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Website Conversion: PHP to ASP

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Website Conversion: PHP to ASP

A graduate project submitted to Dakota State University in partial fulfillment of the requirements for the degree of

Master of Science

in

Information Systems

August 2007

By

Steve Kuchta

Project Committee:

Dr. Stephen Krebsbach

Dr. Tom Halverson

Dr. Ronghua Shan



PROJECT APPROVAL FORM

We certify that we have read this project and that, in our opinion, it is satisfactory in scope and quality as a project for the degree of Master of Science in Information Systems.

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Master's Project Title: Website Conversion: PHP to ASP

Faculty supervisor: Steph Kuhn Date: 8/24/07

Committee member: Rafima Khan Date: 8/24/07

Committee member: Tom Allen Date: 8/24/07

ACKNOWLEDGMENT

This project is dedicated to my family Lynn and David. They have stood beside me and have shown patience and understanding throughout its completion.

ABSTRACT

This project is an online attendance, grading and transcript program which was originally coded in PHP. The IT staff at East Dakota Educational Cooperative are not comfortable with PHP and wish to have it converted to ASP. The program has a fully functional Access database which contains students' information such as grades, enrollment status, course work and instructor comments. It also allows parents to log on and view their child's progress. The solution to this conversion involves four changes: an increased comment field, a login page with a hierarchy of user privileges, a reduction of PHP programming codes into ASP codes and a redistribution of tasks.

Declaration

I hereby certify that this project constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions or writings of another.

I declare that the project describes original work that has not previously been presented for the award of any other degree of any institution.

Signed,

A handwritten signature in cursive script, appearing to read "Steve Kuchta", is written over a horizontal line.

<Student name>

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INTRODUCTION

Background of the problem

The original project was created for the East Dakota Educational Cooperative, located in Sioux Falls South Dakota currently has an online K-12 attendance, grading and transcript program written in PHP. This program has a fully functional Access database which stores all grade and attendance information for each student. The purpose for this online program is so the parents can observe their children's grades. The solution is to convert the PHP application to ASP so it can be transferred to an IIS server instead of the current Apache server. Since the start of the project, East Dakota Educational Cooperative no longer needs the program so it is being converted to a generic K-12 attendance, grading and transcript program for a similar institution with a similar situation.

Statement of the problem

The program currently runs on a computer within the Cooperative building using an Apache server. Each faculty member is authorized to enter information for his or her individual courses. An administrative functionality is built in for the sole purpose of adding students. Because the nature of the data is for K-12 grading, the information is tracked permanently and considered to be confidential. The program currently tracks assignments, grades and calculates the grades for the students. The faculty would like to add the ability for parents to see the grades for their children which requires website accessibility. East Dakota Educational Cooperative wants to be able to incorporate this program into their website which uses IIS. Although PHP is able to handle the grading program, they believe converting to ASP and installing it on their IIS server will streamline their system and cause fewer headaches in the future.

Objectives of the project

One goal is to achieve the satisfaction of producing a working real-world application. This will meet the objectives and desires of East Dakota Educational Cooperative. Programming for E-Commerce, Project Management, and Advanced Network and Technology classes completed at DSU will be a benefit in completing this project.

The plan is to install and configure IIS to the laptop, design the ASP website, test the website on the laptop and provide the necessary information needed to integrate the program

into their system. When the people at East Dakota Educational Cooperative are satisfied with the programs' performance, it will be integrated it into their system.

At the completion of this project, East Dakota Educational Cooperative will have their website converted to ASP, the project installed onto their system and functionality added. The major deliverables will include:

- Details on the installation and configuration steps of IIS.
- Details on the steps taken to convert the PHP scripts to ASP scripts.

SYSTEM DESIGN

Database changes

There were only two required modifications made to the program. The third change was to combine many of the PHP pages to make them more efficient. The fourth change was the distribution of tasks between administrative, faculty and user tasks. The database is an Access database. It was never intended to be a large database and only includes ten tables. The first change, illustrated below in Figure 1, deals with the size of the Comment field within the Comment table. The requested change was to enlarge the Field Size of the Comment field so the faculty could input more information. The field size was increased from 50 to 255. This will ensure enough space for faculty to enter sufficient comments for the particular student.

