

6.851 ADVANCED DATA STRUCTURES (SPRING'07)

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Problem 7 *Due: Monday, Apr. 9*

Be sure to read the instructions on the assignments section of the class web page.

Hamming Weight via Word Packing.

Give a constant-time algorithm for determining the Hamming weight of a k -bit string (i.e., the number of one bits it contains), using a word RAM with word size $w \geq k(2 + \lg k)$. For full credit, your algorithm should use only a constant amount of preprocessed space (if any).