

A Sketch of a Code for Developing Computer-Based Library Information Systems Based on Classified Catalogue Code of Ranganathan (Part - II)

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Abstract

This paper proposes a code for developing library information systems or their databases for converging the techniques belonging to the domain library and information science and the domain of information technology for designing, developing and implementing computer-based library information systems and services. The paper explains briefly, various concepts relating to specifying conceptual schema of a library database; identify and describe the attributes and data elements of entities that are relevant or needed for creating the library database records; and finally examines and restates some of the rules of classified code.

1. SELECT RULES OF CCC IN AMENDED FORM

1.1 Types and Structure of Entries

An entry has been defined by Ranganathan as 'a unit-record in a card catalogue or printed list' (cf., Ranganathan's CCC. 5th ed. Chapter FN. A main entry or book index entry of a bibliographic item of a classified catalogue generally consist of a or leading element or access element, such as name of an author, call number, specific subject statement, class number, title of a work, etc., followed by a complete or optimum bibliographic description about an item. We shall call this portion of main or book index entry as descriptive segment of the entry. The descriptive segment of an entry contains the primary bibliographic description of a bibliographic item and can be considered as basic or unit-record of a bibliographic item to be displayed on a computer screen or online catalogue or forming part of a main or added entry of classified catalogue.

1.1.1 Definitions

Entry: An entry is a unit-record that contains information (or data) about a bibliographic item on a card or displayed on computer screen. A bibliographic record displayed on a screen, in a card catalogue or documentation list that provides general or specific information about a bibliographic item or items.

Specific entry/record: Entry or record providing information/data about a specific bibliographic item.

General entry/record: Entry or record providing general information/data-not related to specific bibliographic item(s).

Consolidated specific entry: Entry mentioning two or more specific bibliographic items.

Consolidated general entry: Entry replacing two or more general entries.

Basic entry/record: A unit-record giving complete or optimum primary information or data about a bibliographic item, presented in the form by which the item is to be uniformly identified and cited. It forms descriptive part

of main entry or book index/added entries of a bibliographic item in a card catalogue.

Main Entry: Specific entry giving complete or optimum catalogue record of an item. All other entries—specific or general—relating to the item, are normally derived from the main entry.

Book index entry: A specific added entry, additional to the main entry, by which an item is represented. It contains an alternative access element under which a bibliographic item may be searched, followed by the complete or optimum bibliographic description of the item.

Analytical entry: An entry for a part of or independent contribution in an item (host document) for which a comprehensive entry is made referring to it locus that is, the host document and the place of occurrence in it.

Cross reference index entry: General added entry referring from one word or set of words to another synonymous words or set of words. See and See also entries.

Subject entry: Entry giving information about subject.

Specific subject entry: Subject entry that mentions a bibliographic item in which subject is treated.

Class index entry: Subject entry that refers from the name of a class to its class number.

1.2 Sources of Information for Data Entry

The information found in the title page of an item and its over-flow pages should be the chief source of information for data entry in an electronic record or an entry of a card catalogue (excluding its leading section). It implies that the choice, rendering and description of various bibliographic data elements should be the reproduction of information exactly provided on the title-page of bibliographic item, modified according to prescribed rules, utilising, if necessary, any relevant information given in the overflow of the title page. In case of access elements, as in the case of variant names of an author (personal or corporate author), collaborators, subject headings, etc., the data to be entered and rendered according to the prescribed rules and based on an authority list maintained within a library system.

1.3 Organisation of Bibliographic Description in a Main Entry or Book Index Entries

One can refer: CCC-chapter FQ: sections of entry and IS: 2381 - 1978. The description about a bibliographic item in a main entry or book index entry (specific added entry) in a card catalogue is divided into two broad segments:

- (i) Leading segment
- (ii) Descriptive segment

In addition to these segments, the feature heading segment shall also constitute as a component of a bibliographic list or printed catalogue.

1.3.1 Leading Segment

Leading segment of a main or added entry is to consist of an access element—call number, class number, name, term, code, etc., under which bibliographic items are organised in a card catalogue and accessed by users. The access element constitutes the leading part of a main or book index entry and is followed by the descriptive segment containing descriptive information about a bibliographic item. Access elements constitute search elements and form part of a dictionary or inverted file of an online catalogue or bibliographic database. For example, call number of a monograph, or class number of a periodical publication constitute component of the leading section of a main entry of the classified part of a classified catalogue. Name of an author, collaborator, and subject heading, etc. form the leading section of a main entry in a dictionary catalogue or a book index entry in a classified catalogue.

1.3.2 Descriptive Segment

A descriptive segment of a main entry or book index entry that contains detailed descriptive information about a bibliographic item and consist of the following sections containing values of specified data elements: (*refer* CCC - Chapter FQ):

(a) Heading section

The heading section is the leading part of a basic-entry or unit-record.

- (i) In case of a monograph heading section or a contribution in a monograph, heading section consists of name of an author or collaborator, or names of two joint authors or joint collaborators.
- (ii) In case of a serial, heading section consists of title of the serial, and sponsor, if it is not part of the title.

(b) Title Section

The title section of a basic-entry or unit-record consists of title of the bibliographic item followed by the statement of responsibility.

