

### ***Uses of Information Technology in Libraries***

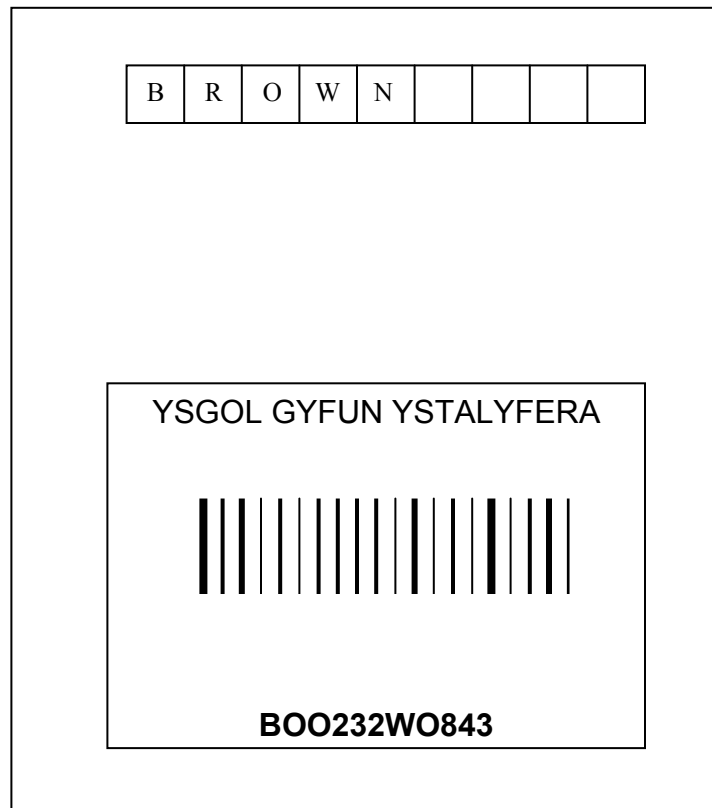
There are two main functions which librarians used to do manually that can now be done by computers:

- \* **Circulation**
- \* **Cataloguing**

#### **Circulation**

This can be done subdivided into:

- registration
- issue
- returns
- reservations
- overdue



#### **Registration.**

When you join a library, the librarian needs to know who you are, where you live and any other relevant information.

This information used to be kept on cards, but now it is put into a computer and stored on magnetic disks or magnetic tapes. You, the borrower are given a card containing a bar code label, see an example above.

The screenshot shows a window titled "Alice: Circulation: Circulate". It features a "Student" section with fields for Barcode (B002310843), Name (ROBERTS, ANGHARAD), Location (12 (LL)), and Category (Pupil). There are also buttons for "Override", "Name", "Renew", "Borrower", "Item", "Finish", "Print", "Sale", and "Disk". A "Loan" button is highlighted in green. Below this is a table with columns for Barcode, Date Due, Call Number, and Title. The table contains one entry: Barcode R004920843, Date Due 17/04/1998, Call Number JON, and Title Cymru ar werth. At the bottom, there are "Remaining" fields for Fiction (2) and NonFiction (0).

Barcode	Date Due	Call Number	Title
R004920843	17/04/1998	JON	Cymru ar werth

The above screen is taken from the **Alice** library system we use in Ystalyfera and shows many parts of the database. At the top are necessary fields related to the student, firstly the **Barcode** No that has just been scanned in. This then brings out other fields, firstly their **Name**, then their **Location** and lastly their **Category**. Halfway down the screen on the left is the Ystalyfera unique barcode read in the front of the book giving details of the book and the loan period. Lastly down the bottom it shows what borrowing options that pupil has left.

### Issue

When you want to take a book out of the library, it is issued to you. A record is taken of the book and how long you can keep it. In some old fashioned libraries, books have little pockets inside the cover which contain cards. These cards are filed under the borrower's name when the book is taken out. This is a tedious process.

