CP212 Assignment 5

Winter 2013
Marks: 100 - Does not use the standard rubric.
Weight: 10.2%
Due Date: Saturday, March 30 , 2013 before 11:45pm
If you have problems meeting the due date, please discuss your situation with me.

Do not zip your assignment. Just upload your file into the Dropbox on MyLearningSpace.

Marking Scheme

Documentation:	15
UI/UX/Aesthetics:	15
Application:	70
Total Marks:	100

Objectives

- Create and develop a complete application that **reads and writes information from/to a database**, produces a **chart using Excel**, and creates **a report in Word**.
- Write an **application overview** and **documentation** in a separate Word document. If you make a game, provide **instructions** on how to play the game as part of the overview.
- Develop your application using **modular programming**, **error handling** and the effective programming techniques discussed throughout the course.

Description

There is a great deal of flexibility in this assignment so have fun with it. Listed below are a number of options for you to choose from. Create a useful application that does all of the following:

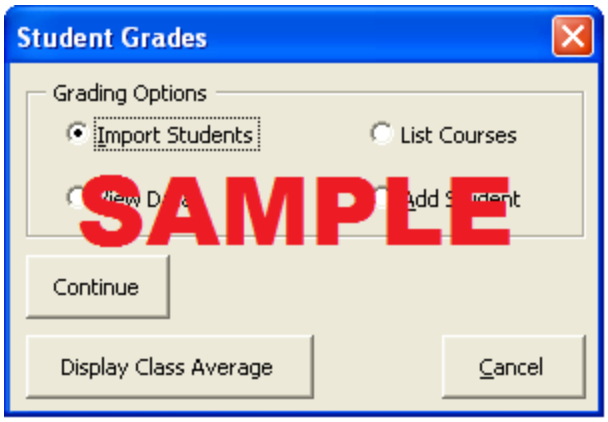
- read and write information from/to an **Access** database
- generate a report in **Word**
- create a chart in **Excel** using data taken from the **Access** database, and include the chart in the **Word** report

A video of part of one application could be seen in this video (created by me).

Choose 1 of the following:

1. **Student Marking Application**

An application for storing student grades. One screen for the application could look like this (its just an example):



Your application should import data from a database, chart some results in Excel and generate a report in Word (not shown on the dialog above) that displays the chart (for example, class marks of an assignment chosen by the prof). This kind of application should also include averages and standard deviation of grades.

The "Add Student Info" form should be used only to add students that are not on the spreadsheet. After the teacher enters the data, clicking the **Add** button should place the student data on the spreadsheet. Clicking the **Save** button will write all students in the spreadsheet back into the original data file.

Data Formats

data.csv - First line contains the headings for each column:
StudentName,StudentID,A1,A2,A3,A4,M1,FinalExam

registrar.mdb: Open the database to view the field names of the Courses table.

Files You Will Need

data.csv
registrar.mdb

Both are located inside data_201301.zip

Tips:

- When reading in the data, store it in an array(s) and then work from there.
- The Student Grades (main) dialog box / form can be made to stay on the screen the whole time by making it a Modal dialog box. To make the form modal, use code such as: frmMain.Show modal
- The teacher can modify grades directly on the spreadsheet.
- Import Students - imports the data from a comma separated values (.csv) file the user specifies. The software should display a FileOpen Dialog to allow

the user to choose the file from any location. Use the file methods discussed in class, not Excel's import data tool.

- You can assume the name of the database will never change, and it will always be located in the current folder (the same folder as the Excel file that contains the code). Before you begin you can open the Access table to find the names of each field.

4. **Camp Management Application** - Your customer runs a children's overnight camp through the summer and needs a piece of software to manage / track the campers and where they are sleeping as well as other camp related things such as food allergies. Discuss this idea with me, especially if you are a camp counsellor at a children's camp.

3. **Other Ideas:** Discuss them with me first. Must be able to use Word, Access and Excel. Other types of applications similar to 1. above could include an invoice system, or something used by Human Resources or a volunteer/asset tracking system for a non-profit organization.

Alternatively: If you don't like the options above you may try:

4. **Game in Excel**
Some simple games created in Excel can be a simple hide-and-seek game based on a square, grid map. Using a two-dimensional array it is possible to create a 16x16 map that a player can travel through. One famous example includes **Hunt The Wumpus**, and is often used as an assignment in **Artificial Intelligence** courses where the student must write a program that can travel a maze to find and kill the Wumpus. The Wumpus has a horrible stench that can be smelled when you are within 1 square around the Wumpus (think Minesweeper). If the player lands in the same square as the Wumpus, he dies. The player must also avoid bottomless pits (the player can feel air breezing past when he is near a bottomless pit, the Wumpus is too large to fall through the pit). The player has a stun gun that she can use to stun the Wumpus and win the game. You could create a game where the player can try and win or write an AI program that can win the game and keep track of how many times it can win (a simulator). Typically, the Wumpus lives in a dark cave so the player cannot see the rooms and so is travelling blindly.

4. Additional (especially for CS majors, but others may attempt): Soduku solver, KenKen solver, Reversi, Go, Warri/Mancala, Conway's Game Of Life simulator, ~~MineSweeper~~

References

1. An online version of Hunt the Wumpus
2. Wumpus at Wikipedia
3. Wumpus image for more explanation (breeze from the pits is not marked on this map)