

Java CDS/ISIS: Are the Librarians Ready To Rejuvenate the Libraries?

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Abstract

A practical attempt has been made to unfold the features of Java CDS/ISIS application, which is based on UNESCO's popular and powerful CDS/ISIS application. Java CDS/ISIS was initiated by UNESCO and further developed by Jean-claude Dauphin. It clears maximum WinISIS limitations and restrictions. J-ISIS includes the CDS/ISIS concepts to keep the assets and experience of the users. J-ISIS adopts Berkeley DB to store all the records of a database and Lucene for creating Inverted files. J-ISIS has an embedded Web Browser, which helps to display the records in variety of the formats. ISIS Pascal has been replaced by one of the Programming languages named as Groovy, which provides many more features to the J-ISIS users. To work with J-ISIS application, the Librarians are expected to have adequate skills and experience in CDS/ISIS or WinISIS. Librarians may have different experiences with variety of commercial applications. But, J-ISIS features may explore the gates of new experiences to the Librarians, who are looking for a new kind. An attempt has been made here to build a database to control the Library members using J-ISIS application. Generally, commercial packages have the predefined formats for all the routines of the Library, and they may or may not satisfy the Librarian expectations. But, as CDS/ISIS and WinISIS, J-ISIS has its own capability that let the designers to design their own databases, which can run in standalone or local network or web server. This attempt covers the members' database related actions in standalone mode. Dear librarians, choice is up to you. Make your own choice.

Keywords: Library, OSS, application, UNESCO, Java CDS/ISIS, J-ISIS, Jean-Claude Dauphin, JC Dauphin, Database, members, bibliography, Tamil, font, Digital resources.

Introduction:

J-ISIS is a new multiplatform Free and Open Source Software (FOSS) that provides the same successful concepts and functionalities as the actual UNESCO's WinISIS. J-ISIS removes many of WinISIS limitations and restrictions, uses Client/Server architecture. J-ISIS follows the CDS/ISIS concepts to keep the assets and experience of the users who are familiar in CDS/ISIS. J-ISIS can be used on a single host machine, over a small local network, without Internet access or a Web server installed. J-ISIS Databases and all related files such as indexes, FDT, FST, Worksheets, etc. are fully UNICODE using UTF-8

encoding and are interoperable between different platforms (i.e. you can copy databases without conversion between Windows, Mac OS X and Linux.)

Jean-Claude Dauphin Stated,

J-ISIS is not an Integrated Library System (ILS) as ABCD, it's a non relational (No SQL) database management system that uses the ISIS concepts and that is particularly well suited for the storage and retrieval of bibliographic information. While it is possible to use J-ISIS for publishing an OPAC, Managing Acquisitions, Loan and Patrons/Users as it is done with WinISIS. Some specific ILS modules are under development. As CDS/ISIS, J-ISIS is a flexible Information Storage and Retrieval system designed specifically for the computerized management of structured non-numerical data bases. One of the major advantages offered by the generalized design of the system is that J-ISIS is able to manipulate an unlimited number of data bases each of which may consist of completely different data elements. The J-ISIS embedded Web browser and Web server offer the possibility to use the new Web technologies such as HTML5, CSS3, and JavaScript inside ISIS print formats. The Groovy programming language has replaced ISIS Pascal offering the same functionalities and much more. For real computer programmers, the ISIS_DLL is replaced by the J-ISIS core library (jisis-core.jar), which is interoperable between different platform and which provide all necessary tools for developing J-ISIS based applications.¹

J-ISIS offers powerful FDT, Worksheet, FST and PFT to build a sophisticated database. One of the interesting features of J-ISIS is the *Advanced Worksheet Editor* that lets the designers to define the data entry fields at sub field level. J-ISIS encompasses *Berkeley DB* for storage and powerful *Lucene* for Information search and retrieval purposes. However, a little bit of previous experience in CDS/ISIS or WinISIS is a must for the Library professionals to work in it. This paper centred on advanced users of ISIS/ WinISIS only and won't be helpful for the beginners. Depth knowledge in the said ISIS applications is a must to design any databases for the Libraries.

¹Jean-claude Dauphin. , *J-ISIS 10 March 2016 Release*.

Database:

The database *Tsmember* was designed to maintain the Library patrons'/users' profile in the form of bibliographic and full text format. Real time outputs are captured and explored for better understanding. At the time of invoking J-ISIS the screen will look like as shown in the *figure-1*.

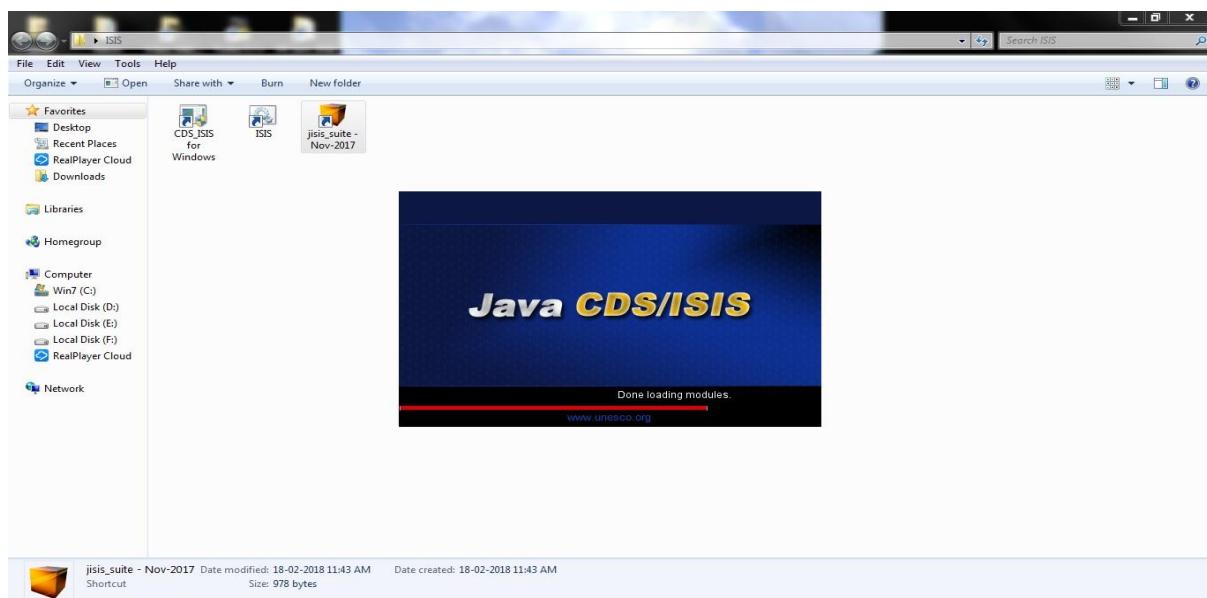


Figure-1: Loading J-ISIS

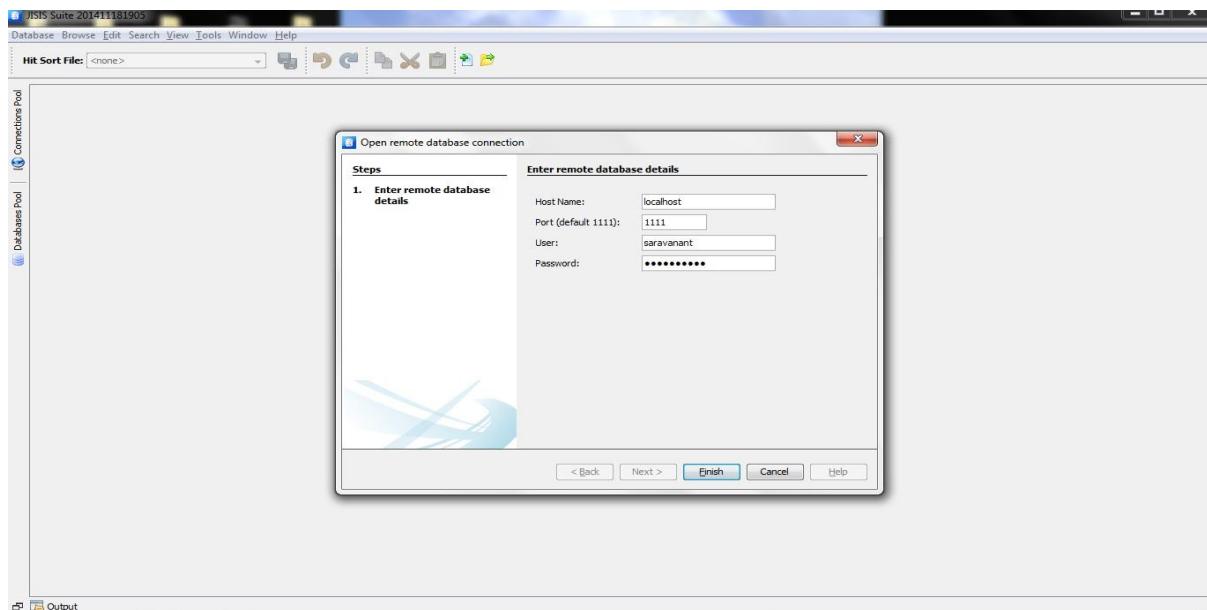


Figure-2: Login

Login options are available in the *figure-2* where the Librarians need to clear an authorization process by way of entering the user name and password to access the Library member database, so as the Librarian can make sure about the security of the data. This option lets the Librarians to protect the members' data from an unauthorized access. Here, the user name “*saravanant*” is entered along with the authorized password to go further into the database. If the authorization part is cleared, the Librarians may move to the next level where they can access the required databases as per their choice. The port (1111) indicates that the current database is running in a standalone mode. J-ISIS offers the features to build many databases like as CDS/ISIS or WinISIS to run the Library effectively. Multiple databases can be accessed simultaneously at the time of circulation section related actions.

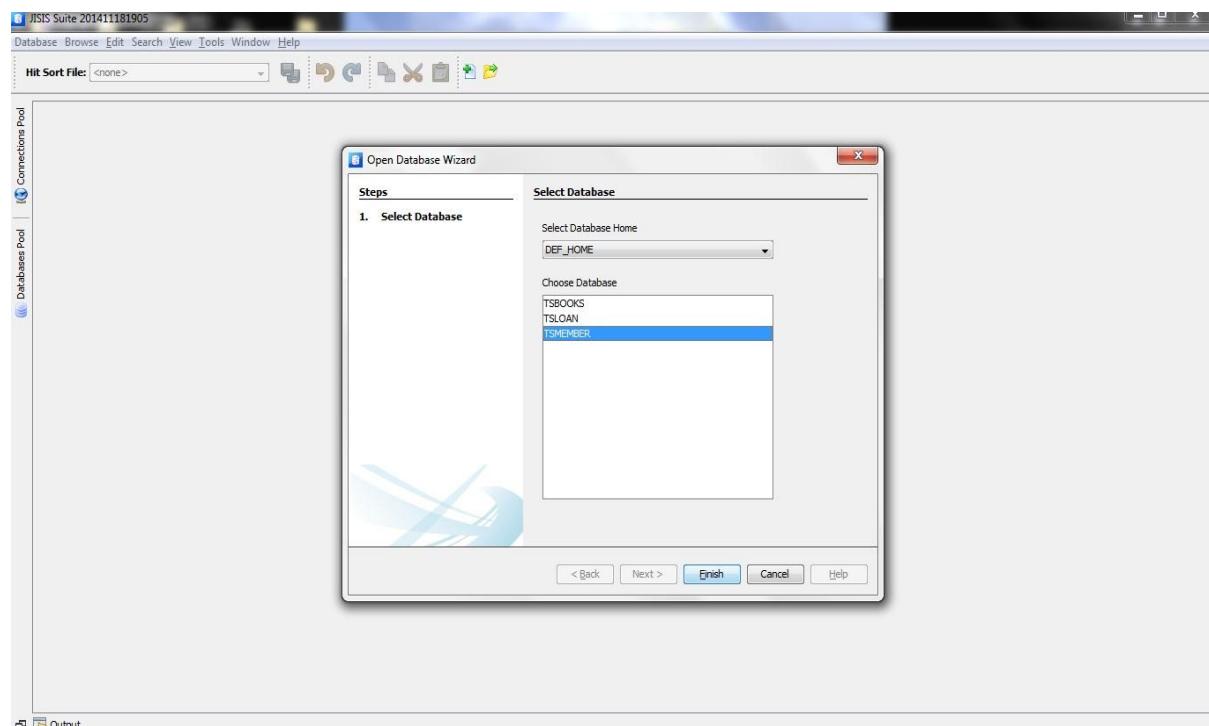


Figure-3: Database Access

Let us observe the *figure-3*, which shows 3 databases (Books and Loan related databases are under process) where the database “*Tsmember*” is highlighted. When clicking the option *Finish* the select database *Tsmember* would be opened. The FDT option in J-ISIS let the Librarians to choose the required bibliographic fields associated with the Library members. The *figure-4* opens the FDT option, which has been

structured with a few bibliographical items. The powerful FDT option lets the Librarians to define the fields along with the required subfields and repeatable features.