If the library is computerised, when you take a book out at the librarian's desk, the first thing you are asked for is your membership card. The bar code is read, using a hand scanner and as long as you have no books overdue, the computer will put a message on the VDU telling the librarian you may have the book.

Behind the scenes, the computer has now made a record of the loan and the date the loan has started against the pupil on the database

### Returns

When you return a book, all the librarian needs to do is read the bar code label inside the cover to end the loan. If the book is overdue, the computer will put a message up on the VDU advising the librarian the fine you need to pay.

### Reservations

If a book is being borrowed by someone else when you want it, the librarian can reserve it for you. This is called a reservation.

When the book comes back to the library, the computer automatically notes it is reserved. Then it prints a slip which can be sent to you telling you the book you want is now available.

### Overdues.

If you have a book out longer than you should have the computer will print a slip which can be sent to you. It will also remind you that a fine is due!

## Cataloguing

Every library needs to know what books it has in the library. Immediately a new book comes into a library, it is given an unique bar code reference number and a location on which shelf it will be stored.

### Files, Records and Fields used in Cataloguing

Every book is catalogued using the following fields : Title, Author, Publisher, ISBN, Accession Number

Remember: **a file is a collection of records** e.g. a Catalogue file in the Alice library system is a collection of records about books. Below is an example of a file of books.

Title	Author	Publisher	ISBN	Acc. No
Computer Science	French C.S	D.P. Pub. Ltd	0-905435-38-9	5735
<i>Royal Hunt of the Sun</i>	<i>Shaffer P.</i>	<i>Longman</i>	<i>0-582-34892-7</i>	<i>2836</i>
The Go Between	Hartley L.P.	Penguin	0-14-001306-7	4271

Variable length alphanumeric field

Fixed length numeric field

All the fields in Italics shown make a record.

A record is a collection of fields. e.g the record about Go Between, contains fields describing the author, L.P. Hartley, the publisher, Penguin etc.

A field is the smallest amount of information that can be accessed. e.g. Go Between is a field.

The ISBN is a number given to every book as it is published. ISBN stands for International Standard Book Number. ISBN numbers have check digits so they can be validated.

### Check digits on ISBN numbers

Remember **data validation is a check to make sure the data is sensible**, e.g. if you were asked how old you were and you answered, “ six thousand years old”, then unless you have suddenly become an ancient monument your answer was obviously ridiculous and INVALID.

It is perfectly possible to make a mistake keying in an ISBN, but the check digit will not work if the number is invalid and the computer will ask you to key it in again.

### How does the check digit work?

Take 0-14-001306-7 the ISBN for “The Go Between”

Is this a **valid ISBN**? We have to use the **Modulo 11 method** to check.

1. Starting at the left hand side, multiply the first digit by 10, the second by 9, the third by 8 etc. Do not bother to multiply the last digit on right hand side which is the check digit.

0	1	4	0	0	1	3	0	6	7
*10	*9	*8	*7	*6	*5	*4	*3	*2	
0	9	32	0	0	5	12	0	12	

**Check digit** ←

2. Add the results of each multiplication from step 1

$$0 + 9 + 32 + 0 + 0 + 5 + 12 + 0 + 12 = 70$$

3. The check digit is the smallest number that has to be added to the answer in step 2 to make it a multiple of 11.

Next multiple of 11 is 77  
 $77 - 70 = 7$

4. The check digit is 7 so this number was valid.

### Dewey numbers

These are used in libraries to categorise books into different fields. There are fields for books on sport, books on computers, books on roads etc. If you don't know what book you really want and only wish to browse, you can use the Dewey number to guide you to the area in the library set aside for books on the topic you are interested in.



### **BLAISE British Library Automated Information Service**

Once a book has been catalogued onto a database it is possible to search for it very quickly. Remember a **database is a large collection of data items and links between them, structured in a way that allows it to be accessed by a number of different applications programs or query languages.**

**The British Library has many databases. They can be accessed using BLAISE. British Library Automated Information Service.** You can see that you can access nearly 17 million records about books. You need to register to use Blaise-web.

