Project 3—Famous Philosophers Database

Objectives:

➢ Introduce a project with multiple classes in C#.
➢ Introduce and use the List<T> class.
➢ Introduce and use text file I/O.
➢ Introduce two searching algorithms.
➢ Introduce two sorting algorithms.

Your philosophy instructor has asked you to design a quick and easy program to keep track of the some pertinent data for famous philosophers for her Philosophy 101 class she is offering next quarter. Currently no such program exists and it is difficult to update the information of the philosophers.

Write a C# program that allows the user to manage a simple philosophers database with ability to display, add, edit/modify, delete and search for the philosophers. Sample GUI is provided as one example of an implementation. There is a lot of flexibility however for your vision of how to design and implement this database, as long as your implementation has all of the required functionality.

Your program must contain/do:

1. The philosophers GUI driver (see screen capture below) as the main user interface.
2. A Philosopher class that contains in order name of philosopher, country of birth, year of birth, famous work, summary of main philosophical tenet, and Internet link for more information on the philosopher. The class should also include a default and an overloaded constructor, accessors and mutators, toString() method, and an equals() method to be used to prevent duplication when adding new philosophers to the database.
3. Read the philosophers information from an external file/DB and display the pertinent information about the philosophers in a GUI-based driver. You can decide for yourself the back end: it can be pipe (|) delimited text file (as shown below), Access or Excel file, SQL, XML, or anything else you wish. An example of data with comma delimited text file might:

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    Socrates|Greece|469|Dialog by Plato|The field of ethics was the specialty
of Socrates and introduced a concept that has been dubbed as elenchus, or the
Socratic method. He contributed much to the field of logic and
epistemology.|http://www.biography.com/people/socrates-9488126
    Voltaire|France|1694|Plato's Dream and Micromégas and Candide|Voltaire
was an advocate of some of the most basic freedoms, he believed in the freedom
of expression, religion and voiced this through his witty writing. One of his
favorite targets was the Catholic
church.|http://www.biography.com/people/voltaire-9520178
    Karl Marx|Germany|1818|Das Kapital|Marx has been labeled as a
"revolutionary socialist" for his belief in what has been called dictatorship
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of the proletariat. In addition to espousing his own philosophies, he was also a sociologist, economist, journalist, and historian.|http://www.historyguide.org/intellect/marx.HTML
        Aristotle|Greece|384|Categories, Metaphysics, Nicomachean Ethics, Politics|Aristotle was a Greek philosopher and scientist, better known as the teacher of Alexander the Great. He was a student of Plato and is considered an important figure in Western Philosophy. Famous for his writings on physics, metaphysics, poetry, theater, music, logic, rhetoric, linguistics, politics, government, ethics, biology, and zoology, he is considered much ahead of his time.|http://www.thefamouspeople.com/profiles/aristotle-116.php#fC7iL6lVjUXVxZGL.99
        Plato|Greece|428|Cratylus, Phaedo, Phaedrus, Republic, Symposium, Parmenides.|Plato was always concerned with the fundamental philosophical problem of working out a theory of the art of living and knowing. His goal was to show the rational relationship between the soul, the state, and the cosmos.|http://www.iep.utm.edu/plato/
        Confucius|China|551|Analects, Meng-tzu, The Great Learning Ta Hsüeh, The Doctrine Of The Mean Chung Yung|Confucius's philosophy focused on creating ethical models of family and public interaction, and setting educational standards.|http://www.biography.com/people/confucius-9254926
        René Descartes|France|1596|The Word, Discourse on the Method, Principles of Philosophy|He is famous for having made an important connection between geometry and algebra and for having promoted a new conception of matter, which allowed for the accounting of physical phenomena by way of mechanical explanations.|http://plato.stanford.edu/entries/descartes-works/
        Bertrand Russell|England|1872|Principia Mathematica, A History of Western Philosophy, Why I Am Not a Christian|His most influential contributions include his championing of logicism (the view that mathematics is in some important sense reducible to logic), his refining of Gottlob Frege's predicate calculus (which still forms the basis of most contemporary systems of logic), his defense of neutral monism (the view that the world consists of just one type of substance which is neither exclusively mental nor exclusively physical), and his theories of definite descriptions, logical atomism and logical types.|http://plato.stanford.edu/entries/russell/
        Syed Ahmad Khan|India|1817|The Causes of the Indian Revolt, The Life of Muhammad|He was deeply devoted to the cause of education and believed that widespread education was the only way to enlighten the masses. A distinguished scholar, he was a progressive thinker who played a major role in promoting social, scientific, and economic development of Indian Muslims.|http://www.thefamouspeople.com/profiles/sir-syed-ahmad-khan-5492.php#U21PEvGkZkivXoHU.99
        Henry David Thoreau|American|1817|Walden, Civil Disobedience|He is known for transcendentalism, civil disobedience and for his love for literature and nature.|http://www.thefamouspeople.com/profiles/henry-david-thoreau-1608.php