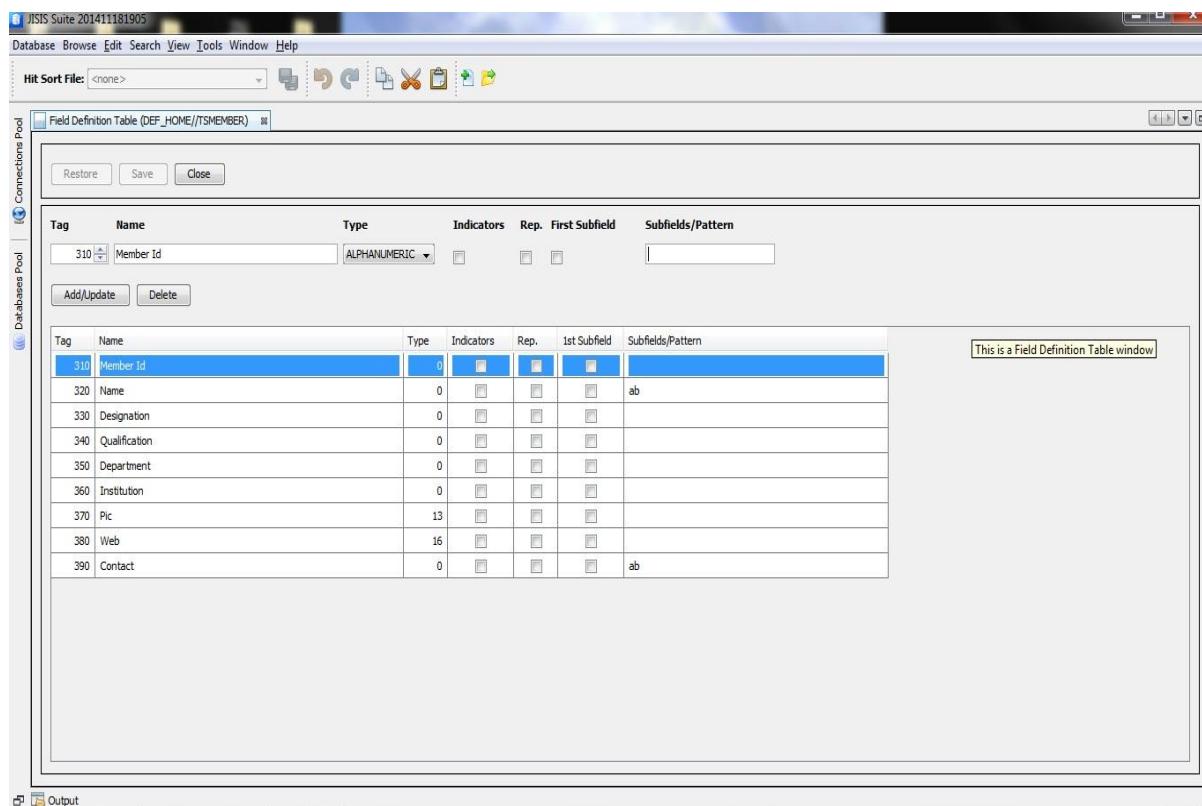


Figure-4: FDT Screen

The identified fields are;

- *Member Id*
- *Name*
- *Designation*
- *Qualification*
- *Department*
- *Institution*
- *Pic*
- *Web*
- *Contact*

The subfields are identified for the fields *Name* and *Contact* as they demand them. The next level enables the Librarian to design the data entry worksheet as shown in the *figure-5*. J-ISIS offers so many features in the data entry worksheet especially for the subfields. The advanced data entry option adds more prestige to the J-ISIS. WinISIS lacks this feature. This feature lets the database designers to shape the worksheet in a nice way. This can be realized when the Librarians are working in it. Default values, validation, pick list, help messages etc are a few major features of J-ISIS, which would be realized at the time feeding the data.

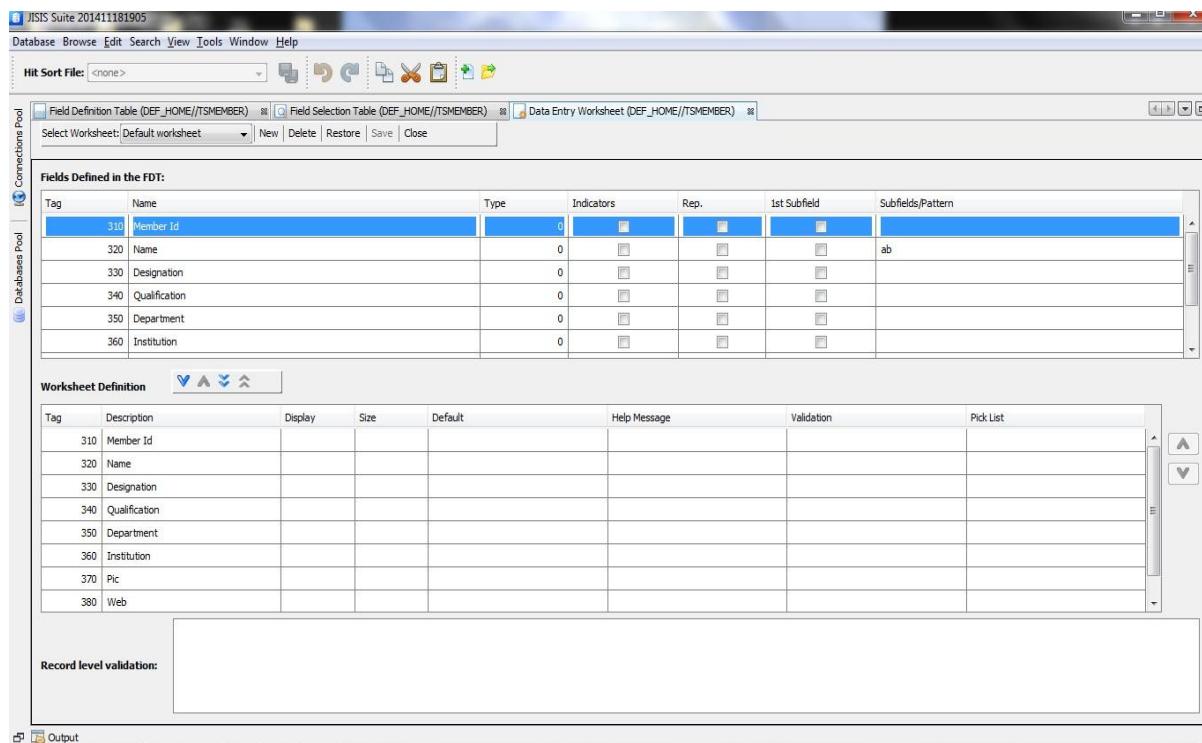


Figure-5: Data Entry Worksheet Editor

The *Figure-5.1* explores one of the major features of J-ISIS named as *Advanced Worksheet editor* that lets the designers to define the data entry fields at sub field level. However, users can choose anyone to feed the data. *Figure-5* shows the default worksheet editor while the given one has been created with the name “*MemAdv*”

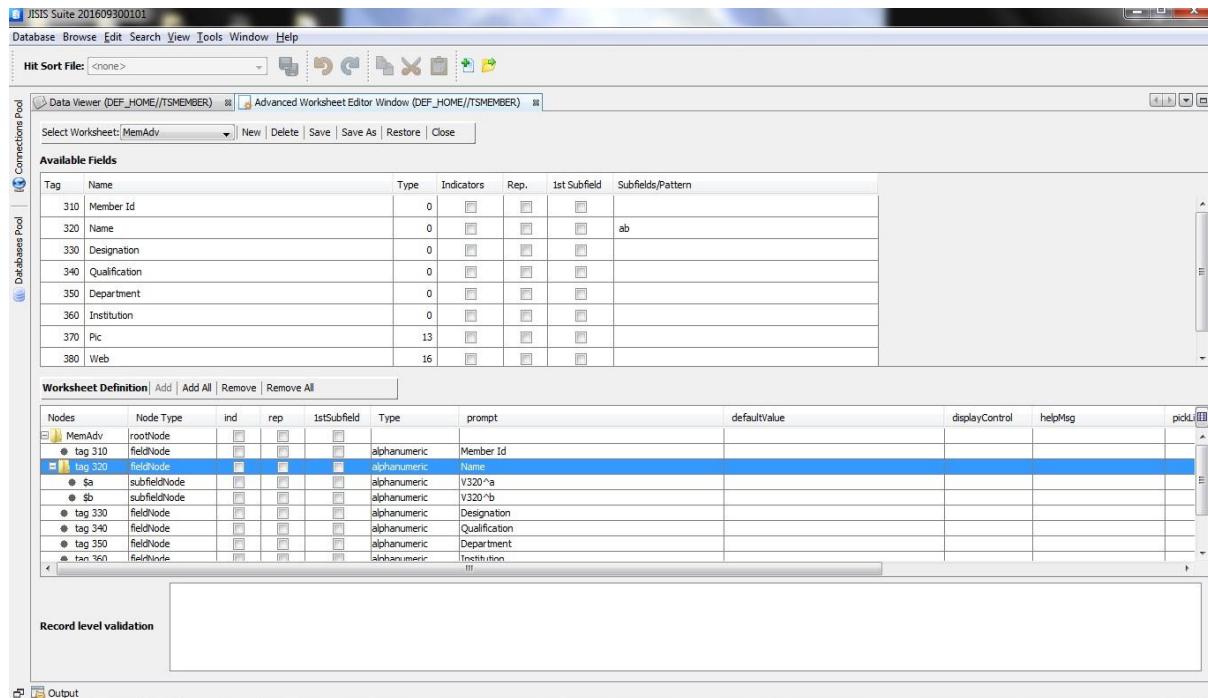


Figure-5.1: Advanced Data Entry Worksheet Editor

The next stage FST is explored towards the figure-6, which helps to define the powerful indexing techniques ranging from 0 to 10.