(c) Publication Section

The publication section is to comprise of:

- (i) Volume and/or part, if the entry or record contains description of a specific volume or part of the multi-volume publication, followed by colon (:), space and title of the specific volume
- (ii) Edition number or other specification of edition. (edition number need not be mentioned in the case of the first edition)
- (iii) Year of publication of the specific volume or part of the multivolume item, or single-volume item
- (iv) Name(s) of publisher(s) followed by comma (,) space and places of publication.

(d) Physical Description Section

This section is to comprise of:

- (i) Extent of the item i.e.,
Number of physical units followed by number of pages in circular brackets, if multi-parts/volume item
Number of pages (collation), with a "+" inserted between the different pagination and the information about unpaginated plates, maps and other items, if single-part
- (ii) Other physical data-other than extent and dimension
- (iii) Dimensions
- (iv) Accompanying material (loose attachments)
- (v) International standard number(s), including terms of availability price (i.e.,

price, etc.) terms of availability, if no standard book number.

(e) Periodicity Section

The periodicity section of a serial is to consist successively of frequency of the serial followed by full stop and chronological designation (the term V/No followed by the number of first issue; a dash; some space or number of last volume/year of commencement; a dash; some space or year of last issue.

(f) Locus Section

This section is to consist of:

- (i) Connecting word, such as 'In' or other equivalent, and following items of information of the host document
- (ii) Heading (name(s) of the author(s)), in case of monograph
- (iii) Title of the host monograph or serial along with the name of sponsor - may be in abbreviated form
- (iv) Volume number, part/issue number
- (v) Edition of monograph
- (vi) Year, date of publication
- (vii) Publisher, place of publication
- (viii) Specification of place of the occurrence of matter referred to in its host document, that is, the place of occurrence of the micro document in a serial, a monograph or web pages. The matter referred to can be an article published in a serial, a contribution to a composite monograph or web pages, a chapter, a section or a paragraph forming part of a monograph.

(g) Series Section

This section is to consist of information or note(s) relating to any of the following:

- (i) Series, an interdependent series (i.e., series and subseries), or two or more independent series and/or two or more interdependent series
- (ii) Thesis or dissertation note
- (iii) Pseudo-series note.

(h) Holdings Section

This section is to consist of statement such as, "This library has: V1-31; 1931-1961 or V1-C; 1931-C (i.e., Continuously being received from V1;1931). Gaps: V2;1932. Incomplete Volumes: V5; 1936.

(i) General Note Section

Note about special features or formats of the item, about bibliographical relationship with other item or related work(s). This section is to consist of information or note(s) relating to other manifestation of same work in the form of translation, adaptation, abridgement, extract, reprint, reproduction, merger with other work, change in title, etc., or having association with other work(s), and special features or formats of the item.

(j) Content Note Section

If the entry or record contains description about a single-volume monograph or single volume or part of the multi-volume monograph. or specific information about each volume of multi-volume set of a monograph, if the entry or record contains description of about a set of a multi-volume monograph. (e.g., the description may consist of - volume number (e.g., V1): Special title of the volume, statement of responsibility. Edition and/or year of publication, if different for the volume.

(k) Annotation Section

This section is to consist of annotation, synopsis or abstract of the work or document.

(l) Unique Identifiers Section

This section is to consist of call number and accession number of the item, and master file number (MFN) of the item's record in the computer files.

(m) Tracing Section

This section is to consist of information as to what additional entries have been made for the item, viz., (1) Cross Reference Entries, (2) Cross Index Entries, (3) Book Index Entries, and (3) Cross Reference Index Entries.

1.3.3 Feature Heading Segment

The feature-heading segment shall consist of feature heading at the top of a printed list or list bibliographic records displayed on a computer screen.

2. STRUCTURE OF BASIC-ENTRY OR UNIT-RECORD

2.1 Single Monograph, Ordinary Composite Monograph and

Individual Volume of a Multivolume Monograph

The basic-entry or a unit-record containing information or data about a single volume monograph, ordinary composite monograph or a volume of a multivolume monograph is to consist successively of the following items of information or data items. (*Refer CCC, Chapters FQ: Sections of Entry, MB & SE*):

- (a) Heading consisting of name(s) of author(s) or collaborator(s) of monograph or title of a serial and sponsor, if name of sponsor is not part of the title
- (b) Title and associated statement of responsibility
- (c) Specific volume/part number: Author and title of the specific volume, if different from the set
- (d) Edition
- (e) Year of publication
- (f) Name of publisher(s) and place(s)
- (g) Extent of the item
- (h) Other physical data - other than extent and dimension
 - (i) Dimensions
 - (j) Accompanying material (loose attachments)
- (k) International Standard Number(s), including terms of availability (i.e., price etc.), or terms of availability (i.e., price, etc.), if no standard book number
- (l) Series note
- (m) Bibliographical relationship note or related works note, giving the names of associated documents, change of title note, etc
- (n) Content note, giving contents of the monograph
- (o) Annotation or abstract of the work
- (p) Unique identifiers, namely: Call number and accession number of the item, and MFN of the item's record in the computer file
- (q) Tracing elements, namely, (a) cross reference entries, (b) cross index Entries, (c) Book Index Entries, and (d) Cross Reference Index Entries, giving Information as to what additional entries have been made for the item.

