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DESIGN AND DEVELOPMENT OF A CLOUD BASED OPAC FOR SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH KOLAR

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ABSTRACT

The present study aims to highlights the research and viewpoints of who have recently made precise contributions on design and development in cloud computing and its application in library. Cloud computing is a recent revelation of information communication technology. The application of cloud computing in the library and information services has brought a novel trend in the scheme of information provision and services. This paper overviews how the concept of cloud computing is developed and use of cloud computing in the libraries.

Keywords: Cloud Based OPAC, Higher Education, Research Development.

INTRODUCTION

Cloud computing is the delivery of computing services—servers, storage, databases, networking, software, analytics and more—over the Internet (“the cloud”). Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage. Cloud computing emerged about a decade ago. But, its popularity and application has grown by leaps and bounds during the last decade.

In cloud computing, the word cloud (also phrased as "the cloud") is used as a metaphor for "the Internet," so the phrase cloud computing means "a type of Internet-based computing," where different services such as servers, storage and applications are delivered to an organization's computers and devices through the Internet.

Applications of Cloud Computing

Following are some of the applications of cloud computing:

- Create new apps and services
- Store, back up and recover data
- Host websites and blogs
- Stream audio and video
- Deliver software on demand
- Examine data for patterns and make predictions

Cloud Computing Service Models

Cloud computing services fall into three broad categories: infrastructure as a service (IaaS), platform as a service (PaaS) and software as a service (Saas).

Infrastructure-as-a-service (IaaS)

This is the most basic category of cloud computing services. With IaaS, an organization hires IT infrastructure—servers and virtual machines (VMs), storage, networks, operating systems—from a cloud provider on a pay-as-you-go basis.

Platform as a service (PaaS)

Platform-as-a-service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering and managing software applications. PaaS is designed to make it easier for developers to quickly create web or mobile apps, without worrying about setting up or managing the underlying infrastructure of servers, storage, network and databases needed for development.

Software as a service (SaaS)

Software as a service (SaaS) is a method for delivering software applications over the Internet, on demand and typically on a subscription basis. With SaaS, cloud providers host and manage the software application and underlying infrastructure and handle any maintenance, like software upgrades and security patching. Users connect to the application over the Internet, usually with a web browser on their phone, tablet or PC.

RELATED STUDIES

Bozzo, A. (2020) discussed aerosol fields of the reanalysis are constrained by assimilating the aerosol optical thickness (AOT) retrievals product by the Moderate Resolution Imaging Spectroradiometer (MODIS) instruments. In a further step, we used modelled aerosol fields to correct the aerosol speciation and the vertical profiles of the aerosol reanalysis fields. The new climatology provides the monthly-mean mass mixing ratio of five aerosol species constrained by assimilated MODIS AOT. Using the new climatology in the ECMWF-IFS leads to changes in the direct aerosol radiative effect compared to the climatology previously implemented, which have a small but non-impact on the forecast skill of large-scale weather patterns in the medium-range.

However, details of the regional distribution of aerosol radiative forcing can have a large local impact. This is the case for the area of the Arabian Peninsula and the northern Indian Ocean. Here changes in the radiative forcing of the mineral dust significantly improve the summer monsoon circulation.

Nahotko, M. (2020) found that library OPAC as a communication genre in its mutability. The paper is based on the idea of OPAC development as a transition to subsequent OPAC generations. Every generation, in the light of genre theory, can be treated as a subgenre with its own communication purpose. As such, it is subject to transformations caused by information technology development. OPAC development is described as an electronic genre transition process, which allows for distinguishing eight OPAC subgenre generations. They were distinguished based on socio-historical development of the genre system and were described according to Shepherd and Watters1 genre development model. These subgenres are then subjected to genres analysis revealing their basic characteristics.

