

# Modified Dewey Decimal Classification Theory for Library Materials Management

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**Abstract**—There exists several classification theories for indexing library materials like books, periodicals, journals, CDs etc. Amongst them, Dewey Decimal Classification (DDC) theory is the most popular one and expanded through 22 major revisions, the most recent one is 2003 A.D. revision. The DDC system was developed by Melvil Dewey in 1873 A.D. This system organizes library materials (Books, Periodicals, CDs etc) on shelves in a specific and repeatable order that makes it easy to find any material and return it to its proper place. Libraries in more than 135 countries in world use the DDC to organize and provide access to their collections. DDC is basically hierarchical in notation; the DDC is divided into ten main classes, spreading over the entire world of knowledge. Each main class is further divided into ten divisions and each division into ten sections. In DDC theory, same type of materials (books, periodicals, CDs etc) in a particular field has the same notation, but Library automation and identification needs different notation for each different title and copy of the library material. In this paper a Modified Dewey Decimal Classification (MDDC) theory is proposed in which all library materials can be accessed easily by individual indexing as well as environment of library (stock, quantity, title, publication etc) can be gazed and analyzed automatically.

**Index Terms**—Classification Theory, Dewey Decimal Classification (DDC), Library materials (books, periodicals, journals, CDs etc), Modified Dewey Decimal Classification (MDDC) Theory.

## I. INTRODUCTION

Generally classification means division into groups and arranging groups into a preferred sequence. In everyday life, we use classification in all areas. This helps to increase efficiency for sorting out and arrangement of the things. Classification of abstract ideas provides intellectual trainings. It is based on logic and innovation power. This enables one to achieve a systematic way of working, thinking and development. In library materials like books, periodicals, journals, CDs, etc arranging, Dewey Decimal Classification (DDC) [1]-[5] is the most popular and widely used system of classification in the world. It is expanded through 22 major revisions, in which the most recent one is in 2003 A.D. edition.

This DDC system [1]-[5] organizes books or any kind library materials on library shelves in a specific and

repeatable order that makes it easy to find any book and return it to its proper place. This oldest classification system has been installed by a large number of libraries in English-cultured and British Commonwealth countries. Now-a-days libraries in more than 135 countries use the DDC to organize and provide access to their collections and DDC numbers are featured in the national bibliographies of more than 60 countries. The DDC has been translated, with or without abridgement, expansion or adaptation into a number of different languages. Different countries and organization have planed to translate it their language for rapid using.

The DDC system [1]-[5] was developed by Melvil Dewey in 1873 A.D. Then it was first published in 1876 A.D. under the title “A classification and subject index for cataloguing and arranging the books and pamphlets of a library”. The DDC is published by OCLC (Online Computer Library Center) Inc. OCLC owns all copyright rights in the Dewey Decimal Classification, and licenses the system for a variety of uses.

The main drawback of DDC system is that same type of books or materials e.g. electronics measurement subject is having the same notation or number which can not be easily identified the particular copy of the material or the book. Thus a Modified Dewey Decimal Classification (MDDC) theory is invented. This MDDC theory ensures an easy identification for any library material in a nut shell, and also achieves library automation and environment (stock, title, author, copy etc) for effectively analysis.

## II. HIERARCHICAL STRUCTURE OF DDC THEORY

DDC [1]-[5] is basically hierarchical in notation, as well in disciplinary and subject relationships. The DDC classifies the universe of subjects into tree structure, which proceed from root (general) to leaf (specific). The categories, hierarchies of subjects and relationships among topics are clearly defined in DDC. From root to leaf, DDC goes from generalization to specialization of subjects. At the root (first) level, the DDC is divided into ten main classes, which together cover the entire world of knowledge. Each main class is further divided into ten divisions, and each division into ten sections (not all the numbers for the divisions and sections have been used).

The first level contains the ten main classes. The first digit in each three-digit number represents the main class. For example, 000 represents computer science, knowledge & systems, 600 represents technology. Thus the universe of subjects i.e. all library materials like books, periodicals, journals, magazines, CDs, DVDs etc has been specifically divided into ten main classes. Hence all library materials are

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grouped in these ten main classes as described in DDC theory mentioned below:

- 1) 000 – Computer science, information & general works
- 2) 100 – Philosophy and psychology
- 3) 200 – Religion
- 4) 300 – Social sciences
- 5) 400 – Language
- 6) 500 – Science (including mathematics)
- 7) 600 – Technology
- 8) 700 – Arts and recreation
- 9) 800 – Literature
- 10) 900 – History, geography, and biography

As the notation consists of at least three digits, the full number for the main class 6 is 600. Also a complete span of each main class consists of 100 three digit numbers e.g. 600-699 for Technology area.

The second level contains the hundred divisions. The second digit in each three-digit number indicates the division. For example, 600 is used for general study on technology, 610 for medicine and health, 620 for engineering and allied operations, 630 for agriculture, 640 for home & family management, 650 for management & auxiliary services, 660 chemical engineering.

The third level contains the thousand sections. The third digit in each three-digit number indicates the section. Thus, 660 is used for general study on chemical engineering, 661 for industrial chemicals, 662 for explosives, fuels & related products, 663 for beverage technology.

