## Database Exercise

1. Create a new directory called **db** and change directories into it.
2. Create a new file using a text editor, named **test.db** and containing:
    1. A calculation record which generates a saw-tooth function. Scan this record at 10 Hz. The saw-tooth waveform should range from 0 to 99.
    2. A calculation record which determines whether the result of the above calculation is greater than 50
    3. A binary output record that has the Desired Output Location (DOL) pointing to the value field of the 2nd calc record. Set the OMSL field of this record to **closed_loop**
    4. Make sure that all of the records will process in the right order.
    5. All records should have a unique name incorporating a macro **$(user)**. This will be used to distinguish your records from everyone else's in the room. Save the database file.
3. If you haven't already started a terminal, do so now. Run the IOC application using this command, where ***xxx*** are your initials:
   **softIoc -s -m user=*xxx* -d test.db**
4. Type **help** at the **epics>** prompt to see the other commands available. help followed by an individual command name lists the arguments to the command.
5. Test the database. You may use the css tools instead of the command-line tools mentioned below if you followed yesterday's tutorial, have css installed and don't need any help from the tutors.
    1. Use **caget** to display that the values of the 3 records.
    2. In another terminal window, run **camonitor** to display those values continually.
    3. Try to change the value of the binary record using **caput**.
    4. Set the binary record's OMSL field to **supervisory**.
    5. Try again to change the binary value.
    6. Can you modify the first calculation to count downwards instead of upwards without having to restart the IOC?