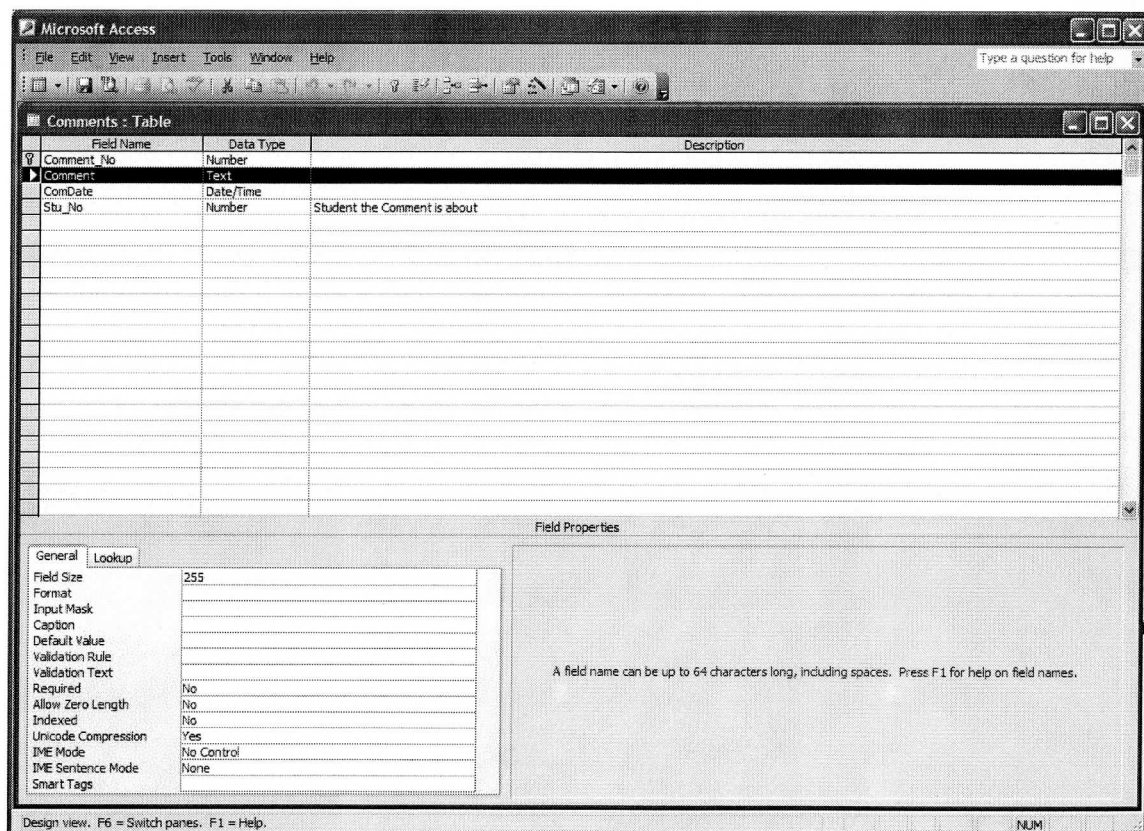


Figure 1 - Comment field expansion

The second change dealt with logging into the program. East Dakota Education Cooperative wanted to be able to log on to the program with more flexibility so they could log on as an administrator, a faculty member or a parent as needed. Below Figure 2 illustrates the changes to the database. Three fields were added: A_Type, F_Type and P_Type. On the logon page, three check boxes were included to require the user to select whether he or she wants to logon as an administrator, a faculty member or a parent. The program now allows the user to log on as an administrative member, a faculty member or a parent. Also, any combination of the three user privileges would be allowed. Based on the user's selection he or she would be either allowed into the appropriate sections of the program or refused depending on his or her privileges.

The screenshot shows a Microsoft Access window titled 'Microsoft Access' with a menu bar (File, Edit, View, Insert, Format, Records, Tools, Window, Help) and a toolbar. The main area displays a table named 'Login : Table' in Datasheet View. The table has the following columns: F_Login ID, F_Password, F_No, A_Type, F_Type, and P_Type. The data is as follows:

	F_Login ID	F_Password	F_No	A_Type	F_Type	P_Type
▶	cdupic	cathy	1	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+	larsons	sandy	2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
+	cray	chad	3	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
+	jonesi	ione	7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+	namminga	cherie	8	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
+	chaffeem	melissa	10	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
*			0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

At the bottom of the window, the status bar shows 'Record: 1 of 6' and 'Datasheet View'.

Figure 2 - Log on authority changes

Conversion changes

The following, Table 1, illustrates the combination of fifty four pages of the original program combined into seventeen pages. These seventeen pages have the same functionality as the original program.

PHP pages to combine	ASP page
Login.php, ProcLogin.php	Login.asp
NewSession.php, NSessions.php, AssignFac.php, FacAssigned.php	NewSession.asp
AddStudent.php, StudentAdded.php	AddStudent.asp
eStudents.php, EnrollStu.php, EnrollS.php, cwStudents.php, GetWork.php, EnterWork.php, CustAdd.php	eStudents.asp
tStudents.php, StuTransfer.php, STransferred.php	tStudents.asp
AddFaculty.php, FacAdded.php	AddFaculty.asp
TransFac.php, FacTransfer.php, FTransferred.php	TransFac.asp
AssignFac.php, FacAssigned.php	AssignFac.asp
sTranscripts.php, Transcripts.php	sTranscripts.asp
uStudents.php, Update.php, SUpdated.php	uStudents.asp
cwStudents.php, GetWork.php, EnterWork.php, eStudents.php, CustAdd.php	cwStudents.asp
uAssigned.php, UpdateAssign.php, AssignUpdated.php	uAssigned.asp
comStudents.php, StudentCom.php, Comments.php	comStudents.asp
gStudents.php, Getgrades.php, GradeUpdate.php	gStudents.asp
vStudents.php, ViewGrades.php, gStudetns.php	vStudents.asp
rcStudents.php, ReportCards.php	rcStudents.asp

rcStudents.php, ViewGrades.php, gStudents.php	rcStudents.asp
fStudents.php, Finals.php	fStudents.asp

Table 1 - Page consolidation

Log on authority

Below, Table 2 illustrates how the administrative, faculty and parent tasks were split. Included is a description of the task and the log on authority needed in order to perform the task.

