

Visual Basic Project #2

Diabetes Monitoring System

Due March 9, 2004

Background

Although diabetes is not curable, it is a treatable disease and individuals who take a proactive role in their own treatment achieve the best long-term results. One of the critical functions of a proper diabetes management plan is monitoring blood sugar levels. Exercise is also a key component to managing diabetes. In this assignment, you will build an interface that allows the user to input their daily blood glucose and exercise information.

NOTE: Monitoring blood glucose levels is typically a very complex task. This assignment features a simplification of those tasks. Therefore, this system should in no way be used to monitor any real person's glucose readings or exercise habits.

Interface Requirements

Login Screen

Your interface will allow an entire family to monitor their diabetes information. Your system should have the following two users' data built-in, and these users can log in by simply typing/selecting their first name. However, your program should also feature the ability to handle up to nine users.

This information should not necessarily be displayed on the login screen, but instead will be pertinent to other screens in the interface.

Patient's Full name	Patient's ID Number	Doctor's Name	Doctor's Phone Number	Low Glucose Levels (mg/dL)	Normal Glucose Levels (mg/dL)	High Glucose Levels (mg/dL)	Number of days exercised in the past 6 days
Sara Norman	5344-9709	Dr. Jason Rosenberg	579-0432	< 80	80-140	> 140	5
Gregg Norman	1275-4307	Dr. Nikhil Singh	334-2309	< 70	70-120	> 120	2

Once logged in, every other screen in the interface should clearly display the current patient's name and ID number. It should also allow them the option to log out at any time.

Blood Glucose (Sugar Level) Monitoring

You should ask the users if they have taken their blood sugar reading today. If they have, you should allow them to input their reading. If not, you should prompt them to do it immediately and then record the results.

(Acceptable input values are numbers 0 through 999.)

If the user's reading is in their low range (refer to chart above), you should notify them that this is a reading that is low. You should remind them to eat a sugar source, take their medicine, and eat meals and snacks as described by their doctor.

If the user's reading is in their normal range, inform them that their reading is within a normal range.

If the user's reading is in their high range, you should notify the user that their blood sugar is high. Ask them to call their doctor immediately, providing both their doctor's name and phone number. You should then ask them if there is a presence of ketones in their urine.

For any abnormal readings (i.e. in the too low or too high ranges), you should request the user to explain why they feel their reading isn't normal (Allow them to input such reasons as Drank soda, Has the flu, Ate a big lunch, etc.)

Exercise Monitoring

After the system has analyzed their daily glucose level, it should ask the user if they have exercised today. If they have exercised, allow them to choose which type of exercise they performed (Walk, Jog, Run, Swim, Bicycle). Also, allow them to report for how many minutes they performed the activity. If they haven't exercised, ask them to provide a reason why they did not.

Report to them the total number of days they exercised this week (today + their past six-day total). If it falls below 4 days, you should remind the user that it is below their doctor's recommended amount.

Completion

After completing all of the above tasks, allow the user to log out. This should bring up the initial login window and allow the next user to begin using the system.

Help

Throughout the interface, you should include ways to guide the user through the interface, such as mouse-over dialogs and error prevention techniques. You should include help buttons that will activate information to assist the user in case they get lost.

NOTE: Your help documentation will be essential during grading, as it will allow you to showcase and describe all of your features in detail.

Grading criteria

The grading for this assignment will be based on four criteria:

1. Completeness: Did you do everything that was listed in the interface requirements? Did you follow the submission instructions listed below correctly?

2. Graphic Design: Did you make good use of concepts such as alignment, group, consistency, etc?

3. Aesthetics: Did you an appealing interface by using appropriate fonts, colors, images, etc?

4. Coding Style: The quality of the software design (Efficient data structures, proper naming of variables, comments, etc.)

5. Name of System: Did you clearly display the name of your interface? Is it creative and appealing? Does the name convey the functionality of your system?

You should work independently on this assignment.

Bonus - Earn up to an extra 10%

Build an on-line tutorial (using screenshots, video or animation) to instruct the user how to operate the program.

Submission Instructions

You will submit your assignments electronically. Before submission, you should create a ZIP file containing each of the following:

1. Your entire VB project directory (including ALL source code)
2. The executable (EXE file) for the project
3. A JPEG screenshot showing off what you consider the most impressive action and form of your interface. Name your JPEG screenshot: '<lastname>-<first-initial>-VB2.jpg'.

Please name your ZIP file: '<lastname>-<first-initial>-VB2.zip'.

Before submission, you should test the ZIP file in the WAM lab or on your computer in a different user account. Make sure the EXE file is included and can be executed without any problems.

After you have successfully created your zip file, go to the CMSC434 web page (<http://www.cs.umd.edu/class/spring2004/cmssc434/vbprojects.html>) and follow the electronic submission instructions. This assignment is due by 9:30 a.m. on March 9, 2004.