Ilo, P. I. (20201) examined the prospects and challenges of the application of Web 3.0 technologies as they relate to semantic web, federated search, mobile application, and their impact on library services. The principles, features, application, potentiality, and challenges of the technologies vis-à-vis library services form the broad objectives that guided the chapter. Following a brief retrospective review of the developments of web technologies, the chapter discusses Web 3.0 from the context of semantic web, cloud computing, federated search and virtual reference services. It broadens the prospects of Web 3.0 as it affects the provision of web-based services like its flexibility as solution to digital content volatility and ability to widen cloud-based services using open source electronic library software among others. Having expatiated the challenges Web 3.0 portends for web-based library services, the chapter concludes with the need for librarians and users to co-create value for participatory librarianship.

Wang, J. (2021) conducted a study to find out the publication it came to our attention that the person named as the Guest Editor of the Special Issue was impersonated by a fraudulent entity and the articles were not reviewed fully in line with the journal's peer review standards and policy. We did not find any

evidence of misconduct by the authors. However, in order to ensure full assessment has been conducted, we sought expert advice on the validity and quality of the published articles from independent peer reviewers. Following this post publication peer review, the editor has determined that the articles do not meet the required scholarly standards to remain published in the journal, and therefore has taken the decision to retract the articles. The authors have been informed of this decision. We have been informed in our decision-making by our policy on publishing ethics and integrity and the COPE guidelines on retractions. We have been informed in our decision-making by our policy on publishing ethics and integrity and the COPE guidelines on retractions.

OBJECTIVES OF THE STUDY

The primary objective of the present study is to develop a cloud-based OPAC for Sri Devaraj Urs Academy of Higher Education and Research, Kolar. The following specific objectives are also intended to be accomplished by achieving the primary objective.

- To provide a common and central point of access for the library catalogue records of Sri Devaraj Urs Academy of Higher Education and Research, Kolar.
- To explore the feasibility of using free cloud storage service for storing and retrieving library catalogue records.

SCOPE AND LIMITATIONS

The study covers the bibliographic records of library Sri Devaraj Urs Academy of Higher Education and Research, Kolar. In total there were 28,521 records as provided by the Sri Devaraj Urs Academy of Higher Education and Research, Kolar.

The tool used for storing the catalogue records, viz., Google sheets, has a maximum limit of 4,00,000 rows, with one million cells. Therefore, some of the bibliographic elements located in different individual cells had to be merged into one to fit the number of records within the maximum limit. Further, some bibliographic elements such as Edition were excluded.

METHODOLOGY

Following section presents the methodology followed in the present study in a concise manner.

Collection of catalogue records: The catalogue records were collected in the form of single CSV (comma separated values) file or XLS (Excel Spreadsheet) file from Sri Devaraj Urs Academy of Higher Education and Research, Kolar.

Processing and normalization of catalogue records: The data of bibliographic records were not available in a single CSV file. The different CSV files were merged into one. The data scattered across different collections (type of fund) were merged into one collection. In order to improve

the legibility of display of characters for on-screen reading, the data was converted to title case. The normalized data of all the collections was merged into one CSV file and saved as an Excel Spreadsheet (XLSX) file.

Uploading and publishing of normalized catalogue records: A new Google account was created and the XLSX spreadsheet file was uploaded on Google Drive. The view setting was changed to *public* and the link to the file was set to *shared.* After setting the sharing and view options, the sheet was published and the link to the sheet was saved.

Creating and publishing the website: A new website was created using the free Google Sites application. Required web page was created and content was added.

Creating View and defining filters: The spreadsheet file was integrated into the newly created website using Awesome Table gadget. Appropriate filters were defined to enable search options in the catalogue records file.

Embedding published catalogue records in the website: The Awesome Table created as explained in the previous step was integrated into the newly created Google site.

Access Testing: Browser compatibility testing was performed by entering the URL in the address bar of different web browsers. The site is accessible using all major web browsers.

Creating Short URL: The URL of OPAC website was shortened using www.bitly.com short URL creation service.

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH, KOLAR LIBRARY: A PROFILE

Introduction

Sri Devaraj Urs Academy of Higher Education and Research Center.

The Medical Council of India granted recognition for the Undergraduate Course in its very first Inspection in the year 1992, which shows the commitment of The Trust & Faculty, in imparting Quality Medical Education. Post Graduate Degree Courses and Diploma Courses are being offered since 1997 in various Clinical, Pre and Para Clinical courses and the degrees awarded are recognized by Medical Council of India.