Administrative Actions		
Task	Description	Log on Authority
New Sessions	Create new school session	Administrative only
Add Student	Add new students along with personal information	Administrative only
Enroll Student	Enroll students into courses and sessions	Administrative only
Transfer Student	Transfer student and information to different location	Administrative only
Add New Faculty	Add faculty per location	Administrative only
Transfer Faculty	Transfer faculty to different location	Administrative only
Assign Faculty to Sessions	Assign faculty to session per session information and location	Administrative only
Transcripts	Retrieve transcripts for student per student information and location	Administrative only
Faculty Actions		
Update Students	Update student information per student information	Faculty only

Course Work	Enter course work for various courses per student	Faculty only
Update Assignments	Update assignment information per student	Faculty only
Enter Comments	Enter comments per student	Faculty only
Enter Grades	Enter or edit grades per student	Faculty only
Calculate Final Grades	Calculate final grade per student	Faculty only
View Grades	View grades per student and location	Faculty only
Report Cards	View report card per student and location	Faculty only
Parent Actions		
View Grades	View grades per student and location	Faculty and parent
View Final Grades	View final grades per student	Parent only

Table 2 - Log on authority

CASE STUDY

Internet Information Services

With the required changes to the database completed, the original project intended the installation to be on an Internet Information Services (IIS) server, which was installed on the laptop. As this was not successful, a website was requested on a server at DSU and the work was continued on the project.

Log on Authorization

The three fields added in the database, A_Type, F_Type and P_Type, correspond to the checkboxes displayed on the log on page illustrated below in Figure 3. When an administrative member, a faculty member or a parent wishes to log in, he or she is required to check one or more of the checkboxes. It was decided to allow more than one option to be checked because of the possibility of user multiple privileges and authorization levels. He or she could then check one or more of the checkboxes, as needed, in order to accomplish their work. If a user would check a box that he or she did not have privileges to, then they would not be allowed into that particular section.

Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://www.students.dsu.edu/kuchtas/EDEC/Login.asp

Getting Started Latest Headlines

Welcome to the East Dakota Educational Cooperative Grade Book Program

You must login before you can see any data. Your login name and password should have been provided to you. If you do not have a login name and password contact the technician at 555-555-5555.

User Name	<input type="text"/>
Password	<input type="password"/>

Please enter your login name and password above, then select the appropriate button below.

<input type="checkbox"/> Administrator	<input type="checkbox"/> Faculty	<input type="checkbox"/> Parent
--	----------------------------------	---------------------------------

Done

Figure 3 - Log on Page

Below, Figure 4 shows the ToDo.asp page. If the user marked all three checkboxes but only had administrative and faculty privileges, just the administrative and faculty sections would appear.

