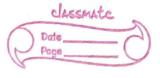
## 6. String Matching

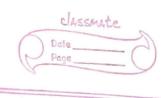


Explain naive approach e) It is simplest method which uses brute force approch. ii) It is straight forward approach
For solving problems. iii) It som paves the first character of pattern with searchable text IF match is found, pointers in both string are advanced. V) If match not found, pointer of dext is incremented and pointer of pattern is reset 1) This process is repeated till the end of text. vii) It does not require any pre-processing. It directly atants comparing both string characters by character. vii) The time complexity is = O(m\*(n-m)) n = length of text m = length of pattern 1x) Algorithm! NATUE (T, P) for ico to n-m do if P[2...m] == T[i+1---- 1+m] +hen Print" Match Found"

For eig.)
T = ABCABA CAB T[2] = P[2] ti4+; T [2] = P[2] 2) T[3] = P[3] AB Blc 3) Elder, Prot 4) T[4] = P[2] ti++ , A++; B

5) T: [ABCABA] T(5) = P(3)

[CAB Month Found



Rabin Karp Algorithm Comparing numbers is easier and cheaper than comparing strings. ii) Rabin Karp represent string in number iii) It is based on hashing technique. iv) It Frist computes the hash values of pattern and text.

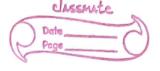
1) If the hash values are same, i.e. if hash (p) = hash (t), we check each character if characters ore vi) IF has value are not same no need of compairing. vii) strings are compared using brute force approach. If the patter is found then it is called hit ofthemise it called spurious hit. viii) Time complexity: Olmo). ix) Algorithm: RABIN (T, P) n = T. length M = P. length. hp = Hash (P) ht = Hash (T) For s=0 to n-m do

if (p(0....m-1) == +(0---.m-1))

print "Match Found"

if (hp == ht) then

if Scn-m ht = Hash (s+1 ... s+m-1) 3145926535 P mod q = 59 mod 27 31 mad 11 = 9 7 74 14 mod 11 = 3 +4 111) 45 mod 11 = 9 +4 = 4 = 4 = ) Exact Match 59 mod 11 11 SHILL



KMP i) This is the First linear time algorithm for string matching.

ii) It utilizes the concept of naive approach in some different way. III) This approach keeps the track or matched part of pattern iv) Main idea of this algorithm is to avoid computation of transition Function & and reducing useless shif performed in Maire approach. v) This algorithm builds a prefix array.
This array is also colled as Thomas. vi) This algorithm acheives the efficiency of O(m+n) which is optimal in worst 4-0 (N) KMP (T, P) n < length of texture m + length of pattern T < PREFIX-FUNCTION (P) For iciton do while 9 >0 AND P[q+1] #T[i] do 9 - 71[9] if P[q+1] == T[i] then

9 ← 9+1

of q = = m the

Print "Puttern Found " K Combo has a soldon The state of the same of some For g < 2 to m do
while K>O AND P(K+1) = P(q) d K (TCK) malla solo sight (... and to the Caterian The IF P(K+1) == P(q) then

REK+11 T1 [9] = ¢