2.2 Serial

A basic entry or unit-record of a serial is to consist of the following items of information or data items:

- (a) Heading consisting of title of the serial
The name of sponsor, if any, within circular brackets, if it does not occur in continuation of the title on the title page
- (b) Edition statement within circular brackets
- (c) Name of publisher(s) and place(s) of publication
- (d) Extent of the item
- (e) Other physical data - other than extent and dimension
- (f) Dimensions
- (g) Accompanying material (loose attachments)
- (h) Periodicity
- (i) International standard number(s), including terms of availability (i.e., price, etc.), or terms of availability if no standard book number
- (j) Series Note, enclosed in circular brackets
- (k) Holdings statement (e.g., This library has: V1-31; 1931-1961 or V1-C; 1931-C (i.e., continuously being received from V1; 1931). Gaps: V2; 1932. Incomplete Volumes: V5; 1936.)
- (l) Notes regarding complexities of various kinds. (Refer CCC Chapter PA). For example, irregularity in publication, change of title and sponsor, amalgamation of two or more serials, splitting up into two or more periodical publications, etc.
- (m) Unique identifiers, namely: Class Number of the item and MFN of the item's record in the computer file.

2.3 Contribution to a Composite Monograph/Web Page

Refer to CCC, chapter NA62: contributor-index entry. A basic entry of a contribution to a composite monograph/web pages is to consist of the following items of information or data items:

- (a) Heading of the contribution consisting of name(s) of author(s) or collaborator(s)
- (b) Title of the contribution
- (c) Connecting word 'in', 'Available at or equivalent and the following items of

information of the host composite monograph/webpages

- (i) Heading of the host composite monograph/url of web pages
- (ii) Title of the host monograph/web pages domain/homepage
- (iii) Volume number
- (iv) Year/date of publication or date the web pages visited
- (v) Publisher, and place of publication
- (vi) Specification of place of occurrence of the matter referred to, in the form of 'P', or 'Sec', or Part, or 'Directory' or any other appropriate term followed by the number(s) concerned pages.

2.4 Contribution to a Periodical Publication

A basic entry of a contribution to a periodical publication/serial is to consist of the following items of information or data items:

- (a) Heading of the contribution in a serial consisting of name(s) of author(s) or collaborator(s)
- (b) Title of the contribution
- (c) Followed by the following items of information of the host periodical publication:
 - (i) Title of the periodical publication/ serial/web pages* along with the name of the sponsor if inseparable from the title, abbreviated according to IS: 2381 - 1978 [32]
 - (ii) Volume number, issue number; a semicolon and space
 - (iii) Date/month, year of publication; a semicolon and space
 - (iv) Page(s)-first and last page in inclusive notation or specification of place of occurrence of the matter referred to.

3. SINGLE-VOLUME MONOGRAPH AND INDIVIDUAL VOLUME OF A MULTI-VOLUME MONOGRAPH

3.1 Main Entry

A main entry a single-volume monograph (simple or ordinary composite) or an individual volume of a multivolume monograph (simple or ordinary composite), of the classified part of a catalogue or for online display of bibliographical record in classified

order is to consist successively of the following items of information or data items.

- (a) Call number-access element
- (b) Heading consisting of name(s) of author(s) or collaborator(s) of monograph or title of a serial and sponsor, if name of sponsor is not part of the title
- (c) Title and statement of responsibility
- (d) Specific volume/part number: Author and title of the specific volume, if different from the set
- (e) Edition
- (f) Year of publication
- (g) Name of publisher(s) and place(s) of publication
- (h) Extent of the item
- (i) Other physical data - other than extent and dimension
- (j) Dimensions
- (k) Accompanying material (loose attachments)
- (l) International standard number(s), including terms of availability price (i.e., price, etc.) or terms of availability, if no standard book number
- (m) Series note
- (n) Bibliographical relationship notes, giving the names of associated documents, change of title note, etc.
- (o) Content note, giving contents of monograph.
- (p) Annotation or abstract of the work
- (q) Unique identifiers, namely: Call number, MFN of the item's record in computer file
- (r) Tracing elements, namely, (a) cross reference entries, (b) cross index entries, (c) book index entries, and (d) cross reference index entries, giving information as to what additional entries have been made for the item.

3.2 Book Index Entry

A book index entry or specific added entry single-volume monograph (simple or ordinary composite) or an individual volume of a multivolume monograph (simple or ordinary composite), of the classified part of a catalogue or for online display of bibliographical record in classified order is to consist successively of the following items of information or data items:

- (a) Access element-word entry.

Data items (b)-(q) are same as given in section 3.1. Data item (r) of section 3.1 is not to be included in this entry.

4. RULES FOR CHOICE AND RENDERING OF ITEMS OF INFORMATION IN AN ENTRY

We are suggesting the following changes that may be implemented and followed in the rules of CCC of Ranganathan for the choice and rendering of various items of information in an entry:

The data elements shown in *Italics* in the above stated entry formats are optional in the sense that their contents may or may not be displayed or included in the entries of a printed list, in an entry of card catalogue or in a bibliographic record to be displayed on monitor.

When the contents (or value) of a access element has one to one correspondence with the contents of the item of information heading then no data may be entered in the leading section of the book index entry to avoid repetition of same data in both the sections, while producing a printed list or catalogue cards.