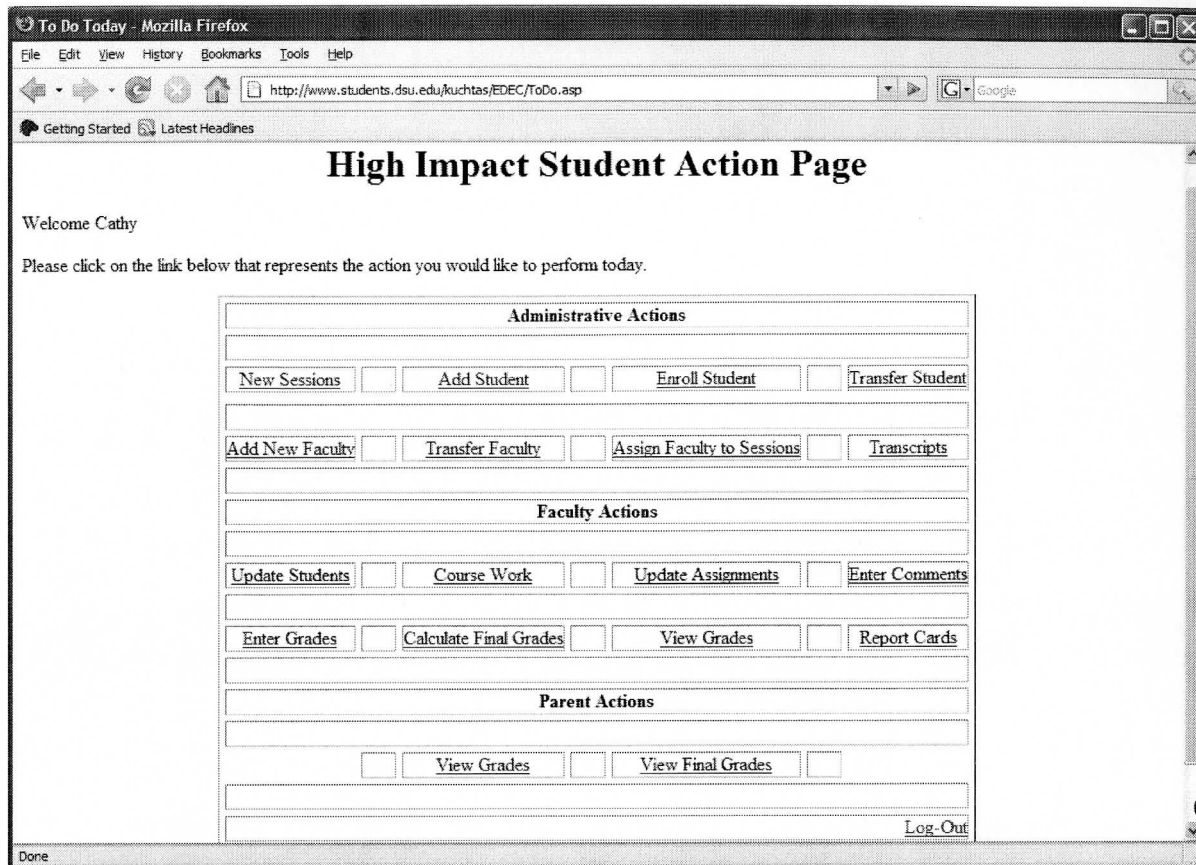


Figure 4 - ToDo page showing authorization

If the user marked all three checkboxes but did not have all three privileges, the only sections to appear would be the sections which the user has privileges for, as seen below in Figure 5.

