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Teaching Tip

Incorporating ASP.Net in an Information Systems Curriculum

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ABSTRACT

The challenge of providing information systems graduates with the optimal balance between the old and new technology is a constantly evolving process. This teaching tip introduces Microsoft's ASP.NET technology, which can be used as a bridge to integrate mainframe and client/server technologies. In order to maximize the benefits of using ASP.NET, students need to understand and apply the interrelated concepts of Windows XP professional security system, the Web Server structure, and the .Net Visual Studio setup routine for the development environment.

Keywords: Internet, Web, WWW, Mainframe, E-Commerce and ASP.NET

1. INTRODUCTION

Internet/Web-based technologies have exploded in recent years. Consumer shopping on the Internet is projected to increase to $1 trillion by the end of this year and Electronic Data Interchange (EDI) is predicted to grow to $500 billion (United States Department of Commerce, 2004). This global growth in Internet-based commerce creates a demand for IS personnel who can develop Internet applications. The fast growth of these sectors is pressuring academic institutions to provide IS and IT professionals with skills that are required for this rapidly changing technological environment.

Academic institutions are continuously revamping curriculum to incorporate the latest information technology developments to meet industry demands. Universities' desire to stay current with the latest Internet technologies becomes a tight-rope walk as between integration of new technologies and maintenance of current offerings. The primary objective of this paper is to introduce practical tips using Microsoft's ASP.NET technology, a relatively new Web technology platform. In the sections that follow, we briefly describe how to set up the client side software (Windows XP and .NET), as well as for the server side, (Microsoft's Internet Information Services (IIS) and Visual Studio.NET) and suggest ways to avoid some common problems our students encountered.

2. SOFTWARE SETUP

Both authors are faculty members at a large public university in the Midwest United States that offered a senior-level topics course in Web site development using ASP.NET for the 2003/2004 academic year. Visual Studio.NET was used as the integrated development platform because of the ease with which it allows both client-side and server-side processing on a single personal computer. Microsoft's IIS Web server works with Visual Studio.NET for program development as well as program testing and debugging. In addition, Visual Studio.NET includes features for stepping through the logic of a program line by line, gives students the ability to set break points, and watch variables during execution. We believe that these features enhance student learning.

3. WINDOWS XP AND .NET SETUP

It is important to stress the order of installation for proper operation of IIS and Visual Studio.NET—IIS must be installed before Visual Studio.NET. IIS is not normally included with a computer purchase, even when Windows XP Professional is installed. Therefore, students must first check to see if IIS is installed on their computer by to going to Add/Remove Programs in the Control Panel of the Start Menu and selecting Windows Components. If IIS is not installed, students can simply select IIS Details and install the IIS Snap-in. After IIS is installed, students can install the Visual Studio.NET software.

ASP.NET requires a basic understanding of the Windows operating system including the ability to assign the appropriate permissions to files and folders, especially for users of Windows XP Professional. Therefore, prior to installing the software, the instructor provided a short introduction to Windows XP Professional, focusing on its security aspects.

To complete the course exercises, the students must have administrative privileges on their computers. However, we observed that the students' computers were often set up with defaults that prevented the students from changing the security settings on the files and folders. To check the security levels of files and folders, the student should first open Windows Explorer. Under Tools, folder options are presented via a drop-down menu. Students should select Folder and locate the simple file sharing option near the bottom of the list and ensure it is checked.

Without the ability to set permissions and file sharing characteristics, students will not be able to test their Web sites because the Web server will not grant them the required access to files, folders and databases within those folders. Once the students are able to view the security tab, they can set the permissions and file sharing characteristics of the project folders and the files within the folders. Figure 1 illustrates the user and group permissions options. If these permissions are not set correctly, students will get "access denied" errors and "unupdatable database" errors from the Web server.

Within the user and group box, students should be able to see the Administrator at this time. Next, students should add a group within Windows XP that includes the label "aspnet" and the group should be given Full Control by simply selecting the Add button; and on the next screen by typing "aspnet" (the actual group name might be named slightly different). Figure 1 illustrates the completed screen.

