UCS415 Design and Analysis of Algorithms

Lab Assignment 7 (String Matching Algorithms)

Given two strings txt and pat of size N and M, where N > M. String txt and pat represent the text and pattern respectively. The task is to print all indexes of occurrences of pattern string in the text string. Use one-based indexing while returning the indices.

Input: txt = "THIS IS A TEST TEXT", pat = "TEST"

Output: Pattern found at index 10

Input: txt= "AABAACAADAABAABA"

pat = "AABA"

Output: Pattern found at index 0, Pattern found at index 9, Pattern found at index 12.

Write a program to implement the following string matching algorithms:

1. Brute Force approach
2. Rabin-Karp string matching algorithm
3. Knuth-Morris-Pratt (KMP) algorithm