Application of E-tools for Library Stock Verification:A Practical Approach

Sanjeeva N.
Research Scholar,
Dept. of Library and Information Science,
Mangalore University,Mangaluru.

DrVasappa Gowda
Selection Grade Librarian,
Besant Evening College,
Mangaluru.

Abstract:*Libraries are subject to stock verification periodically; usually every year to know the status of the library collection. There are a number of manual and automatic methods are in practice to verify the stock. Due to the revolutions happening in the field of Information and Communication Technology, the bar-coded system has become more popular due to convenience and accuracy. The authors have made an attempt to select two freely available e-tools; LoMag Barcode Scanner andKutools for Excel and explained various steps to use these tools for effective library stock verification in an easy and successful way.*
Keywords:*Library stock verification, E-tools, Barcode scanner, LoMagbarcode scanner, Kutools for excel.*

1. Introduction

Stock verification is one of the important functions of any enterprise. The term stock verification is also known as stock taking, physical verification or checking, stock inspection, inventory taking, etc. Rani &Nagaraju(2013) opine that stock verification is largely applicable for ascertaining the position of stores in government and commercial organizations. Dhiman (2000) viewed that the term stock verification is the process of checking as to what is in stock in relation to what it was. The emphasis is being put more on finding which items are missing than on how much the loss is calculated in rupees.

Mittal(1993) describes that it is a common practice in big business houses and government departments to resort to annual stock taking in order to assess the profit and loss. In the context of libraries, verification of stock is different from the verification of stores in private or Government business organizations, so far as the purpose of the job and the difference in the meaning of 'Store' and 'Stock' are concerned. The concept of stock verification might have its origin when books were scare and were to be strictly guarded for their safety. Librarian was supposed to be more a custodian of the stock than a facilitator in providing access to users to their desired information.

As perGFR(2017), the Rule 215, physical verification of Library books explained, complete physical verification of books should be done every year in case of libraries having not more than twenty thousand volumes. For libraries having more than twenty thousand volumes and up to fifty thousand volumes, such verification should be done at least once in three years. Sample physical verification at intervals of not more than three years should be done in case of libraries having more than fifty thousand volumes. In case such verification reveals unusual or unreasonable shortages, complete verification shall be done (https://doe.gov.in/sites/default/files/GFR2017_0.pdf).Chaurasia&Chaurasia (2011) said that the collection in the libraries contains various types of information sources.

The library is a public institution and collections are subjected to accounting and checking, verification and reporting. Therefore, stock verification is one of the main components of library management, balance the library services and is a process of physical counting and checking inventory in the unit. It is a systematic checking of the library holdings with an aim to find out the missing volumes in the library stock and physical check-up of the documents on record. It helps to disclose the possibility of fraud, theft or loss or deterioration and it reveals the weakness of the system if any. It also helps to take precautionary measures to minimize the theft and to replace those missing documents and take appropriate precautionary measures to minimize the theft. Besides this, the identification of damaged documents for repairing or binding, rearranging, cleaning and withdrawal of obsolete documents are also performed simultaneously.

Libraries adopt various methods to carry out the stock verification. Sridhar (1991) said that the most common methods are- cross verification with accession register, manual verification with orderly numerical listing subject-wise verification with sample technique, which uses shelf-list or register. All these not only make it cumbersome but also lead to waste of time and efforts. Nowadays the advancement of technology helped the

librarians to perform their jobs efficiently and to the ultimate satisfaction of their users and it has revolutionized the work culture of modern day libraries. Vasishta & Dhanda (2010) said that the growth of variety of computer/mobile based technologies is playing an important role in the efficient working of libraries. Barcode technology is one such technology being implemented in the libraries for its faster transactions. Barcodes are also widely used in the libraries for stock verification and circulation of documents. The authors have made an attempt to apply e-tools; the 'LoMag barcode scanner for excel' and 'Kutool for Excel' for stock verification which can be applied in a systematic way with accuracy.

2. Review of Literature

There are studies conducted on library stock verification; both on the manual and computerised methods.

Sridhar (1991) explained the stock verification as one of the occupational hazards and a post mortem, emphasizes need for clarity of objectives and procedures regarding stockverification and responsibilities of loss, points out that the cost of stock verification often farexceed the benefits, highlights norms and procedures of stock verification for Government ofIndia institutions, discusses some advantages and various methods and procedures of physicalverification, put forth precautionary measures to be taken against loss and mutilation oflibrary documents, analyses the issue of responsibility of loss and ways of resolving theconflict of responsibility, presents the procedure for write-off of reasonable losses.