It is important to note that setting the permissions for full control and access increases the risk of unwanted access when the student's computer is attached to the Internet. Therefore, the instructor should recommend against connecting to the Internet with these settings during the duration of the class. Most students choose to dedicate their laptops for the course and reverse the settings after the semester, thus avoiding any security problems. If this was not possible (student needed their laptops to connect to the Internet during the duration of the class), the network administrator for the department set up four computers for student use that had IIS and Visual Studio.NET installed but were not connected to the Internet.

After students have the necessary IIS settings and the security permissions properly set, they can create the application folder within the IIS root directory. Thus, Visual Studio.NET can be set up to recognize the application through its Tools menu by identifying the correct path within the project and solution option. Figure 2 shows the application folder called TechSurvey located within the IIS root directory—C:\inetpub\wwwroot\TechSurvey—so Visual Studio.NET is connected correctly with the application. After establishing this connection from the IIS application folder to the Visual Studio.NET project and solution path, students should be able to code, test, and debug their applications successfully.

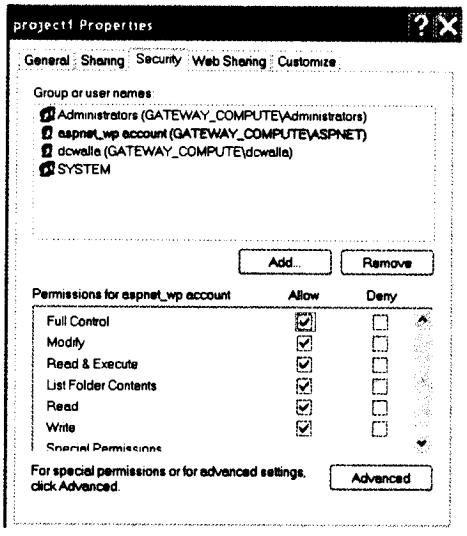

Figure 1. Security Permissions

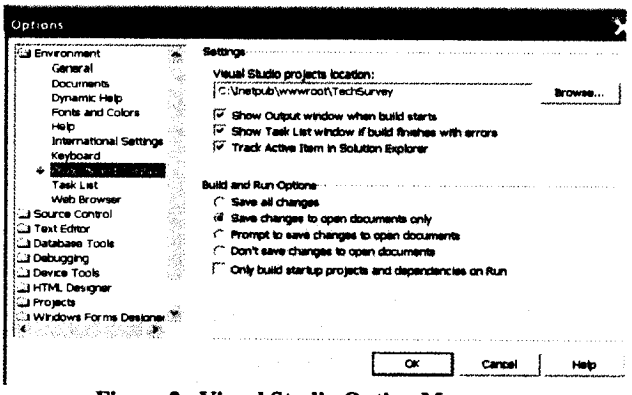

Figure 2. Visual Studio Option Menu

4. CONCLUSION

Information systems curriculums should accommodate both the traditional mainframe as well as the Internet client/server environments to best serve their graduates and the information technology field. With the increasing importance of the Internet in the communications, commerce, and entertainment sectors, academic institutions should incorporate bridging software, such as ASP.NET and the IDE Visual Studio, and expand their curriculum to allow for the integration of Internet client/server technologies and traditional mainframe technologies. . Bridging technologies can play an important role in helping students close the gap between Web-based client/server and

mainframe technologies by focusing on the integration of those two components within the spectrum of applications that often encompass each approach for a more dynamic and cost effective use of an organization's computing resources.

5. REFERENCES

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AUTHOR BIOGRAPHIES

David C. Wallace is an Assistant Professor in the School of Information Technology at Illinois State University. He has been teaching in the areas of Large Enterprise Systems utilizing the zOS operating system as well as Web Site Development to include both ASP.NET and Java Server Pages. Currently, he has helped to integrate the large enterprise system and client/server technologies into a comprehensive four year curriculum. This new curriculum has been well received by many of ISU's business partners who hire our graduates and interns.

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