A decimal point follows the third digit in a class number, after which division by ten continues to the specific degree of classification needed. A subject may appear in more than one discipline.

For example,

- 600 Technology
- 620 Engineering & allied operations
- 621 Applied physics
- 621.3 Electrical and Electronics Engineering
- 621.38 Electronics Engineering
- 621.381 Microelectronics
- 621.3815 Electronics Devices and Circuit

So, the notation of a book titled Electronic Devices and Circuit Theory written by Robert L. Boylestad and Louis Nashelsky, published by Prentice-Hall of India Pvt. Ltd is 621.3815. Also all books under Electronics Devices and Circuits are consisting of same notation i.e. 621.3815.

By DDC conventional notation theory [1]-[5], one can not know in a particular notation how many different type of books are having in a library and also not able to identify how many copies of a particular book are in a library stock and remaining outside the library i.e. issued. Since this DDC theory is unable to establish clear notation and idea for library materials (books, periodicals, CDs etc) indexing in view of different type of books available for any area (subject) and for stock analysis also. Therefore a Modified Dewey Decimal Classification (MDDC) theory is proposed in this paper which becomes highly suitable for any sorts of library (manual or computerized) materials (books, periodicals, journals, soft copy-CD, DVD etc) for all sorts of transactions. In this modified theory MDDC, one can easily search out

particular library material i.e. book, periodical, CD etc and stock verification can be done swiftly.

### III. MAJOR DRAWBACKS IN DDC CLASSIFICATION

In DDC classification theory, same type of materials (books, periodicals, CDs etc) in a specified field has the same notation. It creates a problem in library automation. Library automation needs different notation for each different title. Also in DDC different books or materials in same field have the same notation i.e. number. For example, 621.3815 is used for notation of Electronic Devices and Circuit Theory by Robert L. Boylestad, Louis Nashelsky, Prentice-Hall of India Private Ltd, New Delhi, 2005 as well as Electronics Circuits By V. K. Mehata, 2007, also all other books under category of Electronics Devices and Circuit.

### IV. PROPOSED MODIFIED DDC TECHNIQUE FOR CLASSIFICATION THEORY

In the proposed Modified Dewey Decimal Classification (MDDC) technique, first of all I am using approach of classification as described in the DDC method. In addition to the DDC technique, I add other three entities. The first entity is first three letters of the surname of the first author of a book or first three letters of the name (where the first author is not having any surname) of the first author e.g. MAL of Malvino, KAN of Kang etc. In case of Periodicals, Journals, Magazines, CDs etc, the first entity is taken as the three letters of the surname or name (where there is no surname) of the first Editor or the publisher's name where there is no Editor in person. The second entity is the first letter of the material's (books, periodicals etc) title or name e.g. I of Integral, E of Electronic etc. The second entity is proceeding either putting a slash (/) or dot (.) after the first entity. The third entity is the number of copy for a particular book expressed in figure after putting a slash or dot from the second entity i.e. 5 for a book means that the copy number for that particular book is 5<sup>th</sup>. So, when this 5<sup>th</sup> copy of this book will be issued, the librarian can easily note that 5<sup>th</sup> copy of that particular book is outside and also in original stock consists of 5 numbers of that category book. Now combining the proposed three entities with existing DDC technique, modified DDC (MDDC) technique is consisting of DDC notation first, then after giving a space or new line three entities are appeared e.g. a book titled Microelectronic Circuits written by A. S. Sedra and K. C. Smith published by Oxford University Press, copy number 15<sup>th</sup> in a library, is expressed by modified DDC technique like 621.381 SED/M/15. Few more examples are shown below using modified DDC technique (MDDC) for indexing library materials like books, periodicals, journals, CDs etc.

- 1) Electronic Devices and Circuit Theory by Robert L. Boylestad and Louis Nashelsky of Prentice-Hall of India Pvt Ltd, 2007, 23<sup>rd</sup> copy: 621.3815 BOY/E/23
- 2) A Course in Electrical and Electronic Measurements and Instrumentation by A. K. Sawhney of Dhanpat Rai & Company Pvt. Ltd, 2005, 9<sup>th</sup> Copy: 621.37 SAW/C/9
- 3) Fundamentals of Financial Management by James C.

Van Horne, John M. Wachowicz, JR. of Pearson Education Ltd, 2007, 12<sup>th</sup> copy: 658.15 VAN/F/12

In above examples of (ii) and (iii), it is shown that for second entity in proposed MDDC technique, if the first word or first few words are common words (A, An, The, Fundamentals, Of, On etc), the first character of the second word or first uncommon word from the title is taken for second entity.

## V. CONCLUSION

Introducing this Modified DDC (MDDC) technique we can arrange library materials like books, periodicals, CDs etc on library shelves in a specific and repeatable order with returning it to its proper place, and also at the same time we have a clear picture about a particular book. We can easily go for library automation and upgradation by implementing this Modified Dewey Decimal Classification (MDDC) technique. Therefore this MDDC theory enlightens library materials indexing and management in a perfect way. Practically it identifies a new direction in the horizon of library materials management in real time basis.

## REFERENCES

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- [4] <http://sunzi1.lip.hku.hk/hkjo/view/6/600146.pdf>
- [5] <http://www.library.illinois.edu>



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