According to Mittal (1984) stock verification implies check of the articles on record. It is a common practice in big business houses and government departments to resort to annual stock taking in order to assess the profit and loss.

Kumbar(2000) examined the method of stock verification for assessing the loss of books in17 college libraries in Shivamogga city of Karnataka. The questionnaire method was used toobtain necessary data for the study. He suggested several measures which include certainpercentage to be written off, availability of reprography facilities and vigilance by librarystaff besides other norms by UGC. Few literatures were published on the stock verification using computer applications.

Chandhok (1998) demonstrated the bar-coded system for stock verification and inventory management and location control of the stock at IGNOU Library, New Delhi.

Asundi (2015) in his book- 'paradigms of stock verification in libraries', after an elaborate review of literature on stock verification, delineates the methods from traditional register to the barcode and use of RFID technology. It implies that stock verification is one of the essential functions of maintenance of library materials.

Suresh &Thanuskodi (2018) describes that mobile technology is reliable and easy to use. It improves accuracy and accelerates the processing time, eliminates the typing errors, decreases the costs and improves the services. During the stock verification period, routine library activities can be carried out without any disturbance. Data-capturing is handy and portable, and there is no problem of scanning the data multiple times.

3. Objectives of the study

The objectives of the study are;
– to identify various stock verification methods,
– to find out various procedures of stock verification,
– to apply new technologies which would speed up the work and
– to study the effectiveness of the use of LoMag Barcode and Kutools for Excel in library stock verification.

4. Methodology

The authors have selected freely available LoMag barcode scanner and Kutools for Excel tools and used for library stock verification and observed the accuracy in the results. Based on the successful application of these tools the present article is prepared and the step by step methods are explained.

5. Methods of Stock Verification

Sudharani& Nagaraj (2013) states that libraries are traditionally perform the periodic stock verification by adopting any one of the methods;
– By using accession register
– By using separate register with accession numbers in consecutive order
– By using slips containing accession numbers
– By numerical counting of documents on the shelves
– By using shelf-register cards or shelf-list cards
– By sample stock verification and
– By using computers and library management software and other automated methods.

In general, Chaurasia&Chaurasia (2011) explains following three types of environments for stock verification of documents in the Library;

– Manual library environments: Only staff involved to verify the stock without the help of computers.
– Semi-automated: Partial use of computers for stock verifications. The accession numbers are to be keyed into the computers using Microsoft excel.
– Fully automated: All the library operations will be done using computers i.e.Library Management Software, Barcode Technology, Mobile Technology, etc.

6. Computerized Stock Verification in Libraries

Computerized stock verification is widely used in all types of businesses and departmental shops. The success of this has impacted on the functioning of the library and information centers. The barcode is employed in libraries to automate the data capture process, circulation system and document stock verification. Barcode technology is dependable and simple to use, which increases accuracy and reduces processing time, eliminates common errors, lowers costs and enhances services. Simultaneously, everyday operations must be carried out without interruption.Usually, integrated library management systems have integrated the bar code systems in their software for the purpose of circulation; charging and discharging of documents. They are also be used in the stock verification and to a great extent they have facilitated the methods of stock verification.

Any computerized stock verification requires the following procedures;

– Create Barcode labels and paste in the books,
– Barcode reader to capture the data,
– Create excel spread sheet,
– Data capturing, modification,
– Data processing,
– Data analysis,
– Reporting.

7. Library stock verification tools

The authors have selected two e-tools; LoMagBardcode Scanner to Excel and Kutools for Excel for library stock verification. The steps followed are mentioned as follows.

7.1LoMagBarcode Scanner to Excel

LoMag Barcode Scanner to Excel is a free Business app developed by Longint-IT Company. It enables to save different data to Excel files. By using this appthe smart phone / tab works as data collector without any limitations to the amount of collected codes. Here data sets will be saved in Microsoft Excel format compatible with version 97 and newer.The output file may be quickly sent via e-mail or saved to SD card / Onedrive / Dropbox / Google drive or other cloud storage. There is also a possibility of continuing the scanning in the selected data set. To perform the scan, device needs to be equipped with a camera with autofocus function(LoMag-Barcode-Scanner-2).

