AOA Assignment 3

Keegan Vaz
192120
SECMPNB
42

Aim: Write a program to perform **String matching** using **Rabin Karp Algorithm.**

Problem statement: Write a program to implement string matching using Rabin Karp Algorithm. Display valid shifts

Input : Text= **"abcabcdddefabcdefababcadbcdaaa"**
Pattern: **"bcd"**

Code:

```
def KMPSearch(pat, txt):
	M , N , j, k,c = len(pat) , len(txt) , 0 , 0,0
	lps = [0]*M
	KMP_prefix(pat, M, lps)
	i = 0 # index for txt[]
	while i < N:
		if pat[j] == txt[i]:
			i += 1
			j += 1
		if j == M:
			print ("\nPattern found at index " + str(i-j))
			c+=1
			j = lps[j-1]
		elif i < N and pat[j] != txt[i]:
			if j != 0:
				j = lps[j-1]
			else:
				i += 1
	print("\nValid shifts: ",c)
def KMP_prefix(pat, M, lps):
	i , len = 1 , 0
	lps[0]
	while i < M:
		if pat[i]== pat[len]:
			len += 1
			lps[i] = len
			i += 1
		else:
			if len != 0:
				len = lps[len-1]
			else:
				lps[i] = 0
				i += 1
```

AOA Assignment 3

Keegan Vaz
192120
SECMPNB
42

```
        print("\nPrefix array")
        print(*lps, sep=' ')
if _name_ == '_main_':
        txt = input("\nEnter text: ")
        pat = input("Enter pattern: ")
        KMPSearch(pat, txt)
```

Output: