

# Creating a Student Resume for a Construction Department's Web Site

**Kenneth C. Williamson III**  
Texas A&M University  
College Station, Texas

This paper presents uses for the Open Database Connectivity (ODBC) interface and the application of Internet Database Connector or Active Server Pages. Software is suggested that provide for seamless integration between the Web server, database connector, and database application. The described processes and examples provide, at best, the basic information and structure necessary for the creation of an ASP student resume page. It is intended to assist Web-site developers in achieving a minimal no frill Web site for a construction program's students to be able to post their resumes on the Internet.

**Key Words:** World Wide Web, Internet, IDC, HTX, ODBC, Student Resumes

## Introduction

Building a useful Active Server Page (ASP) for an institution's Internet web site is well within the reach of most web-site developers. It should be noted that this paper is written on a level where the reader should have some prior experience with writing Web pages and a cursory understanding network servers. With Web browsers appearing on most all user (Web client) desktops and Web servers providing standard Structured Query Language (SQL) gateways, many valuable program, faculty, and student databases are just waiting to provide manageable and user friendly information over the Internet.

Users with Local Area Network (LAN) access can quickly connect to a Microsoft Access<sup>®</sup> database using Web client software in the form of a Web browser, such as Netscape Navigator<sup>®</sup> or Microsoft Internet Explorer<sup>®</sup>. All one needs to develop such an ASP is a Web server, a database connector, and a database. Using service software such as Microsoft NT<sup>®</sup>, Microsoft Internet Information Server<sup>®</sup> (IIS) and Microsoft Office Suite Professional<sup>®</sup> makes the ASP process even easier because of the built-in Open Database Connectivity (ODBC) interface and seamless integration between application software. Additionally, the Microsoft FrontPage<sup>®</sup> software package will easily and effectively integrate the Web site's administration, page authoring, and photo/graphic editing tasks (see Appendix A for suggested software).

For a typical Web page, the Universal Resource Locator (URL) fetches a static Hypertext Markup Language (HTML) file within the directory structure of the Web site and returns this file back to the Web client as pre-formatted HTML page. For an ASP, the URL points instead to an Internet Database Connector (IDC) file that executes a program or script that executes a query fetching the contents of Fields within a database. The Web server then dynamically formats the

results in HTML and sends this HTML page back to the Web client. Because this process is based on the Internet, the Web client platform can be any machine that runs a Web browser, and the Web server platform can be any machine that runs a Web server.

The Associated Schools of Construction's Web site running on Windows NT<sup>®</sup> uses the ODBC abilities of IIS to serve and implement many different ASPs using a Microsoft Access<sup>®</sup> database. Examples of these ASP can be viewed on the ASC's Web site; <http://ascweb.org>, i.e., the membership directory, its related update pages and the reviewer listing within the Journal of Construction Education.

The design of this paper is to familiarize a web-site developer with the database connectivity capabilities of a Web server. This paper first provides the web-site developer with the procedural algorithms required for ASP design and then demonstrates how to publish student resumes on their Web site. Also provided are sample Web-site directory folders, HTML (HTM), executable HTML (HTX), and IDC, files for the developer's unrestricted use, including their being imported into an institution's Web-site. This WinZip file (Resume Page Download.zip) is accessible at <ftp://ascweb.org/resume> and is available for downloading as an attachment to this paper.

### **Active Server Pages**

The function of any Web server is to serve HTML files. Using ASPs, pages with new dynamic content can be created in response to Web client requests. The Web server itself becomes active in the process of creating the Web page. It is important to understand how this process is carried out (Figure 1).

1. The Web client enters the URL address of a Web server with an HTM extension into the address bar of a Web browser and presses Enter. The Web client is then served a static HTML Page from Web server.
2. The Web client picks a hyperlinked button or text on the page, which is linked to a URL address of an ASP file with an IDC extension.
3. The Web browser sends a request for the ASP's IDC to IIS.
4. IIS receives the request and recognizes the IDC extension as a program and retrieves the IDC file from the directory structure of the Web site.
5. IIS processes the IDC's SQL string from top to bottom. The SQL string identifies the Access database MDB file where data is maintained, retrieves the information requested from the database Fields, and executes an HTX template file.
6. The HTX template file writes the HTM file and sends the results of this process back to IIS.
7. IIS sends the HTM file back to the Web browser.
8. The Web browser interprets the HTM file and displays the results as a static HTML page for the Web client.