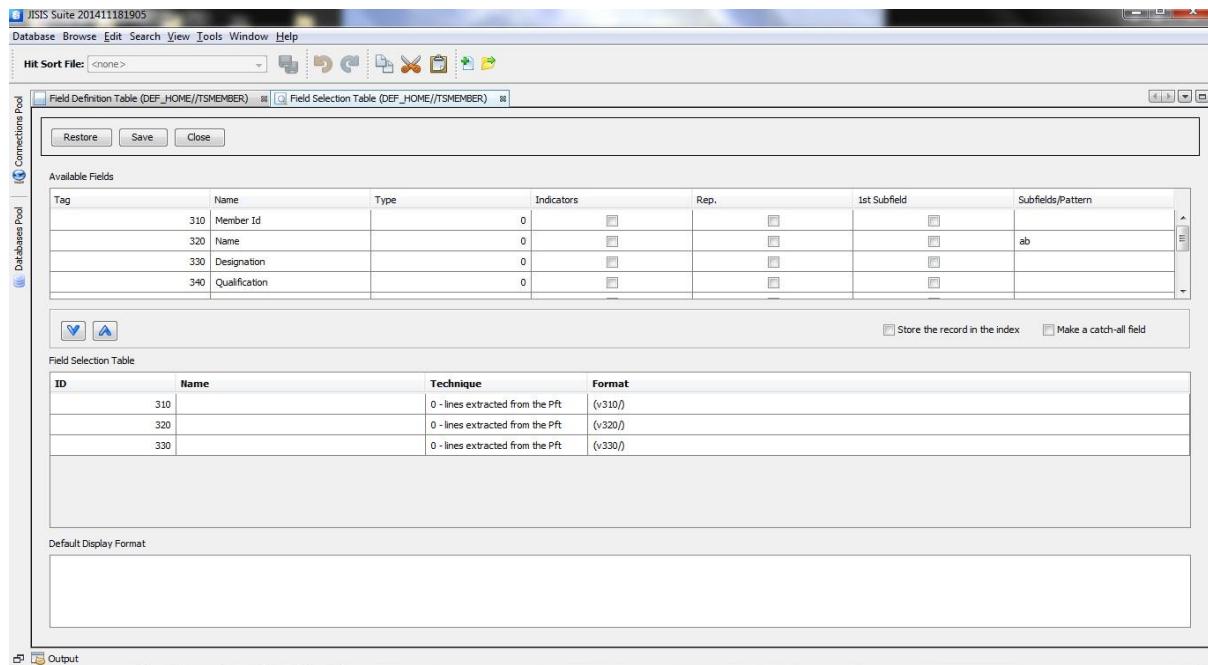


Figure-6: FST Screen

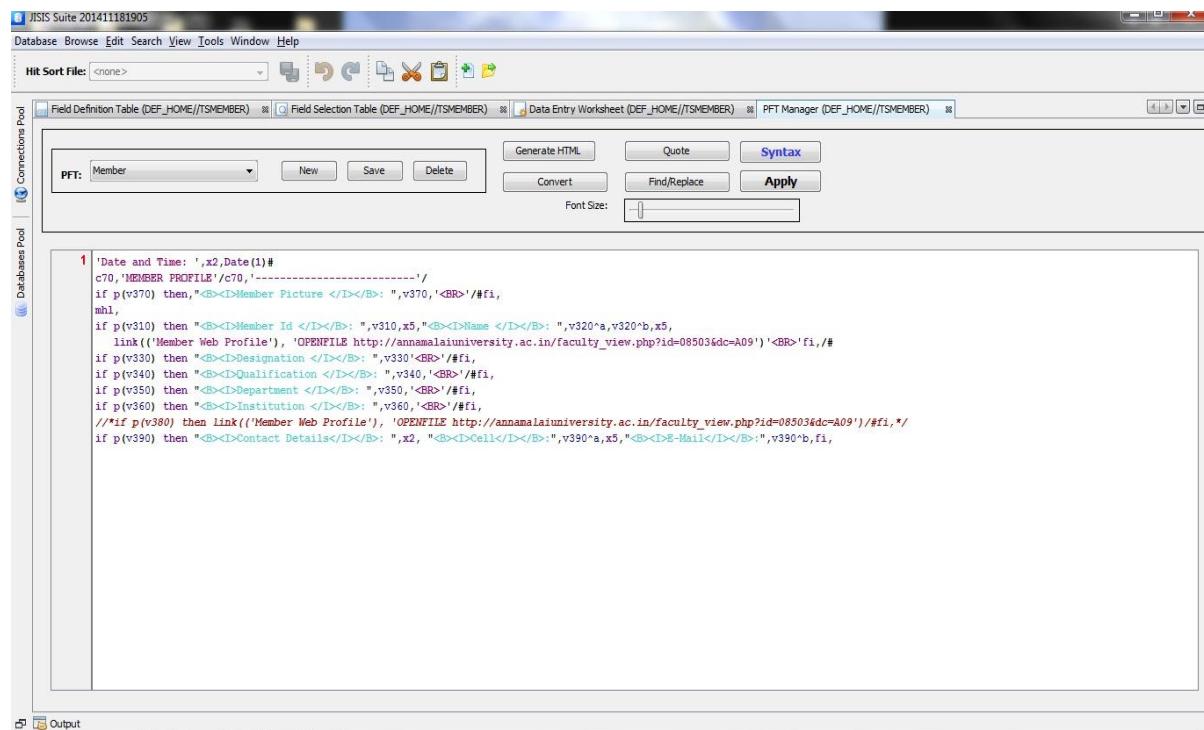


Figure-7: PFT Screen

The figure-7 depicts one of the advanced features of J-Isis as it plays a vital role to extract the required data from the databases and display them in any of the format such as text, table etc. However, some Librarians may face difficulties to manage this part as there would be a need to write the programs/formats.

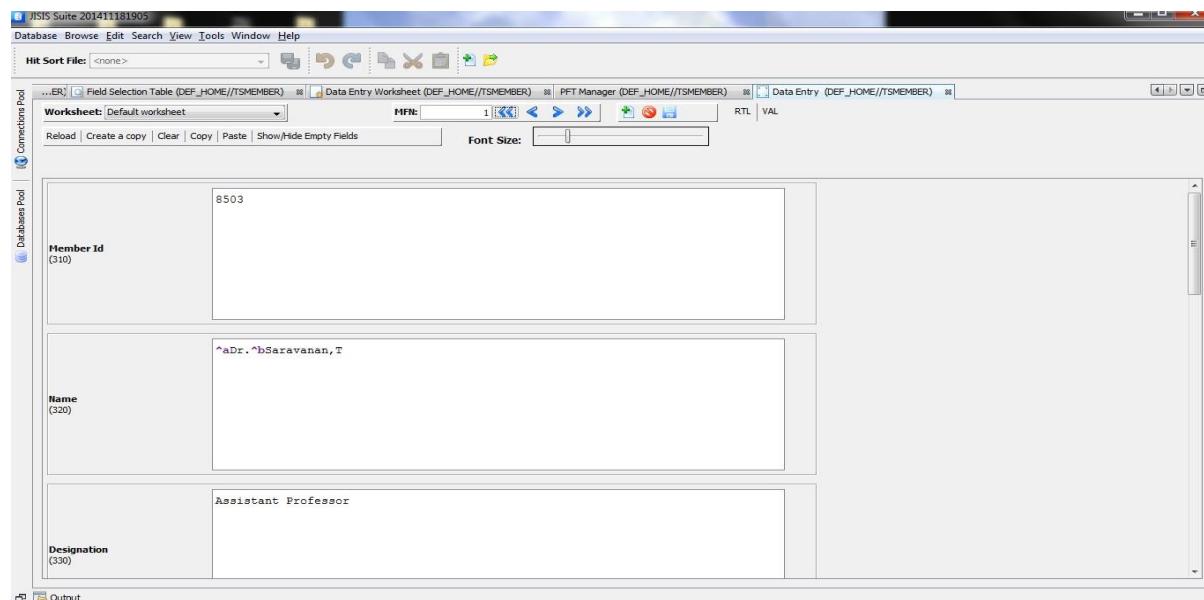


Figure-8: Data Entry Worksheet

The *figure-8* shows the data entry worksheet where the required data need to be filled. At the time of data entry some predefined features let the Librarians to select the required options. The *figure-8.1* shows the advanced data entry worksheet with more features to handle the subfields. Observe the field *Name* and its subfields in both the *figures-8 & 8.1*. Advanced data entry makes the data entry jobs easy and compact.

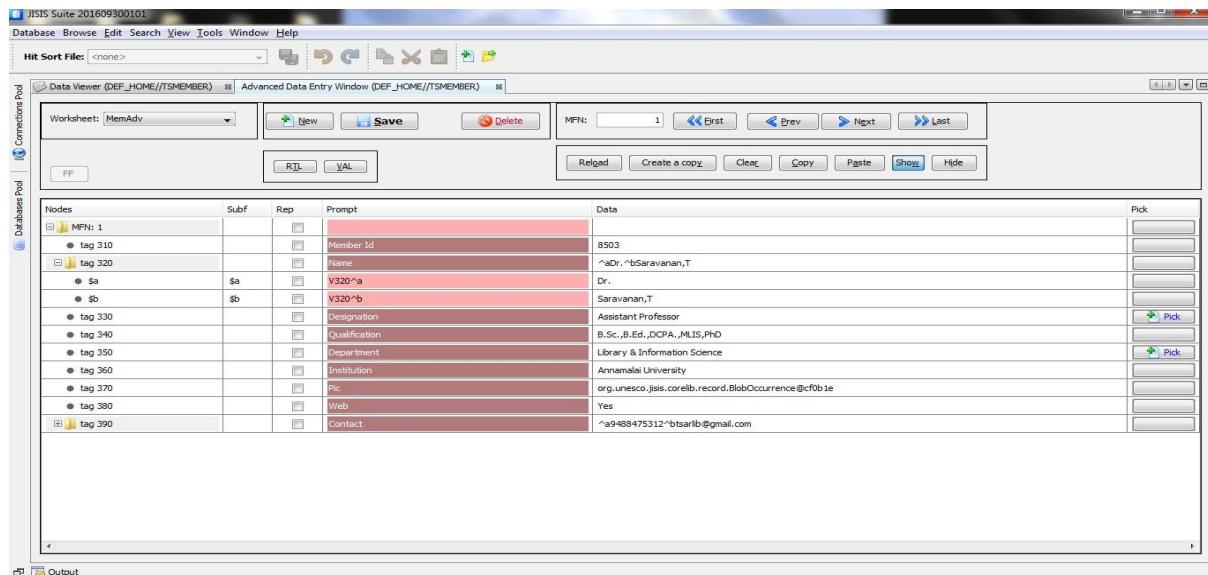


Figure-8.1: Advanced Data Entry Worksheet

The *figure-9* explores the feature for the field '*Designation*' where the required choice would be selected.

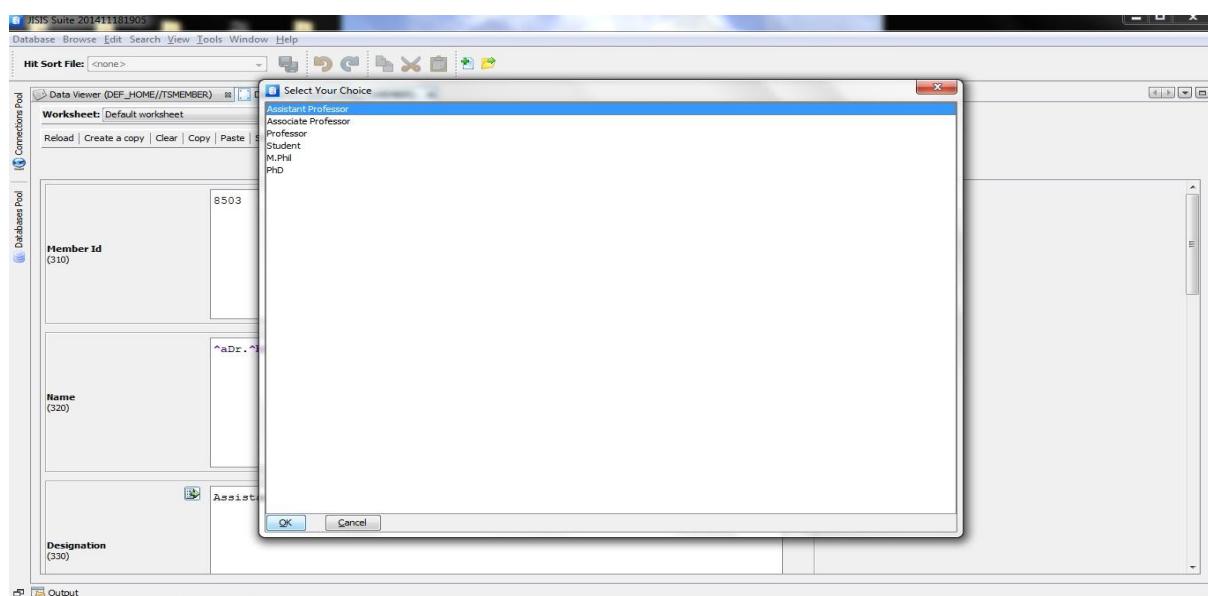


Figure-9: Data Entry-Pick List feature for Designation

The *figure-9.1* explores the pick list feature in advanced data entry worksheet.