While bringing out a printed list, in a classified order, the leading section may contain feature heading in place of call number, and the group of records falling under a feature heading may be arranged in alphabetical order. However, information about the call number of a bibliographic item may be added at the end of an entry.

Statement of responsibility part of title section shall contain the name(s) of author(s) in addition to Collaborators (refer CCC, chap, FC & FD). If the title page contains the names of three or more joint authors (both personal author and/or corporate authors) and/or collaborators, omit all but the first of each group of such authors and/or collaborators and add the term 'and others', to indicate the omission. Follow the Canon of Ascertainability, i.e., the information found in the title page of the bibliographic item and its over-flow pages should determine the choice and rendering of contents of this field at input

stage. However, we must generate the name of all authors and collaborators associated with a bibliographic item as access elements or create added book index entries.

The names of all the personal authors, collaborators, corporate bodies and meetings (conferences, congresses, symposia, exhibitions, etc.), responsible for or contribute to the creation of the intellectual or artistic contents of a work contained in the item or its realisation, may be entered for the purpose of generating book index entries (i.e., added entries or searchable term), in their respective fields, which must be defined in addition to the heading field. The data values of the heading field need not be extracted to built dictionary of searchable terms for a database.

Heading field shall be treated as local field and the names of personal authors, corporate authors, pseudonyms, collaborators, title, subject headings (treated as headings) may be displayed as per CCC rules in bold letters. The names of personal authors or collaborators may be displayed or printed in bold letters in the form **Ranganathan, S R** not in the form RANGANATHAN (S R).

We find that the CCC allows entering the name of two authors - personal or corporate or collaborators in the Heading Section, or the name of one principle author or collaborator, if a work is authored by more than three authors or collaborators. AACR-II allows up to one author. This is an old practice and perhaps followed keeping in view the convenience of representing the information about authors in a printed bibliographic list or catalogue cards as well as for remembering or recalling the name or names of authors of a document (One can not remember names of all authors. It is however recommended that the names of all the personal authors responsible for or contribute to the creation of the intellectual or artistic contents of an independent contribution in a bibliographic item (i.e., article published in a serial or a contribution in a composite monograph), or its realisation, may be entered as heading (This practice is followed by the scientist while

citing the articles, etc., in their works for obvious reasons).

It is also desirable to enter names of authors and collaborators (persons, corporate bodies, meetings, etc.) in such a manner that we can generate search terms in all possible access forms. Very often, the names of persons are rendered different manners by different cataloguers. Electronic catalogue environment enables us to generate, with least efforts all the possible forms. The rule and directions provide by CCC and/or AACR-II for rendering the name of persons belonging to different cultures, region and locality, institutions, geographical name, etc. may be used to provide every possible access approach in a online catalogue. For example:

Case I

If the names of the authors say- Manjit Kaur, Man Mohan Singh, Ram Kumar are rendered (or entered) in bibliographic records by a cataloguer in the form

^aKaur^bManjit
^aKumar^bRam
^aSingh^bMan Mohan

Treating Kaur, Kumar, and Singh as entry elements, and to print or display the names in the form , as shown below:

Kaur, Manjit
Kumar, Ram
Singh, Man Mohan

Then we must generate additional access points in the form:

Manjit Kaur
Ram Kumar
Man Mohan Singh

Case II

If the names of the authors say- Manjit Kaur, Man Mohan Singh, Ram Kumar are rendered (or entered) in bibliographic records by a cataloguer in the form:

^aMan Mohan Singh
^aManjit Kaur
^aRam Kumar

To displayed or print them in the form, as shown below:

Man Mohan Singh
Manjit Kaur
Ram Kumar

Then it is desirable that we must make additional entries in the form:

^aKaur^bManjit
^aKumar^bRam
^aSingh^bMan Mohan

To generate additional access/search elements in the form:

Kaur, Manjit
Kumar, Ram
Singh, Man Mohan

Alternatively

We ignore the concept of entry element and treat the name of a person constituting of three parts of the name or data elements, namely, ^aFirst part of the name, ^b Middle part of the name, ^cLast part of the name and enter the names of persons in the form:

^aMan^bMohan^cSingh
^aManjit^cKaur
^aRam^cKumar
^aG.^bC.^cChowdhury
^aKondanda^bRamaiah^cChenapati

It may be observed in the name listed above the entry elements are:

Man Mohan Singh
Manjit Kaur
Ram Kumar
Chowdhury, G. C.
Ramaiah

and as these name can be rendered in an entry a headings, in the form:

Man Mohan Singh
Manjit Kaur
Ram Kumar
Chowdhury, G. C.
Ramaiah, Kondanda Chenapati

We can conveniently generate the following access/search elements from this type of input

Chowdhury, G. C.
Chenapati, Kondanda Ramaiah
G. C. Chowdhury
Kaur, Manjit
Kondanda Ramaiah Chenapati

Kumar, Ram
Man Mohan Singh
Manjit Kaur
Ram Kumar
Ramaiah, Kondanda Chenapati
Singh, Man Mohan

Case III

The names of the corporate bodies and titles of serials as per CCC rule may be entered in the form shown below:

Data Entry Format

^aUniversity of Delhi^6Department of^2Library and Information Science
^aHimachal Pradesh^2District Court^c(Dharamshala)
^aIndia^2Governor General^cC Rajagopalachari
^aIndia^6Ministry of ^2Labour ^3Labour Bureau
^aMadras^1City^2Mayor^cS Satyamurty

So that the heading or the names of the corporate bodies and title of serials are printed or displayed as in the form shown below:

University of Delhi, Library and Information Science (Department of-)
Himachal Pradesh, District Court (Dharamshala)
India, Governor General © Rajagopalachari).
India, Labour (Ministry of-), Labour Bureau.
Madras (City), Mayor (S Satyamurty).

