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Web databases: A better Solution for Organising the Internet Resources

Rajeev K R

SASKEN Communication Technologies Limited

Bangalore - 560008

and

Abdul Jaleel Tharayil

IBM India, Airport Road

Bangalore

Abstract

The web databases have become very popular in the Internet world for organizing the Information resources. Library & Information centers can effectively utilize this web technology for improving as well as delivering new services. This paper discusses the tools and the techniques of the 'Database - Web' connectivity in brief and also provides the examples of Perl - MySql & ASP - MS-Access connectivity.

Search engines and meta-search engines are now intelligent and capable of retrieving the required information from the sea of information resources on the net. But to consult a set of specialized net resources more frequently, for several reasons, search engines may not be the right choice.

Many organizations have started identifying and organizing internet resources for their internal use. Very often, they consult these resources to retrieve the required information. There are two ways to organize these resources.

- Static WebPages
- Database driven WebPages

Static WebPages

As and when the number of resources grows, complexity in organizing the static pages will also grow and it becomes very unfriendly to the end-users. In this situation one may have to think about database driven WebPages that would help the end users to interact with the stored information to retrieve the required information.

Database driven WebPages

Database driven WebPages facilitate the end-user to see only the resources that he/she wants to see and can hide the other unwanted resources that he/she doesn't want.

To make this happen the following are required.

- A Database server
- Webserver
- Serverside Scripts/Executables

In simple words, a webserver accepts the query from client (Web browser) and orders the server side scripts/executables to collect the required information from the database server. After collecting the information from the database server, server side scripts/executable processes it and gives it to the webserver. Webserver in turn sends this processed information to the web browser as an answer to its query. (See Fig . 1)
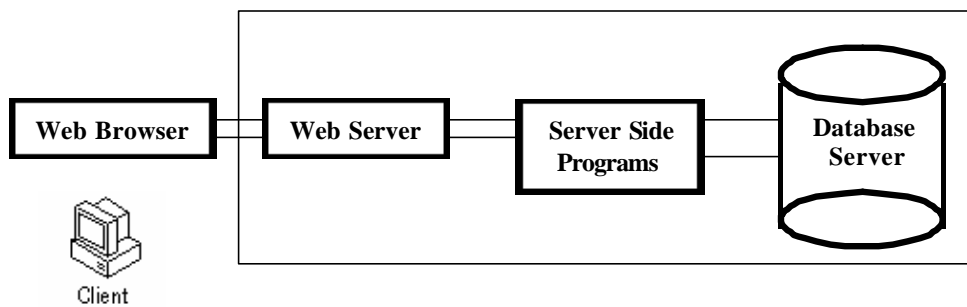

Fig. 1

As of today there are a number of free as well as licensed Database Management Systems, Webservers and Server side script engines which are capable of creating database driven WebPages. Among these, two database management systems (MySql & MS-Access) and two scripting programs (ASP & Perl) are discussed here briefly. Most of the popular web servers such as Apache, Microsoft Internet Information Server (IIS) etc supports ASP (Active Server Pages) & Perl.

ASP and PERL

Active Server Pages (ASP) is a server side program designed by Microsoft basically to run on their Internet Information Server (IIS). Active Server Pages are text based files, comprised of HTML tags and active server scripts. The active server scripts, whether in VBScript, JSScript, or your own script compliant language, are interpreted by Active Server Pages. Today it is available with other web servers also.

Perl is a general language (basically for scripting purposes) designed to run on unix platforms. Today it is also available on other platforms. Both these scripting engines are free and available from many sources.

MySql and MS-Access

MySql and MS-Access are mini database management systems, which supports Structured Query Languages (SQL). MySql is available on Unix and Windows platforms and has many added security features compared to MS-Access and it is absolutely free. Another exciting feature of MySql is that it supports variable field length. MS-Access is available only in Windows platform.

Creating Web Databases

Microsoft uses Open Database Connectivity (ODBC) technology to query the databases. So the Active Server Pages (ASP) also requires ODBC technology to connect to the database. Where as Perl uses Perl-DBI module to connect to the databases. An example of how to connect ASP- MS-Access database and Perl-MySql database to organise Internet resources on the subject 'leadership' is given below.

ASP and MS-Access connectivity (Windows Platform)

Open MS-Access and create a table with the following specifications.

