**EXPERIMENT-05**

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**ROLL NO.-** 40

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**Problem statement:**

Implement a program to input two images convert them into gray scale and find similarity between the two images using LCS

**CODE-**

```
def lcs(X, Y,m,n):
  L = [[None]*(n + 1) for i in range(m + 1)]
  for i in range(m + 1):
    for j in range(n + 1):
      if i == 0 or j == 0 :
        L[i][j] = 0
      elif X[i-1] == Y[j-1]:
        L[i][j] = L[i-1][j-1]+1
      else:
        L[i][j] = max(L[i-1][j], L[i][j-1])
  return L[m][n]
```

```
import cv2
import numpy as np
import matplotlib.pyplot as plt
import matplotlib.image as mpimg
```

```
img1 = mpimg.imread('daa_05a.jpg', 0)
img2 =mpimg.imread('daa_05b.jpg', 0)
cv2.waitKey()

print('Image 1 Size:',img1.size)
```
**>>>Image 1 Size: 363**

```
print('Image 2 Size:',img2.size)
```
**>>>Image 2 Size: 360**

```
result1 = img1.reshape([1, img1.size])
result2 = img2.reshape([1, img2.size])
r1=result1.tolist()
r2=result2.tolist()
r1=r1[0]
r2=r2[0]
l= lcs(r1 , r2, len(r1), len(r2))


print("Length of LCS is ",l)
```
**>>>Length of LCS is  93**

```
print("Total percentage of similarity :", l/img1.size*100,"%")
```

**>>>Total percentage of similarity : 25.6198347107438 %**

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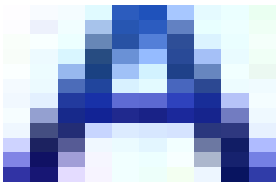

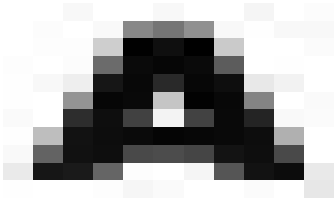

**Percentage of similarity : 25.6198347107438 %**

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**Total percentage of similarity : 100.0 %**

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## Analysis:

In the practical we did comparison of one images with 5 other images and calculated the similarity between those images using the dynamic programming approach for LCS algorithm.