The barcode reader supports the following code formats:

– codes on products: EAN-13, EAN-8, ISBN, UPC-A, UPC-E
– industrial codes: Codabar, Code 128, Code 93, Code 39, ITF, RSS
– 2D codes: QR Code, Data Matrix(longint.com)

LoMag Barcode Scanner to Excel 1.41 apkrequires the following permissions on android device

– write to external storage
– access the camera device
– access to the vibrator
– open network sockets
– access information about networks
– flashlight
– access precise location (apkmonk.com).

i)Steps to Install

LoMag barcode scanner can be downloaded from Google Play platform and it works on a smart phone or a tab with android version 2.1 or newer and a camera.

In the following stage, the information window will appear, allowing us to have access to information that the application need to run properly. Then, as shown in Figure-1, authorise it to access the appropriate modules by clicking "Accept" before beginning to download the app.
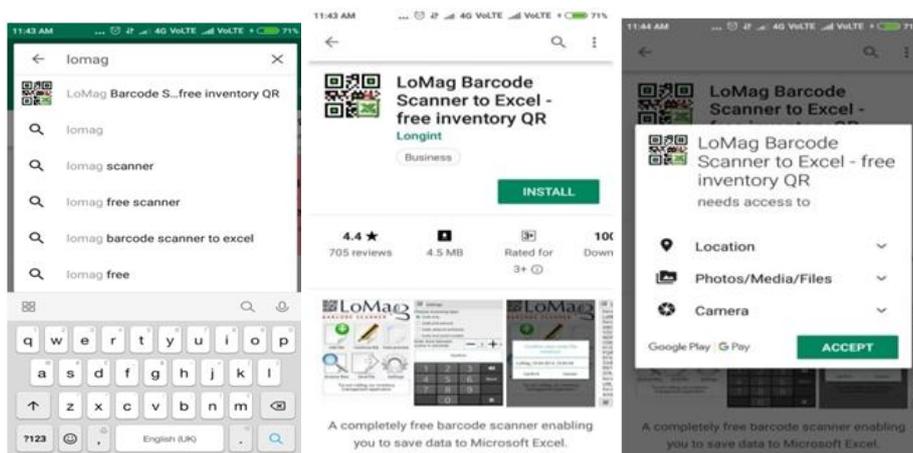
Figure 1: Installation of LoMag barcode scanner to Excel

ii) Operation of the App'
To launch the LoMag barcode scanner; click it to run the app on android phone.When the app is launched, the main navigation menu will be displayed comprising of several modules as shown in figure 2.

Figure 2: Launching of LoMag barcode scanner to Excel

iii)Choosing a scanning method
We can scan barcodes in a variety of ways with the LoMag barcode scanner app. But we can select only and exclusively the barcode as shown in Figure 3.

Figure 3: Setup of LoMag barcode scanner to Excel

A window will appear with a request to confirm the creation of a new file (we can change the file name). To proceed, click 'Confirm'. The scanner will now run and scan the barcode with the smart phone's or tablet's video camera, scanning, recognising, and saving the barcode as seen below. A sound signal and written information at the bottom of the screen will alert us that the code has been scanned. The scanner resets the display after scanning the code, and it is ready to scan another code in 4-5 seconds. After scanning of each barcode has been saved as accession number in a excel sheet as shown in figure 4.

Books of each rack should be scanned in a separate excel sheet. (E.g.: Rack-1,   Rack-2, Rack-3 etc.) It helps to find out and rectify if the double entry issues without any difficulties. Then each file should be sent by mail from smart phone and saved in a personal computer.
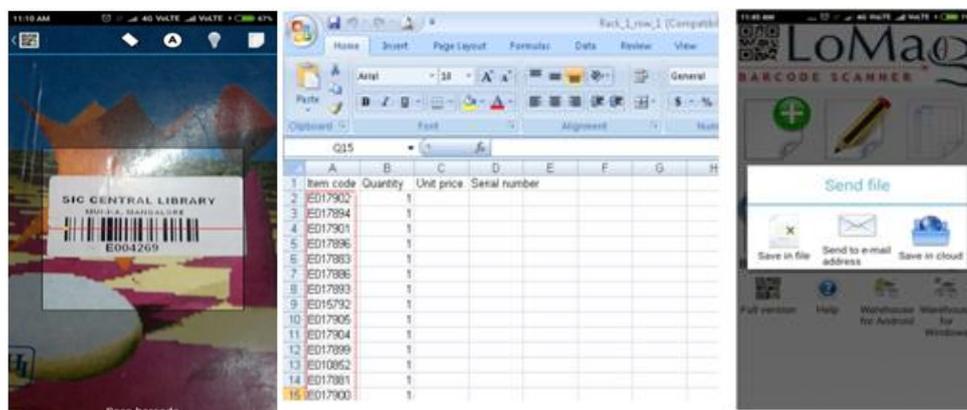
Figure 4: Document scanning using LoMag application