Building any ASP application requires five basic steps:

1. Create a database for the ODBC and IDC to access in a Web site's directory that is hidden (i.e., `_private` directory, see Figure 2).
2. Configure the IIS for ODBC and establish the database interface.
3. Create HTM pages to start the query by put a URL address pointing to the IDC in an HTM file somewhere accessible for reading by a Web browser (almost anywhere under the Web site's directory, see Figure 2).
4. Create IDC file to translate SQL string into HTML, and putting the IDC file into a Web server directory that is enabled for execution (i.e., `_exec` or `_cgi-bin` directory, see Figure 2).
5. Create HTX template files that the IDC will use to translate the SQL string results into HTML, and putting the HTX files in the place indicated in the IDC files (same directory as the IDC files).

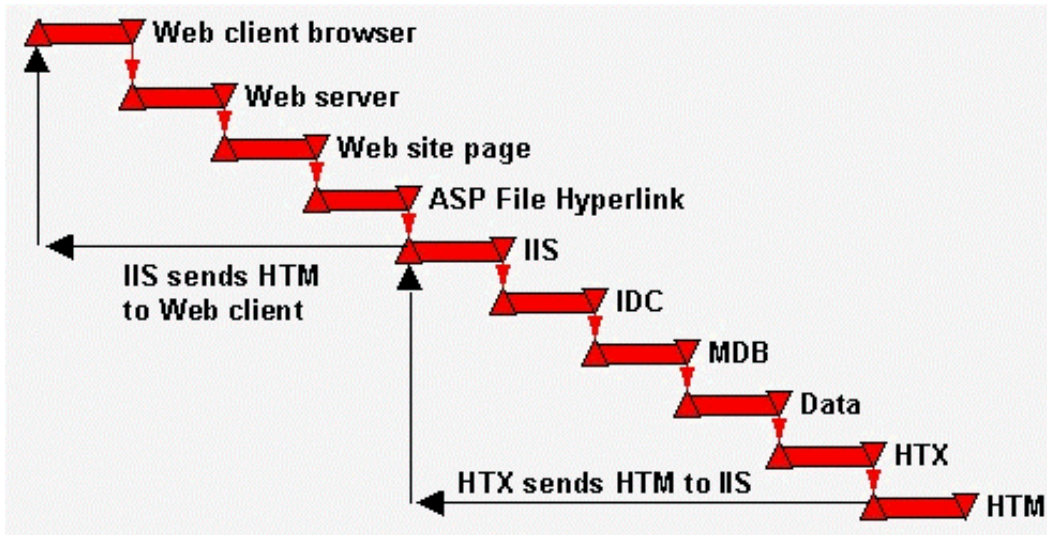


Figure 1. ASP process.



Figure 2. Web site directory structure.

### The Student Resume ASP

The remainder of this paper references the Student Resume Web-site pages accessible at <ftp://ascweb.org/resume>. Download the WinZip file and unzip it to the desktop. Open

FrontPage Explorer® and import the directories and files into the root web directories of the Web server. Appendix B contains a complete listing of file setup procedures and Appendix C contains a complete listing of directories and files.

### *Setting Up Your Database*

The Microsoft® Access database (stures.mdb) used in this example is stored in the "\_private" directory of the downloaded Web site. To make the data accessible, it must be stored in a table. The table included within the "stures.mdb" is named "students." After importing the database onto the Web server, it can fill it with information. In this example, the database can be populated with information attained from the student enrollment information supplied by university admissions office. Only juniors and seniors should be included, thus making the life span of student resumes limited to two years. The single asterisk Fields in Appendix D may be inserted and the double asterisk Field should be set up as a "Default Value" of "No". The developer may create these Field columns in Excel and paste them into the database versus individual entry. Do not forget to save the database in the \_exec folder of the Web site when finished.