4. Ability to add new philosophers, modify existing ones, delete and search philosophers from the database. Adding a new philosopher or editing an existing one should be done via separate forms. I suggest you have two separate classes even though they appear very similar—their functionality differs substantially.
5. Provide a confirmation dialogue before deleting a philosopher.
6. Checks should be performed not to add duplicate entries of the same philosopher, and that all of the required fields are valid and included when adding/editing a philosopher.
7. A data structure of philosophers to hold the members data. This should be a List.
8. Detailed description of the program, and comments.

9. Menus that synchronize with corresponding buttons and with at least the following menu choices:
    - File with Clear, Print, and Exit menu items.
    - Sort with Sort by Name and Sort by Year of first performance.
    - Action with Add, Delete, Edit (with choice to save or cancel changes) menu items, and Search.
    - Help with About menu item for an About form.
10. The program should start with a Splash Screen that closes itself after so few seconds and it should contain an About form activated from the Help menu.
11. Display the philosophers sorted by name (with one sorting algorithm) or sorted by year first performed (with another sorting algorithm).
12. Well designed and efficient GUI with images and ease to use.
13. Print the information for a specified philosopher (with the Print JButton) and print the entire form (from the File -> Print selection).
14. Enable and disable Buttons and menu choices appropriately (so, for example, if the Edit JButton is pressed the others, including the corresponding menu choices and the ListBox, should be disabled until the editing is done).
15. Include a Splash screen, an About form, images, and an icon.

Extra Credit (Optional for 0-5points) There are numerous ways to obtain extra credit for this project, in various degrees of difficulties. All of them are optional: you do not have to do any of them, but you can do one or two or you can do them all.
   1. Make the URL link to the Internet site for the philosopher "hot". Clicking on the link should open up that page and display more information on the philosopher.
   2. Add at least nine more philosophers to the database with complete and correct information (but short summary).
   3. Extend the search capabilities to include search by keys in other than name of the philosopher (name of philosopher, year, city, etc.).
   4. Change the images on the main form that correspond to images from the highlighted philosopher.
   5. Add a separate Validation class to the project with methods such as isInteger(), isEmpty(), isValidName() and others that use regular expressions. For extra, highlight in different color the faulty fields.
   6. Use xml file for the philosopher database. This a bit more challenging for it requires some understanding of C# xml parsers and required/associated xml classes.
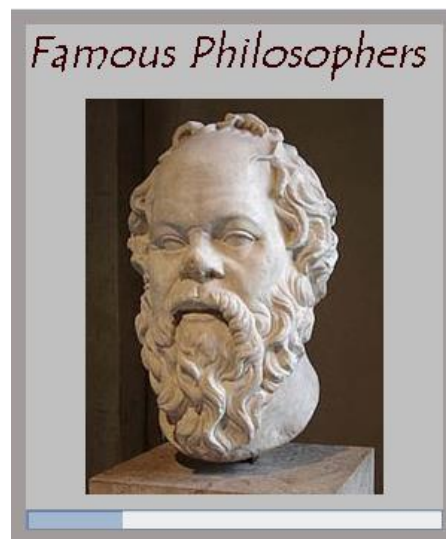
Guidelines:
The best advice I can give is to *draw a detailed flowchart prior to coding this project*—it saves a lot of headaches later! Other than that, here are few hints:
⇒ Create a Philosopher class and List of philosopher objects from the Philosopher class for your main database.

⇒ Use a ListBox to list the names of the philosophers when sorted by name or name and year first performed when sorted by year.

⇒ Selecting a philosopher from the ListBox should display all the information about that philosopher on the main form.

⇒ Synchronize the menu choices with the corresponding buttons.

⇒ Enable and disable buttons and menus with appropriate context.