7.2 Kutools for Microsoft Excel

Kutools for Excel is a downloadable suite designed to simplify, automate and expand the features and functions of Microsoft Excel. It is a handy Excel add-in with more than 300 advanced features to simplify various kinds of complicated tasks into a few clicks in Excel. For example, Excel users can easily combine worksheets with several clicks, merge cells without losing data, paste to only visible cells, and so on. Undoubtedly, this powerful and user-friendly add-in will save Excel users a mass of working time and greatly improve working efficiency. Trial version of this add in with full features is available for 60 days (extendoffice.com). Download the installer and double click that to install Kutools for excel. Make sure that the Excel is not open when installing Kutools. After the installation of Kutools for excel add-in, open an excel sheet and the add-in appears on the menu bar. Then consider any of the options required from the following menu

- Go to the Home tab of the Ribbon
- Open the Conditional Formatting drop-down menu
- Select 'Highlight Cell Rules'
- Then select 'Duplicate Values…
- That will open the Duplicate Values Window
- Choose the formatting you want to apply and click OK
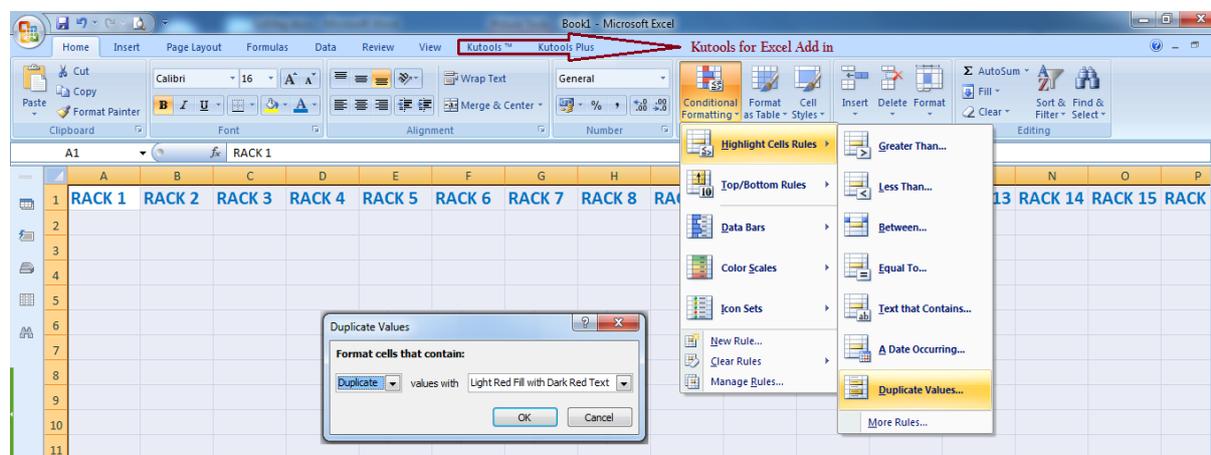
Figure 5: Kutools for Excel add-in

There is a preset rule for highlighting duplicate cells in all Excel versions. Following steps are to use this rule in worksheets.

- Choose a column, a row or a group of cells to work with
- Select Conditional Formatting > Highlight Cells Rules > Duplicate Values... from the Home tab
- By default, the Light Red Fill and Dark Red Text formats are chosen in the Duplicate Values dialogue window. Then click OK

- Paste the accession numbers rack wise as shown in figure 6. If any accession number repeats (double entry) both the cells will be highlighted with a bright color to attract our attention.

