**Chapter 2, Data Types homework 2**

The purpose of part 1 of this homework is to practice using structures. Modify Chapter 2, Data Types homework 1 to use a structure to encapsulate each read/ write transaction. Create an array or queue of structures that will contain 6 transactions (i.e. structures) that the self-checking testbench will apply to the DUT. The elements of your structure will be:

1. Address to read/write
2. Data to write
3. Expected data read
4. Actual data read

The address and data will continue to be randomly generated. After applying the 6 writes shuffle the array or queue to apply the reads in a different order. Again print out the data that was read at the end of the test. The structure and array or queue for the structure are the only methods needed to store data. Arrays *address\_array, data\_to\_write\_array, data\_read\_expect\_assoc, and data\_read\_queue* from HW2 should be deleted.

Deliverables:

1. Code for test-bench
2. Waveform showing at a minimum the I/O of the memory model and the error counter.
3. Copy of transcript window showing the print out of the data read and the error counter equaling 0.