

# CISS 160 Homework – Loops, Listboxes, Random Numbers

The grade you earn will be based on a number of factors, including overall quality/correctness/validity of your application, following the file naming guidelines, following the compressed folder guidelines (see below and Syllabus), and following the other guidelines such as comments for your name, programming comments, test cases etc.

## General guidelines for each program:

> Include three comment lines within each program's Form1.cs file with your name, student id number, date, and goal/purpose of the program:

//Author: Your NAME

//ID: Your Student ID Number (NOT YOUR SOCIAL SECURITY NUMBER)

//Date:

//Goal-Purpose of the Program: (...your description...)

> within any program file where you write source code, include comments throughout your code describing in your own words, what the various sections of your code are doing; single line comments can be preceded by two forward slashes  
//COMMENT...

> for each program create a Text file in the folder where your project files are located and call it TestPlan.txt – edit that file for each program below to include a description of the different 'Tests' that you performed to give yourself assurance that your program is valid/is working correctly; this can include validating data to be numeric, validating that required data was entered, exception handling, other tests to verify specific calculations, functionality, verifying User Interface events etc.

## Write the C# programs described below:

> the requirements for each program will be described as a paragraph below OR the requirements will be represented as a compiled .exe of a program (note: this is not source code) that I include in the assignment folder so you can see a running version of how your program should work

> we will cover general aspects of various programming elements during lectures, but it is up to you to combine the lecture learning components along with the textbook reading to create a specific solution

> any images/graphics that are needed will be included in the assignment folder or I will provide in Angel

(see next page)

# CISS 160 Homework – Loops, Listboxes, Random Numbers

1. (150 Points) *Note this is a significant number of Homework points, so... you can recover some lost ground on prior assignments by doing well on some or all of this multi-topic assignment.*

Lottery Number Random Guessing Program - Looping, Random Numbers, Listboxes in C#. Create a C# windows form that demonstrates the use of looping, combined with random number generation, to see how many attempts it takes your program to generate a random number that matches a user specified winning lottery number.

**- Use the enclosed .exe as an example and create a program that looks and functions the same**

**- Use the enclosed Pseudo-code / sample code text file completed by students in class as a guideline for the structure and sequence of your C# code**

**- Start with the enclosed .zip file of a Visual Studio folder with a Starter Solution with the Form Design already completed, leaving it up to you to create the C# code – BE SURE TO EXTRACT THIS .ZIP INTO A STANDARD WINDOWS FOLDER (e.g. MyDocuments) BEFORE YOU OPEN THE STARTER SOLUTION IN VISUAL STUDIO**

Be sure to refer to the general programming guidelines listed above. Name your project:

## **LotteryLoopRandom - Your Name**

THINK: Building Blocks... get incremental parts of the logic working and then keep adding incremental functionality until you have it all done... break it down! AVOID the 'Big Bang' - trying to code it all-at-once approach!

This Form will allow the user to enter 3 digits of a winning lottery number into 3 individual text boxes. Then the user can click a "I'm Feeling Lucky" button which will start a repetitive cycle (think: looping / think: *while...*) of generating 3 random digits, verifying if the 3 random digits match the 3 winning digits, logging each match attempt in a ListBox control, exiting the loop if a match is found OR exiting the loop if the number of attempts so far is greater than 1,000. Inform the user of the end result: winning or losing, and how many attempts were made/how many loop cycles were executed.

a) Setup 3 Text Boxes to hold the 3 winning number digits to be compared; and 3 Label fields to display the 3 random number digits

b) Add an "I'm Feeling Lucky" Button

c) Upon clicking the button, start a looping process... with each execution of the loop: 1) generate a set of 3 random digits 2) display the 3 random digits in the labels on the form 3) compare your three random digits to the three winning digits entered by the user 4) if the 3 random digits DO NOT match the 3 winning digits in the same sequence left to right, then keep looping up to 1000 times max 5) if the 3 random digits DO match the 3 winning number digits in the same sequence left to right, then stop looping, change the background color of the random number digits to green

NOTE: if somehow your program 'hangs' / runs indefinitely in Visual Studio, chances are you have an infinite loop situation (bad!); if so, click on the red Visual Studio 'Stop' icon, go back to your code, and figure out why your code is not breaking out of the loop (think: add a *break*; statement somewhere)

d) Also, while looping, keep track of the running 'history' of what happened after each cycle of the loop, by showing a line in a ListBox control displaying what the random number was and what the winning number was and what the result of the match attempt was, adding one item to the ListBox for each match attempt made. { think: [your listbox control name].Items.Add(...) }

e) Stop looping once 1,000 attempts have been made from a single button click, also stop looping *if* a match is found before 1,000 attempts were made. After looping, tell the user how many attempts were made and if they were successful or not ( think: `MessageBox.Show()` ).

f) Include a Clear All button that clears all the textboxes, labels and ListBox.

Take all of your completed project folders above and copy them into a folder named:

## **LoopListRandom - Your Name**

Zip up this folder and submit the zip file in this dropbox by the due date and time.