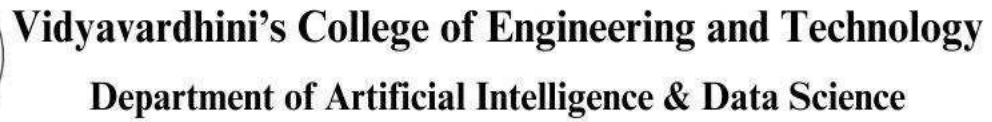




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Title:	Naïve String matching.
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Title: Naïve String matching.

Objective: To introduce String matching methods

The naïve approach tests all the possible placement of Pattern P [1.....m] relative to text T [1.....n]. We try shift $s = 0, 1, \dots, n-m$, successively and for each shift s . Compare T [s+1.....s+m] to P [1 m].

Example:

Pattern : A A B A

Pattern Found at 0, 9 and 12



Algorithm:

THE NAIVE ALGORITHM

The naive algorithm finds all valid shifts using a loop that checks

the condition $P[1\dots m] = T[s+1\dots s+m]$ for each of the $n-m+1$

possible values of s . (P =pattern, T =text/string, s =shift)

NAIVE-STRING-MATCHER(T, P)

- 1) $n = T.length$
- 2) $m = P.length$
- 3) **for** $s=0$ to $n-m$
- 4) **if** $P[1\dots m] == T[s+1\dots s+m]$
- 5) **printf** "Pattern occurs with shift " s

Implementation:

```
#include <stdio.h>
#include <string.h>
int match(char [], char []);
int main() {
    char a[100], b[100];
    int position;
    printf("Enter some text\n");
    gets(a);
    printf("Enter a string to find\n");
    gets(b);
```



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```
position = match(a, b);
if (position != -1) {
    printf("Found at location: %d\n", position + 1);
}
else {
    printf("Not found.\n");
}
return 0;
}

int match(char text[], char pattern[]) {
    int c, d, e, text_length, pattern_length, position = -1;
    text_length = strlen(text);
    pattern_length = strlen(pattern);

    if (pattern_length > text_length) {
        return -1;
    }
    for (c = 0; c <= text_length - pattern_length; c++) {
        position = e = c;
        for (d = 0; d < pattern_length; d++) {
            if (pattern[d] == text[e]) {
                e++;
            }
            else {
                break;
            }
        }
        if (d == pattern_length) {
```



```
    return position;
}
}
return -1;
}
```

Output:

```
Enter some text
aabbccddaabbdhgaaabbcc
Enter a string to find
aabbcc
Found at location: 1

=== Code Execution Successful ===
```

Conclusion: Experiment underscores the utility of the naive string matching algorithm in efficiently locating occurrences of a pattern within a text. While straightforward in approach, its effectiveness in basic string searching tasks highlights its foundational significance in algorithmic design and serves as a benchmark for more complex pattern matching algorithms.