## **[Click here to connect to \*Blaise\*](#)**

Welcome to Blaise, the British Library's online information service, which offers access to over 17 million bibliographic records for materials collected world wide by the Library on a variety of subjects. Blaise Web offers simple access to Blaise, while a more detailed service is offered under the existing Blaise Line service via [Telnet](#). For details of how to register for use of Blaise please contact the [blaise-helpdesk@bl.uk](mailto:blaise-helpdesk@bl.uk). An [online user guide](#) is also available.

### **What is available?**

- British National Bibliography
- British Library catalogues including Document Supply Centre catalogues
- External databases including Library of Congress, Whitaker and HMSO

### **Ordering facility**

It is possible to place an order for a document request at the British Library's [Document Supply Centre](#). For details please contact [DSC-Customer-Services@bl.uk](mailto:DSC-Customer-Services@bl.uk)

Feedback on Blaise Web is very welcome, so please let us know what you think of the service so that we can attempt to incorporate your views into future releases.

Users wishing to have article title information can subscribe to [inside](#), which provides records from 20,000 journals and 16,000 conferences.

For further information please contact:

*Blaise*  
The British Library  
Boston Spa  
Wetherby  
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LS23 7BQ

Tel: +44 1937 546585

Fax: +44 1937 546586

Email: [blaise-helpdesk@bl.uk](mailto:blaise-helpdesk@bl.uk)

## Searching for a book

Suppose you wanted a book by Fredrick Forsyth but you couldn't remember its name. You could search on Author + Forsyth and all the books he had written would be listed. You could then chose the book "Icon" and find out all the details ISBN number, Publisher that you need to order a copy.

## Hardware

In Ystalyfera we use a PC Pentium 200. We have a HP Deskjet printer and use a hand held scanner to read the bar codes.

A major library like the British Library would use Mainframe computers.

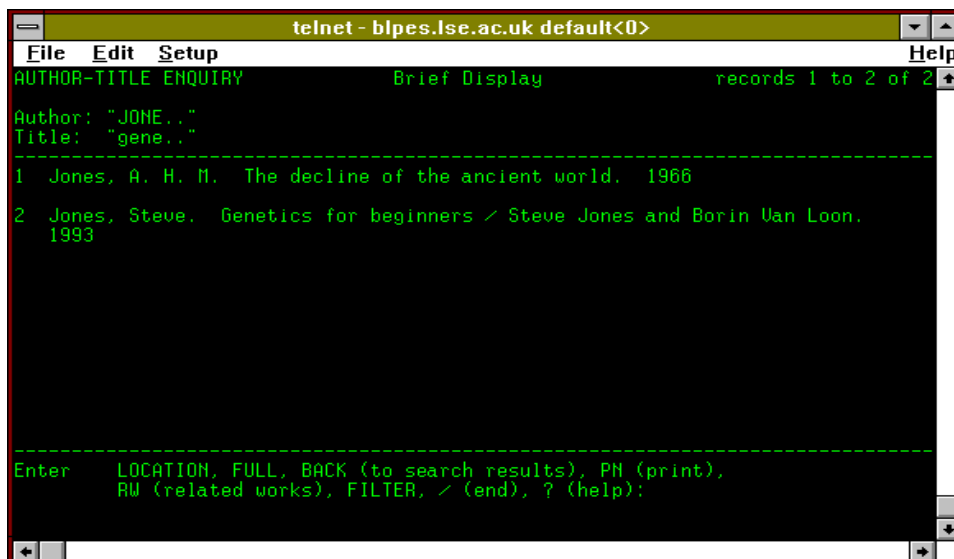
## Software

In Ystalyfera we use a program called **ALICE Version 3.5** to control the library and a program called **TES** which when cataloguing new books into the library takes the ISBN number and adds further details like the title, author, publisher etc.

