Assignment#2 – Linear Data Structure & Delegate

Due Date: Midnight of June 14, 2024 (Friday)

Purpose: The purpose of this assignment is to help you:

- Understand linear data structure
- Understand delegate
- Review Windows Form applications

Instructions: Be sure to read the following general instructions carefully:

This assignment should be completed individually by all the students. You are encouraged to demonstrate your solution during lab session, and submit your solution **through the dropbox**. You must name your submission according to the following rule: **studentID(yourlastname)_ASSnumber.zip**. e.g., 300123456(**smith)_ASS#2**.zip

Rubric

	Functionality	**Marks**
Q1	creates a Dictionary containing 10 key/value pairs, and display all elements in the dictionary	2
Q2	GUI	2
	Add unsubscribe() for SendViaEmail and SendViaMobile	0.5*2
	When Subscribe button is clicked, an object of SendViaEmail or/and an object of SendViaMobile is/are instantiated , and should be added to corresponding collection(s) if the email or/and mobile has/have not been subscribed before; finish the subscription	2*2
	When UnSubscribe button is clicked, removed the corresponding object of SendViaEmail or/and an object of SendViaMobile from corresponding collection(s) if the email or/and mobile has/have subscribed before ; finish un-subscription	2*2
	Validate email	1
	Validate mobile	1
	Publish notification	2

	Use two collections to hold SendViaEmail objects and SendViaMobile objects respectively	0.5*2
	Overall (code readability, app usability, etc.)	2

Question1 [2 marks]

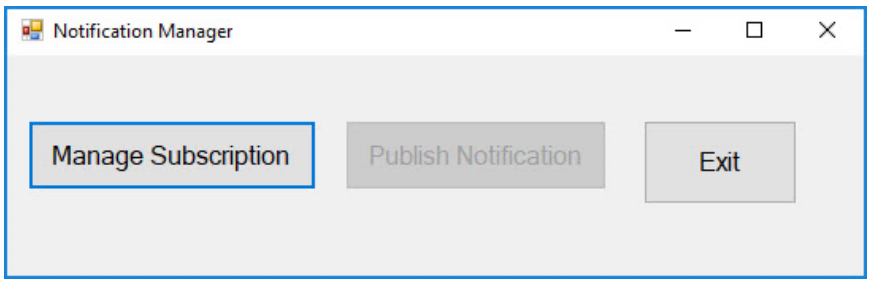
Suppose you are asked to develop a course management system for our college. Your supervisor asks you to utilize a **Dictionary<TKey, TValue>** to store and manage course information. Implement a console app to create the dictionary for storing course records, add new course, access course info, iterating over the dictionary to display all course details (e.g., course code, course title, course description, the number of the credit, etc.)

Question2 [18 marks]

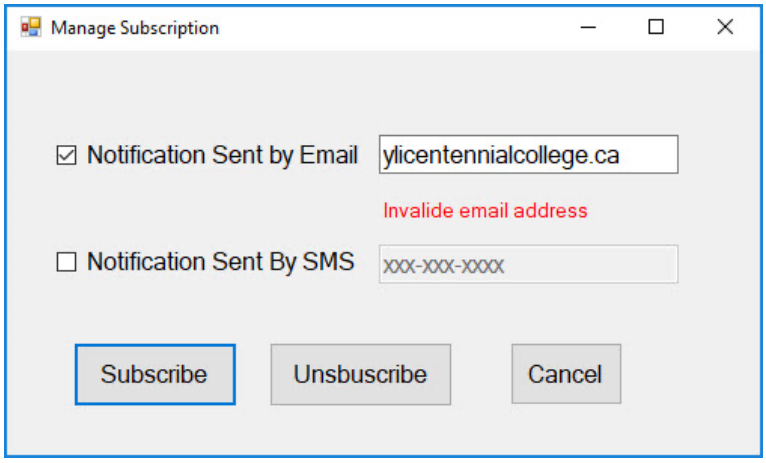
In the real world, the notification management system consists of two parts, one is to allow clients to subscribe/unsubscribe the notification, and another part is to facilitate administrator(s) to publish the notification. This assignment simplifies the problem, and merges two parts as one. In this assignment, you are asked to implement a C# WinForm application to mimic notification management system. **You are required to use delegate**.

Your app facilitates clients to subscribe/unsubscribe notification as well as send notification to all subscribers. Your App needs to make sure that the provided email address is valid and provided cell phone number is followed the specified format.

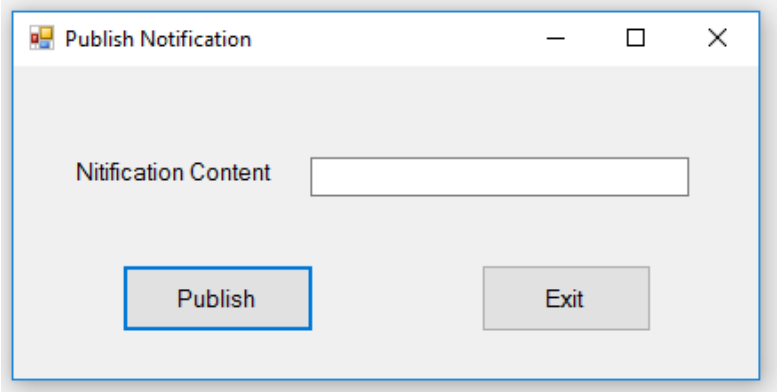
After the app has been launched, following GUI (or similar one) should be presented. As there is no subscriber when the app just launches, "Publish Notification" button is disabled.



After ***Manage Subscription*** button clicked, following GUI (or similar one) should be popped up to allow clients to subscribe or unsubscribe notification. If an invalid email address has been provided, error message should be provided.



After ***Publish Notification*** button clicked, following GUI is presented to facilitate notification publish.



Please make sure:

1. No duplication subscription is allowed; in other words, if the user tries to subscribe using same email multiple times, your app should not allow it.
2. Your app should be able to deal with multiple subscribers. [hint: use collections to hold the subscribers' information]