Assignment 1:

Abstract

- The problem of locating all occurrences of a character pattern in a text is known as string matching. this paper presents an overview of various string matching algorithms, as well as a comparison of these algorithms and assessing complexity and performance
- Examples: such as Naïve search algorithm, Skip algorithm, Boyer–Moore–Horspool (BMH), Boyer–Moore–Smith (BMS), Knuth Morris-Pratt algorithm.
- Pattern matching is the type of research we're interested in, We'd like to look for a particular pattern, which may be something from a specific disease or mutation.
- also in this paper, we present a new idea for a single pattern matching in strings. The idea is named skip search (SS). Even in the worst-case scenario, the pattern is checked for presence in the provided text by accessing only half of the memory locations.
- the skip search is a modified version of the Naive search algorithm, by accessing only half of the characters in the given string and checking whether those characters are the beginning or ending character of the pattern, by doing this, we could obtain the skip length of the pattern size and hence reduce the search time
- The algorithm has a low space complexity since it does not require any preprocessing or additional memory space, When the skip algorithm was compared to the Nave algorithm and the Knuth–Morris–Pratt (KMP) algorithm, the(SS) performed better in most of the test cases
- When the pattern appears at the end of the text or when the pattern does not appear in the text, the algorithm takes significantly longer to execute.

• introduction

- the pattern searching algorithm is a technique to find one or all occurrences of a pattern in the given text. For example, consider the pattern P and the length of it should be equal or shorter than text T and we need to find one or all occurrences of P in T to obtain useful information.

- We suggested the skip algorithm, which is based on a Naïve search algorithm with modifications in the skip positions, and The algorithm returns the location of the pattern's first appearance in the text

•In this paper, we compare the results of the skip algorithm with the Naïve algorithm and Knuth–Morris–Pratt algorithm

•The majority of the literature review is devoted to minimising the amount of comparisons and processing time.