Hands-On 6

(3) Using Master's Theorem:

$T(n) = aT(n/b) + \Theta(n^d)$

$a = 2, b = 2$ and $d = 1$.

$(b^d) = (2^1) = 2$

$a = b^d$

$T(n) = \Theta(n^d \log n)$ if $a = b^d$

i.e., $\Theta(n^1 \log n) \Rightarrow \Theta(n \log n)$