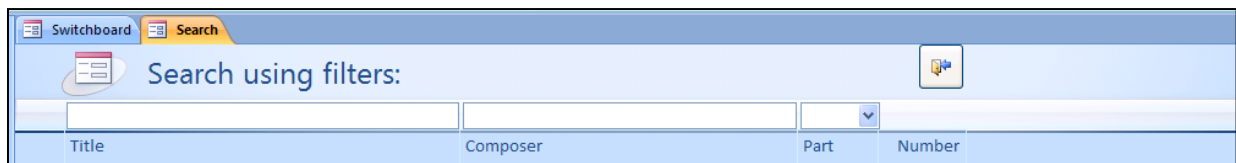
database, edit an existing record, or they can choose to lookup a specific box number to find the name of the corresponding piece.

The Search Function

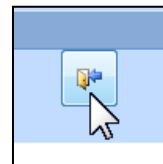
In order to search the database, the user must first click on the “Search Library” button from the switchboard as shown below.



Next, a page will be displayed with a search box at the top for each the title, composer, and part. The user then inputs their search tem into the designated search field and pressing enter; this search field is shown below.

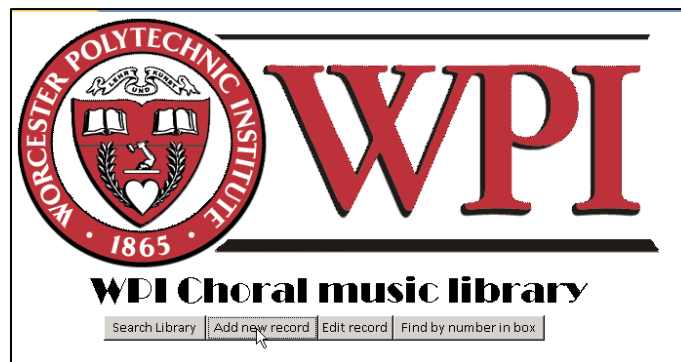


In order to return to the switchboard from any page, the user simply presses the return button shaped like a door in the upper right hand corner of the search page:

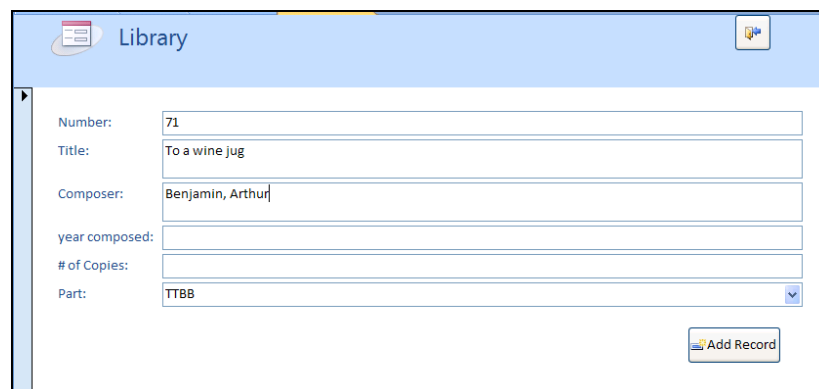


Adding a New Record

The Next action that a user can take is that of adding a new record to the database. In order to accomplish this task, the user must first select the “add new record button” from the main switchboard as shown below.

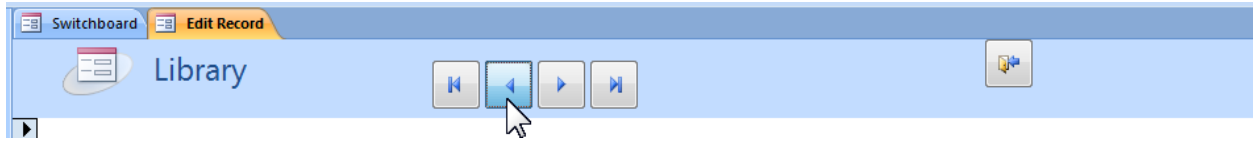


Upon doing so, the “add record” form will be brought up. From here, the user must enter the next sequentially available number they wish to assign to the piece, the title, the composer (lastname, first), the year composed, the number of copies, and finally the part, which can be selected from a drop down menu. This form is shown below.

