Lab Assignment 4 (Fall 2021)

To do this lab, you will need to use **C#** in **Visual Studio Professional 2019**. You can access this program in **Mohawk Apps**, while either on campus or at home. Alternatively, while on campus a local version can be accessed from the **Start Menu**, or, you can download and install it as described by the instructions in the **Student Resources** sub-section located in the **Modules** section of the course page.

To Be Graded – General Details:

- This program will be marked for 6% of your final grade
- Please examine the **Marking Scheme** **(https://mycanvas.mohawkcollege.ca/courses/92934/pages/lab-assignment-4-fall-2020#jump)** to see the marks breakdown
- This program needs to have appropriate internal comments, as well as **XML comments** for *every class* and *every method*
- This program also needs to have an appropriate comment block at the top of all code files that contains:
  - Your name and student number
  - The file date
  - The program's purpose
  - Your **Statement of Authorship** **(https://mycanvas.mohawkcollege.ca/courses/92934/pages/statement-of-authorship)**
- Bundle your project into one Zip file, and upload it to the appropriate **Lab Assignment** **(https://mycanvas.mohawkcollege.ca/courses/92934/assignments/838006)** on MyCanvas
- Please read about **documentation** **(https://mycanvas.mohawkcollege.ca/courses/92934/pages/program-documentation)** style
- Programs that are late will be penalized 10% per day (includes each day of a weekend)
- Programs that do not compile or do not include a **Statement of Authorship** **(https://mycanvas.mohawkcollege.ca/courses/92934/pages/statement-of-authorship)** will be penalized 10% for each

Part A: It Takes All Sorts

In Lab 1 you read a file of *Employee* objects into an array. That array could be sorted on any of the fields of the class. Since then, we've learned about **properties**, **generics**, **collections**, and **lambda expressions**.

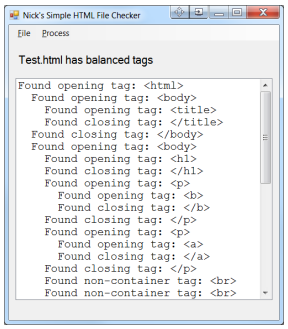
Using your solution (or **mine** **(https://mycanvas.mohawkcollege.ca/courses/92934/files/17176704/download)**

(https://mycanvas.mohawkcollege.ca/courses/92934/files/17176704/download?download_frd=1))
rewrite Lab 1 so that it:

- Eliminates the need for **Get()**/**Set()** methods in the *Employee* class by using properties instead
- Eliminates the array (and the arbitrary limit) that stores all of the *Employee* objects, and instead utilizes a generic **List<T>** collection
- Eliminates the **Sort()** method that you researched and instead relies on the built-in **Sort()** method of the **List<T>** collection
- Makes use of the *IComparable* interface so that each field of the *Employee* class can be sorted
- Alternatively, you can use a **lambda expression** for sorting instead of the *IComparable* technique
- Looks and behaves identically to the solution for Lab 1 but utilizes the above changes
- Contains a highly modularized **Main()** method

Part B: A Tangled Web

Project Name: Lab4b



(right-click to view)

Write a Windows Form App (.NET Framework) that:

- Makes use of a GUI interface that has **menu options**
- The **File=>Load** menu option displays an *OpenFileDialog* to allow the user to select a valid *HTML* file
- Makes use of the *OpenFileDialog.Filter* property to allow only HTML files to be selected
- Uses a generic **Stack<T>** collection to read the *HTML* file and determine if the *HTML* container tags are properly balanced
  (that is, each opening tag has a corresponding closing tag)
- Displays a status indicating whether the container tags are balanced, or not balanced
- Ignores certain *HTML* tags that are not container tags (such as <img>, <hr> or
)
- Contains a modularized **Process=>Check Tags** method
- You may download this **sample program**
  (https://mycanvas.mohawkcollege.ca/courses/92934/files/17687810/download)
  ↓
  (https://mycanvas.mohawkcollege.ca/courses/92934/files/17687810/download?download_frd=1) for a demonstration of program behaviour
- Here are examples of good and bad test files that you can use to test your program: **TestFiles.zip**
  (https://mycanvas.mohawkcollege.ca/courses/92934/files/17176765/download)
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