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.