Database name   : Library
Table name   : leadership
Field I   : title (Title of the web site)
Field II   : abstract (Abstract of the web site)
Field III   : URL (Duplicates are not allowed)
Field IV   : Date (Entered date)

After creating and entering the records in the table called 'leadership', save the library database under one of the system/web directories. Then one system data

source name (DSN) has to be created. To create DSN, go to control Panel, select ODBC - System DSN - Microsoft Access Driver - Provide one DSN name (say **mylibrary**) - Select the database named **library** from the corresponding path. This DSN name has to be provided in ASP to access the database.

Now one html form (see Fig. 2) has to be created to collect the queries from the browser (From the user) and also one *.asp* file has to be created to collect the queries from client (browser) to connect to the database to retrieve and processes the required information. Both the *.html* file and .asp file can be stored in one of the web directories and script executable permission should be given to the directory where the *.asp* file is stored.

See Appendix I for the source the code of the leadership.htm & leadership.asp file

Perl - MySql Connectivity (Unix platform)
Open MySql and create a table with the following specifications.

Database name	: Library
Table name	: leadership
Field I	: title (Title of the web site)
Field II	: abstract (Abstract of the web site)
Field III	: URL (Duplicates are not allowed)
Field IV	: Date (Entered date)

After creating and entering the records in the table called 'leadership', save the library database under one of the system/web directories.

As explained earlier, Now one html form (See Fig. 2) has to be created to collect the queries from the browser (From the user) and also a Perl script file has to be created to collect the queries from client (browser) to connect to the database to retrieve and process the required information. Both the .html file and Perl script

file can be stored in one of the web directories and executable permission should be given to the Perl script file and to the directory where it is stored.

