Programming 2 Tutorial

Goals:

Learning how to create, implement, and expand classes

Create an app that lets you display class, student, and teacher information

Outline goal

Display Classes to be taken

* Name of the class
* Class Number
* Teacher who teachers
* Students who attend (multiple)

Display Teacher Information

* Name ( First Name and Last Name
* Classes they teacher

Display Student Information

* Name ( First Name and Last Name)
* Classes they attend

Create a Menu that will let the user execute different commands

* Display Teachers
* Display Students
* Display Classes
* Add Classes
* Add Students
* Add Teachers
* Add and remove students and teachers to classes

Step One – Page One:

Building your first class

* Display how to add a class to your project
  + Right Clicked
  + Add
  + Class
  + Give a name
* Display how to organize classes. Comment…
  + Fields
  + Constructor
  + Properties
  + Methods

Step Two – Fields:

Create and explain fields

* Explain why we consider two fields
* User place holder for teacher and strings
* Make them public ( Save access modifies for later )
* Create a SchoolClass instance in Program ( explain instance )
* Have change name, teacher, and student ( explain dot modifier )
* Have display name, teacher, and student

Step Three – Constructor:

* Explain the purpose of a constructor
* Naming a constructors
* Explain the default constructor
* Explain creating our own constructor and how it gets rid of the default constructor
* Calling your constructor

Step 4 – Properties

* Explain why we have properties
* Construct a properties
* Explain Getters
  + Demonstrate Creating one, and then what happens if we remove it
* Explain Setters
  + Demonstrate creation, then what happens when we have one and when we don’t
* Remove public from our fields

Step 5 – Create a list of Classes in Program

* Create a single SchoolClass object
* Display the information from the object
* Create a list of SchoolClass objects;
* Add that original class, display the information using the list.
* Create two more classes, add them to the list.
* Create a method that can be used to display the classes.

Step 6 – Create the Teacher class

* Create fields,
  + First Name - string
  + Last Name – string
  + Teacher Class – SchoolClass ( explain object in object )
* Create a constructor
  + Must take a first and last name ( a teacher can be an employee without a class )
* Create properties
* Create a Teacher object
* Display Teacher first and last name
* Add a class to the teacher
* Display teacher and class information
* Create a teacher list
* Add two more teachers
* Add classes from Class list

Step 7 – Create a student class

* Create fields,
  + First Name - string
  + Last Name – string
  + Student Class – SchoolClass
* Create a constructor
  + Must take a first and last name ( a student can be enrolled without having classes )
* Create properties
* Create a Student object
* Display Student first and last name
* Add a class to the student
* Display student, class, and teacher information
* Create a student list
* Add two more students
* Add classes from Class list

Step 8 – Change School Class to take a teacher and student object

* Go back to SchoolClass class and change teacher type from string to teacher
* Change Student from string to student object
* Change code in program
* Redo code to properly display information

Step 9 – Create the menu to display information

* Create the menu with 3 options
  + Display Classes
  + Display Teachers
  + Display Students
* Test
* Create methods to display classes, teachers, and students

Step 10 – Add menu option to interact with classes

* Auto display classes
* Select a class
  + Give option to add a teacher / switch teacher
  + Give option to add or remove students
* Add a class
  + Take a name
  + Add class to list
* Go back to previous menu

Step 11 – Add menu option to interact with Teachers

* Auto Display Teachers
* Select Teacher to work with
  + Auto display teacher classes
  + Give option to add teacher to class
  + Give option to go back to teachers
* Give options to go back to menu

Step 12 – Add menu option to interact with Students

* Auto display students
  + Select student to display info
    - Auto display student classes
  + Add student