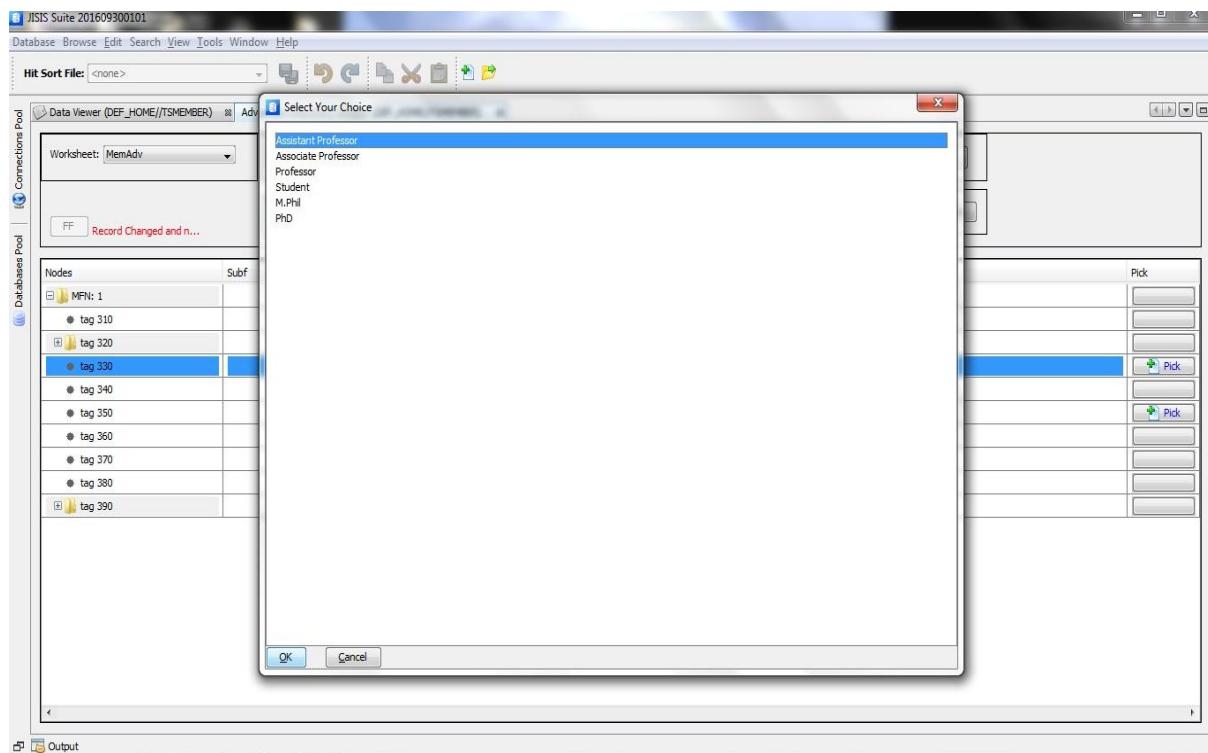


Figure-9.1: Advanced Data Entry-Pick List feature for Designation

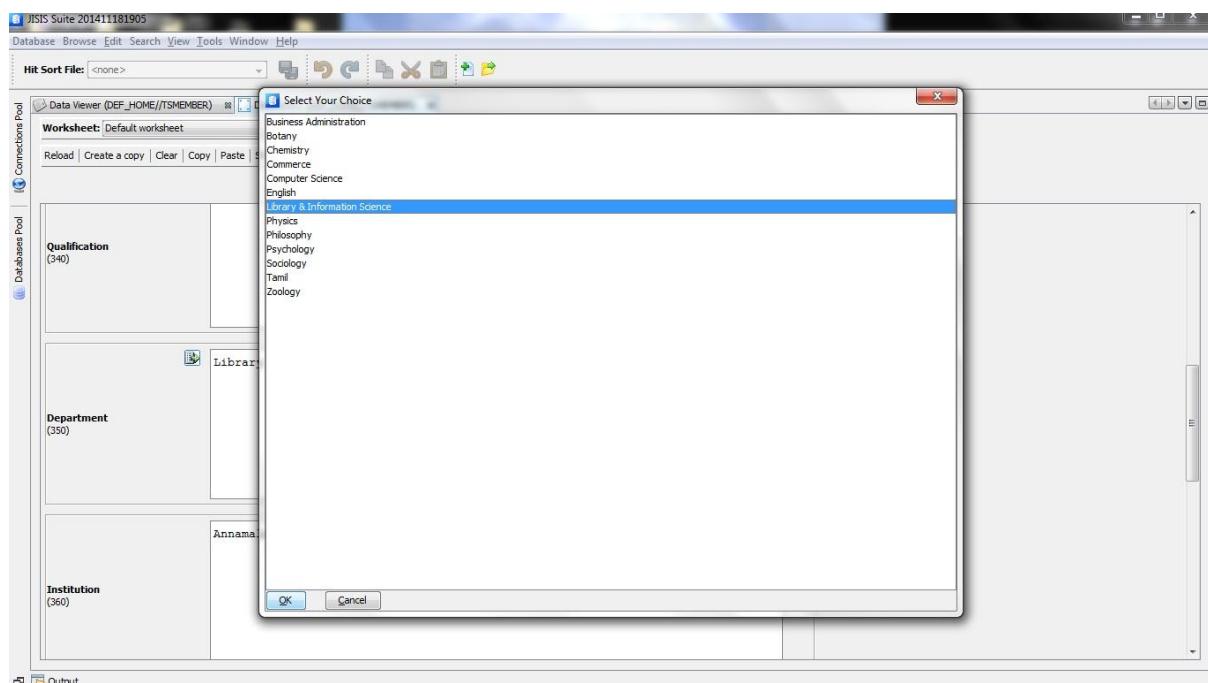


Figure-10: Data Entry-Pick List feature for Department

The *figure-10* depicts the feature for the field '*Department*' where the required choice would be selected. The *figure-10.1* shows same feature in advanced data entry

worksheet. A few departments are identified for an illustration purpose. Librarians can add more departments as per their need.

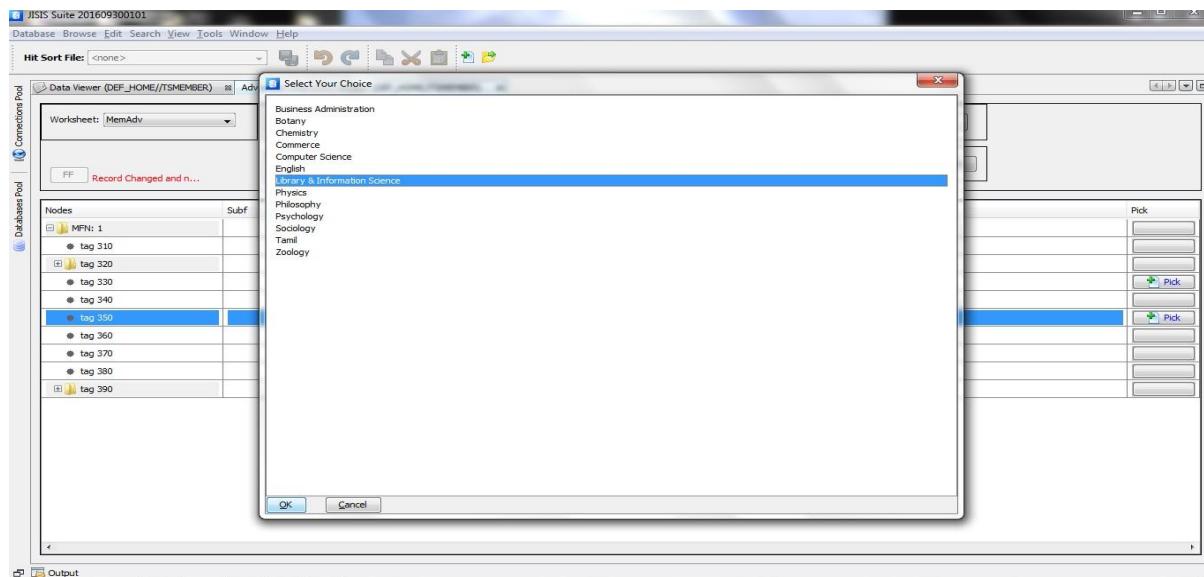


Figure-10.1: Advanced Data Entry-Pick List feature for Department

When invoke the *Tsmember* database the screen will look like as shown in the *figure-11* where the Central Library is displayed (*illustration purpose only*). The format *Member* let us to browse the data as explained towards the *figure-12*.

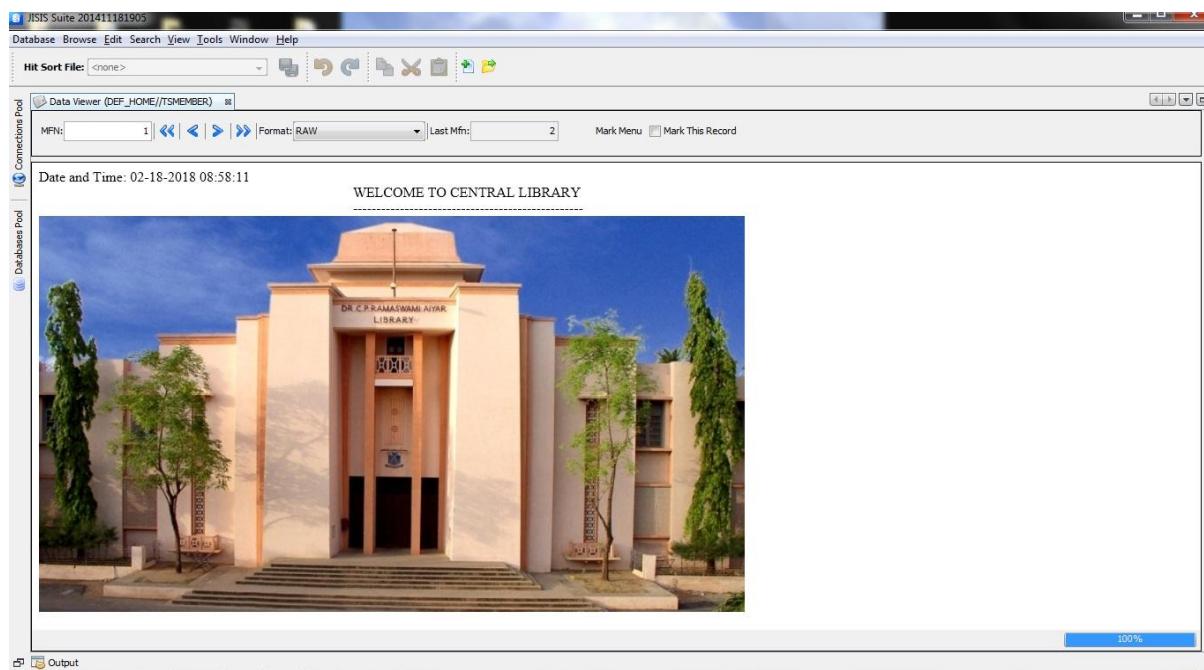


Figure-11: Library

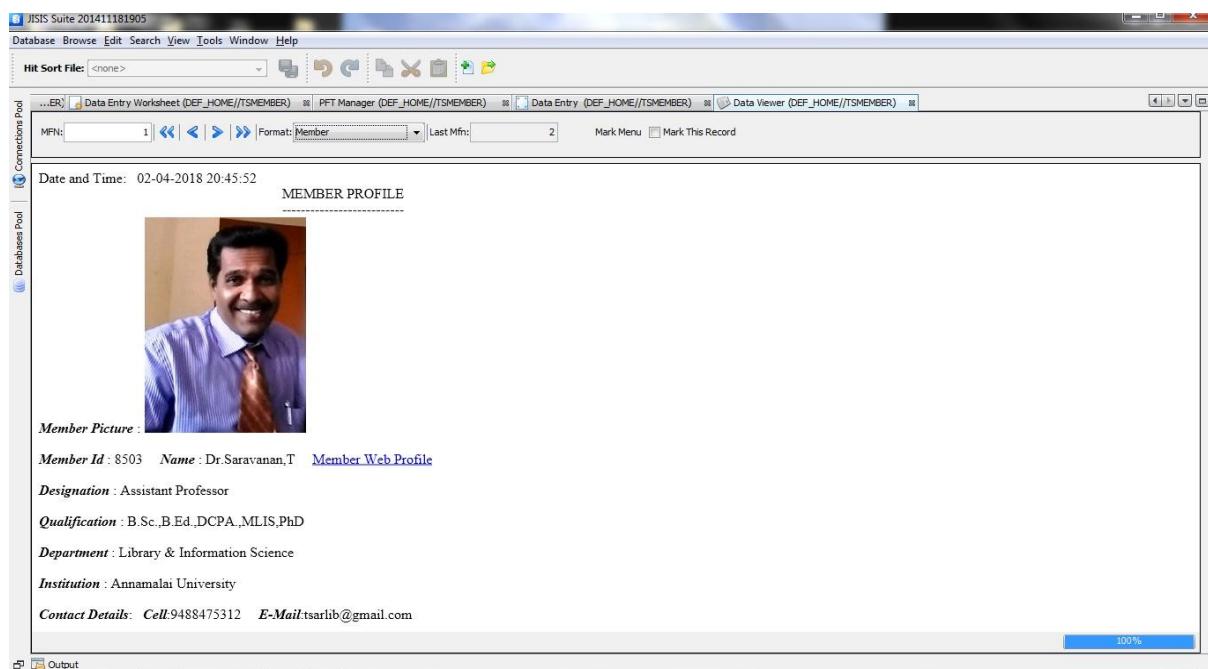


Figure-12: Member Data View

An important feature of J-Isis is explained towards the *figure-12* where the member details are displayed along with the member picture. The sophisticated feature lets the Librarians to capture the member identity clearly. Output can be generated in Table format as given in the *figure-13*. The member picture can also be viewed in Table format too, which is displayed towards the *figure-14*.