When user queries using the form available in the *leadership.htm* file, *leadership.asp* file/ leaderhip perl script file captures all the information from the form and integrates it with Structured Query Language (SQL). And then queries the database to retrieve the information and process it into the html language which the browser understands. The final result of the query can be seen in the (Fig.3). See Appendix II for the source the code of the *leadership.htm* & *leadership Perl* script file
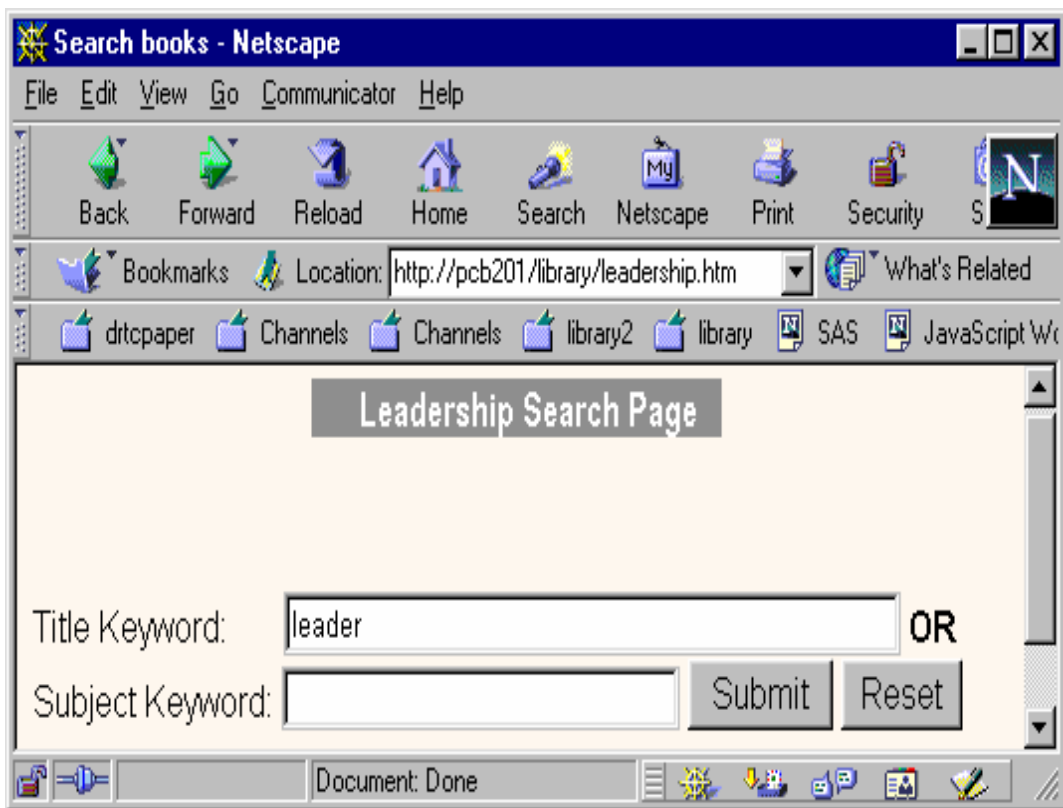
Fig. 2
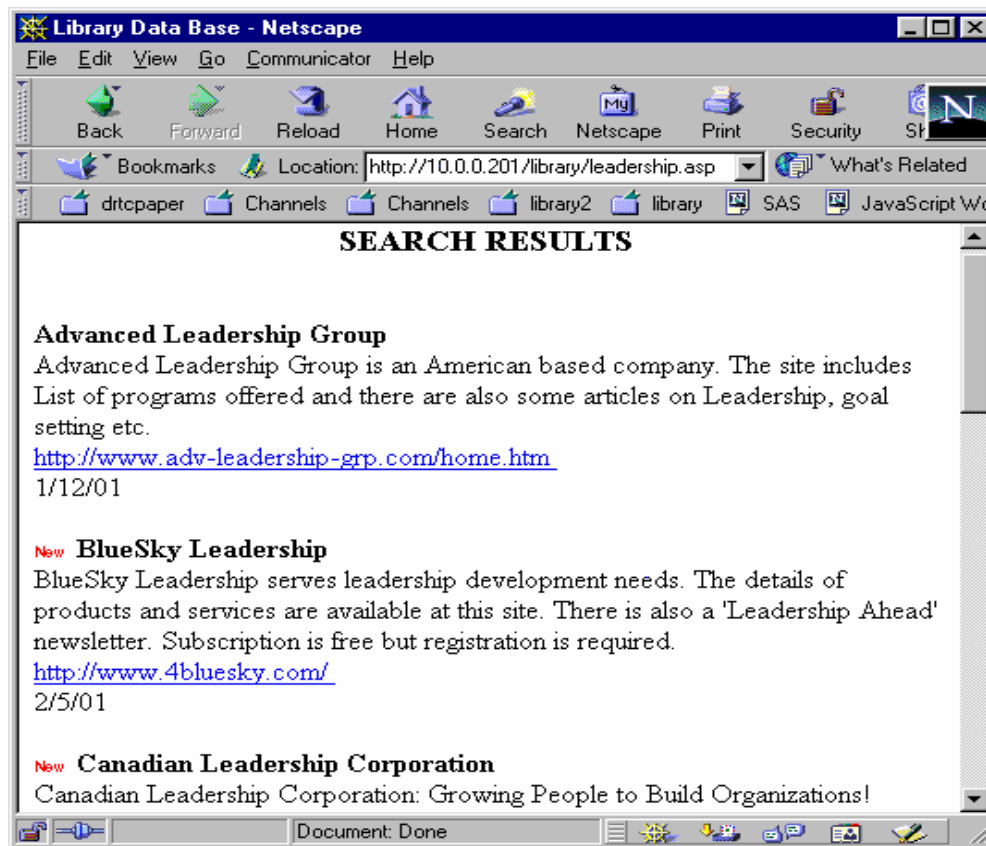
Fig. 3

Security and Web Server features are not discussed here. Database, SQL interface and Scripting language features are also not covered in its full length. However an attempt has been made to show how databases can be connected to the web to make use of them to organise the internet resources. Web-Database connectivity has been increasingly used in all fields of the Internet technology and it is sure that Library & Information centers can do a lot more services using this technology.

References

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4. Learnasp.com. *http://www.learnasp.com/*

5. Perlguy Inc. *http://www.inlink.com/~perlguy/sql/*

6. Mysql.com. *http://mysql.com/*

7. O'reilly's Perl site. *http://perl.oreilly.com/*

Appendix I

Leadership.htm

```html
<html><head><title>Search books</title></head>
<body BGCOLOR="#FEFCEF" link="#000080" vlink="#000080" alink="#000080">
<center><b>Leadership Search Page</b></center>
<form METHOD="POST" ACTION="http://localhost/library/leadership.asp">
<p>Title Keyword: &nbsp<input NAME="title" SIZE="25"><b>OR</b> </dt>
<p>Subject Keyword: <input NAME="subject" SIZE="15">
<input TYPE="SUBMIT" value="Submit"><input TYPE="RESET"></dt>
</form>
</body>
</html>
```

