

## **MARI**

Homepage: http://publisher.uthm.edu.my/periodicals/index.php/mari e-ISSN :2773-4773

# **Special Collection Management System**

# Muhamad Mirza Kamar<sup>1\*</sup>, Juhaida Abu Bakar<sup>1</sup>, Norliza Katuk<sup>1</sup>

<sup>1</sup>School of Computing, UUM College of Arts and Sciences, Universiti Utara Malaysia, Sintok, Kedah, 06010, MALAYSIA

\*Corresponding Author Designation

DOI: https://doi.org/10.30880/mari.2021.02.03.013 Received 05 September 2021; Accepted 05 October 2021; Available online 15 December 2021

**Abstract**: There are a hundred thousand items with over 200,000 volumes circulated every year in the Sultanah Bahiyah UUM library. The transaction was recorded in books before the change to computerized led to a missing file and record. In this project, our objective is to develop a Special Collection Management System which efficiently registers special materials collections in UUM. Special collections are rare and valuable items that do not have any additional prints as they came from the original source. There are three types of special material collections, which are manuscripts, character writing and valuable images. In Sultanah Bahiyah library, the special collections are not available to be borrowed. Users who need to use special collection materials must use them at the library desk. This situation shows that special collection materials are very hard to access remotely from home or office. The sub-objectives are as follows: 1) to identify system requirements for the Special Collection Management System; 2) to develop a web-based Special Collection Management System with a Rapid Application Development (RAD) methodology; and 3) to test and evaluate the usability of the Special Collection Management System using the Technology Acceptance Model (TAM). The Rapid Application Development (RAD) methodology model has been used for the project methodology. There are four phases in RAD, namely requirement planning, prototyping, testing, and cutover. The finding shows that 80 percent agreed with the usefulness of the Special Collection Management System. This invention can assist the UUM staff library in managing special materials in a more structured manner.

Keywords: Special Collection, Library, Web Application

### 1. Introduction

In Sultanah Bahiyah Universiti Utara Malaysia (UUM) library, there are a hundred thousand items with over 200,000 volumes circulated every year. The library has about fourteen types of collections, including general collection, online collection, special collection, micro collection, archive collection, serial collection, children's collection, reference collection, law collection, red spot collection, media collection, light reading collection, past exam papers collection, and the UUM professor's corner. In

this work, a web-application for special collection [1] has been proposed. Several studies [2-4] show that there is a problem with managing databases for libraries from manual systems to computerized. Mathur [3] stated that College Library Management faced problems in managing databases for books in an effective manner because of the manual system. Study in [2] also mentioned facing problems such as files and records missing because their transactions were recorded in books before being computerized. This work was also invented to solve the same problems in handling special collections for the Sultanah Bahiyah UUM library. In Sultanah Bahiyah library, the special collection materials are very valuable and limited items that are not available to be borrowed. Users are prohibited from causing any damage and there is no exception for library staff because they need to handle the collection in a proper manner [5]. The reason is to maintain the collection in perfect condition without any damage [5]. The Special Collection Management System was developed for the UUM staff library to make registration for special materials collections more efficient. The systems provide library staff with the ability to register the collection, including uploading the picture of the item into the system. The system is able to staff and students of UUM view the special collections and provides users with the ability to search for collection items.

#### 2. Materials and Methods

The Special Collection Management System uses Rapid Application Development (RAD) as the methodology of development (**Figure 1**). There are four phases in Rapid Application Development (RAD), which consist of requirement planning, prototyping, testing, and cutover [6-7]. Rapid Application Development (RAD) is a methodology that focuses on faster development because it maximizes prototype development and minimizes the planning stage. This system uses RAD as the methodology because it provides higher quality results than the other software development methodologies and the results of development are quicker than the others.

In the first phase, Requirement Planning, students did research about the current problems, finding related work with the system to have more information about the current system and finalizing requirements with the supervisor. The second phase is prototyping. In this phase, students and clients need to work together to ensure that all customer needs meet the requirements. The third phase is testing the system and ensuring that all parts of the function are moving together as the client expected. The last phase, the fourth phase, is cutover, which is the time for students to finalize the system for launch. The systems provide library staff with the ability to register the collection, including uploading the picture of the item into the system. In this situation, it has been better than using manual registration because when mistakes happen, it adds more work to the library staff. This is because the staff need to redo the work by using another paper, unlike using a system where the staff only have to click on the update button and make some edits in forms that have been provided in the systems.

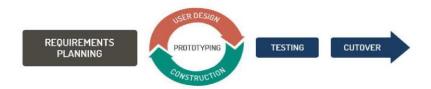


Figure 1: Rapid Application Development (Reference: [6])

#### 3. Results and Discussion

**Figure 2** shows the user interface of the Special Collection Management System for UUM staff. This is the main page interface after UUM staff have successfully logged into the system. On this page, there is information about the special collection, so that users can understand what the system is about.

On the top of the interface, there is a menu bar, which can navigate users to the main functions of the system, such as the special collection page. On the special collection page, this system provided all special collections based on three categories, which are manuscript, images, and character writing. The user can also easily search the special collection by using the search function.