Then we must also produce additional access points as shown below:

University of Delhi, Department of Library and Information Science
Department of Library and Information Science, University of Delhi
Library and Information Science (Department of-), University of Delhi
District Court (Dharamshala), Himachal Pradesh
Himachal Pradesh, District Court (Dhramshala)
Governor General © Rajagopalachari), India
Labour Bureau, India, Labour (Ministry Of-)
Labour (Ministry Of-), Labour Bureau, India
India, Ministry of Labour, Labour Bureau
Labour Bureau, India, Ministry of Labour
Ministry of Labour, Labour Bureau, India
Madras (City), Mayor (S Satyamurty)

Mayor (S Satyamurty), Madras (City).

It is recommended that we do away with the practice dividing names into two parts, namely, entry element and other name element for rendering a name-of-person or a name-of-corporate body at the time of entering the data values of these attributes or items of information in an electronic record. The attribute 'name-of-person' may be deemed to constituted of data elements - a first-name, b. middle-name, and c. last-name. Similarly the attribute name-of- corporate body may be deemed to constituted of number of data elements, namely, a. primary unit, level 1 (may be parent body), b. sub-unit, level 2, c. sub-unit, level 3., and so on.

It is useful or functionally valuable to trace the various lingual forms or other variations in the name of a person, corporate body or meeting, as well as the alternative names (including pseudonym) used by a person or other people associated with the person and enter these to generate additional access points (book index entries or added entries).

We find that the names of authors and collaborators, be a personal author or collaborator or a corporate body, are rendered and accessed in varying forms. Cataloguing codes also have different rules for the choice of the entry element, and the form and order of presentation of other name elements. It is therefor suggested that the name of an author or collaborator must be entered in heading field in the form as it appears on the item. It must also be displayed in the same form in printed catalogue or card as heading. The various other forms of presentations, alternative names by which a person or corporate body is known or referred, including the one actually given on the title page of a bibliographic item may be included to generate access elements in the repeatable fields defined for this purpose.

5. ATTRIBUTES AND DATA ELEMENTS

We know that various type of entities possess certain common attributes. For example, the attribute 'name' is an attribute that is commonly possessed by all entity

classes. However, the terms used to refer to certain common or identical attributes of entity classes may differ, but mnemonically, they refer to similar attributes possessed by certain entity-types. For instance, we use the term title in place name or provide unique code to identify an entity-type document. The terms, such as, 'title', 'name', 'height', 'weight', 'price', 'date of birth/origin', and so forth, all represent the attributes commonly possessed by various type of entities.

Keeping above factor in mind and based on the identified attributes and data elements of the entity classes listed in appendix 1 to 10, a general list of common fields and their constituent sub fields will be prepared. We will also designate the fields and sub field as mandatory or optional, and provide them unique codes called field tags and sub fields identifiers. This generalised list of fields and their codes can be used for purpose of defining the Field Definition Table (FDT) or database structure of library information systems.

6. LIST OF FIELDS AND SUBFIELDS FOR DEFINING FDT OF A LIBRARY DATABASE

The attributes or data elements of entities or objects about which we are interested to collect data for use are usually defined in the form of FDT or data dictionary of a database system. The related attributes and data elements of entities of interest constitute fields and subfields of their physical records in a database. In a FDT, for each field certain attributes are specified, e.g., a field tag (or address) and name (or label), sub field identifiers and their names or labels, the type of data or characters the field may accept, length or size of field, etc.

An integrated database is made of records describing different types of entities. There is advantage in integrating the different databases for the different types of entities associated with an enterprise or organisation into single database. This can be done by listing in a single field definition table FDT all the fields required for creating records of different types of entities. We can shorten the

list by identifying the common one. For example, The field, say '200: Name of the entity' can be commonly used to define the field for the entry of 'title of a bibliographic Item', 'name of an employee', 'name of a library member', 'name of a institution', name of library vendor, order no., and so for creating records of entity-types - bibliographic Item, library employee record, library member, institution, library vendor, library order, etc. For convenience of data entry, separate electronic worksheets can be prepared for each entity-type, one for creating monograph record, another for creating serial record, another for creating profile of institution, and so on. The common fields will appear in each of them.

In an integrated database, there is no need to include information, redundantly, such as user's name and address in the records of borrowed bibliographic Items on loan. Because, these facts can always be displayed or referred to at output stage by linking the records of bibliographic Items with the records of library users to whom items are loaned or issued. However, in certain cases we may not create distinct database or records of certain entity-types in an integrated database. For example, a library may decide not to create individual records of (or distinct database) of authors, collaborators and publishers of bibliographic documents. In such a case 'name of author', name of collaborator', and 'name of publisher' may be treated as an attributes of the entity-type 'bibliographic document' acquired due to its relationship with these entity-types. However, in case of other entity-types, such as, vendor, bill, order, user, staff of a library system, etc., we may create different databases and inter link the records to get required relationship data, wherever necessary.