ID	Name	Designation	Qualification	Department	Institution	Web Profile	Phone	E-Mail
8503	Dr., Saravanan,T	Assistant Professor	B.Sc.,B.Ed.,DCPA.,MLIS,PhD	Library & Information Science	Annamalai University	Show	9488475312	tsarlib@gmail.com

Figure-13: Member Data-Table View

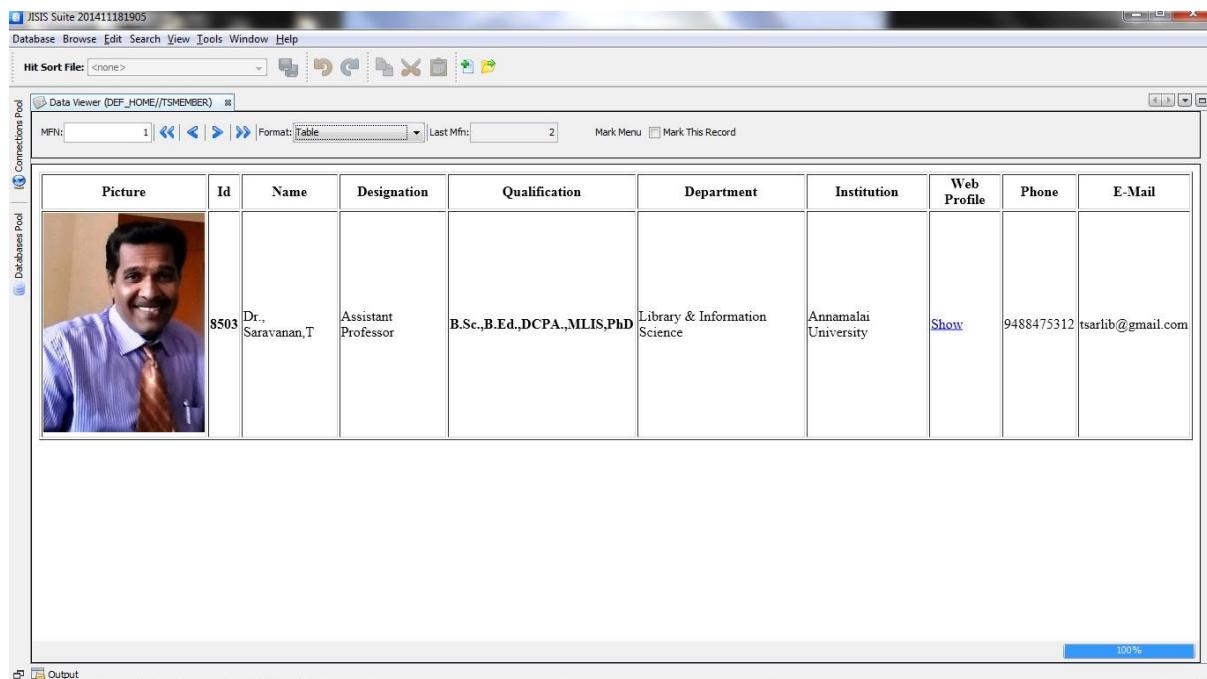


Figure-14: Member Data with Picture-Table View

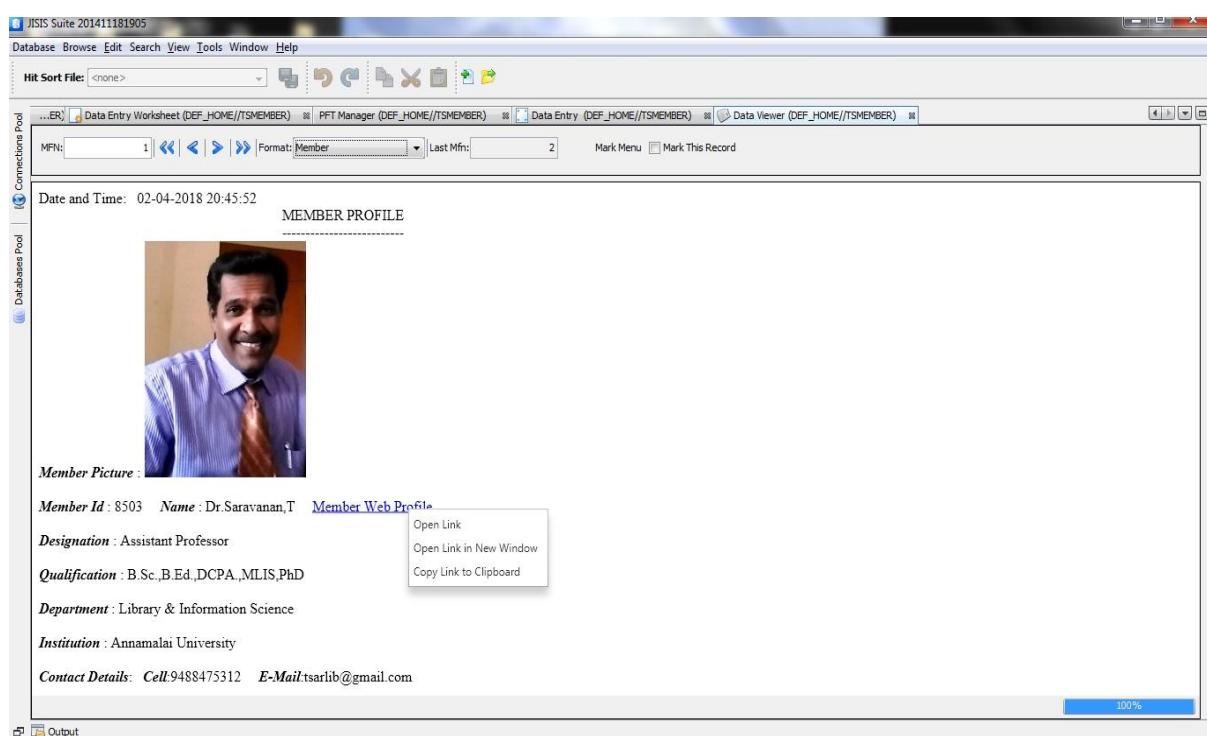


Figure-15: Member Data-Web Profile Access

J-Isis lets us to access the Web contents of the members, in case if there is any profile exists. The *figure-15* explores the feature to access the web content for the displayed member. This feature helps to open the web details either within the window or in new browser window. The first option is selected to access the web link for the identified

member's web profile, which is displayed within the J-Isis window as shown in the figure-16.

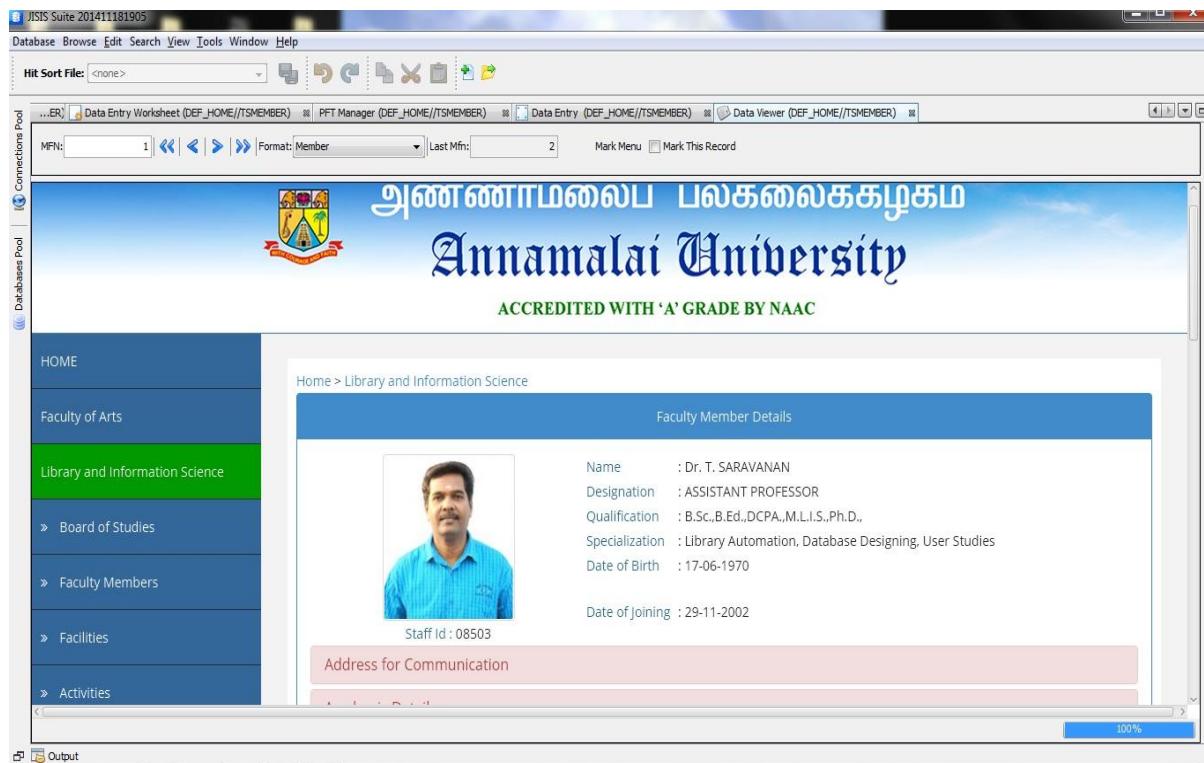


Figure-16: Member Data-Web Profile View

Search and Browse:

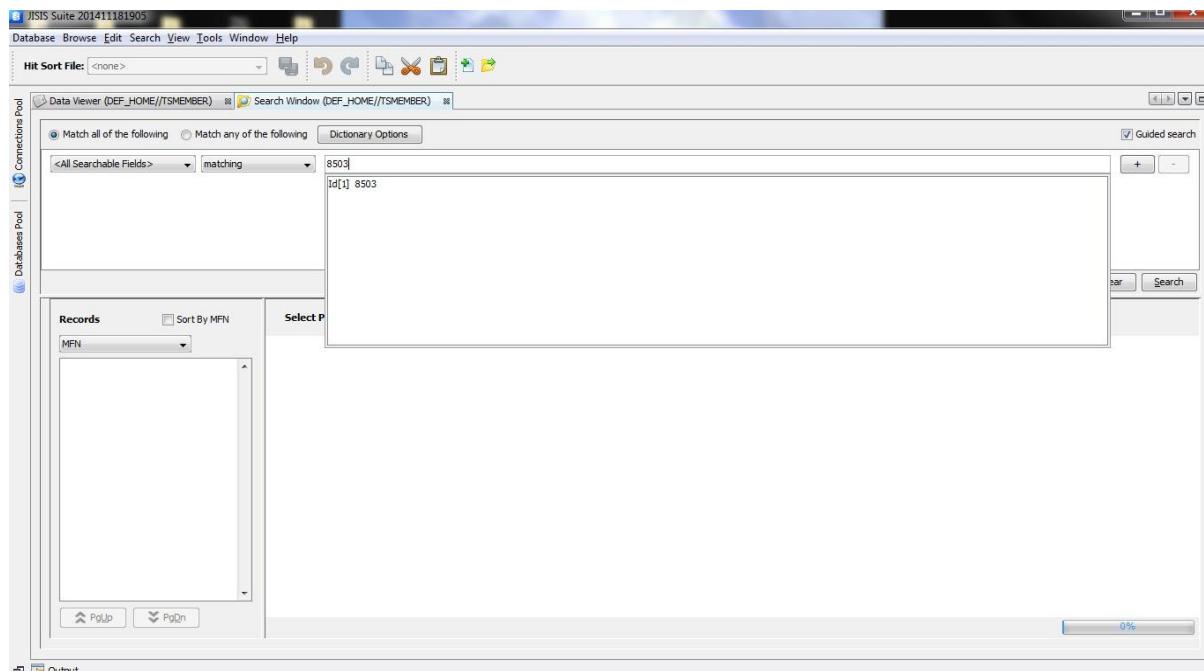


Figure-17: Search Data by Id

The data can be easily traced and retrieved by search features as shown in the *figure-17*. While entering the Id of the member in the search option, the popup would be loaded along with the matched terms as shown in the *figure-17*. The obtained search results are explored towards the *figure-18* where the search term is highlighted with the yellow colour background. An important feature is the data output shows the member picture too.