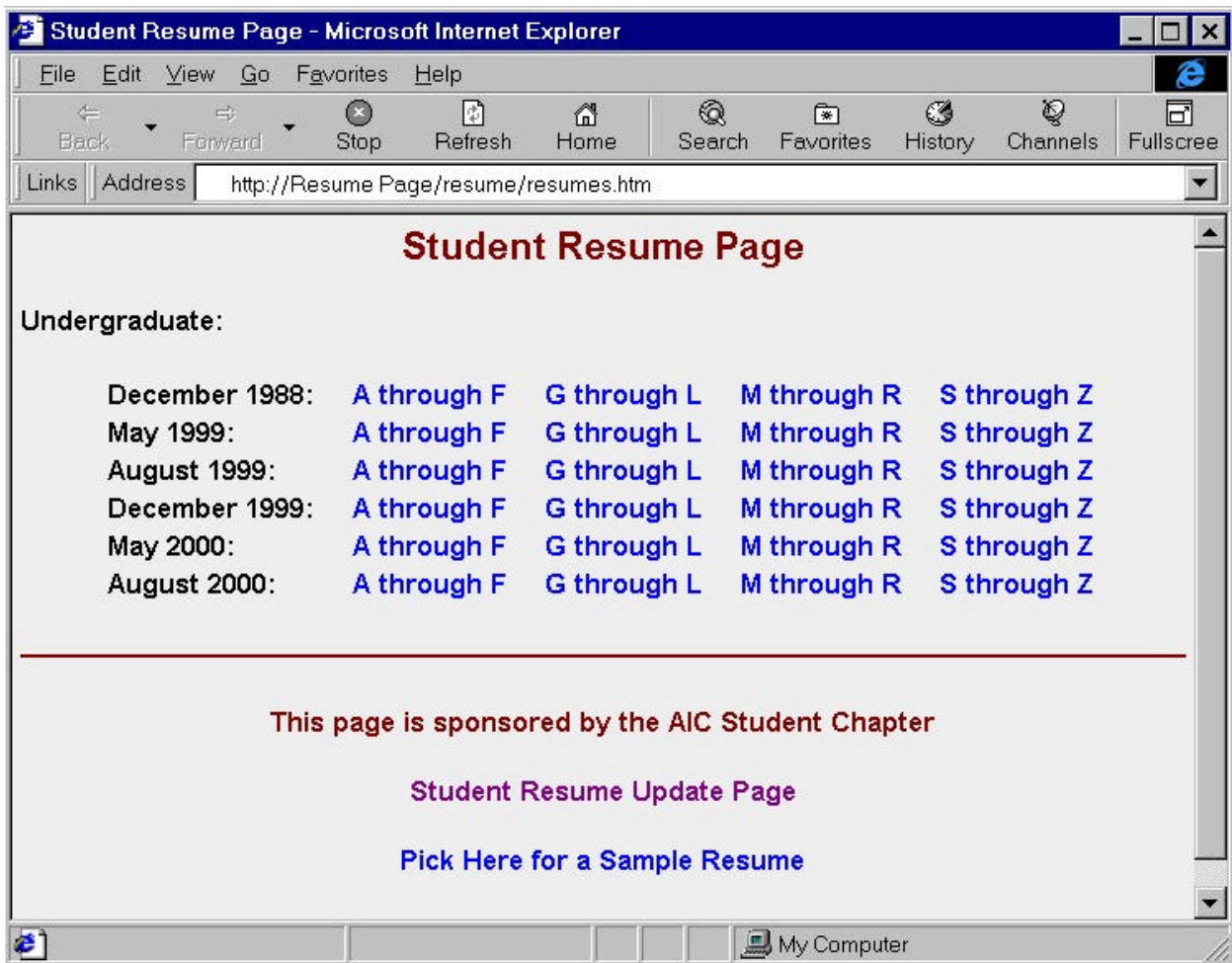


Figure 3. Resumes.htm

# Christopher S. Ahrens

Scheduled Date of Graduation:  
December 1998

UNIVERSITY ADDRESS  
811 Harvey Rd #2  
College Station, TX 77840  
409.680.8977  
[shane\\_ahrens@hotmail.com](mailto:shane_ahrens@hotmail.com)