For our pupils we use the following fields:

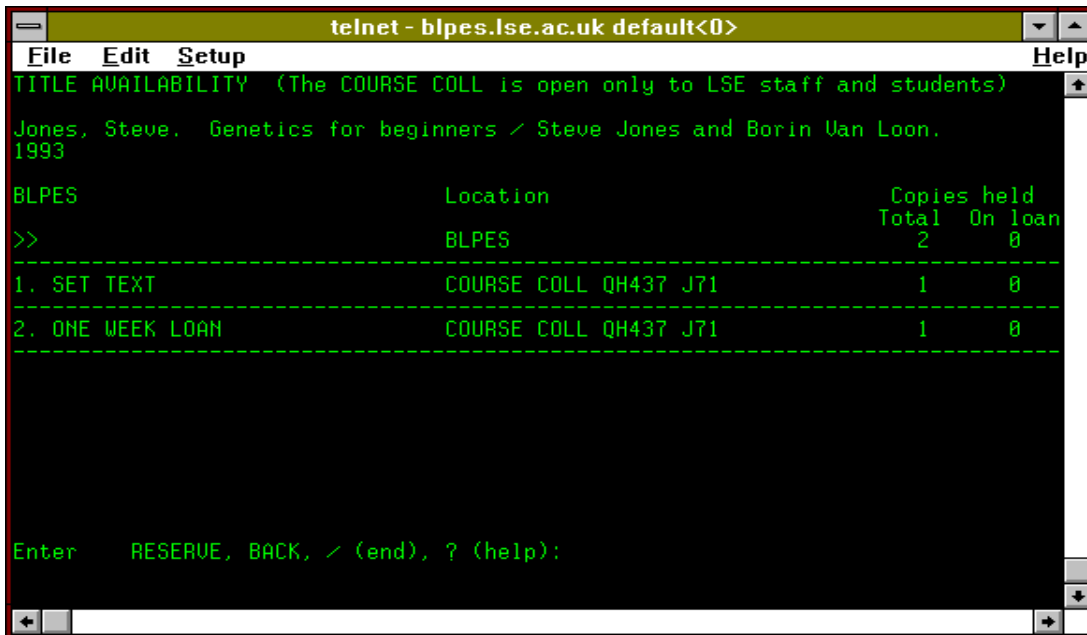
- Pupil Code
- Barcode
- Surname
- Name
- Sex
- Scholastic Year
- Roll Class
- Borrower Category
- Number of Fiction books allowed
- Number of Non Fiction books allowed
- Date of Birth
- Street Number
- Street Name
- Address Line 1

A major library would have specially written software. Many Universities use **Libertas**. This is a typical screen of an Author\_Title Enquiry using Libertas.