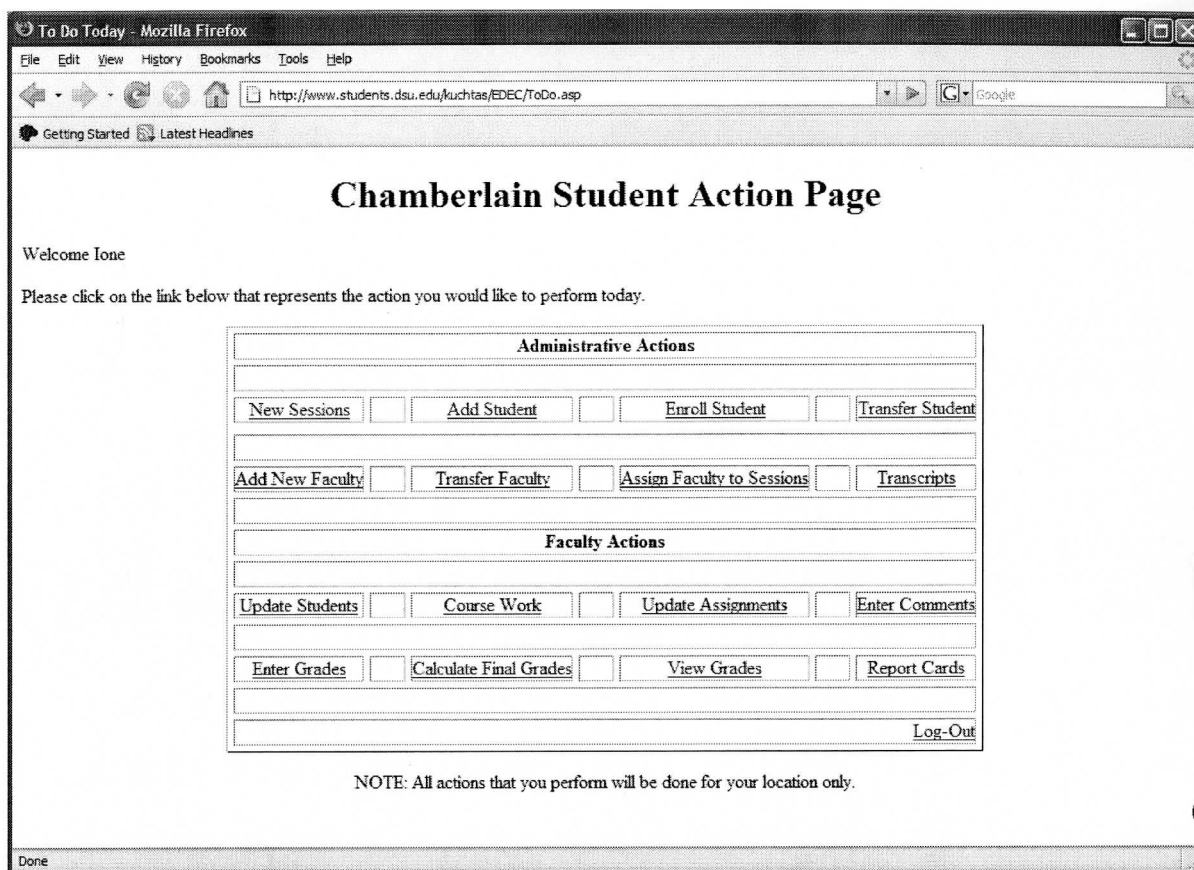


Figure 5 - ToDo page showing limited authorization

Page Consolidation

The consolidation of the PHP program pages into the corresponding ASP pages makes the program more efficient and easier to debug. The following descriptions of the various ASP pages are combined PHP pages as shown in Table 1. The combined Login.asp page accomplishes the following:

- Supplies contact information for user in case the site is down, accepts user name, password, and requires the user to check one or more boxes for the
- Ensures the user has authorization for appropriate privileges.

The ToDo.asp is a menu page which links to the various pages according to which actions the user wishes to perform and is grouped according to administrative, faculty and parent privileges. This page also has a link to log out.

The first action page is called New Sessions. New Sessions links to NewSession.asp and accomplishes the following:

- Requires the user to select the quarter from a drop down list, input the year in which the semester starts, input the start date and input the end date
- The user then hits the New Session button and the new session is entered

Quarter (Select One)	<input type="text"/>
School Year (YYYY) Enter the year in which the semester starts. (i.e., Starts 9/1/02, Year is 2002)	<input type="text"/>
Session Start Date (MM/DD/YYYY)	<input type="text"/>
Session End Date (MM/DD/YYYY)	<input type="text"/>
<input type="button" value="New Sessions"/>	

Figure 6 - New Sessions

The second action page called Add Student links to AddStudent.asp which accomplishes the following:

- The user to enters the first name, middle initial, last name, social security number, date of birth, arrival date, home school, referring person, referral phone number and the grade level of the student to be added
- The user presses the Add Student button and the student is added

Student Information Entry Sheet		
Student Number		To Be Assigned
Student Location		
First Name		<input type="text"/>
Middle Initial		<input type="text"/>
Last Name		<input type="text"/>
Social Security Number		<input type="text"/>
Date of Birth(DD/MM/YYYY)		<input type="text"/> <input type="text"/> <input type="text"/>
Arrival Date(DD/MM/YYYY)		<input type="text"/> <input type="text"/> <input type="text"/>
Home School		<input type="text"/>
Referring Person		<input type="text"/>
Referral Phone Number XXX-XXX-XXXX		<input type="text"/>
Grade Level		<input type="text"/>
		<input type="button" value="Add Student"/>

Figure 7 - Add Student

The third action page called Enroll Student links to Enroll Student eStudents.asp which accomplishes the following:

- The user to selects the student to enroll in the course, the information of the student is then presented such as the name, date of birth and date of arrival
- The user presses the Enroll button and the student is added to the course

The fourth action page is Transfer Student links to tStudents.asp which accomplishes the following:

- The user to selects the student in which to transfer to a different location, the information of the student is then presented such as the name, date of arrival and date of birth

- The presses the Transfer button and the student is transferred

The fifth action page called Add New Faculty links to AddFaculty.asp which following:

- The user inputs the new faculty information such as the first name, middle initial and last name
- The user presses the Add Faculty button and the new faculty is added

The sixth action page called Transfer Faculty links to TransFac.asp which accomplishes the following:

- The user selects the faculty in which to transfer to a different location. The information of the faculty is then presented such as the faculty number, current location and the name
- The user selects location from a list then presses the Transfer button and the faculty is transferred

The seventh action page called Assign Faculty to Sessions links to AssignFac.asp which accomplishes the following:

- The user selects or creates the session, then selects the faculty member
- The user presses the Assign Faculty button and the faculty is assigned

The eighth action page called Transcripts links to sTranscripts.asp which accomplishes the following:

- The user selects the student
- The user presses the Get Transcript button and the transcripts are displayed

The ninth action page called Update Students links to uStudents.asp which accomplishes the following:

- The user to selects the student and presses the Get Transcript button

- The student information comes up and can be changed accordingly; such as student number, location, first name, middle initial, last name, birth date, date of arrival and social security number
- The user to presses the Update button and the student information is updated

Option	First Name	Middle Initial	Last Name	Date of Arrival	Birth Date
<input type="radio"/>	\$StuFName	\$StuMidInit	\$StuLName	\$SDateArrived	\$SDateOBirth
<input type="button" value="Get Transcript"/>					

Figure 8 - Update Students

Student Information Entry Sheet	
Student Number	\$TStuNo
Student Current Location	\$LocName
First Name	\$TStuFName
Middle Initial	"); echo (" \$TStuMInit
Last Name	\$TStuLName
Birth Date	\$TSBDate
Date of Arrival	\$TSADate
Social Security Number (XXX-XX-XXXX) (i.e., 999-99-9999)	<input type="text"/>
<input type="button" value="Update"/>	