A common list of fields and their subfields (data elements) that may constitute components of entity records, in an integrated library database, is given below: (This list is not comprehensive and provisional, and needs to be further extended and moulded).

6.1 Data Fields

The fields, as defined below, are represented in numerical order by three-digit tag of; CCF: Common Communication Format^{4,5,9,13,15,18,27}. The subfields or data elements that form the fields are represented by (a) to (z).

★ Field 150: Heading (mandatory and repeatable)

It is a data field of a bibliographic record whose value is placed at the head of other descriptive information of a bibliographic item as displayed in a catalogue entry or in an output of bibliographic record electronically. The value of this field is not to be used to generate search terms or added entries (general definition). This field is to consist of the name(s) of author(s)/collaborator(s) (i.e., a person(s) or corporate body (or bodies) chiefly responsible for the creation of the intellectual or artistic contents of a bibliographic item or its realisation. Alternatively, in some cases, it may consist of the title of a work or bibliographic item.

The heading field is to be treated as a local field, whose contents may vary from one library to another, depending upon the catalogue code or practice being followed by a library for the choice and rendering the headings of a bibliographic item.

Subfields:

- (a) Entry element: That part of a person's or corporate body's name under which it would be entered/displayed in a record in accordance with the practice of an agency preparing the record.

Or

Title of a bibliographic item/name of object /URL (uniform resource locator) of web page.

(In case of non-bibliographic item or other objects, a given number, label, code, term or any other nomenclature such as bill number, order no., letter no., chair no., table no., etc. is to constitute component of this subfield).

- (b) Other name elements: Other parts of the name of a person or corporate body excluding the entry element

- (c) Qualifier or additional elements to name of a person (e.g., honorific titles represented by term such as: Mr., Mrs., Sh., Ms., Kumari, Prof., Dr., and so on)
- (d) Date(s). A date or dates relating to genesis and end of entity. (e.g., year or date of birth of a person followed by dash '-' and date of death. year/date of origin of a corporate body, or start date of conference/ meeting followed by dash '- ' and end year/date, etc.)
- (e) Role: A word or phrase designating the role of the corporate body or conference
Location (country) of corporate body/ meeting/conference
- (f) Number of meeting
- (g) Individualising element
- (h) Name of chairperson of a commission
- (i) Pseudonym of person
- (j) Acronym/Abbreviated form of a name
- (k) Role, a word or phrase designating the role of the entity
- (l) The term 'and others' or 'et al'.

★ **Field 200: Name of entity** (mandatory and not repeatable)

This field is to consist of name of the entity by which it is known or identified and other specifications (details) necessary for its unique identification.

The name, number, title of a work, label, code, term or any other nomenclature by which the entity is identified is to constitute component of this field along with other distinguishing elements. For example, title of a bibliographic document appearing on its title page is to constitute component of this field or invoice number for entity-type invoice.

Subfields:

- (a) First part of the name of a person or corporate body
Title of a document
Name or unique code/number of objects
- (b) Middle part of the name of a person or corporate
- (c) Last part of the name of a person or corporate body, including the name of personal or corporate author chosen as heading
- (d) Qualifier or additional elements to name of a person (e.g., honorific titles represented by term such as: Mr., Mrs., Sh., Ms., Kumari, Prof., Dr., and so on)

- (e) Date(s). A date or dates relating to genesis and end of entity. (e.g., year or date of birth of a person followed by dash '-' and date of death. year/date of origin of a corporate body, or start date of conference/ meeting followed by dash '- ' and end year/date, etc.)
- (f) Location of corporate body/ meeting/conference
- (g) Number of meeting
- (h) Individualising element
- (i) Pseudonym of person
- (j) Acronym/Abbreviated form of a name
- (k) Role, A word or phrase designating the role of the entity
- (l) Language of title of the bibliographic item
- (m) Script if title of bibliographic item.
- ★ **Field 230: Variant names of the entity** (mandatory and repeatable)

This field is to consist of all the alternative names the entity for which it is useful to provide access. The value of each repeated field is to be used to generate access point or search elements under which record of the entity may be searched.

Subfields:

- (a) First part of the name of a person or corporate body
Title of a bibliographic item
- (b) Name or unique code/no. of other objects
- (c) Middle part of the name of a person or corporate body
- (d) Last part of the name of a person or corporate body
- (e) Qualifier or additional elements to name of a person (e.g., honorific titles represented by term such as: Mr., Mrs., Sh., Ms., Kumari, Prof., Dr., and so on)
- (f) Date(s)-relating to genesis and end of entity. (e.g., year or date of birth of a person followed by dash '-' and date of death. year/date of origin of a corporate body, or start date of conference/ meeting followed by dash '- ' and end year/date, etc.)
- (g) Location of corporate body/ meeting/conference
- (h) Number of meeting
- (i) Individualising element
- (j) Pseudonym of person
- (k) Acronym/abbreviated form of a name

- (l) Role, a word or phrase designating the role of the entity.

