

Huffman Algorithm Assignment

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Step 1

Files	Uncompressed size	Compressed size	Compression rate	Time taken
medTale	6KB	3KB	$6/3 = 2$	64032300 nanosecs
genomeVirus	7KB	2KB	$7/2 = 3.5$	49848300 nanosecs
mobydick	1,186KB	633KB	$1186/633 = 1.87$	498022700 nanosecs
navy	2KB	1KB	$2/1 = 2$	50411800 nanosecs

Step 2

Files	Final bits	Time taken
medCompressed -> medDecompressed	6KB	5592700 nanoseconds
genomeCompressed -> genomeDecompressed	7KB	4969400 nanoseconds
mobyCompressed -> mobyDecompressed	1124KB	55215900 nanoseconds
navyCompressed -> navyDecompressed	2KB	4953100 nanoseconds

Step 3

When we run the algorithm on an already compressed file, a `NoSuchElementException` is thrown saying that there is a priority queue underflow. This means that the priority queue can't be filled and as a result is empty which causes the exception to be thrown.