**Principles and Paradigms of Programming Project**

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**This project will be covering the “String Matching” Algorithm. This will be documented with all the information and instructions of operation and decision making for tackling said algorithm. As well as a well-detailed explanation of the paradigms and methods used.**

**What is a string-matching algorithm?**

**A String-Matching algorithm works by taking in two arguments. A long string that consists of several letters in any order, and an argument which is a “pattern” that is to be found within that string.**

**What the algorithm does with these two arguments is that it will attempt to find how many occurrences of the pattern of letters is found, within the inputted string.**

A diagram of a pattern

Description automatically generated

***Self-Produced Diagram***

**The pattern of course, can be of any length, same with the long string.**

**Different Algorithms of String-Matching**

**There are multiple algorithms that can be used to achieve a String-Matching system. These include Brute-Force (), Knuth Morris Pratt Algorithm, Boyer Moore Algorithm and several others. These of course will have their own efficiency and effectiveness.**

**Brute Force Algorithm**

**This type of algorithm simply iterates through each letter of the long string, checks the letters after it and compare each letter to each letter of the pattern.**

**Suppose the first letter of the long string is at index N. This letter is then compared to the first letter of the pattern, and if a match is found, the algorithm moves to the next letter (N + 1) of both the long string, and the pattern, to then repeat the cycle until all comparisons are done, and there is a match. If there isn’t, the iteration breaks and moves on.**

A diagram of a mathematical equation

Description automatically generated

**Computational Complexity**

**Execution time**

**Future Citation**

[**https://www.prepbytes.com/blog/strings/string-matching-algorithm/**](https://www.prepbytes.com/blog/strings/string-matching-algorithm/)

**https://www.geeksforgeeks.org/applications-of-string-matching-algorithms/**