Assignment 2 – VB .NET Application Development

## Purpose

This assignment serves as an introduction to VB .NET, developing a VB .NET solution to calculate the scale of an aerial photo.

* To gain a basic familiarity with a VB .NET solution.
* To understand basic object oriented programming.
* To design, plan, and develop a practical VB .NET solution. Which includes:
  + Designing User Interface
  + Validate user inputs
  + Perform mathematical calculations
  + Format the output results etc.

## Deliverables

1. Create a folder called **MapScale** under **x:\students\YourStudentName\gisc9304\assignment2.**  The folder will contain your VB.NET solution named **LastNameMapScale.**
2. Properly formatted cover letter. **\*\*Assignments with missing or unsigned cover letters will not be accepted\*\***
3. Printed code.

## Requirements

Your VB .NET solution will perform the following:

### Allows the user to enter:

1. The focal length (**f**) of an aerial camera system (in centimetre)
2. The flying height (**H**) of the aerial camera (in metre);
3. The elevation (**e**) of a selected point on a photo created using the system detailed in the above parts 1) and 2) (in metre).
4. Calculate the air photo scale at elevation (**e**) according to the equation:  
   **S = f / (H - e)**   
   Where S is the air photo scale as a dimensionless ratio (see above for the meanings of **f**, **H**, and **e**).

The application should display the calculated scale (**S**) in an appropriate text window or label in the format of notation as 1:xxx,xxx,xxx (note that xxx,xxx,xxx is an integer!).

### Validating Data

1. The user will be allowed to input only positive values for **f** between 0.10 and 99.90 cm (inclusive).
2. Only positive values between 1.0 and 1,000,000.0 m (inclusive) can be input for **H**, and those between -413.00 and 9,000.00 m (inclusive) can be input for **e**. The 9,000.00 m is set based on the fact that the peak of the Mount Everest is 8,848m high and the lowest point is -413 at the Dead Sea shore.
3. If the user does not enter the values within these specific ranges, a warning message must show up and the user will have the chance to re-enter their values (Note also (**H - e**) cannot be less than or equal to 0).
4. The user also is allowed to clear the inputs and recalculate the scale.

### Notes:

* A properly formatted cover letter using the correct template and signed by hand is required!
* Code **must** include comments including title, author, date and purpose.
* Although less important in this task the Graphic User Interface (GUI) should be carefully thought through.
* Labels, text, prompts and messages must be legible and formatted correctly
* Include a logo or graphic of some sort (ideally, your company logo) in your application.

# DUE DATE: November 16th/18th 2014

## Late Penalty: 10% a day including weekends. After 1 week late assignments will not be accepted.