Figure 9 - Update Students

The tenth action page called Course Work links to cwStudents.asp which accomplishes the following:

- The user to selects standard or custom radio button then selects the student
- As a description to the course work the user inputs type of work, labs, homework, tests and quizzes along with the quantity of work and the number of points possible
- The user to presses the Course Work button and the course work is entered
- The user then enters assignment information such as assignment types, assignment descriptions and possible points

- The user then presses the Enter Work button and the assignment work is entered

The eleventh action page called Update Assignments links to uAssigned.asp which accomplishes the following:

- The user selects quarter, class, and student
- The user inputs the new assignment name, assignment description, grade received, grade possible, percentage, and the letter grade
- The user presses the Change Info button and the assignment is updated

The twelfth action page called Enter Comments links to comStudents.asp which accomplishes the following:

- The user selects quarter, class, and student then presses the Submit button
- The user inputs the date and the comment, presses the Comments button and the comments are entered into the database

Item	Information Required
Date (MM/DD/YYYY)	<input type="text"/>
Comment	<input type="text"/>
<input type="button" value="Comments"/>	

Figure 10 - Enter Comments

The thirteenth action page called Enter Grades links to gStudents.asp which accomplishes the following:

- The user selects quarter, class, and student then presses the Selected button
- The user inputs the new grade and presses the Change Grade button

The fourteenth action page called Calculate Final Grades links to CalcFinals.asp which accomplishes the following:

- The user presses actions menu Calculate Final Grades and the final grades are calculated

The fifteenth action page called View Grades links to vStudents.asp which accomplishes the following:

- The user selects quarter, class, and student
- The user presses the Selected button and the grades are displayed with the assignment description, grade received, grade possible, percentage and the letter grade

Assignment Description	Grade Received	Grade Possible	Percentage	Letter Grade
\$Assign	\$RGrade	\$PGrade	\$CalcGrade	\$LetGrade

Figure 11 - View Grades

The sixteenth action page called Report Cards links to rcStudents.asp which accomplishes the following:

- The user selects the student and presses the Report Cards button.
- The information is displayed. The information includes the location information such as the name, address and contact information. Along with that the information for the student is displayed such as the name, date, grading scale, home attendance center and social security number. Course information is included such as teacher name, quarter information, semester information, number of credits and comments

The seventeenth and final action page called View Final Grades links to fStudents.asp which accomplishes the following:

- The user selects the student and presses the Finals button
- The information is displayed such as course name, course quarter, course year, instructor name, grade and the letter grade

Option	First Name	Middle Initial	Last Name	Date of Arrival	Birth Date"); echo("
↻	\$StuFName	\$StuMidInit	\$StuLName	\$SDateArrived	\$SDateOBirth
Finals					

Figure 12 - View Final Grades

Course Name	Course Quarter	Course Year	Instructor Name	Grade	Letter Grade
\$CourseName	\$\$1Quarter	\$Quarter	\$FacFName \$FacLName	\$Grade	\$LetGrade
\$CourseName	\$\$2Quarter	\$Quarter	\$FacFName \$FacLName	\$Grade	\$LetGrade
\$CourseName	\$\$3Quarter	\$Quarter	\$FacFName \$FacLName	\$Grade	\$LetGrade
\$CourseName	\$\$4Quarter	\$Quarter	\$FacFName \$FacLName	\$Grade	\$LetGrade
\$CourseName	\$\$5Quarter	\$Quarter	\$FacFName \$FacLName	\$Grade	\$LetGrade

Figure 13 - View Final Grades

Distribution of Tasks

As seen in Figure 4, the administrative, faculty and parent actions are divided into three sections. Since administrative actions only deal with creating, adding, enrolling, assigning, transferring students or faculty and transcripts, there will be less of a need for users to log on under these privileges. These actions are needed at certain times of the year and should only be done by authorized personnel. Faculty actions will be accessed the most. Faculty will be required to constantly update student information, input course work, enter grades and comments, update assignments and view grades. Calculating final grades and creating report cards will not be as frequent but they do require faculty level of authorization. The parent actions will be used the least and is the lowest level of authorization.

Obstacles

The original plan was to install Internet Information Services on the laptop in order to use it as the server. IIS 5.1 was installed on Windows XP and problems arose. The IIS start page opened with all the help files, but access into the website was denied when the subdirectory and website were added under c:\inetpub\wwwroot. The program kept asking for a user name and password. Allowing an anonymous logon through the IIS Manager was the first unsuccessful attempt. The next attempt involved changing the user name and password through the IIS manager but this was also unsuccessful. The code below in Table 3 (Microsoft Support Website) was found within the IIS help files. Troubleshooting was not possible because this block of code ignored all errors. Communication with the database seemed unattainable.

```

On Error Resume Next
Set objASPError = Server.GetLastError
Response.Write Server.HtmlEncode(objASPError.Category)
If Len(CStr(objASPError.ASPCode)) > 0 Then
    Response.Write Server.HtmlEncode(", " & objASPError.ASPCode)
End If
Response.Write Server.HtmlEncode(" (0x" & Hex(objASPError.Number) & ")") & "<br>"
If Len(CStr(objASPError.ASPDescription)) > 0 Then
    Response.Write Server.HtmlEncode(objASPError.ASPDescription) & "<br>"
ElseIf Len(CStr(objASPError.Description)) > 0 Then
    Response.Write Server.HtmlEncode(objASPError.Description) & "<br>"
End If