PERMANENT ADDRESS  
PO Box 2602  
Wimberley, TX 78676  
512.847.5059

## EDUCATION

<i>Institution</i>	<i>City, State</i>	<i>Degree</i>	<i>Date</i>
Texas A&M University	College Station, TX	B.S. in Construction Science	December 1998

## WORK EXPERIENCE

Heldenfels, Inc., San Marcos, TX May - June 1998

INTERNSHIP - Worked in Quality Control at the pre-stressed concrete plant for five-week duration. Inspected forms, reinforcing steel, and concrete, before and after pour for correct quantities and specifications. Also, made molds and tested concrete samples for Texas Department of Transportation for conformance with specifications. Observed the entire process for the pouring of both state beams and panels for the private sector.

Camp Olympia, Trinity, TX June - August 1998, June - August 1997

COUNSELOR/DIVISION HEAD - As counselor, responsible for every camper's well being, presenting lessons for sports classes, and being a good role model and positive influence in campers lives. As division head, and in addition to counselor's duties, handled discipline problems between campers and problems between counselors in my cluster. In charge of the everyday operations within the cluster and held responsible for the cluster's behavior and actions.

RBS Excavation, Albers, IL June - August 1995

INTERNSHIP - Tested sewers and storm lines for imperfections and code compliance, shot grades and installed drainage culverts, assisted with installation of circulation devices in sewer pond, maintained adequate supplies on job site. Also observed the estimating and bidding process, and the installation of force mains, gravity storm drains, sanitary sewer lines, lift stations, and manholes.

## ORGANIZATIONS/HONORS

### *Student Organizations*

Associated General Contractors (present), Associated Builders and Contractors (1997), Crew Chief - Texas Aggie Bonfire (1996), H.O.S.T.s tutor (Spring 1996), Walton Hall Executive Council (1994 - 1995), Resident Hall Association committee-person (1995), Walton Hall Ramp Representative of the Year (1994).

### *Honors*

## SPECIAL SKILLS

OSHA 10 and 30 hour Construction Safety Certification; CPR and First Aid Certification; Computer Skills include Microsoft Word and Excel, internet/e-mail applications, and limited experience with Microsoft Power Point and Access, and AutoCAD r.13; Financed 25% of college education.

[Back to Resume Page](#)

Figure 4. Resume.htm

### *Resume Page Web-site Pages*

Upon opening the Web site to the "resumes.htm" page containing the hyperlinked ASP selections for student resumes two sets of options are offered (Figure 3). The first set is arranged by graduating term and resume selection by alphabetized student name categories. When a service selection is made and, for example, the "December 1998: A through F" hyperlinked text

is clicked, an SQL string runs from the "dec98\_1.idc." This SQL string captures the appropriate information from the data Fields within the "stures.mbd" database, and by using the "resume.htx" template file the December 1998 undergraduate resumes, A through F, are posted within the Web pages target frame (Figure 4).

The second service selection set is for students to enter, edit and review their personal resume data. When a student selects the "Student Resume Update Page" hyperlink, the "sturesupd.htm" page containing the hypertext service selections by alphabetized student name categories are offered. When a service selection is made and, for example, the student's last name begins with the letter "M" therefore, the "M through R" hyperlinked text is clicked, an SQL query runs from the "M\_R\_studentlist.idc." This SQL query captures all the student names whose last name begins with the letters "M through R" from the data Fields within the "stures.mbd" database, and by using the "M\_R\_students.htx" template file, builds and posts a listing within the Web page's target frame. If the student's name is within that list, they proceed by entering their last name and the last five digits of their student ID number into the provided text boxes and selecting the "Update Resume" button. If their name does not appear in the name list, they have not been populated within the student resume database and will have to be entered before they may continue. This button executes the "M\_R\_student.idc" file, which runs the SQL query that captures that specific student's resume information within the "stures.mbd" database, and by using the "M\_R\_studentupd.htx" template file builds and posts the appropriate resume information for editing. After editing and reviewing, the student picks the "submit Information" button that runs the SQL query within the "M\_R\_studentupd.idc" file. This SQL query populates the student resume database Fields with the data and submits a hidden Field value which allows the resume to be built upon request from the first set of service selections as described above. Additionally, this IDC file offers the "return.htm" page within the Web's target frame, which confirms data entry and provides a hyperlink back to the "resume.htm" page (Figure 5).