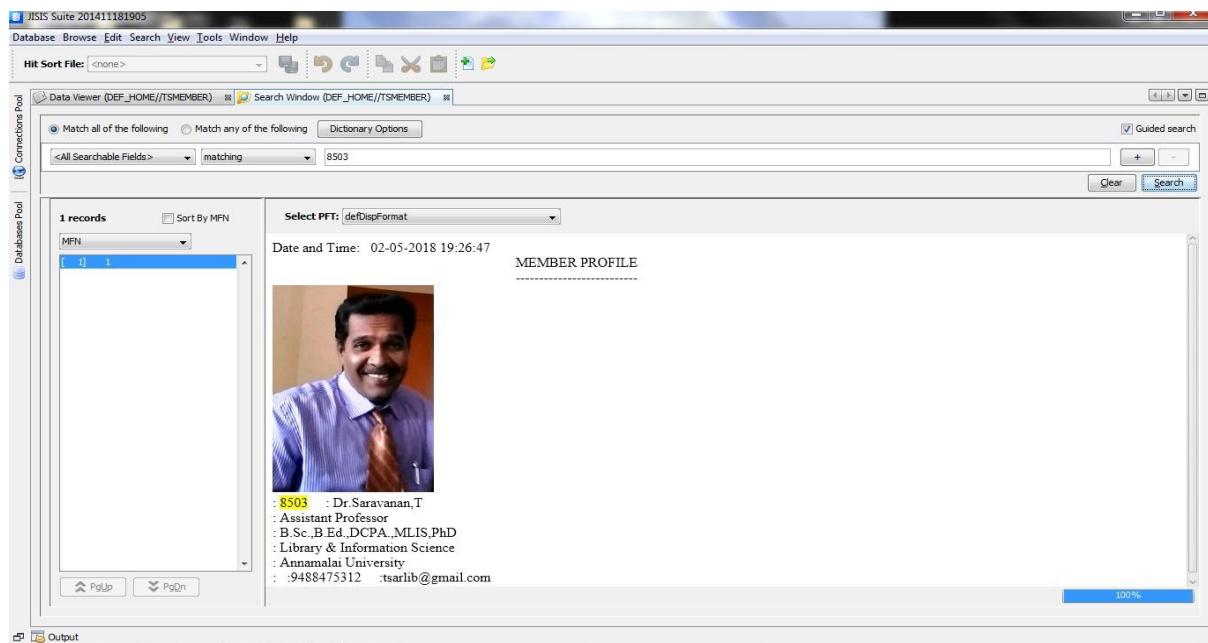


Figure-18: Data Output by Id

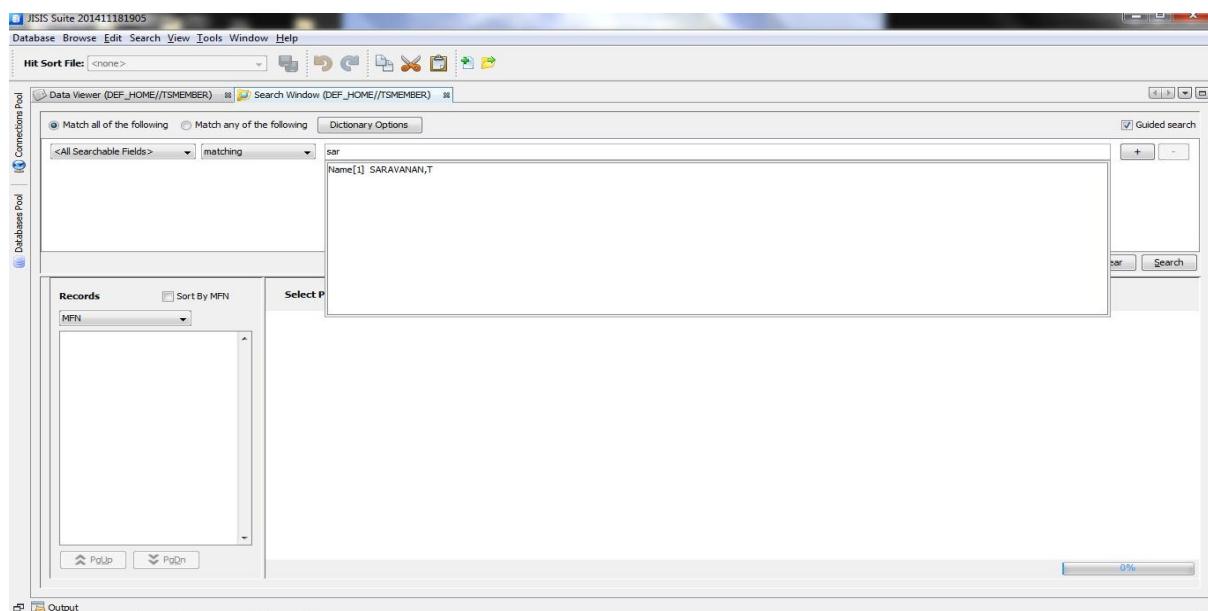


Figure-19: Search Data by Member Name

The *figure-19* shows the search option where the Member name is applied to search and view the data. The member name is viewed by popup option, and the matched bibliographic details along with the member picture are explored towards the *figure-20*.

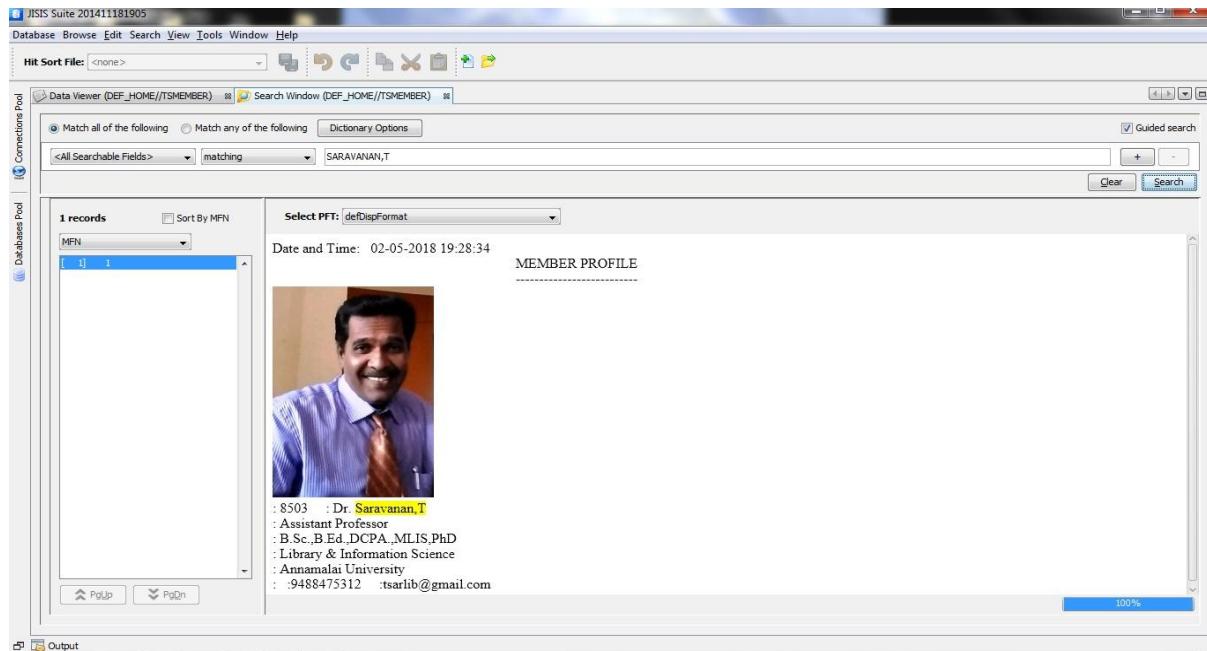


Figure-20: Data Output by Member Name

Observe the above output where the member name is highlighted now with the yellow colour background. The output can be viewed in the Table format too via the search option as explained in the *figure-20*.

This screenshot shows the JISIS Suite interface with the 'Data Viewer' window active. The search bar at the top contains '8503'. The results pane shows 1 record with MFN 8503. To the right, a 'Select PFT: Table' section displays the following data:

Id	Name	Designation	Qualification	Department	Institution	Web Profile	Phone	E-Mail
8503	Dr., Saravanan,T	Assistant Professor	B.Sc.,B.Ed.,DCPA.,MLIS,PhD	Library & Information Science	Annamalai University	Show	9488475312	tsarlib@gmail.com

Figure-20: Data Output by Member Id-Table View

J-Isis features let us to view the member picture along with other bibliographic items in Table format in search output, which is explored towards *figure-21*.

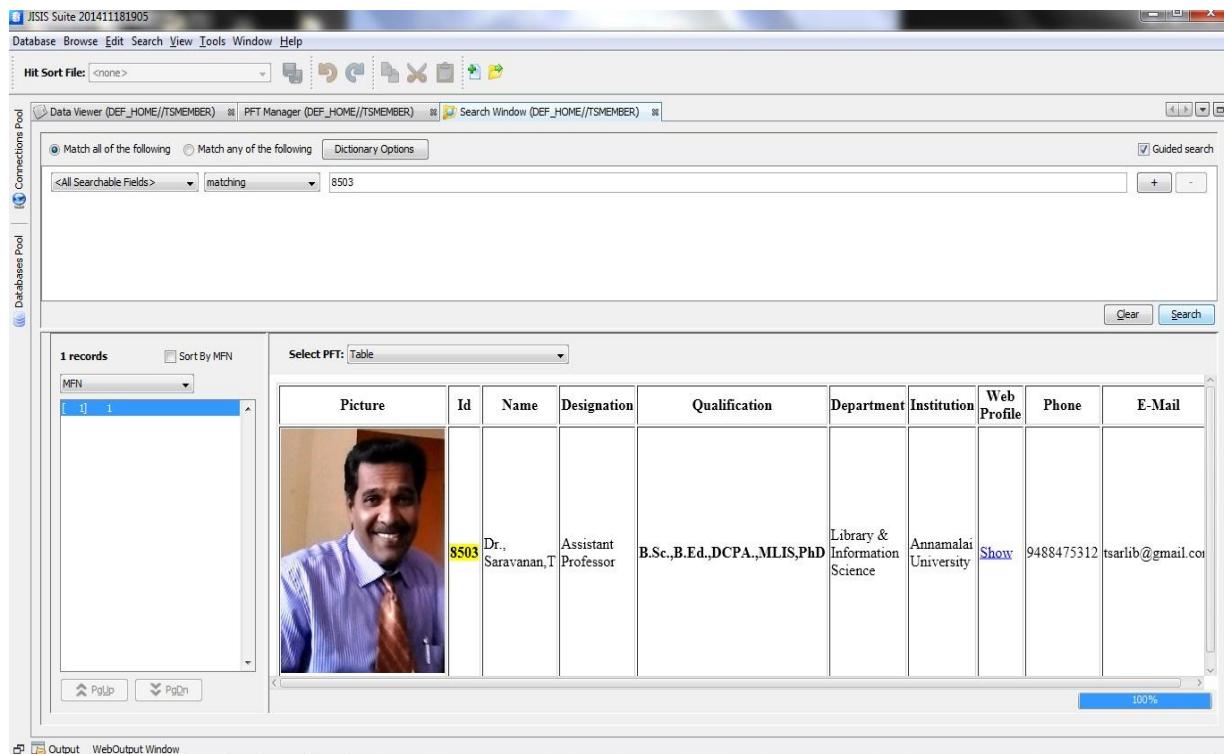


Figure-21: Data Output with Picture by Member Id-Table View

Like that any kind of search is possible to locate the required member of the Library. Two search terms are applied here to retrieve the data in normal mode and Table mode for illustration purpose.

Print Output:

J-Isis lets the Librarians to print the records in normal format/Table format/any other format along with/without the member picture. A few sample print outputs are given in the *figure-22, figure-23 and figure-24*.

The screenshot shows a web browser window with the title bar 'C:\jisis_suite 10 March 2016\isis_suite\work\Mem1 TS MEMBER'. The menu bar includes File, Edit, View, Favorites, Tools, Help, and a toolbar with icons for Suggested Sites, Verify Java Version, and Web Slice Gallery. The main content area displays a table with the following data:

ID	Name	Designation	Qualification	Department	Institution	Web Profile	Phone	E-Mail
8503	Dr., Saravanan,T	Assistant Professor	B.Sc.,B.Ed.,DCPA.,MLIS,PhD	Library & Information Science	Annamalai University	Show	9488475312	tsarlib@gmail.com

Figure-22: Data Print Output-Table View

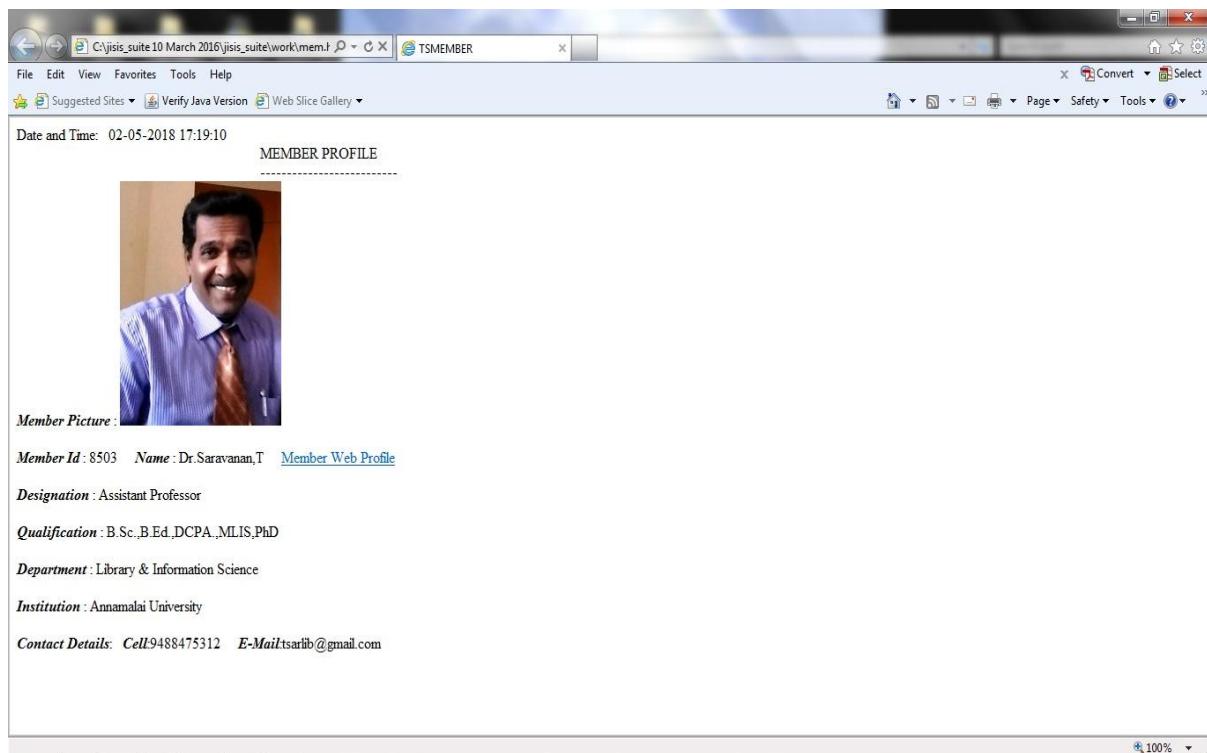
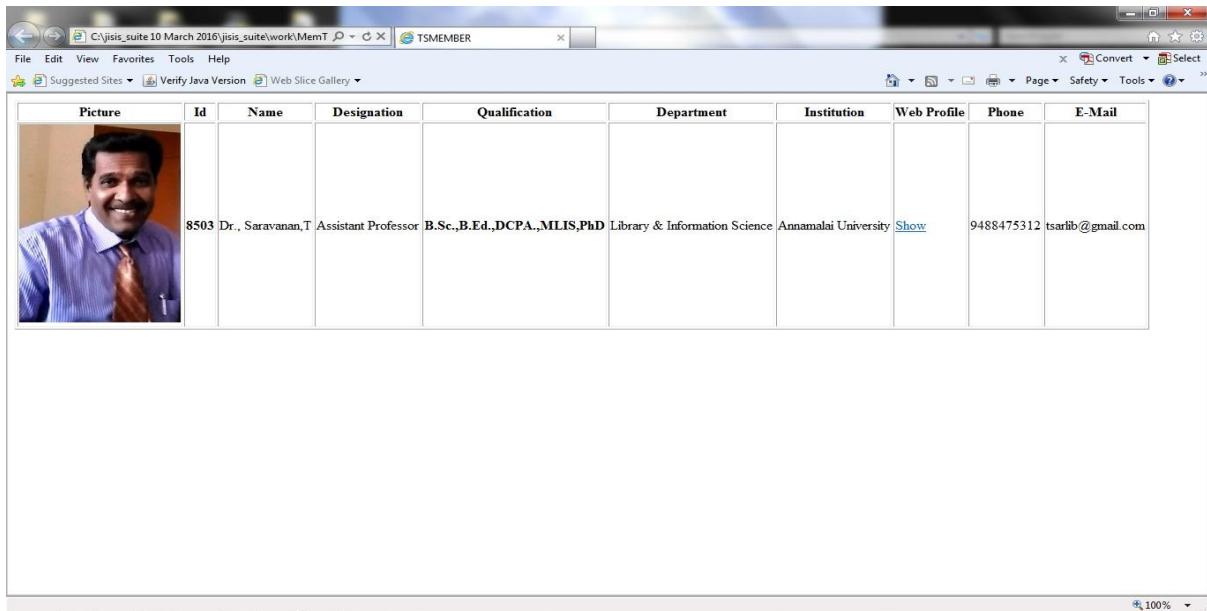