⇒ No form should be resizable or maximizable.

⇒ Synchronize the menu choices with the corresponding buttons.

⇒ Provide two sorting methods for sorting by philosopher name and sorting by year first performed.

⇒ Changes to the database should be dynamic. For example, if a philosopher is deleted, that philosopher should not show up in the ListBox after being deleted and it should be deleted from the text file.

⇒ Provide displayPhilosophers() method that displays only the name of the philosophers after the sorting method by names is called and displays name and year after the sorting method by year is called.

⇒ Print the form and print details for a selected philosopher.

⇒ Provide methods for checking if a philosopher exists in the database and prevent duplicating a philosopher when adding or editing.

⇒ All philosopher information display fields are not editable.

⇒ When adding or editing a philosopher, validate entries for correct type and range. Consider using a Validation class with regular expressions for this purpose.

⇒ Provide Tooltip with appropriate messages for various controls.

⇒ Make sure the summary TextBox has appropriate settings for multiple lines and the cursor is positioned at the top or front.

Screen Captures:

Famous Ballets

Famous Philosophers

Aristotle
Bertrand Russell
Confucius
Henry David Thoreau
Karl Marx
Plato
René Descartes
Socrates
Syed Ahmad Khan
Voltaire

Name of philosopher: | Confucius
Country of birth: | China
Year of birth: | 551
Famous work: | Analects, Meng-tzu, The Great Learni
Summary of philosophy: | Confucius's philosophy focused on creating ethical models of family
Link to Internet: | http://www.biography.com/people/co

Add   **Edit**   **Delete**   **Exit**

Add New Ballet Form

Add New Philosopher

Name of philosopher: | Gottfried W. Leibniz
Country of birth: | Germany
Year of birth: | 1716
Famous work: |
Summary of philosophy: |
Link to Internet: |

Save   **Cancel**

You might find these partial comments worthwhile—each counts as a -1 point.

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/*~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~*~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
'Comments by the prof:
'Great effort.  Here are suggestions for improvement:
'1. Use comments throughout the program, not just at the top heading.
'2. An image of philosophers logo (or other) would enhance the look of the form.
'3. Did not implement printing of philosopher--it is required.
'4. Make the Add button default.
'5. Make all philosophers information display fields non-editable.
'6. Validate all entries.
'7. It is good style to tab code inside a method.
'8. Provide buttons for adding, deleting, editing philosophers and exiting the application.
'9. Declare all constants if there are any.
'10. Clear the ListBox display box before you use it and populate it with philosophers as the
form loads.
'11. Change the tab sequence to indicate correct order of entry.
'12. Show all forms centered.
'13. Provide check for philosopher duplication--do not allow two philosophers in the database
with identical information.
'14. Follow the C# naming convention for naming variables, constants, methods and classes.
'15. Read the philosophers data from an external file or database.
'16. A separate Philosopher class for the project is required.
'17. Printing of GUI is required.
'18. Add new non-existing philosopher only if all required fields are included and are valid.
'19. Enable menu choices that synchronize with buttons' functionality.
'20. Provide a sound data structure for the Philosophers--List is preferred.
'21. Sort the data with two different sorting algorithms by name and by year of first
performance.
'22. Disable maximization and resizing of the forms.
'23. Add a meaningful About form which describes the project in detail.
'24. Add a Splash screen that starts the project, displayed in the middle of the screen.
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'25. Provide ToolTip to help user navigate through the form.
'26. Need separate forms/classes for adding/editing a philosopher.
'27. Highlighting a philosopher in the ListBox should display that philosopher's information
in the corresponding text fields.
'28. Make changes to the database dynamic. For example, if a philosopher is deleted, that
philosopher should not show up in the ListBox after being deleted. It should be deleted from
the file as well.
'29. Add ability to search for a philosopher in the database.
'30. Add icons/images to the forms.
'31. Center forms on start-up.
'32. Program crashes on adding a philosopher with empty fields.
'33. Program crashes on Cancel in Edit.
'34. Confirm deletion of a philosopher.
'35. Adding a philosopher requires adding it to the text file as well as to the philosophers
ListBox and it should highlight that new philosopher.
'36. Save the newly added or edited philosopher to the external file.
'
'The ones that apply to your project are:
'
'4, 5, 12, 25, 35
'25+1=26/30
'~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~*/
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