The trust has obtained Accreditation by National Assessment and Accreditation Council (NAAC, INDIA) and certification by ISO 9001-2000 in the year 2006 for its Medical College. Sri Devaraj Urs Medical College is one of the few Medical Colleges in India to have achieved. A fully integrated, modular curriculum within the regulation of Medical Council of India is under preparation. They are also taught Medical Ethics and the Constitution of India.

The college maintains high standard in Teaching, Training and Evaluation processes as evidenced by the high pass percentage with a substantial number of students securing Gold Medals/Distinctions/First Classes, in the University Examinations.

Sri Devaraj Urs Academy of Higher Education and Research (formerly Sri Devaraj Urs University) is a Deemed University located in Tamaka, Kolar, Karnataka, India. It was established as Sri Devaraj Urs Medical College in 1986 by Sri Devaraj Urs Educational Trust. It was conferred Deemed to be University status under Section 3 of UGC Act 1956 in 25 May 2007

Figure 1.1 MEDICAL COLLEGE

About Library / Profile

Figure 1.2 LIBRARY PROFILE

University Library Learning & Resource Center

The library meets the information needs of the faculty and students. It is housed in the ground and first floor of the silver jubilee building in the campus. The library is centrally air conditioned and well-furnished for users. The library has Wi-Fi facilities to browse and access the resources. The library is serving as a medical learning resource center, support to research, educational and clinical needs of the students, faculty and research scholars of the university.

The Library is kept open on all working days from 8.30 AM to 9.00 PM. and all general holidays, Sundays and 2nd Saturday from 9.00 AM to 2.00 PM and own book reading section 8.00 AM to 11.00 PM. Currently, the collection of the library consists of 25555 volumes of books, 1082 back volumes (journals) and 1071 compact discs (CD). The library subscribes 53 foreign titles of current journals, 105 Indian journals and 25 online journals. Additional to print sources ProQuest database (3051 titles.)

subscribed. The library has well equipped digital library with 1Gbps Internet bandwidth and 40+ computers, printers scanners, and SSPS software to facilitate the users using ICT infrastructure in enhancing their reference based research work. 1335 new books were added to the library collection during the year.

DESIGN AND DEVELOPMENT OF A CLOUDBASED OPAC FOR SDUAHER

Introduction

The following section demonstrates the creation of a cloud based OPAC for bibliographic records of Sri Devaraj Urs Academy of Higher Education and Research, Kolar Library. The methodology explained in the earlier chapter has been followed for the creation of Cloud Based OPAC.

Collection of Data

The bibliographic records for creating the cloud-based OPAC for the Sri Devaraj Urs Academy of Higher Education and Research, Library were collected from the Librarian. The bibliographic records were in MARC format. They were exported to Comma Separated Values (CSV) format. Further, the library maintains separate records based on type of funds received. Bibliographic records for each type of funds were extracted through the option available in the library automation software.

Normalization of Data

The data collected from Sri Devaraj Urs Academy of Higher Education and Research, Kolar Library were normalized so that the data included in the OPAC is uniform. Title case was used in order to improve the legibility and readability of data on screen. Figure 5.1 presents the Excel sheet containing normalized data. A total of 31,651 bibliographic records were included in the Sheet.

