Practical 8
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1. The time complexity of the brute force search string is O(m(n-m+1)). This is because when the text and the pattern have the same form you need check m characters n-m+1 times.
2. The time complexity of the Knuth-Morris-Pratt algorithm is O(n). This is because of the pre-processing function which skips a certain number of characters that aren't going to be in the pattern.

Here I compare the performance of the two algorithms against texts of different sizes. We can see how incredibly more efficient the KMP algorithm is than the brute force way. The KMP algorithm in my testing had a relatively high elapsed time at the start as its not that efficient on small string. As the string size increased, we can see its efficiency.

Brute Force and KMP search string algorithms