


Algorithmics	Student information	Date	Number of session
	UO: UO294786	20/03/24	8
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## Activity 1. [PATTERN MATCHING WITH TEXTS]

### YOU ARE REQUESTED TO:

Design and implement an algorithm using dynamic programming to solve this problem optimally.

a) Implement the algorithm in Java in such a way that it calculates for a specific text string whether the different patterns passed in the text file match the string.

b) What is the time complexity of the algorithm? Do you think the design could be changed to improve complexity?

The time complexity of the algorithm is  $O(n^2)$ . However, by changing the implementation of the method, using a unidimensional array and another approach with both ? and \* an implementation in  $O(n)$  could be achieved. To further optimize the algorithm, the loops could stop when detecting that the word is not going to match, for example when two letters don't match.