Database Exercise

1. In your home directory, create a new directory called **vdb** and change directories into it.
2. Run **vdct /opt/epics/base-3-14-11/dbd/softIoc.dbd &**
3. For the purposes if this exercise, all records you create should have unique names incorporating the macro **$(user)** which will expand out to your user-name when the database is loaded.
4. Create:
    1. A calc record which counts from 0 to 99, then starts again from 0. Scan this record at 10 Hz.
    2. Another calc record which determines if the value of the counter is > 50 or not.
    3. A binary output record that has its Desired Output Location (DOL) pointing to the result of the 2nd calculation. Set the OMSL field of the binary record to **closed_loop**
    4. Save the database as **test.vdb**
    5. Make sure that all of your records will process.
5. Start the IOC application using this command:
   softIoc -m user=$USER -d test.vdb
6. Test the database
    1. Use edm to create a display that shows the values of the 2 calculations and of the binary. Did you name the two states of your binary record?
    2. Create a text update object and a text entry object that both connect to the VAL field of the binary record.
    3. Activate the screen. Using the text entry object, try to change the value of the binary record.
    4. Add to the display a menu object that connects to the OMSL field of the binary record.
    5. Set the OMSL field to **supervisory**, then try changing the binary value again.
7. Modify the database
    1. Change the counter record to make it possible for a user to set the range (start, end and step size) of the counter. You may be able to do that without shutting down the IOC, but make sure you modify your database file to match so it will still work after restarting it.
    2. Add suitable widgets to your edm screen to match the modified database.
    3. Display the counter's value over time using the StripTool. Does it scale the graph correctly when first connected? Can you modify the database so that it will?