Database Applications in Visual Studio .Net

Prerequisite: CS201 and CS222 (CS326 preferred) or consent of instructor.

Objective: Prepare the student to develop database applications for a business that utilizes Microsoft Visual Studio. Most assignments and class examples will use C#. However, Visual Basic will be covered lightly (see Assignments below). This is a survey class so I really want each student to take the initiative to study ahead of class lectures and to do their own research and experimentation on the topics covered.

Resources:

- **Text**: C# Software Solutions: Foundations of Program Design by John Lewis (optional). This introductory programming text will be used to teach the C# language syntax during the first 3 weeks of class. If you know Java and C++, you may elect to not purchase the text and study on your own.
- **Text**: ADO.Net 2.0 from the Applications Programmer Standpoint by Ken Culp (required). This is a preliminary book that will be available from the book store early in the semester.
- **Text**: Beginning ASP.Net 2.0, published by Wrox Press (optional). This text is available for reading (free) online at `Books24x7.com` if you access the site through the NMU Library page.
- Laptop computer with Visual Studio .Net and SQL Express. Contact the help desk to install this software. The installation takes quite some time (up to 1 hour or more).

Attendance:

Attendance is required and will be checked daily. In case of an illness or other emergency that results in class absence, you are responsible for keeping up with assignments. Do not assume that I know you are ill. **Since attendance affects your grade, documentation will be required for excused absences**. Use e-mail to let me know. Note also that being tardy twice will count as one absence.

Individual Programming Assignments:

These will be short programming projects take from the book or passed out in class. You can use Visual Basic on a few individual programming assignments if you are trying to learn VB as well. It is strongly recommended that you complete some assignments in both languages but the language that will be tested and used in class is C#. These will be show to me during lab time in class or during office hours.

Projects:

One or two major group projects will be assigned during the semester. I am looking at the possibility of an Academic Service Learning (ASL) project where we, as a class, would develop a database application for a local government group.

Exams:

I have listed two exams. I really don't want to take time to have these exams and I may decide to eliminate one of both of them if everyone is doing their part and is showing good understanding of the material covered. I may, instead, evaluate individual progress by having frequent quizzes during the material presentation portion of the class or by individual programming projects. There will be frequent reading assignments.

Midterm Group Project Review and Report:

Your mid-project review will be both written and oral. The oral portion will be a formal presentation as a group where you will show what you have working so far and describe the work remaining. You should show that portion of the project that is functional as well as review your database design. This is a very formal process and each person is to participate and explain their work so far on the project as well as what they will be doing on the remainder of the project.

A formal document that covers the above topics will be submitted for grading. Treat this as if this was a real job and you were submitting your work for corporate management review.

Final Group Project Review and Report (Tuesday, April 29, 2008):

This midterm process will be repeated on the day of the final exam including the formal paper. I will be inviting faculty members and the government groups for whom you have been working. I expect each of you to dress accordingly (ties not required, but no cutoffs).

Also, you will submit your working solution. Understand that this final paper will be used as a turn-over document to give to those that will extend or maintain your program. Your final paper will include the following.

1. A detailed analysis of the code. You should describe the structure of the program including a list of modules (source files) with what each module contains and its function. Also, describe any unusual algorithms used.
2. A detail of the database design including tables and the columns in the tables with their data type and purpose.
3. List the lessons learned. Each group member should attach their own lessons learned document as well as a group lessons learned. This is <u>not</u> a recapitulation of the material covered in the class. Instead, these are those tough problems that you had to conquer, interesting surprises that you encountered, or unexpected side effects of some of your work. Give good details so what you write can be used to teach others.
4. List all work that you were unable to complete because of time but fee should have been included in the first release of the product. Give enough details so that they could be implemented by someone else at a future time.
5. List future enhancements that you thought about but did not incorporate. Prioritize these and give the reason(s) (customer benefit) for the need of the new features.

Final Project Submission (Tuesday, April 29, 2008):

will be grading not only what the program does but how it was coded. Use good coding techniques with good object-oriented design. This means that you should divide large methods into smaller methods so that no single method exceeds a couple of screens of code (excluding comments).

Each method should be well documented by an XML document header. Also, you should comment all non-obvious variables as to their function as well as code lines that are not obvious. If I cannot figure out what you are doing, you will not get a good score.

The final project is to be submitted on CD and should include the items listed below. This will be due at least 24 hours before the final exam date so I can review them. I suggest you submit a trial version for my evaluation a week or two in advance (even if some changes are still being made). In this way, I can give you feedback on your report and coding.

1. The complete project directory with all source files and the executable subdirectories.
2. A sample database.
3. Instructions (Microsoft Word) on how to install the project and set up the connect string. In other words, how and where to install/copy the database and any changes needed to the settings to reflect that installation.
4. Your final report (Microsoft Word)
5. Lessons learned papers from each group member.

Web Development (ASP.Net):

If time permits, we will explore writing web applications using ASP .Net 2.x or 3.x. .Net allows actual code to be written for the server side (as opposed to scripts) which are compiled as DLL's and debugged on a remote station. If this is covered, I will create site(s) for you on my server.

Graded Items:

There will be a major exam over the C# language and one on ADO. There will also be several small graded programming assignments worth 10 points each (see grading system below). The remainder of your grade will be based on group programming assignments which will be presented to the class. The Final Exam will be your presentation on a large group programming project.

Approximate Grading Scale (there may be more or less quizzes)**:**

5 individual programming projects	50 points
C# Syntax Exam (this may be omitted at my discretion)	100 points
ADO Exam (this may be omitted at my discretion)	100 points
Midterm Group Project Review	100 points
Final Group Project and Presentation	100 points
Class participation, attitude, attendance and effort	50 points
Approximate Total:	500 points

Approximate Grading Scale:
A: 90-100 %; B: 80-89 %; C: 70-79 %; D: 60-~9 %; F: < 60 %.
To pass the course you must complete all projects.

Contact Information:

Email	kculp@nmu.edu
Phone:	227-1841

Office Hours (NSF 1005):	TR:	8:00am - 8:50am
	TR:	11:00am – Noon
		1:00pm – 2:30pm
		(other hours by request)

When possible, let me know in advance when you plan on coming in. If I happen to have stepped out during these hours, the secretary in NSF 1001 should know where I am and how long I will be gone (it should be brief). If the above listed hours do not work with your schedule, just catch me before or after class and we can schedule another time.

Students with Disabilities:

If you have a need for disability-related accommodations or services, please inform the Coordinator of Disability Services in the Disability Services Office by: coming into the office at 2001 C. B. Hedgcock; calling 227-1700; or e-mailing disserv@nmu.edu. Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and University guidelines.

Logistics of Group Development:

As a group, you will be dividing the work load among group members. Keeping this fair is one of the most frustrating parts of group work. Also, there may be one or two that just will not carry their part of the load. I want no surprises here. If you are having trouble here, I want to know about.

Another problem that occur in group development is "where is the current version of this module." I suggest you keep a master project notebook where you document each assignment made and when the module(s) are returned. We will talk about this in class.

Backups:

As a group you will be investing a lot of time and effort into developing your projects. As a result, you should develop an excellent backup policy that includes having copies in multiple locations. I suggest you use a thumb-drive to copy the master project and then pass that to others.

Final Commitment:

You and I are a team in this class with the same objective – for you to learn the material and to receive a passing grade in the class. However we must work together as a team. Your job on our team effort is to give all assignments your very best effort **AND** ask for help when needed. My job is to insure that you learn the material. Do you part as noted above and I commit that you get a good grade.