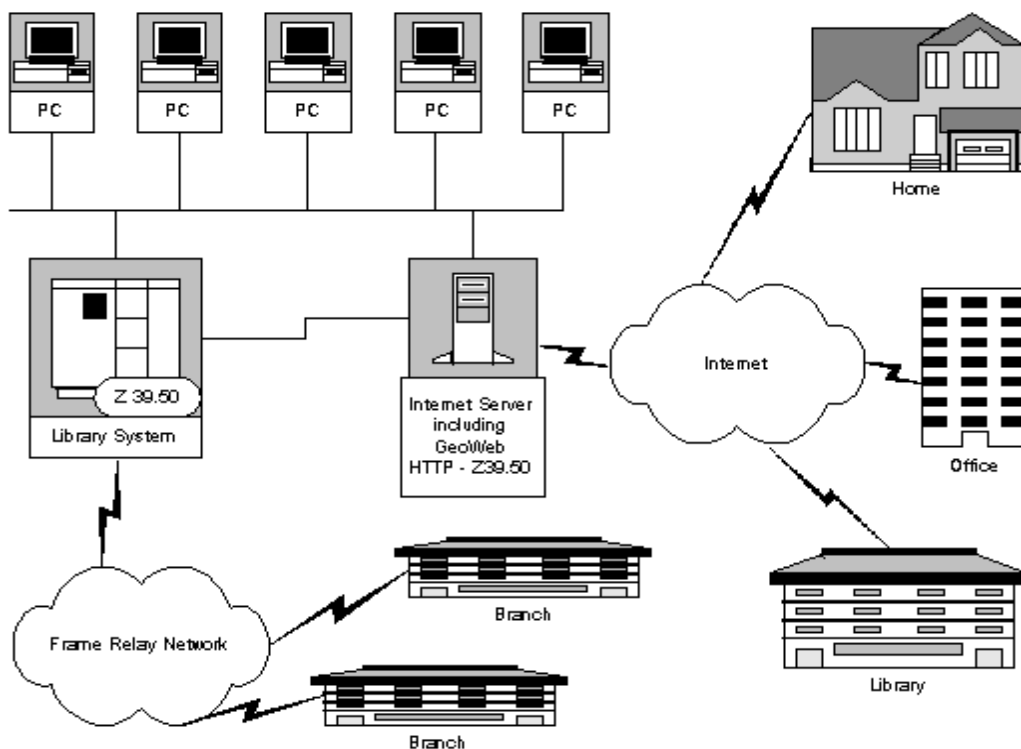


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telnet - blpes.lse.ac.uk default<0>
File Edit Setup Help
AUTHOR-TITLE ENQUIRY      Brief Display      records 1 to 2 of 2
Author: "JONE.."
Title: "gene.."
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1 Jones, A. H. M. The decline of the ancient world. 1966
2 Jones, Steve. Genetics for beginners / Steve Jones and Borin Uan Loon.
  1993
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Enter  LOCATION, FULL, BACK (to search results), PN (print),
      RW (related works), FILTER, / (end), ? (help):
```

This screen allows the students to see if the book is available and for how long.



Many libraries are turning to systems like **Vubis** a library automation system marketed by Geac, a Canadian firm. These systems use Client server technology. We've shown you the way GeoWeb which is server software allows library users to access information in the diagram below. As you can see, you can access this library system from home if you want!



### Updating

The Circulation files are updated as books are borrowed and returned.

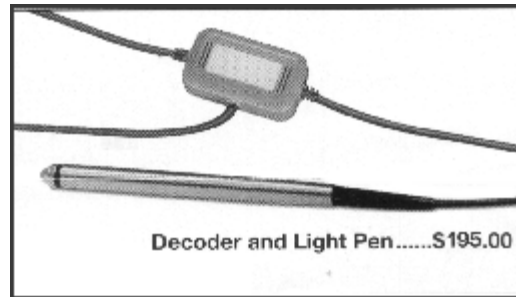
The Cataloguing files are updated as books arrive into the library in a major library and in Ystalyfera they are updated when new books come into the library.

### COM Computer Output on Microfiche/Microfilm.

These are green sheets with details about books that you can put on a special holder which light up and magnify sections so you can read them. Libraries used to use them a lot as catalogues, as they take up less space than hand written records on cards. However this is becoming old fashioned.

### Advantages of using Computers

- Reduction in paperwork
- Very fast search time for book details.
- Borrowers who do not return books can be intercepted when they try and take out more books.
- Catalogues can be produced on COM and several copies can be available at different locations in the library.
- The computer will print out overdue notices and slips to say the book you reserved is now available.
- A librarian can easily see a list of all the books a borrower currently has.
- A librarian can more easily work out where to find a copy of a book in the library.



Some libraries use Light pens like this. We used to use one in Ystalyfera.





c) Name and describe the hardware attached to the computer to read the bar codes.

i) What hardware is needed for output.

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d) The books are all kept on a database.

i) What is a database?

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ii) The librarian has a new batch of books delivered to the library. How will the librarian add those records in a database?

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iii) Name two other activities used to alter the records in a database.

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iv) Describe two advantages to a librarian in using a computerised system

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