Figure 6: Highlighting duplicate entries

The next step is to transform the data from multiple columns to single column. "Select the columns data which we use, and go to Kutools>Range > Transform Range. Check the Range to single column option in the Transform Range dialog, and then click Ok. Select a cell to insert results as shown in figure 7 (ex: M1), then click OK. The columns have now been combined into a single column. (https://www.extendoffice.com)
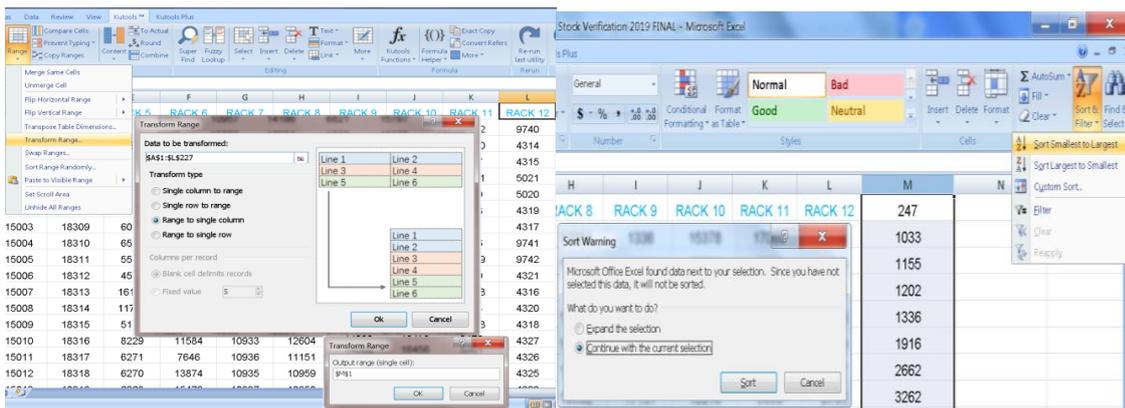
Figure 7: Transform the data from multiple cells to single column

Then select and cut that single column and paste it in column A in sheet 2. Here click on home tab> sort to filter>sort smallest (A) to largest (Z) and select 'continue with the current selection'. Now the accession numbers display in a descending order. Then

- Select the sequence in column A and click **Kutools** > **Insert** > **Find Missing Sequence Number**.
- In the **Find Missing Sequence Number** dialog, check **Inserting blank rows when encountering missing sequence numbers** option.
- Then click **ok**, and a dialog pops out and shows how many missing numbers were found, and then click **ok** to close it.

Now the blank rows are inserted when encountering missing numbers in the selected sequence numbers as shown in figure-8.
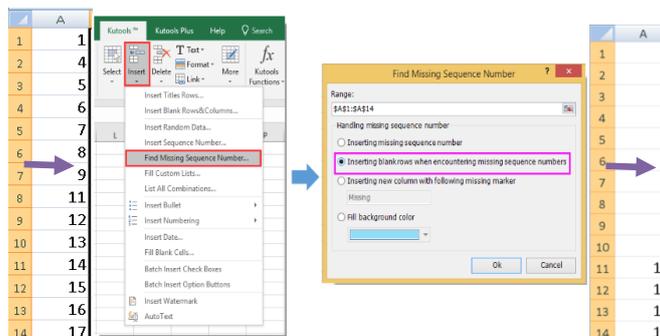
Figure 8: Tracing out the missing gaps

In the next step the accession numbers of total collection in the library to be put in column B, then in column C1 type the formula of =B1-A1 press enter and again place the cursor on C1 and drag it to entire column till the last number. Then place the Cursor again on C1 >Data>Filter. Click on Down Arrow on C1> Number

Filters> Does Not Equal. In the option custom AutoFilter select '0' and click OK. Now the missing numbers are displayed as shown in figure-9
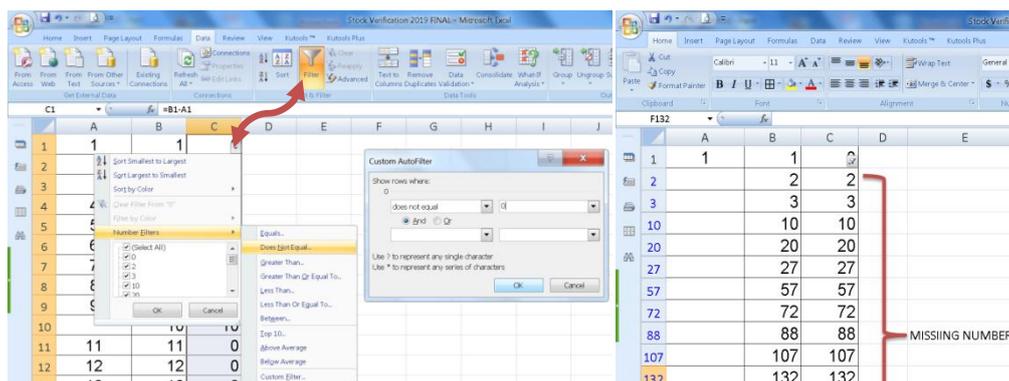
Figure 9: List of missing numbers

8. Conclusion

The stock verification helps to know the present status of the holdings of the library. Stock verification using modern technologies is important which improve the efficiency and accuracy of the system. It helps to find out the anomalies in the library management accurately. The present paper explained the step by step methods of use of 'LoMag Barcode Scanner to Excel' and 'Kutools for Excel' applications for library stock verifications. The use of the applications proved that the stock verification is systematic and fault free andthe reports generated by the system is accurate without human interaction.

