In this part of the project, you will build the instruction memory and the data memory for the Duke 152/16 processor. This assignment is the only exception to the rule about not using Quartus megafunctions—memories must be implemented through megafunctions. You will use Quartus’s Megafun...
Follow the same steps to create the data memory (dmem.vhd). The megafun-ction name this time is RAM: 1-PORT and the size is 16384 words. Recall again that you should not register the output port.

Both memories are input-registered but not output-registered. This means that the memory will not latch the address provided to it until the next rising edge, so the read or write will not be performed until the subsequent rising edge. To verify this behavior, extensively test the data memory. Submit your single test waveform as dmem.vwf.

Part of your grade for this assignment will be determined by the coverage of your test cases. Your waveforms need not, and should not, be excessively long.

Submit this assignment in the same way in which you submitted previous project parts. You will have three files (imem.vhd, dmem.vhd, and dmem.vwf) that you must tar up into a single file for uploading.

You may re-submit as often as you like, but a re-submission will overwrite whatever you’ve previously submitted for this assignment. I will grade whatever has been submitted before 10:00AM on Monday, February 23.