## Conclusion

This paper and example provides, at best, the basic information and structure necessary for the creation of an ASP student resume page. It is intended to assist Web-site developers in achieving a minimal no frill site for a construction program's students to be able to post their resumes on the Internet. There are additional uses for this type of Web-site programming. Others could include student job postings, industry information pages, links pages, student surveys, and test administration. You are welcome to browse the TAMU Construction Science Department's, Dr. Williamson's or the ASC's Web site at: <http://taz.tamu.edu/cosc>, <http://165.91.199.100/kcwilli>, and <http://ascweb.org>. Each of these sites provides active server page examples demonstrating the potential applications that can be developed within an institution's Web site.

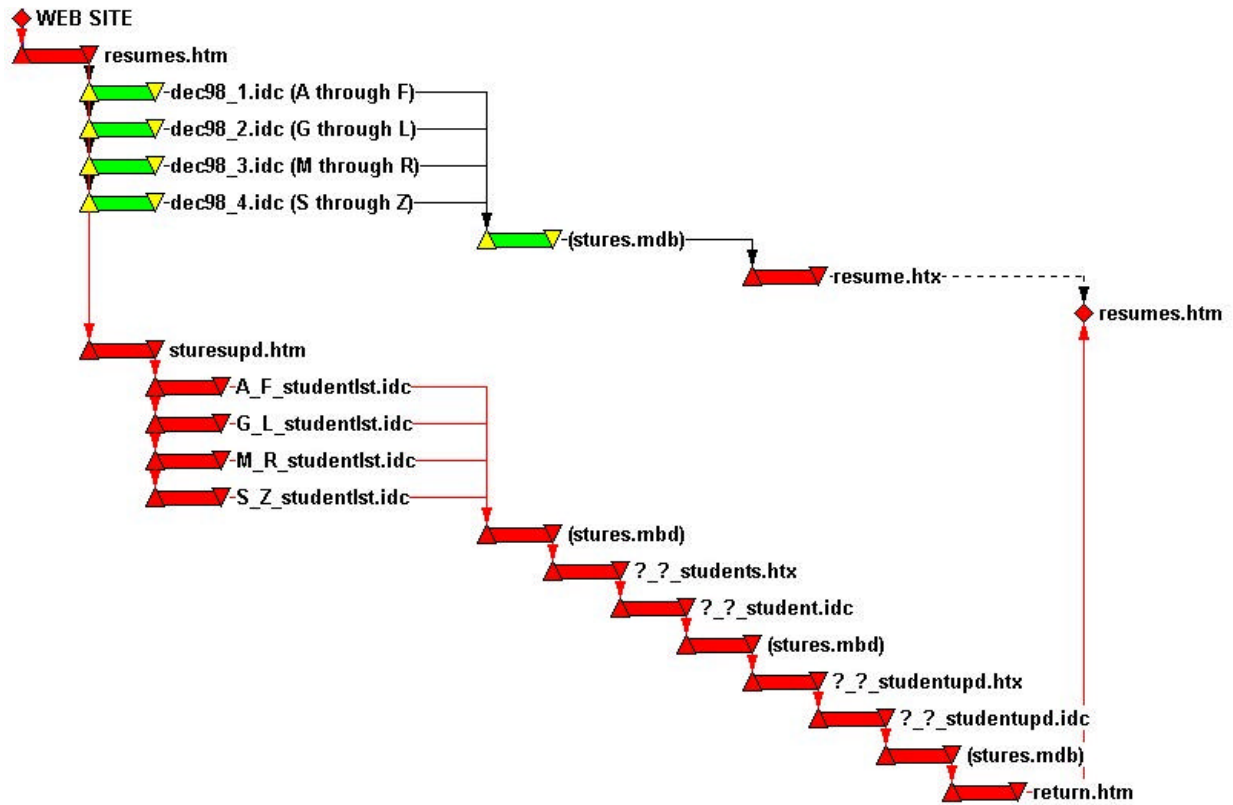


Figure 5. Student Resume Web Site Logic Diagram

## Appendix A Suggested Software

- Microsoft NT®
- Microsoft Internet Information Server®
- Microsoft Office Suite Professional®
- Microsoft FrontPage®