Figure-23: Data Print Output with Picture towards Internet Explorer



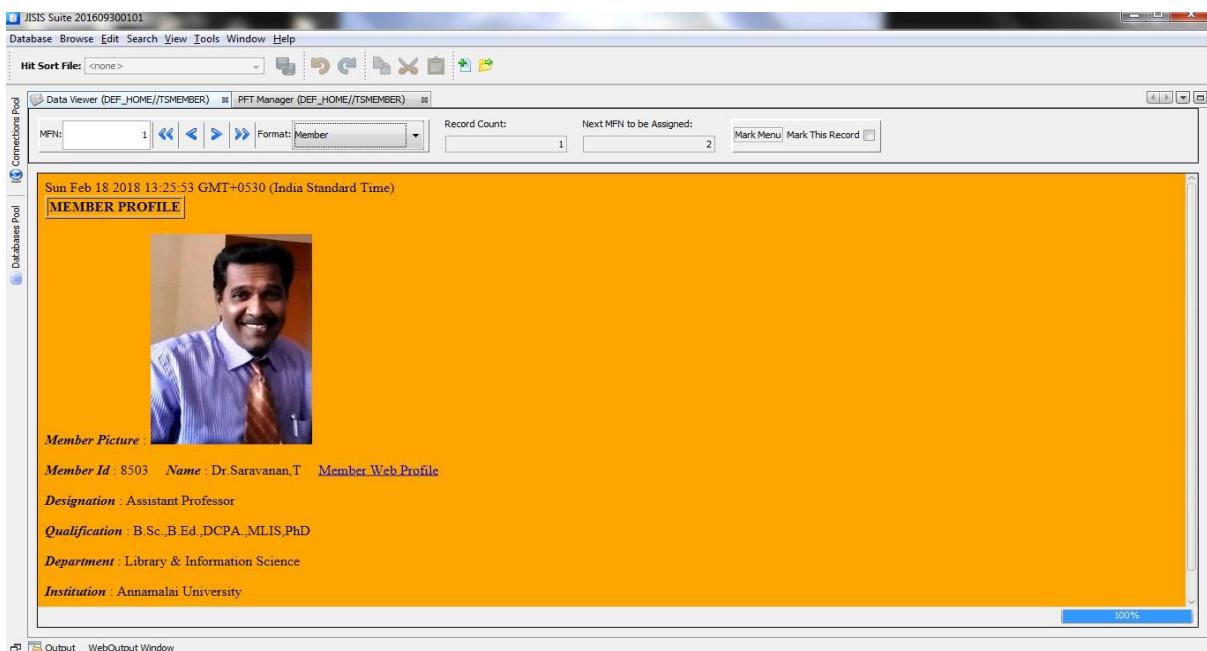
The screenshot shows a table with the following data:

Picture	Id	Name	Designation	Qualification	Department	Institution	Web Profile	Phone	E-Mail
	8503	Dr., Saravanan,T	Assistant Professor	B.Sc.,B.Ed.,DCPA.,MLIS,PhD	Library & Information Science	Annamalai University	Show	9488475312	tsarlib@gmail.com

Figure-24: Data Print Output with Picture in Table View towards Internet Explorer

Output Designs:

J-ISIS lets the Librarians to design the screens as per their own choices using the powerful java scripts. A few samples are rendered towards the given pictures. *Figure-25* displays the member details in colour mode, while *figure-26* explores the same output in Table mode with different colour.



The screenshot shows a member profile with the following details:

MEMBER PROFILE

Member Picture: 

Member Id: 8503 **Name**: Dr Saravanan,T **Member Web Profile**

Designation: Assistant Professor

Qualification: B Sc.,B.Ed.,DCPA.,MLIS,PhD

Department: Library & Information Science

Institution: Annamalai University

Figure-25: Data Browse with Picture-Colour in Normal View

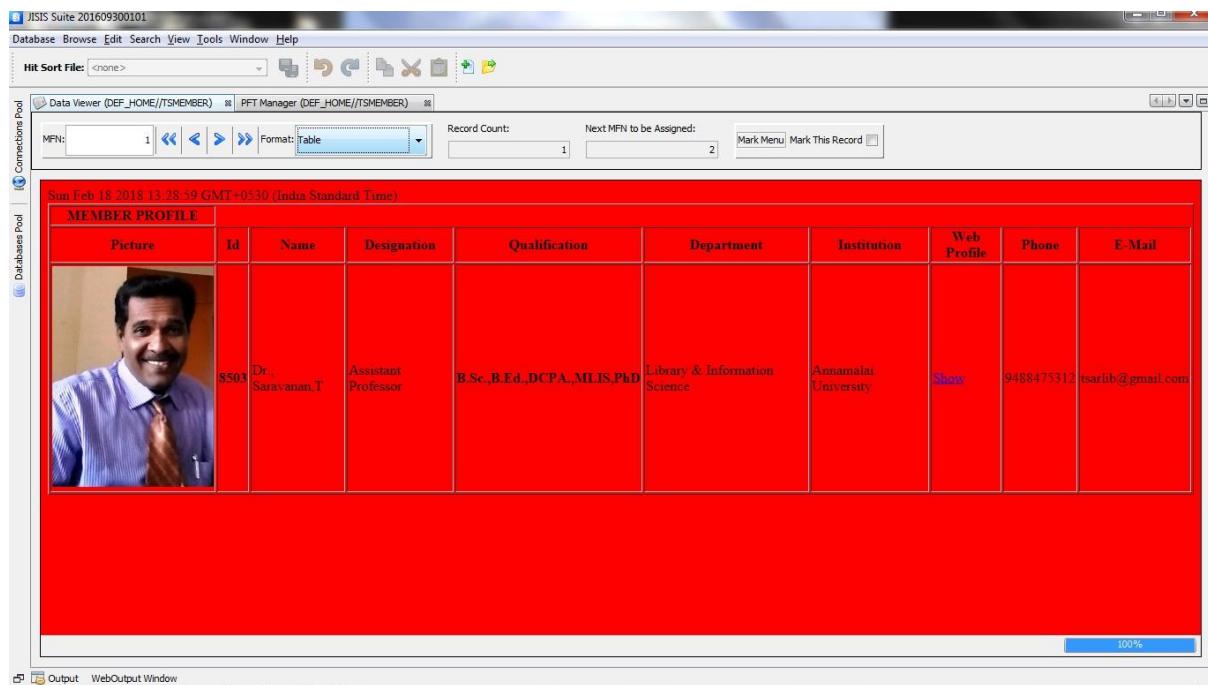


Figure-26: Data Browse with Picture- Colour in Table View

Figure-27 retrieves the member details in Search window where the member details are acquired with different colour in Table mode.

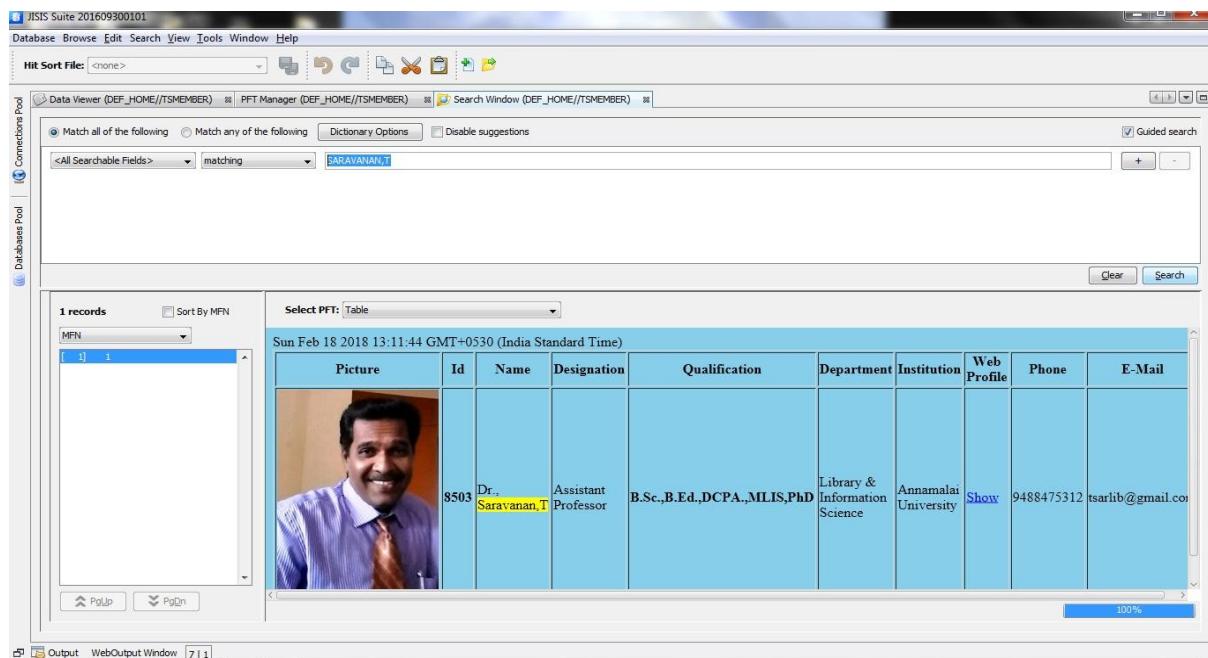


Figure-27: Data Browse with Picture- Colour in Table View

As discussed above, the Web Technologies namely JavaScript, CSS3 and HTML5 offer the program features that may be incorporated in J-ISIS PFTs.

Multilingual UNICODE Databases:

J-ISIS is fully UNICODE for text storage and indexing. If you are unable to read some Unicode characters in your browser, it may be because your system is not properly configured. Here are some basic instructions for doing that. There are two basic steps:

- Install fonts that cover the characters you need
- Configure J-ISIS to use them.

Windows:

For Windows XP, getting additional languages installed is as follows:

Start > Settings > Control Panel > Regional Options and Language Options.

In the Languages tab, check the Supplemental language support option(s) you want. Setting both options will install all optional fonts. This adds fonts as well as system support for these languages.

Full fonts:

If you have Microsoft Office 2000 and newer versions, you can get the **Arial Unicode MS font**, which is the most complete. To get it, insert the Office CD, and do a custom install. Choose Add or Remove Features. Click the (+) next to Office Tools, then International Support, then the Universal Font icon, and choose the installation option you want.

