Fife College

Systems Development: Developing Small Scale Standalone Applications

H17W 34

Outcomes 2,3,4

Scenario

You have been commissioned to design an application that will support people who wish to lead a healthy lifestyle. The client needs a desktop application which will run on the Microsoft Windows 10 operating system. It is anticipated that the application will be developed using the Microsoft Visual basic .NET programming language.

Functional Requirements

The following functionality is required:

1. A login page – users will be required to provide a legal username and password combination to access the application

2. A Register Page – users will be able to register by providing a username and password. The application should check to ensure the username is not already taken.

3. A "food calories counter" page – the user will be able to choose a "food type" from a given list (e.g. Apple, Banana, Egg, Burger King Whopper etc.). The list of foods does not need to exhaustive – just sufficient to demonstrate the functionality and to allow for adequate testing to be undertaken. The user will then enter an amount of this particular food type, and the appropriate calories count will be calculated and displayed (e.g. 4 x Apples @ 65 calories each = 260 calories)

4. An BMI calculator. The user will be prompted to enter his/her weight and height, and the BMI will then be calculated and displayed. The following formulae should be used:

Imperial	BMI = (Weight in pounds / (Height in inches * Height in inches)) * 703
Metric	BMI = (Weight in Kilograms / (Height in Meters * Height in Meters))

5. An individual blog/diary page for each user. The user will be able to record a "diary entry" whenever he/she wishes. These entries will be stored in chronological order

6. A reports page. This page will calculate and display the following information:

    a. The average weight of all users
    b. The highest weight of all users
    c. The lowest weight of all users

It is expected that you will demonstrate the standard algorithm for these rather than using built-in functions

Submission Requirements

Design

You are required to produce a Design Document.
The Design document should comprise:

1. Structure Chart
2. Screen Designs for each page
3. Pseudocode describing the Algorithms for the reports page functionality e.g.
    a. Average, highest, lowest

Development

In the first instance a prototype of the application is required.
The prototype should demonstrate all of the functionality described in the functional requirements. You should upload your entire Visual Studio Project file to the submission link provided by your Lecturer.

Testing

You are required to produce Testing Documentation comprising:

- Test Plan with an appropriate range of tests and sample data
- Results of testing
- Usability Test Document
- Evidence of Usability Testing with at least three users

Deployment

You are required to demonstrate that you have successfully deployed the prototype as appropriate for the development environment. Typically this will involve generating an executable file or a standalone installer. This should be submitted once your project has been marked as a pass.

Additional Information

Your Design and Prototype must:

- Demonstrate an appropriate range of event handlers.
- Demonstrate use of a range of standard libraries.
- Use array data structures appropriately
- Demonstrate use of a least one nested control structure (e.g. a selection construct used within a loop construct).
- Demonstrate use of a range of operators (arithmetic, logic and Boolean).
- Make use of argument passing to user defined code ‘blocks’. Include appropriate internal documentation.

The prototype should include an appropriate amount of data to allow for adequate testing.

The prototype should contain basic input validation to ensure that the prototype runs without error. This should cover eventualities such as the user leaving blanks or entering incorrect input.