Leadership.asp

```asp
<%@ LANGUAGE = VBScript %>
<html><head>
<title>Leadership</title>
</head>
<body>
<p><center><b><font size="4">SEARCH RESULTS</font></b></center><p>

<%
    Set OBJdbConnection = Server.CreateObject("ADODB.Connection")
    OBJdbConnection.Open "mylibrary"
        title= Request.Form("title")
        subject= Request.Form("subject")
        if title="" and subject="" then
          norecord
        else
          SQLQuery = "SELECT * from leadership WHERE title Like '%"& title
&"%' OR summery Like '%"& subject &"%';"
          Set RSleadership = OBJdbConnection.Execute(SQLQuery)

           Do while not RSleadership.Eof
           counter = counter + 1
           entereddate = RSleadership("entereddate")
           newdate = date - entereddate
%>

<br><% if newdate < 15 then %>
<font size="1" face="Arial Narrow" color="#FF0000"><b>New </b></font>
<%end if %>
<b><%=RSleadership("title")%></b> <br><%=RSleadership("summery")%>
<br><a href="<%=RSleadership("url")%>"><%=RSleadership("url")%> </a>
<br><%=RSleadership("entereddate")%><br>

<%
    RSleadership.MoveNext
```

```
    Loop

       if counter < 1 then
       norecord
       end if
end if
%>

<% Function norecord %>
       <P><b> No records found!!! Search again </b>
<% end function %>
</body>
</html>
```

Appendix II

Leadership.htm

```
<html><head><title>Search books</title></head>
<body BGCOLOR="#FEFCEF" link="#000080" vlink="#000080" alink="#000080">
<center><b>Leadership Search Page</b></center>
<form METHOD="POST" ACTION="http://localhost/library/leadership">
<p>Title Keyword: &nbsp<input NAME="title" SIZE="25"><b>OR</b> </dt>
<p>Subject Keyword: <input NAME="subject" SIZE="15">
<input TYPE="SUBMIT" value="Submit"><input TYPE="RESET"></dt>
</form>
</body>
</html>
```

Leadership(Perl Script)

```
#!/usr/bin/perl -w
use Date::Calc qw(Delta_Days);
use CGI ':standard';
use DBI;
my $mycgi = new CGI;
$flag=1;
my $dbh = DBI->connect('DBI:mysql:library:localhost','username','password') or die "$!\n";

%months = (
     Jan => "1",
     Feb => "2",
     Mar => "3",
     Apr => "4",
     May => "5",
     Jun => "6",
     Jul => "7",
     Aug => "8",
     Sep => "9",
     Oct => "10",
     Nov => "11",
     Dec => "12"
      );


if (param()){
   $title = param('title');
   $subject = param('subject');
   print $mycgi->header();
   print $mycgi->start_html(-title => "Leadership");
   $sql = "select * from leadership where title like '%$title%' or subject like '%$subject%' ";
   my $sth = $dbh->prepare($sql);
```

```
   $rows = $sth->execute;
   if ($rows eq '0E0') {
      $rows = 0;
      print "<b>", "No records found" ,"</b>","<br>\n";
                          }
   while ($rows){
      if ($flag==1){
      print "<b>","<center>", "Search Results","</center>" ,"</b>", "<br>\n";
      }
      @data = $sth->fetchrow_array();
      $title = $data[0];
      $subject = $data[1];
      $url = $data[2];
      $date = $data[3];
      $flag = 0;

      ($dummy,$mm1,$dd1,$dummy,$dummy,$yy1)= split(" ",`date`);
      ($yy2,$mm2,$dd2) = split("-",$date);
      $datediff=Delta_Days($yy2,$mm2,$dd2,$yy1,$months{$mm1},$dd1);

      if ($datediff<15) {
      print "<b><font color=red>New</font></b>\n";
      }

      print $title ,"<br>\n";
      print $subject ,"<br>\n";
      print "<A HREF='$url'>$url</A> </b> <br>\n";
      print $date ,"<br>\n";
      print "<br>\n";
      $rows = $rows-1;
   }

   $sth->finish();
   print $mycgi->end_html();
}

$dbh->disconnect;
```