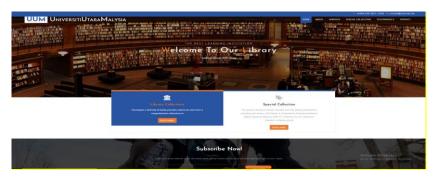


Figure 2: Homepage for Special Collection Management System

The analysis of data collected from 30 respondents consisted of the School of Computing UUM students, other UUM students, and Sultanah Bahiyah library staff. The information gathered from 30 respondents, providing some demographics such as gender, age, the frequency of going to the library and knowledge about special collections in Sultanah Bahiyah Library is summarized in **Table 1**.

No	Variables	Frequency	Percentage
1	Gender		
	Male	22	73.3
	Female	8	26.6
2	Age		
	21-25	15	50
	26-30	7	23.3
	Above 30	8	26.6
3	How often do you go to Sultanah Library UUM?		
	Daily	8	26.6
	Weekly	20	66.6
	Monthly	2	6.6
4	Have you ever known about the special collection in any		
	library?		
	Yes	8	26.6
	No	10	33.3
	Maybe	12	40

**Table 1: Respondent Profiles** 

**Table 2** is the summary of information gathered from respondents. There are 4 sections in this questionnaire. The first section is about the ease of use of the Special Collection Management System. In this section, the respondents answered questions about the flexibility of the system, the user-friendliness of the system and the success of the system. The second section is about the usefulness of the Special Collection Management System. This section is about the usefulness of the system. For example, "SCMS" does everything I would expect it to do. The third section is about data of the Special Collection Management System, which is about the requirements of the system, such as "SCMS" allows users to record special collections, "SCMS" can upload images to the system and others. In the last section, the respondent was asked about the overall evaluation of the system.

**Table 2: Usability evaluation of SCMS results** 

No	Variables	Frequency	Percentage
1	Ease of Use Special Collection Management System		
	"SCMS" is user friendly	20	66.6
	"SCMS" is flexible.	15	50
	I can easily remember how to use it.	17	56.6
	"SCMS" is easy to use.	15	50
	I can use "SCMS" successfully every time.	17	56.6
2	<b>Usefulness of Special Collection Management System</b>		
	"SCMS" increases my productivity.	12	40
	"SCMS" gives me greater control over my work.	15	50
	"SCMS" enables me to accomplish tasks more quickly.	15	50
	"SCMS" saves me time when I use it.	19	63.3
	"SCMS" meets my needs.	17	56.6
	"SCMS" does everything I would expect it to do.	16	53.3
	"SCMS" is useful in overall.	18	60
3	Data of Special Collection Management System		
	"SCMS" allows user to record the special collection	13	43.3
	"SCMS" allows admin and other users to view the data.	15	50
	"SCMS" allow user to view data that have been key in.	13	43.3
	"SCMS" can update the data. authenticates users.	13	43.3
	"SCMS" can upload image in system.	14	46.6
	"SCMS" allow user to search the special collection.	20	66.6
4	Overall Evaluation of System Collection Management		
	System		
	Overall, I am satisfied with the ease of completing this task	20	66.6
	Overall, I am satisfied with the amount of time it took to complete this task.	25	83.3

Based on **Figure 3**, the "Ease of use SCMS" shows that 90% of respondents mostly agree. Meanwhile, "Usefulness of SCMS" shows that 80% mostly agree, the same percentage as the overall evaluation of SCMS. In "Data of SCMS", respondents showed that 83% mostly agree.



Figure 3: Pie Chart for Overall Average Percentage of TAM Metrics

#### 4. Conclusion

Today's technology is growing rapidly in terms of vehicles, manufacturing, schools or universities, and the developing systems have a big impact on the human world, which is now changing to make everything easier, especially for employees who previously used manual systems that used paper and pens to handle a difficult task or job. The Special Collection Management System helps library staff to reduce their workload and work more systematically. It also helps library staff to make a registration of special collection materials as well as upload the picture of each item so that their work can be more organized. For future work, the client suggested an improvement to the colour tones of the interface.

#### References

- [1] P. S. Bahiyah, "Special collection", 22 Dec 2020. [Online]. Available: https://library.uum.edu.my/special-collection/. [Accessed Sept 5, 2021].
- [2] C. C. Tan, "Library Management System", Campbell University, U.S.A. 2020. [Online]. Available: https://www.academia.edu/10240564/Library\_Management\_System\_I\_LIBRARY \_\_MANAGEMENT\_SYSTEM. [Accessed Sept 5, 2021].
- [3] A. Mathur, "College Library Management". 2012. [Online]. Available: https://www.researchgate.net/publication/274311464\_College\_Library\_Management. [Accessed Sept 5, 2021].
- [4] M. Mounce, and P. Mounce, "An Investigation of Special Collections Library Theft", Library & Archival Security, 25(2), pp. 99–118. 2012.
- [5] P. S. Bahiyah, "Library collection", 22 Dec 2020. [Online]. Available: https://library.uum.edu.my/library-collections/. [Accessed Sept 5, 2021].
- [6] Rapid Application Development (RAD), [Graph]. "Top 12 Software Development Methodologies & Its Advantages/Disadvantages", 2015. Available: https://www.tatvasoft.com/blog/top-12-software-development-methodologies-and-its-advantages-disadvantages/. [Accessed Sept 5, 2021].
- [7] Kute, S. S., & Thorat, S. D, "A Review on Various Software Development Life Cycle (SDLC) Models". International Journal of Research in Computer and Communication Technology, 3(7), pp. 778-779. 2014.