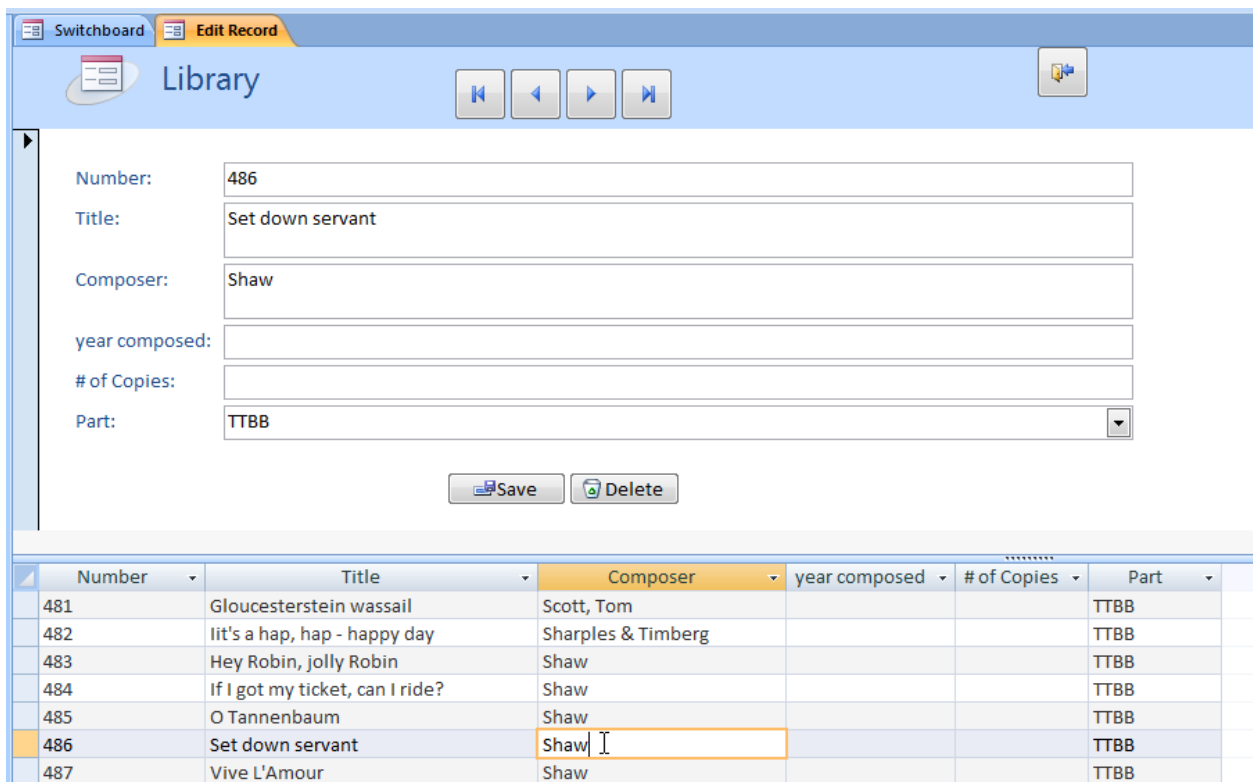
The image is a screenshot of a web application interface titled "Library". The form contains several input fields and a dropdown menu. The fields are labeled as follows: "Number:" with the value "71"; "Title:" with the value "To a wine jug"; "Composer:" with the value "Benjamin, Arthur"; "year composed:" which is empty; "# of Copies:" which is empty; and "Part:" with a dropdown menu showing "TTBB". At the bottom right of the form is a button labeled "Add Record".

Editing a Record

The edit record form has 4 navigation buttons: first, previous, next, and last records from left to right.



The edit record form also has a table view which can be clicked to edit that record, or can even be edited inline:

A screenshot of the 'Library' interface showing the edit record form and a table view. The form is located at the top and contains the following fields:

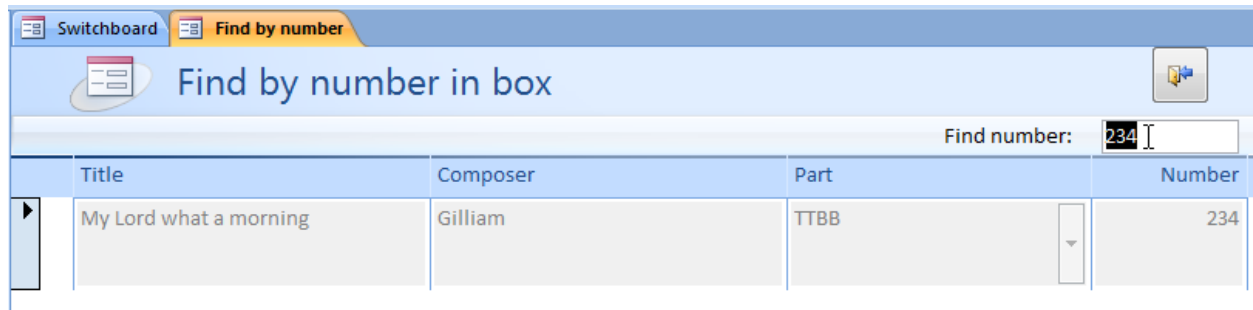
- Number: 486
- Title: Set down servant
- Composer: Shaw
- year composed:
- # of Copies:
- Part: TTBB

Below the form are two buttons: 'Save' and 'Delete'. Below the form is a table with the following data:

Number	Title	Composer	year composed	# of Copies	Part
481	Gloucesterstein wassail	Scott, Tom			TTBB
482	Iit's a hap, hap - happy day	Sharples & Timberg			TTBB
483	Hey Robin, jolly Robin	Shaw			TTBB
484	If I got my ticket, can I ride?	Shaw			TTBB
485	O Tannenbaum	Shaw			TTBB
486	Set down servant	Shaw			TTBB
487	Vive L'Amour	Shaw			TTBB

Locate a Piece by Number

In order to locate a piece by its assigned number, the user simply enters the number of the piece they wish to locate into the "Find Number" field as shown below.



The screenshot shows a web application interface with a blue header. On the left, there are two tabs: "Switchboard" and "Find by number". The main title of the page is "Find by number in box". Below the title, there is a search field labeled "Find number:" containing the number "234". Below the search field is a table with the following data:

Title	Composer	Part	Number
My Lord what a morning	Gilliam	TTBB	234

Conclusion

This project had several main issues to address, pertaining to the WPI Choral Music Library. The Primary issue was to protect the current inventory of sheet music from potential future water damage. The second was to catalogue the entire collection, so that no piece was unaccounted for. The third goal was to then structure an easy to use database to store this information, however the final, and arguably the most important goal of this project was to ensure that the system is easy enough to use that the library will not fall into a state of disrepair again in the future. This is the key to the success of this project, as several attempts have been made in the past to organize the music collection; and it has continuously fallen into disrepair. The new system of cataloguing the pieces with an arbitrary number allows the library to easily expand and grow in the future with little to no effort, something that was not possible under the previous system. In addition, the searchable database will allow the user to select the exact piece which they want without having to go through the multiple drawers of the card catalogue, allowing them to realize the full potential of the collection, which was previously impossible.