## Appendix B File Setup Procedures

### *Setting Up an ODBC System Data Source Name (DSN)*

To set up the ODBC DSN:

1. Click the **Start** menu, point to **Settings**, and click **Control Panel**.
2. In the **Control Panel** window, double-click the **32-Bit ODBC** icon.
3. In the **Data Sources** dialog box, click **System DSN**.
4. In the **System Data Sources** dialog box, click **Add**.
5. Select the **Microsoft Access Driver** and click **OK**.
6. In the **ODBC Microsoft Access 7.0 Setup** dialog box, under **Database**, click **Select**.
7. Locate the **stures.mdb** file in the **\_private** directory on your hard disk, select it, and then click **OK**.
8. In the **ODBC Microsoft Access Setup** dialog box, in the **Data Source Name** box, type **Student Resume Database**, and click **OK**.
9. Click **Close**, and then click **OK**.

### *Creating an HTML Extension (IDC) File*

#### **Creating the IDC File:**

1. In the FrontPage Editor, on the **File** menu, click **New**, and select **Database Connector Wizard**.
2. In the **ODBC data source** box, type **stures**, and then click **Browse**.
3. Locate the **resume.htx** file, select it, and then click **OK**.
4. Click **Next**.
5. In the **SQL** box, type the following SQL statement:  
SELECT EntryID, StudentID, (Appendix E)
6. Click **Finish**.
7. Double-click the **\_exec** folder. In the Save As box, type **dec98\_1.idc** and click **OK**.

### *Creating an HTML Extension (HTX) File*

To create the HTX file:

In the FrontPage Editor, create a **New** page, and enter the necessary text and column values to create the Resume page (see the resume.htx file provided). Below is a simplified example of how to create a portion of this page.

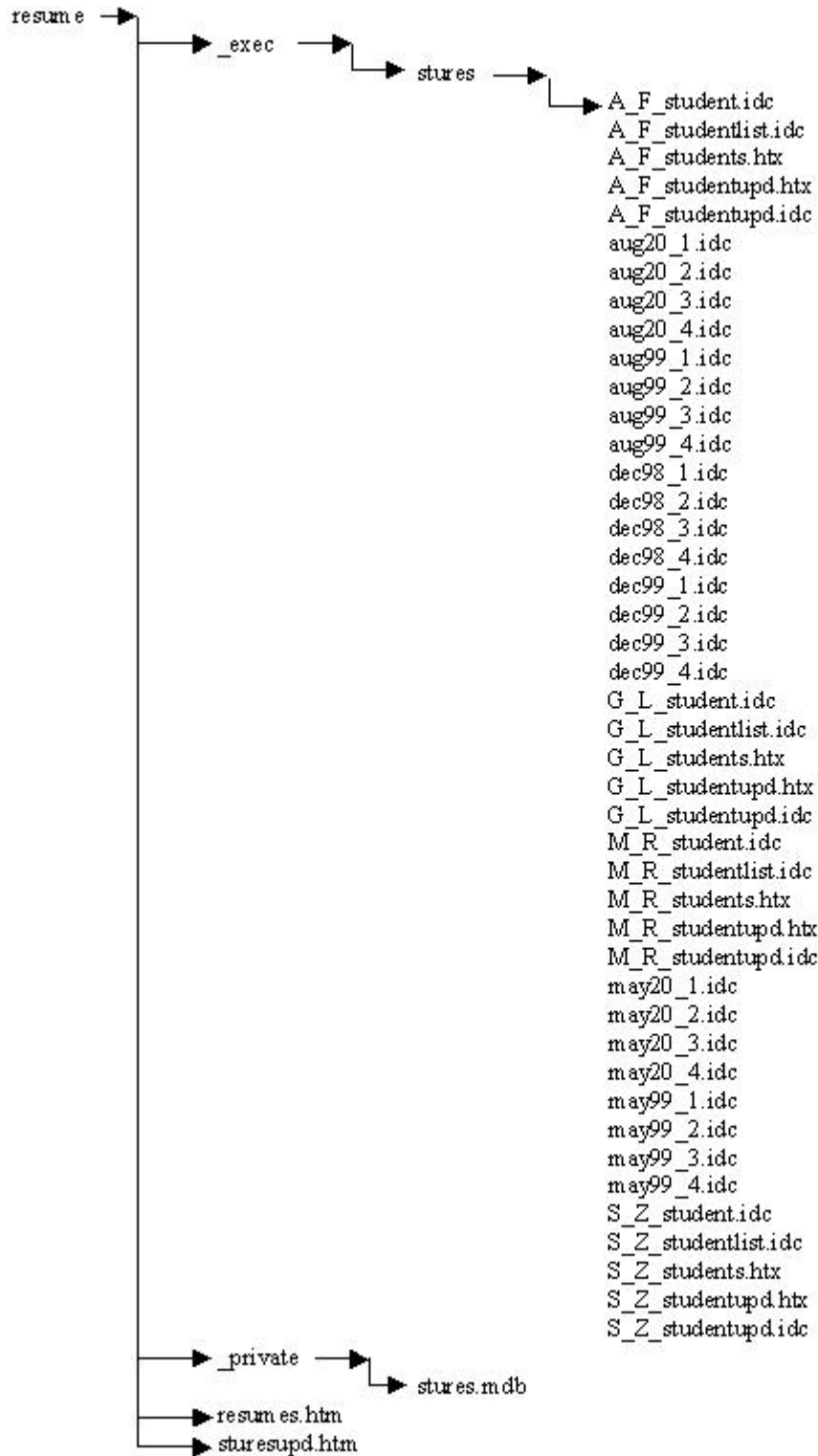
1. Create a table with two columns labeled **First Name** and **Last Name**.
2. Select the second row in the table.



