**LZ78**

%CONSTRAINTS

%Maximum horizontal match=no of diff symbols

%maximum vertical length of dict=50

clc

clear all

%initialising the dict as ' ' to avoid matrix overload

for i=1:50

for j=1:10

dict(i,j)=' ';

end

end

% for i=1:50

% code(i,1)=0;

% code(i,2)=0;

%

% end

count=zeros(1,10);

fprintf('Input the message to be encoded\n');

a=input('');

l=length(a);

i=1;

x=1;

while(i<=l)

for iq=1:20 %initialise matching counter to zero

count(iq)=0;

end

lendict=0;

%Finding the length of the dictionary

for z=1:50 %cal length dict with initial letters

if(dict(z,1)~=' ')

lendict=lendict+1;

end

end

%Finding the vertical match

if(lendict==0)

dict(1,1)=a(i);

code(1,1)=0;

code(1,2)=a(1);

else

for j=1:lendict

if(a(i)==dict(j,1)) %first letter matches

count(j)=1;

%Finding the no of horizontal matches if any

for w=1:5 %max match upto 6 letters 5+1

if (i+w)<=l

if (a(i+w)==dict(j,w+1))

count(j)=count(j)+1;% count hw many letters match

else

break;

end

end

end

end % no match go to next dict entry

end

end

y=max(count);

if(y==0)

code(x,1)=0;

code(x,2)=(a(i));

else

for h=1:lendict+1

if (y==count(h))

code(x,1)=h;

code(x,2)=a(i+y);

break;

end

end

end

x=x+1;

%Updation of the dictionary

for z=1:(y+1)

dict(lendict+1,z)= a(i+z-1);

end

i=i+y+1;

end

dict=dict(1:lendict+1,:);

disp(' dictionary');

disp(dict);

temp=cell(1,2);

temp{1,1}=code(:,1);

temp{1,2}=char(code(:,2));

output=strcat(num2str(temp{1,1}),temp{1,2});

disp(' code');

disp(output);

OUTPUT:

Input the message to be encoded

'aababcaa'

dictionary

a

ab

abc

aa

code

0a

1b

2c

1a