

### SNS COLLEGE OF TECHNOLOGY



# Coimbatore-37. **An Autonomous Institution**

#### **COURSE NAME: 19ITB201 & DESIGN AND ANALYSIS OF ALGORITHMS**

#### II YEAR/IV SEMESTER

#### UNIT-4 FLOW NETWORKSAND STRING MATCHING

**Topic:** String Matching - Knuth Morris Pratt Algorithm (KMP)

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String Matching: Find the given Pattern is found in the given string or Not

Naïve String Matching: Pattern is existing in the string or not. If it is find the Index String n

Pattern m Complexity O(m+n)

**Knuth Morris Pratt Algorithm (KMP)** 

**Example 1**: The input string is: "Welcome to Scaler Topics"

The input pattern is:

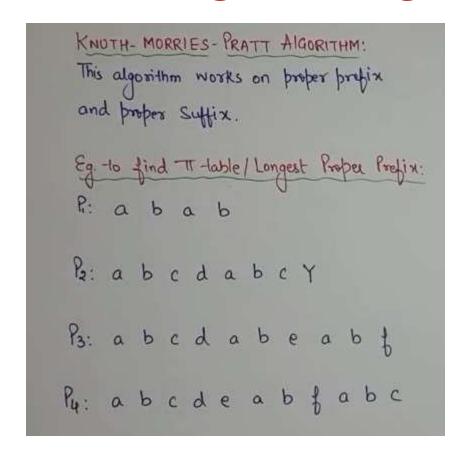
"Scaler"

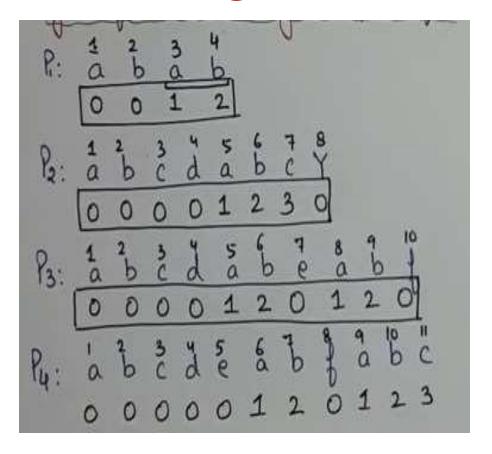
Output: The pattern was found at index: 11.





### **String Matching Algorithm-KMPAlgorithm**

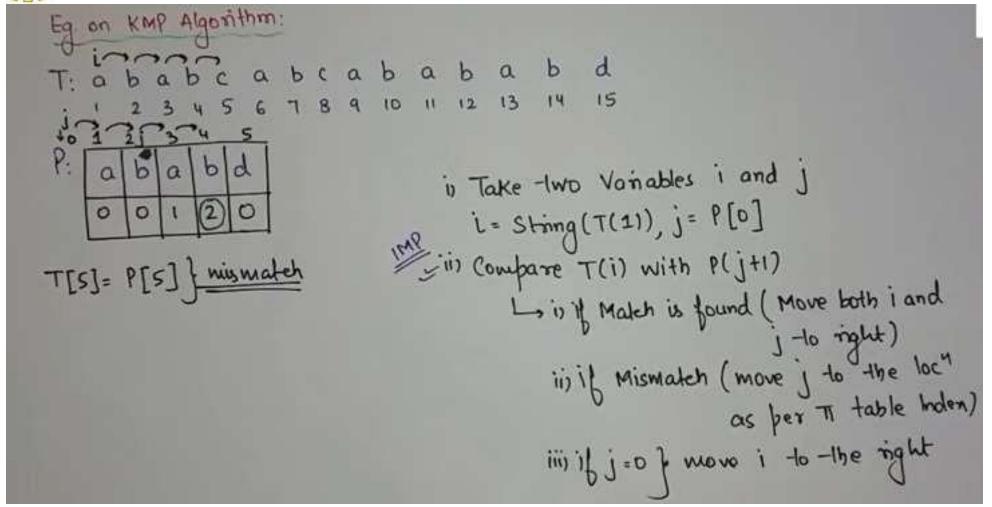




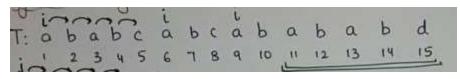


### String Matching Algorithm-KMP Algorithm





Time Complexity O(mn)





## References



- 1. Anany Levitin, "Introduction to the Design and Analysis of Algorithms", Pearson Education, 3rd Edition, 2012
- 2. Ellis Horowitz, SartajSahni and SanguthevarRajasekaran, "Fundamentals of Computer Algorithms", Galgotia Publications, 2<sup>nd</sup> edition, 2003