```

Table 3 - IIS logon authentication code

Information was found on the Microsoft website concerning error code 401.1. The document stated that this code is by design and it instructed how to disable the loopback check. The registry was modified accordingly but this also failed. After obtaining a space on Dakota State University's web server work on the project continued.

Another obstacle encountered was the difficulty interpreting another person's style of coding. This experience has both positive and negative sides. It is a positive real-world experience because a person will rarely have to build a program completely from scratch. It is likelier that a person will have to modify code in order to build new modules or add/modify existing functions. It is a negative experience in that every programmer has his or her own way of programming. It would have been a great advantage to have been able to observe how the previous program performed.

Another problem encountered was the learning curve required for ASP. It is unlikely a person will find a book which will provide all the tools necessary to complete a project from start to finish. Other resources of programming information are needed. The Internet was a resource chosen to find samples of existing code to modify for various needs. Below in Table 4, lists some snippets of code to show differences between PHP and ASP.

PHP	ASP
Registering session variables	Registering session variables
<pre> <? session_register("UID"); //user ID session_register("UName"); //user Name session_register("con"); //ODBC info ?> </pre>	<pre> <%@ Language=VBScript %> <% If Request.Cookies("UID")="" Then Response.Redirect "login.asp" Else if Session("UID") = Request.Cookies("UID") Session("UName") = Request.Cookies("UName") Session("UTime") = Request.Cookies("UTime") End if %> </pre>
ODBC connect and get session information and execute statement	Get session information and execute statement
<pre> \$con = odbc_connect("Grades"); \$sqlg = "SELECT * FROM Enrollment "; \$resultg = odbc_exec(\$con, \$sqlg); </pre>	<pre> strSQL = "SELECT * from Enrollment" Set RS = server.CreateObject("ADODB.Recordset") </pre>

Table 4 - PHP versus ASP

CONCLUSIONS

At the start of this project, the goal was to make a fully functional online program for use in an education institution. It is through long hours of programming and conversion that the necessity of modifying this goal should include the knowledge gained by the process of completing this project.

Four changes were made to the website conversion of PHP to ASP program. The first change was made to the Comments table of the database. The faculty at East Dakota Educational Cooperative wishes to have the comment field increased so a more complete description of the student's progress can be included within the student's record. The second change to the program dealt with both the database and the program itself. The program has three user privileges including administrative, faculty, and parent authorities. Administrative and faculty members wish to be able to log on as an administrator, faculty or parent user. The addition of three fields in the Login table within the database of A_Type, F_Type and P_Type along with checkboxes on the login page will allow users to log on at any or all three user levels as long as their user privileges permit. The third change dealt with the execution and debugging. In order to make the program easier to debug and to decrease transmissions between the client and server, the third change to the program combined fifty-four PHP pages into seventeen ASP pages. The fourth change to the program dealt with the distribution of tasks between the administrative, faculty and parent users. In order to ensure database changes are made only by users with appropriate authority, administrative tasks will now deal with the creation of sessions, addition/enrollment/transfer of students, addition/transfer/assignment of faculty and the creation of transcripts. Faculty tasks will deal with student/assignment updates, entering of course work/comments, entering/calculating/viewing grades and creating report cards. Parents will only be allowed to view grades and final grades.

The importance of timeline adherence and constant examination of the project is imperative. This process involved the understanding of the logical steps of the project life cycle. The development and constant assessment of the Gantt timeline demonstrated the project life cycle from the anticipated perspective versus the completed perspective. With

some PHP background, it was not too difficult to pick up on to deal with the syntax required to interpret PHPs' commands. With no experience in ASP the complications encountered in learning ASP was more difficult than expected. Interpreting another person's code was both time consuming and rewarding. These experiences are problems faced by programmers on a daily basis.

When the project was started, a goal was to keep the program as ASP version 3.0 because it would be able to run efficiently outside of the .NET framework. Now, most computers have enough power to hold the .NET framework. The next logical direction would be to make a separate program to in .NET in order to take advantage of the framework. I also plan to implement security procedures to help ensure the privacy of the students' education records.

At this time, some pages of the code have yet to be combined and converted to ASP. The source code is not displayed since some code pages are not yet completed. This process will be continued to its fruition. The original plan has developed into a closer example of a working program.

