# Dr. Dan's GUI Tips:

1) Use **WindowBuilder** (or some other drag-and-drop editor)
   a. The Luna version (at least for Windows) has Window Builder built in and you will not need to install it.
      i. Otherwise, to install, go to the following website and click on the "link" for the "Update Site" which corresponds to the version of Eclipse that you have installed, and follow the directions on that page:
      ii. https://eclipse.org/windowbuilder/download.php
   b. It makes for some VERY messy and VERY ugly code, but is far more easy to get the exact design you want
2) To get the **look and feel** of the current OS (so your program will look like the OS you are running it on):
   a. In Eclipse, click on *Window->Preferences->WindowBuilder->Swing->LookAndFeel* and make sure the check box at the top of the page that says "Apply chosen LookAndFeel in main() method" is checked
   b. Then, make sure <system> option is selected for the Look and Feel in the Design tab for WindowBuilder (you may need to select one of the other ones, save your GUI, and then change back to <system> to get it to update properly):


3) To create a **new GUI Application**, once WindowBuilder is installed, click the WindowBuilder Icon (top-left), and then *Swing->JFrame*, as seen below:
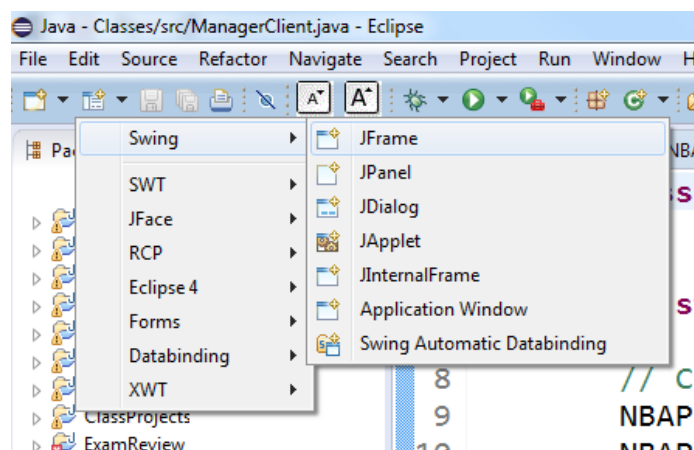
4) Make all **components private instance variables** that you want to add some action to
5) Create two **methods** to go in constructor:
   a. initComponents()
   b. createEvents()

    c. You might have to copy/paste some of the auto-generated code from WindowBuilder into these methods once or twice for it to "learn" where you want this code….but then it will do it automatically

6) Recommend having at least 3 **packages** to keep things clean
    a. "views" package where all your GUI/window classes exist
    b. "common" package where all your basic object-oriented (non-GUI) classes exist
    c. "resources" where all your images and icons will go
        i. When you find an image (make sure to only use images that are **not prohibited by copyright to use**), simply place it in the src/resources folder on your hard drive (this folder is automatically created once you create the resources package) and refresh the package in Eclipse
        ii. Once you've done the above step, you should be able to find the image in your classpath and add it via the WindowBuilder property pages
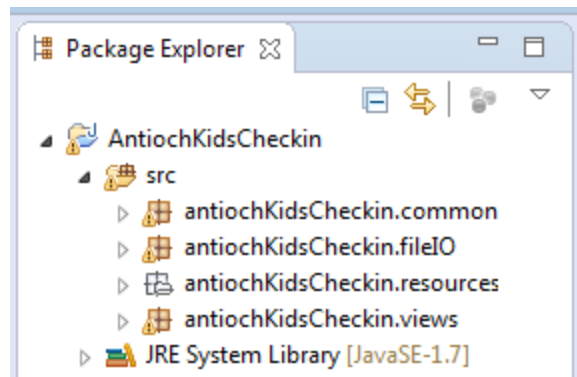
7) Use **GroupLayout**….it's one of the best!
    a. Pay attention to the **little arrows**, they act as anchors that tell that component whether to stretch or stay fixed to components or window edges on all sides

8) Use **Panels** (Containers section in WindowBuilder) to define new regions that possibly have new layouts
    a. For best effect, you may consider adding an "TitledBorder", in the "border" section in the "Properties" tab

9) When adding ANY component, always give your **variable name**:
    a. An intuitive prefix that represents that component type (this will really help you with both autocomplete and code readability), for example:
        i. "txt" for JTextField
        ii. "lbl" for JLabel
        iii. "pnl" for JPanel
        iv. "chk" for a JCheckBox
        v. Etc.

NOTE: If you create components through WindowBuilder, it will attempt to do this automatically!

       b.   An intuitive name that makes it very clear what the component's purpose is, for example:
           i.   "lblFirstName" is the JLabel component; next to it you would probably find "txtFirstName", which is the JTextField component that is supposed to have a first name in it

10) When you're done, make sure to **export your program to a .jar file** so the average user can use it simply by double clicking it
    a.   Click *File->Export…->Java->Runnable JAR file* and then click the *Next* button
    b.   Select the Launch configuration that corresponds to the project and class containing your GUI
    c.   Chose an Export destination (Desktop is usually a good choice)
    d.   Make sure the "Package required libraries into generated JAR" radio button is selected
    e.   Click Finish (if a warnings dialog appears, just click OK)
    f.   You should have a jar file (on your Desktop, if you saved it there) that you can double click to run your program!!

11) For GREAT **official Swring resources** with examples:
    a.   Components: http://docs.oracle.com/javase/tutorial/uiswing/components/componentlist.html
    b.   Layouts: https://docs.oracle.com/javase/tutorial/uiswing/layout/visual.html