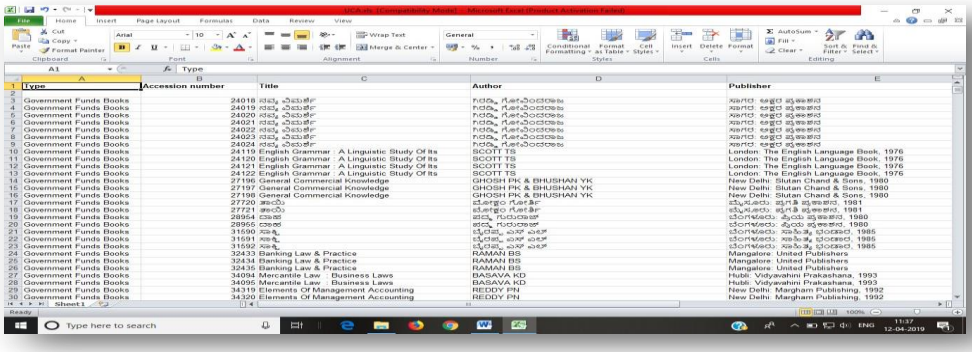

Figure 2.1. Excel Spreadsheet containing Catalogue data

Uploading and Publishing of Excel Spreadsheet file

Google Drive was considered for the present Study since it offers a wide range of cloud applications along with a variety of utility apps called gadget. The uploading and publishing process in explained below.

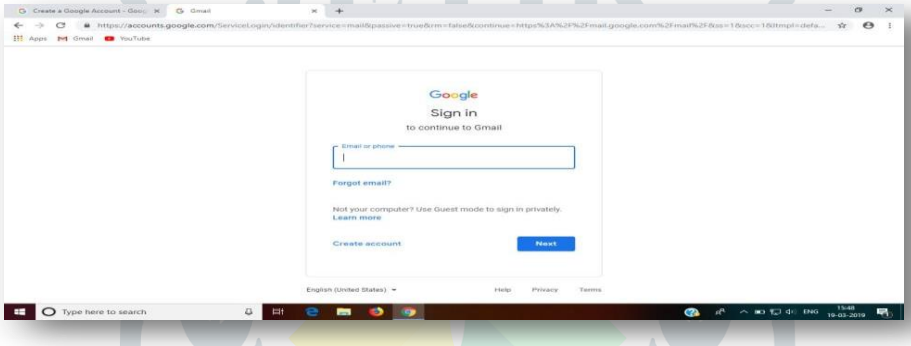

Figure 2.2 Google Account Sign in Window

Creating a Google Account

A new Google Account (Gmail account) liswebopac2019@gmail.com was created for the purpose of using Google Cloud applications

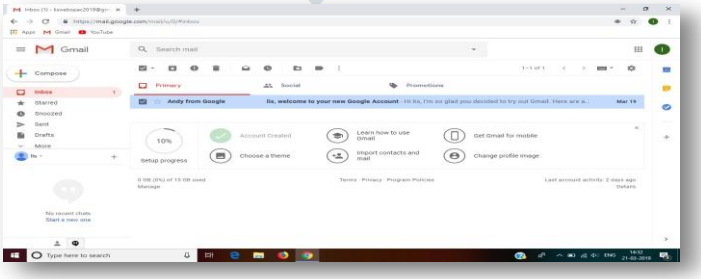

Figure 2.3 Gmail Account Inbox View

Defining Filters

In order to provide search functionality on every sheet in the file, it is necessary to define filters in the Google Sheets file. Filters are defined in the Google Sheet just below the column headings. Figure 2.4

shows the filters defined in the Google sheets file.