3. On the **Edit menu**, point to **Database**, and click **Detail Section**. The detail section will be shown with brackets surrounding it, as in the following example:
  - a. On the **Edit menu**, point to **Database**, and click **Database Column Value**.
  - b. In the **Database column name** box, type **FirstName**, and click **OK**. The database field name will appear in the table cell.
  - c. Repeat step 6 for the Last Name column (this time type **LastName** in the **Database column name** box).
4. Save the file and name it **resume.htx**.

**Note:** The .htx and .idc files must be saved in the in the same \_exec directory.

## Appendix C Contents of Resume Page Download.zip



## Appendix D Microsoft Access Database Fields

Field Name	Data Type	Input Mask	Required	Allow Zero Length	Indexed
StudentID*	Text	000\ -00\ -0000;0;_	No	No	Yes (Duplicates OK)
Password*	Text		No	No	No
FirstName*	Text		No	No	No
MiddleInitial*	Text	?.;0;_	No	Yes	No
LastName*	Text		No	No	No
Suffix*	Text		No	Yes	No
NameSortID*	Text		No	No	Yes (Duplicates OK)
Approval**	Text		No	No	No
Zip1	Text	00000\ -9999	No	No	No
Phone1	Text	000.000.0000;0;_	No	Yes	No
Zip2	Text	00000\ -9999	No	Yes	No
Phone2	Text	000.000.0000;0;_	No	Yes	No

## Appendix E Sample SQL Statement

mySQL= "SELECT EntryID, StudentID, Password, Approval, NameSortID, FirstName, MiddleInitial, LastName, Suffix, Classification, GradDate, Address1, City1, State1, Zip1, Phone1, Address2, City2, State2, Zip2, Phone2, Email, URL, Institution1, CityState1, Degree1, Date1, Institution2, CityState2, Degree2, Date2, Institution3, CityState3, Degree3, Date3, Employer1, EmploymentDates1, JobDescription1, Employer2, EmploymentDates2, JobDescription2, Employer3, EmploymentDates3, JobDescription3, StudentOrganizations, Honors, SpecialSkills "

mySQL=mySQL &"FROM students "

mySQL=mySQL &"WHERE (GradDate='December 1998') AND (Approval='Yes') AND (NameSortID='1') "

mySQL=mySQL &"ORDER BY students.LastName"