References

[1]. Asundi, A. Y. (2015). *Paradigms of Stock Inventory in Libraries*. Bangalore: College Book House.
[2]. Chandhok, S. (1998). Application of Bar-code Technology in Libraries. *Library Science with a Slant to Documentation and Information Studies*, *35*(4). 247-50.
[3]. Chaurasia, N., &Chaurasia, P. (2011). Library Stock Management: A case study of stock verification of Central Library, IIT Delhi. *International Journal of Information Dissemination and Technology,1* (1), 34-39.
[4]. Dhiman, A. K. (2000). Stock Verification: Some Problems of Electronic Publications. *DESIDOC Bulletin of Information Technology, 20*(6), 3-5.
[5]. General Financial Rules.(2017).*Department of Expenditure*. Retrieved Feb. 22, 2022from https://doe.gov.in/order-circular/general-financial-rules2017-0
[6]. LoMag. (2020). *LoMag barcode scanner for Android*. Retrieved Feb.22, 2022 from http://www.lomag.eu/ScannerAndroid/
[7]. Longint. (2022). *Privacy Policy*.RetrievedNov. 18, 2021from http://www.longint.com/PrivacyPolicy.html.
[8]. LoMag.(2022). *Developer's Description*. Retrieved Nov. 15, 2021 from https://download.cnet.com/LoMag-Barcode-Scanner-2-Excel-stock-inventory-data/3000-20418_4-78533117.html.
[9]. Apkmonk. (2021). *LoMag Barcode Scanner Excel –free inventory free apk*. RetrievedDec. 15, 2021 from https://www.apkmonk.com/app/com.longint.lomag.scanner/
[10]. Kutools.(2009).Retrieved Dec.15, 2021 from https://www.extendoffice.com/product/kutools-for-excel.
[11]. Kumbar, K, N., &Hariprasad, B. (2016). Study of stock verification in college library. *E-Journal of Library and Information Science*, *3*(5), 26-35.
[12]. Kumbar, M. (2000). Stock Verification and Loss of Books in College Libraries: A Survey. *Annals of Library and Documentation, 47*(2), 67-73.
[13]. Mittal, R. (1984). *Library Administration: Theory and Practice* . New Delhi: Metropolitan Book Co Pvt Ltd.
[14]. Rajagopal (1991). Loss of books and the role of librarian. *ILA Bulletin*, 111-114.
[15]. Rajendriran , P., & Indu, Bhushan . (2006). Automated Library Stock Verification with Barcode and LibSys. *DESIDOC Bulletien of Information Technology, 26*(5),17-21.
[16]. Seema,V., &Maninder, K. D. (2010). Transforming a Traditional Library to Modern Library Using Barcode Technology: An Experience of Central Library, PEC University of Technology, Chandigarh. *DESIDOC Journal of Library & Information Technology, 30*(1), 44-48,
[17]. Sridhar, M. S. (1991). Library stock verification: A ritual and an occupational hazard. *IASLIC Bulletin*, *36*(3), 103-110.
[18]. Rani, Y. S., & Nagaraju, K. (2013). Librarian's Perceptions On Stock Verification: A Survey of Government Degree Colleges In Andhra Pradesh. *Asian Journal of Library And Information Science*, *5,* 3-4.
[19]. Suresh, N., &Thanuskodi S (2018).Application of Mobile Technology In Library Stock Verification: A Case Study. Retrieved Dec. 18, 2021 from *http://iamnsuresh.blogspot.com/2018/11/application-of-mobile-technology-in.html*
[20]. Vasishta, S., & Dhanda, M. (2010). Transforming a Traditional Library to Modern Library using Barcode Technology: An Experience of Central Library, PEC University of Technology, Chandigarh. *DESIDOC Journal of Library & Information Technology*, *30*(1), 44-48.