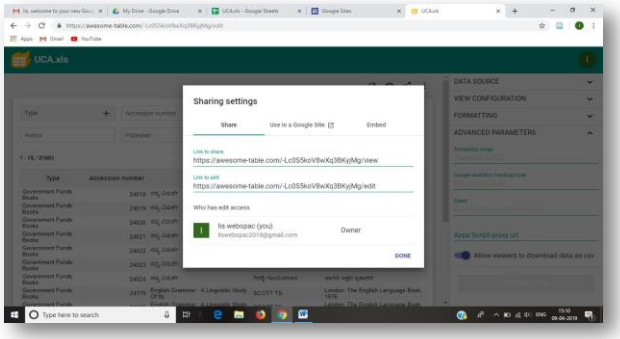

Figure 2.4 Defining filters on sheet containing catalogue data

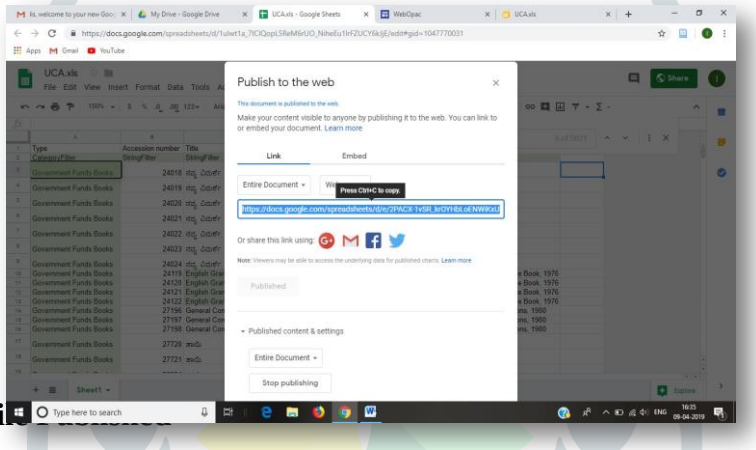

Figure 2.5 Google Sheets fi[illegible]

Creating and Publishing a Google Site

To present the file uploaded and published on the Google Drive, a website was created using Google Sites. The website acts as an interface for searching and displaying the data.

Sign in to Google Sites at http://sites.google.com.

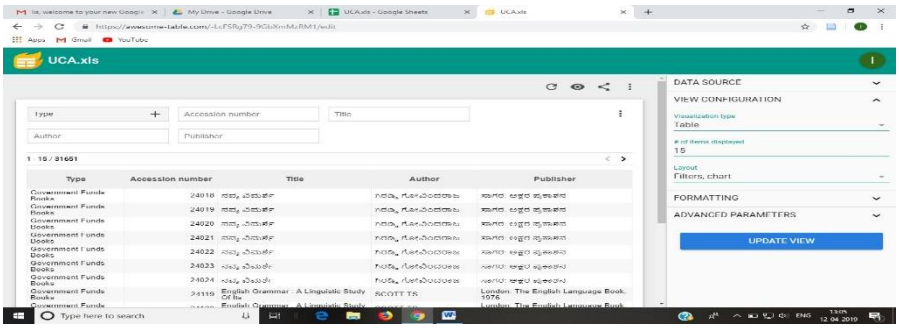

Figure 2.6 New Google Sites Editor Window

Figure 2.7 Awesome Table View for sheet containing Catalogue data

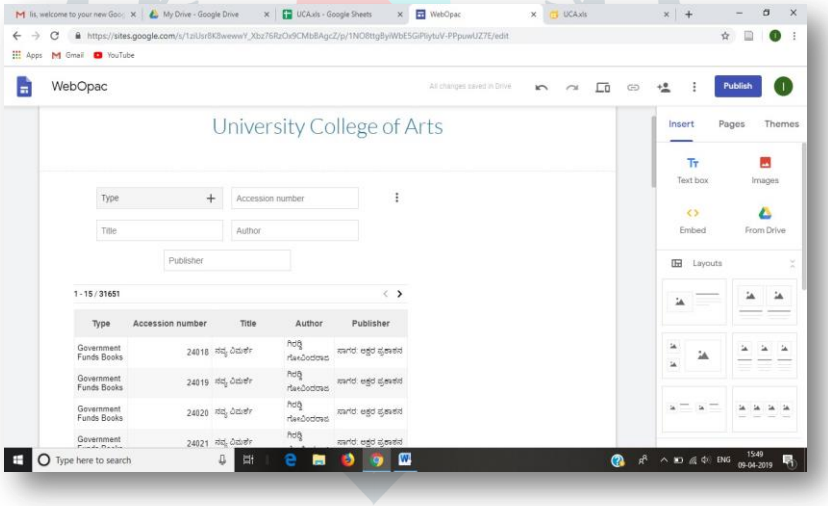

Figure 2.8 Awesome Table link to Catalogue data

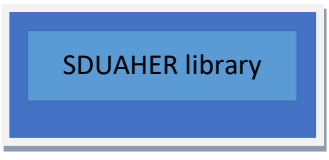

Figure 2.9 Catalogue data integrated in Google Sites (Edit view)

Searching the OPAC

The OPAC provides browse and search facilities. Search can be made on the basis of type of collection, accession number, title, author, and publisher. Following are the figures demonstrating the search feature. Non-english search can be performed by using Input Method Editor (IME) for a specific language (e.g. Kannada).