Configuring a J-ISIS database to use a special font:

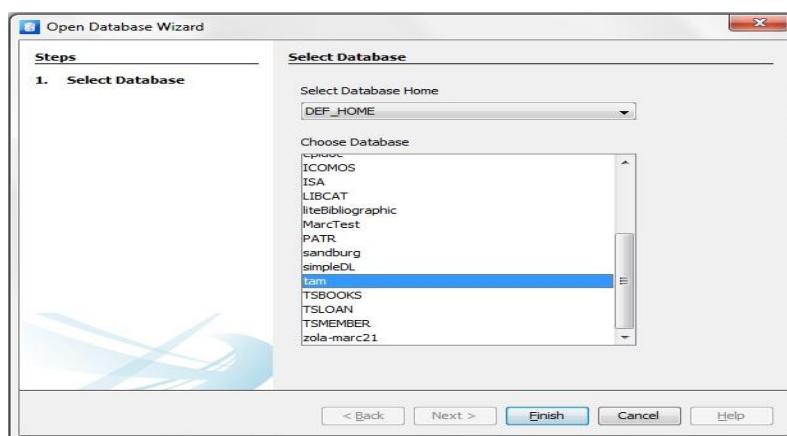


Figure-28: Regional Language Database

1) Select the database

Figure-28 shows the database, which contains the records in Tamil Language.

2) Select the font for the database as shown in the Figure-29

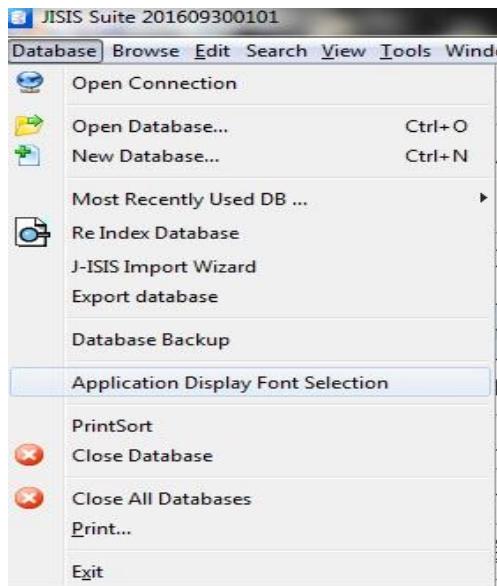


Figure-29: Font Selection-Main Menu

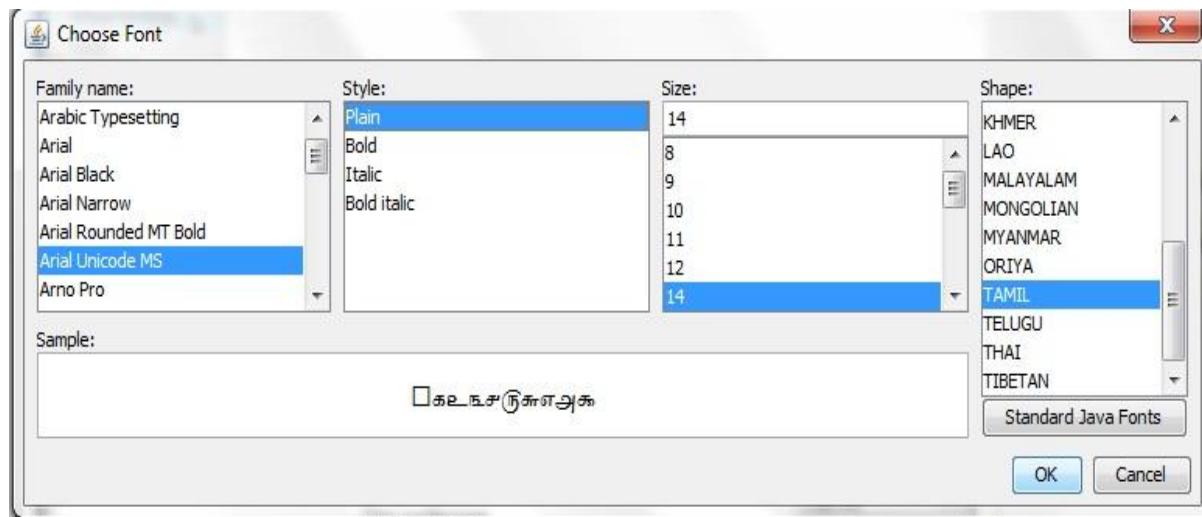


Figure-30: Font Selection- Sub Menu

Figure-30 depicts multiple features where, Arial Unicode MS is the best choice as it allows to mix the language, alphabets and scripts:

Data Viewer:

The screenshot shows a software interface titled 'Data Viewer (DEF_HOME//Tamil)'. At the top, there are buttons for MFN (set to 1), navigation (back, forward, first, last), and a dropdown for 'Format' set to 'RAW'. Below this is a table titled 'RECORD(1)'.

Tag	Field/Occurrence
100:	<<0# ^பரிமள சேகர், பெ.>>
100:	<< ^aLatin Characters>>
245:	<<10 ^அத்துவருவேன் தேவந்தயே / ^அஞ்சிரியர் பெ. பரிமள சேகர>>
250:	<<## ^a1. பதிப்பு.>>

Figure-31: Data Viewer

Figure-31 shows the data output for the Tamil document.

Term Filter:

The screenshot shows a software interface titled 'Term Filter (Regular Expression):'. Below it is a table with columns: Term, Field, Term, and Freq.

Term	Field	Term	Freq
0	100	0#	1
1	100	Latin Characters	1
2	100	பரிமள சேகர், பெ.	1
3	245	10	1
4	245	அஞ்சிரியர் பெ. பரிமள சேகர	1
5	245	தேடிவருவேன் தேவந்தயே /	1
6	250	##	1
7	250	1. பதிப்பு.	1

Figure-32: Data Viewer

Figure-32 shows the data filter option to select the required term.

Search:

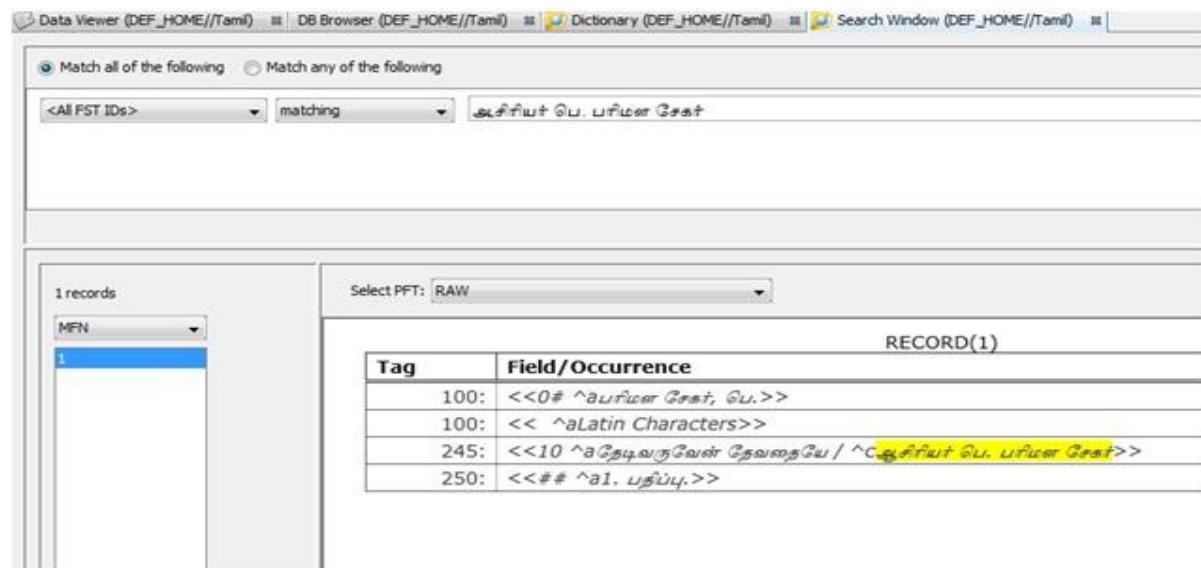


Figure-33: Data Search

Figure-33 shows the data search option where the search term is highlighted.

Data Browser:

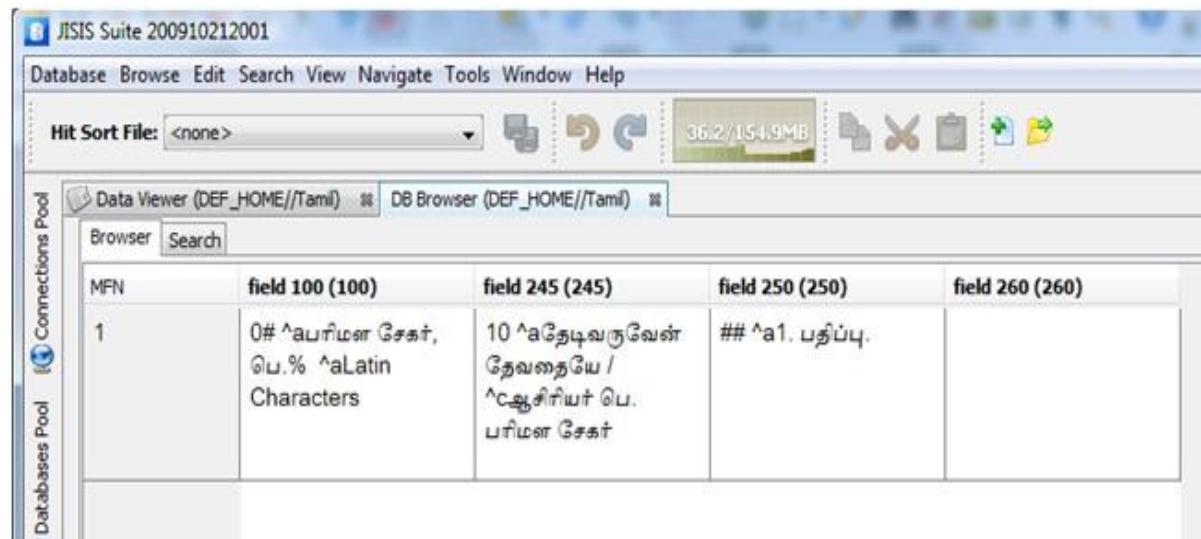


Figure-34: Data Browser

Figure-34 shows the matched record through the browser.

Web-JISIS:

Web-JISIS is a Rich Internet Application (RIA) whose goal is to develop a web top application that has the responsiveness, and look and feel of J-ISIS.

Web-JISIS uses Three-Tier Architecture. They are;

- Tier 1: At the client side, Web 2.0 technologies are responsible for the application's graphical user interface. AJAX is used to communicate between this tier and the application server in tier 2. Requests are sent with the URL using GET or POST data. Request and Result data are formatted using JSON, XML, or plaintext.
- Tier 2: the middle tier is also known as the application server, which provides the business processes logic and the data access. The server in the middle tier is a servlet container—a Web server capable of running Java-based Web applications (Tomcat, Jetty, etc). The J-ISIS services (the business rules) are coded in this tier using Java and the client part of jisis-core.jar library. Requests are passed as messages to the database server and results are returned. Sockets are used to communicate between this tier with the client and the database server through TCP/IP.
- Tier 3: the J-ISIS database server provides the business data. The J-ISIS database server is listening for request on port 1111, requests and results are passed as messages through TCP/IP.

Conclusion:

To sum up, a very few features of J-Isis application have been discussed along with the necessary displays/outputs. Enough screen shots were also captured, and rendered so as the power of J-Isis can be realized. All resources of the Library can be controlled with the help of J-Isis towards stand alone/local network/web server technology. The users, who are familiar in CDS/ISIS or WinISIS application, may work well in J-Isis application. Many new Web technologies namely HTML5, CSS3, and JavaScript are covered by J-Isis that may enable the Librarians to admin their Libraries in a successful way. CDS/ISIS Pascal Programming has been replaced by an advanced Groovy language. However, the

beginners need to learn more to use this application. Remember that this paper focuses on experienced users of ISIS family only, and won't help the beginners or new users, who are interested to adopt ISIS/any other application for the Library administration and management. In Indian setup, maximum numbers of the Librarians are looking for the commercial applications for their Libraries, while a few Librarians come forward to the door steps of ISIS applications such as CDS/ISIS / WinISIS / J-ISIS etc. However, the choice of package selection is up to the Librarians' skills, experience and interest.

I am not sure about J-ISIS status in Indian Libraries. The features of any one of the applications can be realized when go for reality, which may consume a long period. A Practical attempt has been made here to build a database for the Library Patrons and centred on slicing a few features of J-ISIS. Further, databases can be designed for Books, Periodicals, Acquisition, and Loan etc. The Librarians, who are really interested to be a part of the ISIS family, may step inside else they can find another one.

Are the librarians ready to rejuvenate Libraries?

Librarians are always interested to rejuvenate their Libraries. But, choosing an application plays a vital role here. Also, the Librarians' experience and skills in automation/digitalization won't be ignored. This is the right time for the modern Librarians to evaluate themselves before get into the rejuvenate process.

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²Jean-Claude Dauphin, e-mail message to author, February 23, 2018.

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