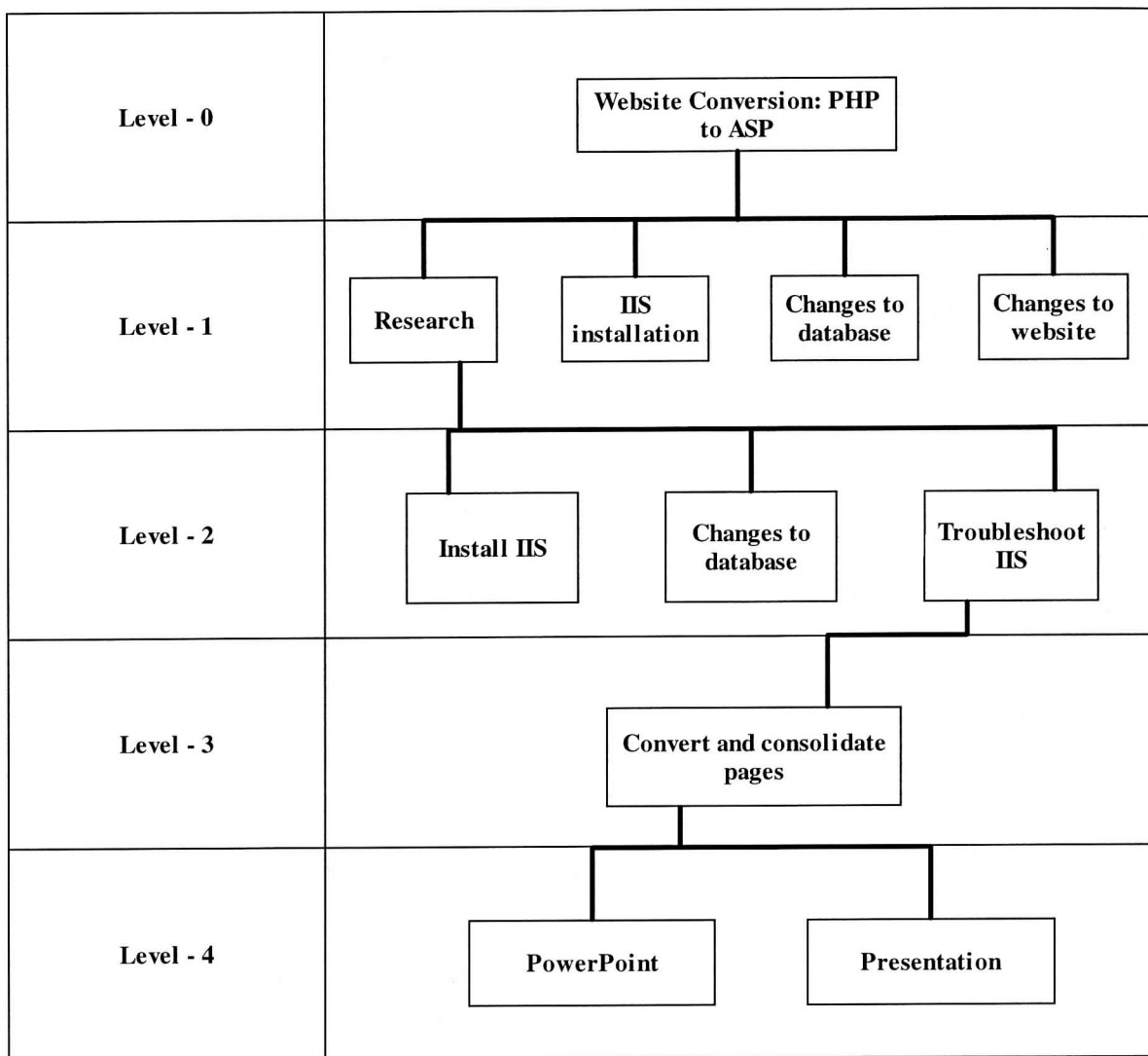
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- Luke Welling and Laura Thomson (2003). PHP and MySQL Web Development, Second Edition. Sams Publishing. ISBN: 0-672-32525-X. (I used this book as a guide for PHP and SQL syntax).
- Scott Mitchell and James Atkinson (2000). Sams Teach Yourself Active Server Pages 3.0 in 21 Days. Sams Publishing. ISBN: 0-672-31863-6. (I used this book for a general start in programming in ASP).
- Evangelos Petroustos and Kevin Hough (1999). Visual Basic 6 Developer's Handbook. SYBEX Inc. ISBN: 0-7821-2283-3. (I used this book for Visual Basic syntax and scripting).
- Microsoft Support Website. Website: <http://support.microsoft.com/kb/896861>. (I used this site to troubleshoot IIS).
- 4 Guys from Rolla. Website: <http://www.4guysfromrolla.com/>. (I used this site for examples and snippets of code in to adapt for my uses).
- W3Schools. Website: <http://www.w3schools.com/>. (I used this site for examples and snippets of code in to adapt for my uses).

APPENDICES

APPENDIX A: WBS AND GANTT CHART

Work Breakdown Structure



APPENDIX B: SOURCE CODE

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