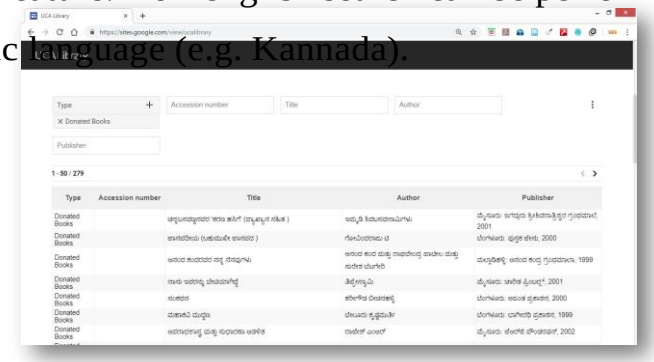

Figure 3 Title Search

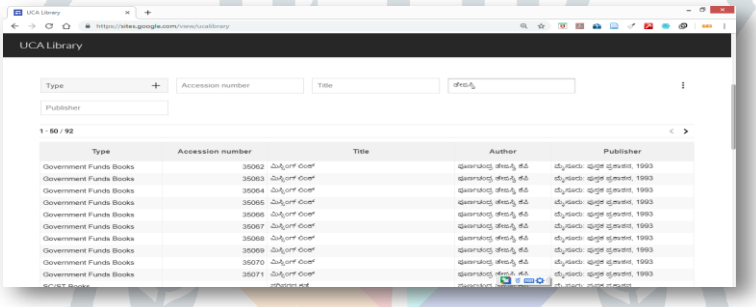

Figure 3.1 Author Search

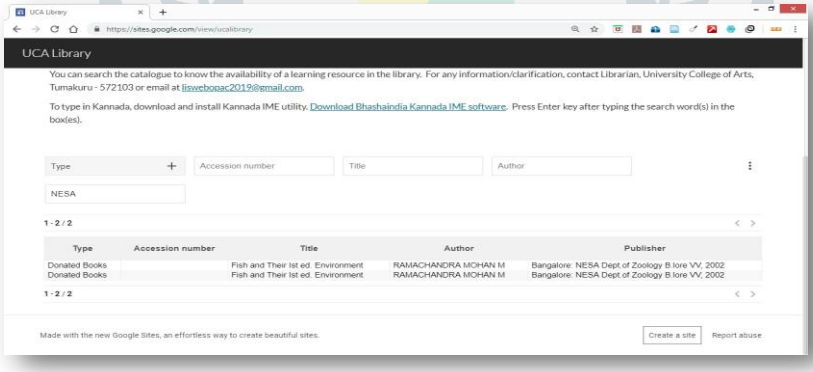

Figure 3.2 Publisher Search

FINDINGS AND RECOMMENDATIONS

Findings

Following are some of the salient findings of the study.

- There are good number of free cloud storage services on the World Wide Web.

- Google Drive can be used store and manipulate bibliographic data on the cloud.
- Awesome Table gadget can be used to create a searchable spreadsheet file.
- An Awesome Table can be easily integrated into Google Sites.

- Google Drive, Google Sites with Awesome Table integration can be used to develop cloud-based catalogues for libraries.

Recommendations

- Librarians should actively use the free cloud storage services to store any data related to libraries on the cloud.

- Librarians working in small and medium-sized libraries which cannot afford monetary investment in hosting their catalogue online, can effectively use Google Drive, Google Sites with Awesome Table integration to create a cloud based library catalogue.

CONCLUSION

Cloud computing provides the libraries with a cost effective infrastructure or environment. It has attracted significant attention in the realms of academia, industry, governance, defense and the library to solve storage and computerization problem. Libraries can harness the power of this technology to build digital library/repositories, search library data, host website, search scholarly content, store file, build community power, and automate library. The present study attempted to demonstrate that free cloud storage services like Google Drive can be effectively used to build cloud-based public access catalogues. Libraries can explore the potential of cloud storage services for providing a wide range of services in the days to come.

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