Experiment No. 12
Naïve String matching
Date of Performance:
Date of Submission:

Experiment No. 12

Title: Naïve String matching

Aim: To study and implement Naïve string matching Algorithm

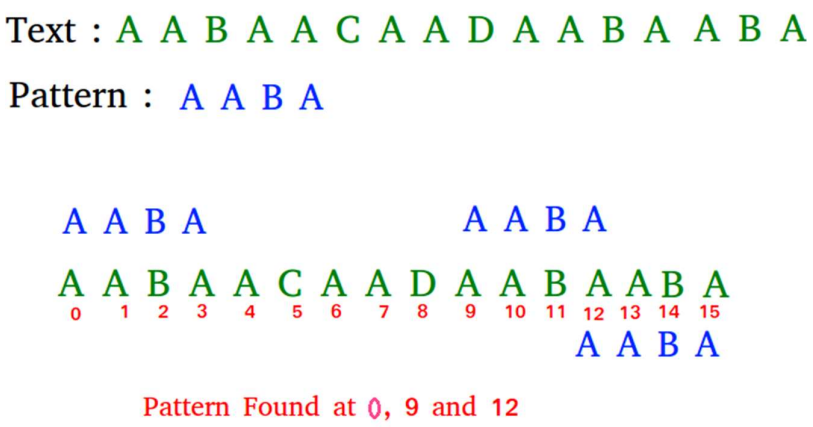
Objective: To introduce String matching methods

Theory:

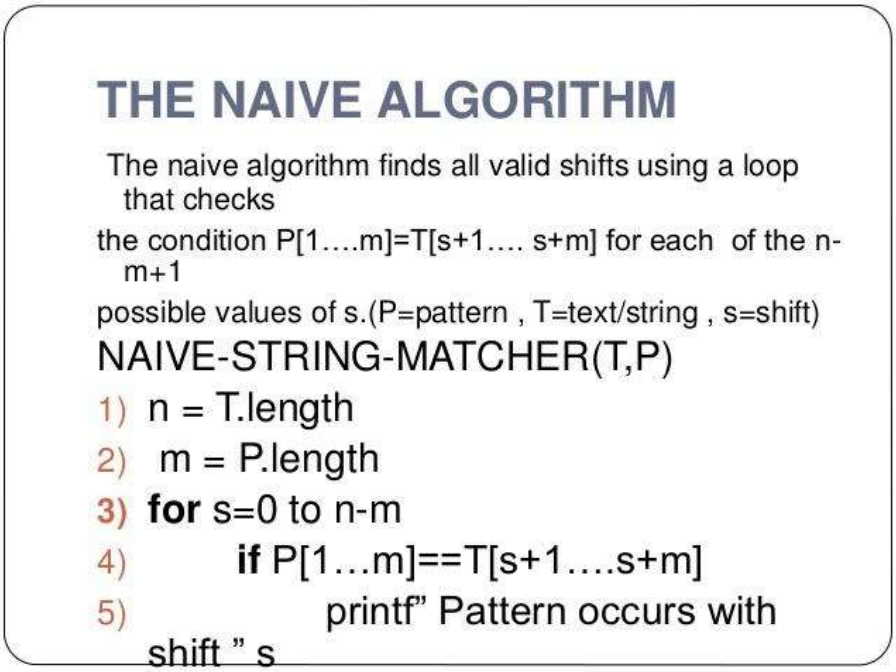
The naïve approach tests all the possible placement of Pattern P [1.....m] relative to text T [1.....n]. We try shift s = 0, 1.....n-m, successively and for each shift s. Compare T [s+1.....s+m] to P [1.....m].

The naïve algorithm finds all valid shifts using a loop that checks the condition P [1.....m] = T [s+1.....s+m] for each of the n - m +1 possible value of s.

Example:



Algorithm:



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);
```

```
  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.