```matlab
clear all;close all;

confusion_mat=zeros(10,10);
myDir='Final_digits/';
myFiles = dir(fullfile(myDir,'*.mat'));
for i = 1:length(myFiles)
    Tname = myFiles(i).name;
    T_actual=str2num(Tname(1));
    Tname=strcat('Final_digits/',Tname);
    T=load(Tname);
    T=cell2mat(struct2cell(T));
    T=squeeze(T);
    utterances=zeros(299,2);
    uter=0;
    for j=1:length(myFiles)
        uter=uter+1;
        if(i==j)
            uter=uter-1;
            continue;
        end
        Rname = myFiles(j).name;
        R_actual=str2num(Rname(1));
        Rname=strcat('Final_digits/',Rname);
        R=load(Rname);
        R=cell2mat(struct2cell(R));
        R=squeeze(R);

        %actual code here
        M=size(T,1);
        N=size(R,1);
        %STEP 1
        S=zeros(M,N);
        for m=1:M
            for n=1:N
                S(m,n)=norm(T(m,:)-R(n,:));
            end
        end
        %STEP 2 & 3 & 4 & 5
        D=zeros(M,N);
        tracking=zeros(M,N);
        for m=1:M
            for n=1:N
                if m==1 && n==1
                    tracking(m,n)=0;
                    D(m,n)=S(m,n);
                elseif m==1 && n~=1
                    tracking(m,n)=2;
                    D(m,n)=S(m,n)+D(m,n-1);
                elseif m~=1 &&n==1
                    tracking(m,n)=1;
                    D(m,n)=S(m,n)+D(m-1,n);
                else
```

```matlab
            [val,tracking(m,n)]=min([D(m-1,n),D(m,n-1),D(m-1,n-1)]);
                        D(m,n)=S(m,n)+val;
                end
            end
        end
        %STEP 6 & 7
        M_cur=M;
        N_cur=N;
        disim_sum=[];
        path_length=[];
        it=0;
        while true
            if tracking(M_cur,N_cur)==1
                M_cur=M_cur-1;
            elseif tracking(M_cur,N_cur)==2
                N_cur=N_cur-1;
            elseif tracking(M_cur,N_cur)==3
                M_cur=M_cur-1;
                N_cur=N_cur-1;
            elseif tracking(M_cur,N_cur)==0
                break;
            end
            it=it+1;
            %disim_sum=disim_sum+S(M_cur,N_cur);
            %path_length=path_length+D(M_cur,N_cur);
            disim_sum(it)=S(M_cur,N_cur);
            path_length(it)=D(M_cur,N_cur);
        end
        disim_sum=flip(disim_sum);
        path_length=flip(path_length);
        for ind=1:it-1
            path_length(ind+1:end)=path_length(ind+1:end)-
path_length(ind);
        end
        path_sum=sum(path_length);
        for ind=1:it
            disim_sum(ind)=disim_sum(ind)*path_length(ind)/path_sum;
        end
        utterances(uter,1)=sum(disim_sum);
        utterances(uter,2)=R_actual;
    end
    utterances=sortrows(utterances);
    utterances=utterances(1:29,:);
    for ut=1:29
        confusion_mat(utterances(ut,2)+1,T_actual
+1)=confusion_mat(utterances(ut,2)+1,T_actual+1)+1;
    end
end

col_names={'input_0','input_1','input_2','input_3','input_4','input_5','input_6','
row_names={'output_0','output_1','output_2','output_3','output_4','output_5','outp
conf_table=array2table(confusion_mat,'RowNames',row_names,'VariableNames',col_name
```

```
conf_table =

  10×10 table
```

	input_0	input_1	input_2	input_3	input_4	input_5	input_6	input_7	input_8	input_9
output_0	410	50	188	109	18	29	69	13	53	30
output_1	39	413	3	3	231	44	12	44	9	201
output_2	197	7	361	151	10	16	78	12	120	41
output_3	69	6	123	423	8	10	39	15	32	29
output_4	0	80	2	3	444	5	5	35	2	0
output_5	8	24	6	5	15	412	17	99	64	63
output_6	82	13	97	68	25	37	394	156	103	10
output_7	5	56	17	22	87	131	203	352	67	128
output_8	23	8	29	15	21	82	40	50	412	8
output_9	37	213	44	71	11	104	13	94	8	360