

# Pattern Searching

## Naive Pattern Search Iteration

Naive Pattern Search iterates over each character in a text and then counts the following number of matching characters to find the pattern.

## Naive Pattern Search Runtime

The worst-case performance of Naive Pattern Search is  $O(nk)$  and can approach  $O(n^2)$ . This is caused by the constant backtracking to the next character in the text after a pattern is not found.

## Naive Pattern Match

In Python, a pattern can be matched to a section of text by counting and then comparing the number of identical elements.

## Naive Pattern Search Algorithm

Our Python implementation of naive pattern search takes in a `text` and `pattern` and prints the indices of the matches if they exist.

```
def pattern_search(text, pattern):  
    for index in range(len(text)):  
        match_count = 0  
        for char in range(len(pattern)):  
            if pattern[char] == text[index +  
char]:  
                match_count += 1  
            else:  
                break  
        if match_count == len(pattern):  
            print(pattern, "found at index",  
index)
```