★ **Field 300: Name of person associated with the entity**

This field is to consist of name(s) person(s) associated with the entity, and whose independent record(s) do not exit in the integrated database. For example, In a bibliographic record this field can be used to represent the name(s) personal author(s) and collaborator(s) of a work or bibliographic item and their variant names (i.e., alternate names or forms of names, by which an author or collaborator has been known). The value of each repeated field is to be used to generate access point or search elements under which a bibliographic record may be searched, and to generate added entries for a card catalogue.

Similarly, while creating record of entity-type: library employee, library member, record this field can be used to represent the names of parents, children and other relations of concerned entity. Name of a guide of a research scholar, Originator of an invention, manager/chief of a unit, and so forth may form components of this field. This field shall be mandatory and repeatable in case of a bibliographic record, optional and repeatable in all other cases.

Subfields:

- (a) First part of the name of a person having relationship with the entity
- (b) Middle part of the name of a person
- (c) Last part of the name of a person
- (d) Additional element to name (honorific title represented by term such as: Mr., Mrs., Sh., Ms., Kumari, Prof., Dr., etc.
- (e) Year/date of birth and death of a person of a person
- (f) Role, a word or phrase designating the function, association or role of the person in relation to associated entity. For example, Ed., Tr., etc.; or father, mother, son daughter, etc.; or employer, manager, employee, guide; project director, etc.

★ **Field 310: Name of corporate body associated with the entity**

A corporate body, with whom an entity may have relationship can be a government, an

institution, an organisation, association, business enterprise, or a group of persons identified by particular name .

While creating a record of a bibliographic item this field is to consist of name(s) of a corporate body or bodies responsible-for or contributing-to the creation of the intellectual or artistic contents of a work contained in the bibliographic item or its realisation and elements of specification (detail). It shall comprise of all the names of the corporate bodies associated with a bibliographic item, as an author, collaborator, or sponsor, and their variant names (i.e., alternate names or forms of names, by which they have been known). In addition, the value of each repeated field is to be used to generate access point or search element under which record may be searched, or to generate added entries for a card catalogue.

This field can also be used to represent the names of corporate bodies with whom the entity has relationship, and whose records do not exit in the integrated database. For example, names of associations/institutions a person is or has been member/employee may be represented in this field in absence of their records in the integrated database.

This field shall be mandatory and repeatable in case of a bibliographic record, optional and repeatable in all other cases.

Subfields:

- (a) First part of the name of corporate body higher level
- (b) Middle part of the name of corporate body - middle level
- (c) Last part of the name corporate body - lower level
- (d) Additional element to name/qualifier
- (e) Year/date of origin and closer of a corporate body
- (f) Abbreviated form, if any
- (g) Individualising element (location)
- (h) Role, type/category of organisation: A word or phrase designating the role of the corporate body (e.g., sponsorship, professional association; trade union)
- (i) Address
- (j) Designation and name of the Head

- (k) In what capacity one is associated with the body (e.g., as life member or ordinary member)
- (l) Since when and up to when one shall be associated with the body (i.e., start and possible end date of association)
- (m) Special roll in the body (e.g., member executive body)
- (n) Membership fee and type - life, annual
- (o) Date membership payment is due.

★ **Field 320: Name of conference or a meeting associated with the entity**
(mandatory and repeatable)

Conference or meeting is a generic term for any group meeting occasionally or at regular interval; it covers congresses, symposia, diplomatic conferences, festival, fairs, exhibitions, expeditions, etc. This field shall constitute of the name(s) of a conference(s) or meeting(s). For example, a conference or meeting may be responsible for or contributing-to the creation of the intellectual or artistic contents of a work contained in the bibliographic item or its realisation. In this case, the field shall contain the name of one conference, or names of two or more conferences associated with a bibliographic item as an author, collaborator, or sponsor and their variant names (i.e., its alternate names or forms of names, by which it has been known). The value of each repeated field is to be used to generate access point or search elements under which record may be searched. Each entry can also be used to generate added entries for a card catalogue.

Subfields:

- (a) Name of a conference
- (b) Starting and last date of conference
- (c) Location of conference/meeting
- (d) Number of meeting
- (e) Abbreviated form of the name conference, if any
- (f) Role of the body in bibliographic item
- (g) In what capacity the entity is associated with the body
- (h) Special roll of the entity in the body.

★ **Field 430: Address/location of entity**
(optional and repeatable)

Subfields:

- (a) Building /institution

- (b) Street, locality
- (c) Geographical location/ village/town/city
- (d) Block, taluk/tehsil
- (e) District, region
- (f) State/province
- (g) Country
- (h) Postal/zip code
- (l) Post office box
- (j) Telephone number
- (k) Mobile telephone number
- (l) Pager number
- (m) Fax number
- (n) Telegram address
- (o) Telex
- (p) E-mail address
- (q) Web pages (URL) address.

★ **Field 448: Date and place of genesis/birth/start, etc. of an entity**
(mandatory and not repeatable)

Subfields:

- (a) Date of genesis/origin/creation/birth/start of an entity
- (b) Place/location of genesis/origin/creation/birth/start
- (c) Reference number/title of the record (i.e., document, certificate, etc.) about the genesis/origin/creation/birth/start of the entity and date
- (d) Name of authority/official/person, etc., which created/built the record/document or issued the certificate
- (e) Address of the authority/office/person (official), etc.

