

Harvard Library Lab

Shifting Tool Project

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Overview: The Shifting Tool Project is an effort to create a software tool that can inform library staff of the time, space, and resources required for a shift of materials, the relocation of books and other items housed in library stacks from one area to another. The project team envisions a user interface from which librarians can enter a call number range, and get back a measurement of linear footage. With the further input of several variables, including the time it would take to physically move the materials from point A to point B and the number of people available to do the work, it is intended that the tool can then provide a time estimate to complete the job; in addition, that resulting estimate could be altered by changing various parameters available for the task, giving librarians more information regarding the amount of resources to devote to a project in order to complete it within a given time-frame or budget.

Technical Requirements: During the initial scoping process, which took place in late-November/early-December, 2012, the project team met with Sebastian Diaz of the Library Lab, and software developer Justin Clark to discuss the overall concept of the project, and explore the required data points from which the tool would draw. Because of the uniqueness of the Harvard Library's many call number systems, it was quickly agreed upon that this tool could only function on a practical level with Library of Congress classifications; this will, however, help fulfill one of the goals of the project, to release the tool as an open-source application for use by other libraries.

In order to determine the linear footage of a given call number range, access to the library database, in the form of bibliographic and item records, will be required. There are two data points that will, when combined, make this calculation possible: pagination, and the number of volumes within the same call number. Pagination occupies the 300 | a subfield in the MARC-format bibliographic record ("extent"), and this subfield has been used by other applications that estimate the "thickness" of a given volume, such as Library Thing¹. As the thickness of actual books can be affected by variations in the thickness of the covers (e.g. a paperback will be thinner than a hardcover work of the same pagination) and paper (not to mention non-indexed pages), the estimation of linear footage will necessarily be an estimate. Justin Clark has also done some further research

to chart the correlation between pagination vs. thickness, proving the viability of this datapoint.²

The second major datapoint for calculating the linear footage of a call number range, the number of volumes occupying a single call number on the shelf, will need to be drawn from the item record. This data is easy to see, but will require that the tool select the needed information filtered by library (“sublibrary” to ALEPH) and collection. In other words, when the tool looks at Harvard’s holdings at a particular call number, it should only count those items on the specific shelf in the specific library in question. This will account for multi-volume items, serials, and other works that may contain more than one piece.

What remains unresolved at this time is how the tool will access this needed data. The tool might be able to access ALEPH information via an API, or it may require an intermediary reporting application such as COGNOS to get at the data. This will require further study before proceeding with the follow-on functionality of the tool. Ultimately, the desired result will be an interface into which the starting and ending call numbers will be input, and the tool will solve for n , where n =linear footage on the shelf of the call number range.

The second stage of development of the tool will require that the time needed to pull materials from the shelf, transport them to the destination location, and load them into the new shelving be calculated, likely by a simple physical test of the process using a standardized length of shelving footage. This will be a variable input into the tool, affected by such factors as the distance between source shelf and destination shelf, how many hands are available to effect the move, and whether there are any obstacles affecting the speed of the work (high shelves, unusual weight or size of the items, etc.). In addition, this variable can be manipulated in order to change the result to meet the needs of the affected staff (e.g. how quickly the move needs to be accomplished, whether there are constraints to labor costs, etc.).

Finally, it has not yet been determined whether a graphic representation of the shelving is needed for this tool or not. There are several projects underway within the Harvard Library that are concerned with illustrating stacks locations in an on-line interface; the ability to depict locations of specific call numbers and/or call number ranges is under active development, as is the evaluation of a new commercial application called StackMap³, now in use at Princeton. While mapping the stacks across the relevant Harvard library units would be a one-time investment in effort (with only maintenance, to account for changes, required longer-term), it would be a more difficult task to map shelf utilization, a necessarily fluid quantification. In a shifting project, the destination shelving is usually known from the start of planning, and once the linear footage of a call number range is determined, a tool shouldn’t be required to know whether there is enough space at the destination location. Again, while a graphic stack representation could have its uses, it may be unlikely to be required for the purposes of this tool.

Process and timeline: The next steps will be to finalize the means of access to the bibliographic datapoints, and create a preliminary design for the tool interface. This will help define the scope of a time-and-labor estimate for writing the code. The timeline suffered unavoidable delay as members of the project staff were occupied by their regular duties at the end of the Fall semester, 2012, and the beginning of the Spring semester, 2013. It is anticipated that this project will again be able to move more expeditiously from this point all the way into the summer months.

The project group continues to be enthusiastic about the potential for this tool. We will be reviewing the data from a representative shift in the Divinity School library, comparing what was needed with what we hope this tool will provide. In addition, we will look for a test project somewhere in the Harvard Library to test and refine the tool once we have reached beta stage. While initial progress with development has been necessarily slow, we believe that we will have no trouble meeting the deadlines under the grant program.

As always, the project team is indebted to the Library Lab staff, as well as the Arcadia Fund, for supplying the resources needed to propel projects like this toward success.

Respectfully submitted,

Andrew Wilson, Project Manager

¹ <http://www.librarything.com/blogs/librarything/2011/04/physical-description-fields-added/>

² https://cyber.law.harvard.edu/projectmanagement/attachments/2888/page_vs_width.png

³ <http://www.stackmap.com/>