**Weightlifting Competition Project Requirements**

**User interface**

Excel was used as the framework for this project. The original work was done on excel to sort the lift order list as a simple tool to keep track of the competition. This sort is made complex by the addition of the “phase” of the competition along with the concept of “who has waited the longest”. The sort rule is “snatch before C&J”, “lowest weight first”, “1st attempt before 2nd ,” “2nd before 3rd,” “who is waiting longest”, and “lowest Start number”. As more competitions were held, the program became more and more complex with added macros and improved user interface leading to a lot of spaghetti code and inconsistent style.

Users familiar with Excel shortcuts and commands very often did something that confused the VBA code. The solution was to lock out the mouse or key combination shortcuts that people knew as far back as Excel 2003.

Also, the Ribbon was customized to eliminate almost all of the normal tabs. This User Interface work was generally done ad hoc and thus is also inconsistent in style and implementation. Built in documentation was added at the request of Paul Marini and he designed a lot improvements in the UI.

To have a custom ribbon and to enable developer mode, the XML format package has to be edited. I used “Custom UI Editor For Microsoft Office” to edit the XML file. There may be safer and more modern ways to enable and disable the ribbon available since 2007. A link to the tool I used is: <http://openxmldeveloper.org/blog/b/openxmldeveloper/archive/2006/05/25/customuieditor.aspx>

The “startFromScratch” true/false variable at the top of each Excel XML file will re-enable the standard ribbon to expose the “Developer” tab which is needed for opening the VBA editor. In that case, you see both the standard ribbon and the custom ribbon. Note that the key capture in the paragraph above eliminates the traditional F11 shortcut. Make sure you change any ribbon parameters while excel is closed and restart Excel. Various Excel versions ask the enable Macros on load question. These must be enabled for the show to start.

**Extra Code/Features**

One part of the code enables an external website to display a live scoresheet. A WAMP server was installed on a USB Stick and a version is in this repository. On startup, when Lift Manager detects the USB stick and WAMP server presence, it starts the WAMP server as a local website. Manager then outputs the “Leaderboard” and “LiftOrder” data in a CSV style file after every lift. The Leaderboard.php or liftorder.php pages are served up to any browser that points to the Lift Manager system on the LAN.

This was also used to successfully export “live” data to a publicly available website external to the system alongside of a live video stream. Generally, the Liftorder.php and Leaderboard.php files are copied to an external site with the liftorder data delivered to the site via Putty SCP. Lift Manager kicked off the Putty SCP command. To use the external server, you must add your own external software such as putty or equivalent and work out the permissions.

Lift Manager also creates reports after the competition is complete. The main report is in the USAW format (which is emailed to USAW for National Reporting) though that sheet can be modified for other international federation reporting requirements. These results are now modified to include the 2017 tie break rules.

Lift Manager and Lift Weigh In use the IWF calculation and coefficients for the Sinclair formula. They also use the Meltzer-Faber factors for adjusting age in lifters over 30. The Sinclair values are implemented via an equation calculated in each program. The Meltzer-Faber number are a look up table in a hidden sheet. These could be reduced to a formula.

Parts of the code are now unused. Inspection will find considerable code related to records checking. At the early phase of the project, the Pacific Weightlifting Association records for each class were maintained on the PWA website. With some screen scraping, one could input the “current” records for each class into Manager (on a hidden sheet) and then Manager would flag a record attempt for the announcer via a modeless popup message. Unfortunately, this only worked in the Northern California area, and eventually, those records were not maintained. Thus while the controls are now hidden, the unused code remains.

Another part of the code may or may not be used. USAW at one point added youth weight classes that are outside the range of the IWF classes. Those are included in Lift Weigh In but may not be valid in the 2017 quad. However, the new IWF Women’s and Junior’s classes have been added for the 2017 quad.

**Note on OS Versions**

This project originally started on Windows XP and Excel 2007. Note that big changes happened between Excel 2003 and Excel 2007. In theory, this software does detect Windows XP and runs well but it hasn’t been tested since Microsoft deprecated XP. File structure changes did happen between Windows XP and Windows 7. (I skipped Vista). Since Lift Manager, Lift Weigh In and Lift Loader are not hard linked, one can use each one separately in a modular fashion.

The file communication style is really a file written by one program on one computer and a read by another over the network. The file structure/location is then specific to the OS. These files are simple and tiny CSV files.

In about 2013, Microsoft started supporting VBA in Excel on a Mac. The version of Lift Complete in this repository fails on a Mac because the OS detection mechanism and underlying file system does not know MacOS. It may be possible to make small changes to work on a Mac on later Excel versions. Ron de Bruin has many tips on how the Mac version is different. One thing for sure, the Password and locking mechanism is different. A VBA project locked on the PC version cannot be unlocked on a Mac.

L**ift Complete Professional and Lift Complete Premium**

These two versions of Lift Complete are no longer available. The additions were an embedded hardware system with software that managed referee votes for the good lift and bad lift judgement. In addition, there was a Windows network app that allowed this data to be displayed on a leader board and in the warm up room. This hardware has had little demand and even less support. The rest of the app for managing the meet is the same as Lift Complete Lite.

**Forks**

There are no known forks so far. If you decide to fork and rework part or all of the system, please let me know.

**Known Issues**

Lift Manager has one known issue when a set of conditions align and the user has made some errors. If a user presses the wrong button “Good Lift” two times or more, the “Undo” button can only undo the very last press. This causes erroneous data to be recorded in the scoresheet. If the user then clicks on the “Field” where the bad data is recorded, there are certain conditions where the error cannot be fixed and the program crashes. The “Field” is the denoted by the purple box in the user poster document.

Work Around: record the error on a piece of paper and then correct the data in the field after Snatch session is complete or the C&J session is complete.

**Acknowledgments and code quality**

There are large sections of code of high quality originally written by Ron de Bruin and his pals. This is clear from the quality of the Ribbon modifications and the management of the key lockouts. Dana Le provided the complex sort algorithm for the lift order and the original sort triggering mechanism.

All other code is hacked by me. The code is of varying quality and generally follows no good programming practice standards. I apologize for the quality with my only excuse: I learned VBA after not programming anything for 30 years. In that time, whole object oriented programming languages were invented.

Extensive user testing was completed with the tolerance of the Pacific Weightlifting Association over the space of several years. Excellent individual testers with great feedback were Eleanor, Paul, Chioma, Mia, Deana, Seth and a whole host of other high school volunteers. Those pioneers took the arrows in the back while we learned what works, what is important and how to react under the pressure of competition.