★ **Field 449: Date and place of end/closer/cessation, etc., of an entity**
(mandatory and not repeatable)

Subfields:

- (a) Date of end/closer/cessation, of an entity
- (b) Place of end/closer/cessation, etc.
- (c) Reference number/title of record/document/certificate, etc. regarding the end/closer, etc. of entity and date
- (d) Name of authority/office/person, etc. that created/built the record/document or issued the certificate
- (e) Address of the person/authority/office.

★ **Field 705: Equipment and other resources of organisation or person**
(mandatory and repeatable)

Subfields:

- (a) Name of entity owned (car, computer, house, land, gun, etc.)

- (b) Make
- (c) Model/year
- (e) Number
- (f) Date of purchase
- (g) Cost
- (h) Capacity, size, area, etc.
- (i) Related purchase document's title no. and other data
- (j) Issued to or in possession of (name of unit/person)
- (k) Date of issue
- (l) Discarded or written of on
- (m) By the authority of.

★ **Field 706: Legal document relating to resources of organisation or person** (mandatory and repeatable)

Subfields:

- (a) Name of resource document (e.g., telephone, passport, driving license, ration card, gas connection, electric connection, gun license, etc.)
- (b) Issuing authority
- (c) Name and designation of officer
- (d) Date of application
- (e) Initial charges paid
- (f) Receipt number and date
- (g) Recurring charges, period
- (h) Bill no. and date
- (i) Date of payment
- (j) Receipt number and date
- (k) Issue/start date - end date
- (l) Number of object
- (m) To apply for renewal on.

★ **Field 800: Nationality (citizenship) of person, habitat of entity** (mandatory and repeatable)

Subfields:

- (a) Name of country of birth of person (nationality by birth). Place of root. Natural home, location, habitat of other objects
- (b) Name of country of the nationality of the person, present place, location or habitat of animals or physical objects
- (c) Status held by person/entity in the country of migration
- (d) Status in the country/entity of birth/origin.

★ **Field 801: Gender of entity** (mandatory and not repeatable)

Subfields:

- (a) Sex (male/ female, etc.).

★ **Field 801: Language/dialect of entity** (mandatory and repeatable)

Subfields:

- (a) Name of language/dialect known
- (b) Proficiency (read writes or speaks)
- (c) Qualifier (e.g., mother tongue).

★ **Field 802: Physical impediments and impairments of entity** (mandatory and repeatable)

Subfields:

- (a) Name/type of impediment or impairment
- (b) Degree/level of impediments or impairment
- (c) Cause of impediment or impairment
- (d) Special facilities or privileges required
- (e) Special facilities or privileges offered by state.

★ **Field 803: Environmental/social impediments or disadvantages to entity** (optional and repeatable)

Subfields:

- (a) Name/type of impediment or disadvantages
- (b) Degree/level of impediments
- (c) Cause of impediment or disadvantages
- (d) Special facilities or privileges required
- (e) Special facilities/privileges offered by state.

★ **Field 803: Hobby of person** (optional and repeatable)

Subfields:

- (a) Name of hobby, field of interest
- (b) Inclination, talent, proficiency level
- (c) Additional facts (e.g. if hobby is reading and writing then mention subjects of interest).

★ **Field 810: Educational qualification of person** (mandatory and repeatable)

Subfields:

- (a) Standard/certificate/degree
- (b) Examining body (university/board)
- (c) Result date/year
- (d) Roll no
- (e) Marks
- (f) Division
- (g) Subject(s) of study and marks obtained
- (h) Distinction.

★ **Field 820: Experience of person** (mandatory and repeatable)

A description of the post/jobs held by a person (service record of a person).

Subfields:

- (a) Name of the organisation served
- (b) Address of the organisation
- (c) Title of job/post
- (d) Grade
- (e) Service start and end date
- (f) Charge/designation
- (g) Designation and name of the head
- (h) Work or responsibilities assigned
- (i) Additional information, i.e., expertise gained, etc.
- (j) Reason for leaving or relinquishing the job (promotion resigned, retired, etc.)
- (k) Last salary drawn.

★ **Field 821: Appointment and promotion components of a person** (mandatory and repeatable)

Subfields:

- (a) Initial appointment - job/post title
- (b) Appointment number and date
- (c) Joining date
- (d) Grade
- (e) Next promotion/demotion - job/post title
- (f) Order and date
- (g) Joining date
- (h) Grade.

★ **Field 821: Promotion and transfer components** (mandatory and repeatable)

A description of the promotion and transfer record of a person in an organisation.

Subfields:

- (a) Unit
- (b) Date of posting in the unit
- (c) Reason of posting (e.g., first appointment, promotion/ routine transfer)
- (d) Order number and date
- (e) Post assigned
- (f) Charge/designation
- (g) Date of joining the unit
- (h) Name and designation of unit head
- (i) Work or responsibility assigned
- (j) Date relieved from the unit
- (k) Reason of relieving (e.g., routine transfer, promotion, retirement, etc.).

CONCLUDING REMARKS

It is hoped that the topics discussed in this paper and the proposals made about the subject matter to be covered in the proposed code will be well received and critically examined by other experts in the profession. Possibly, some useful comments will be forthcoming, so that in due course of time, good amount of literature is available to us for bringing new and up to date Code for Developing Computer-Based Library Database Systems on the line of CCC of Ranganathan.

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