

The Main Code:

```
clc
close all;
clear;
load imgfildata;

[file,path]=uigetfile({'*.jpg;*.bmp;*.png;*.tif'},'Choose an image');
s=[path,file];
picture=imread(s);
[~,cc]=size(picture);
picture=imresize(picture,[300 500]);

if size(picture,3)==3
    picture=rgb2gray(picture);
end
se=strel('rectangle',[5,5]);
a=imerode(picture,se);
figure,imshow(a);
b=imdilate(a,se);
threshold = graythresh(picture);
picture =~im2bw(picture,threshold);
picture = bwareaopen(picture,30);
imshow(picture)
if cc>2000
    picture1=bwareaopen(picture,3500);
else
    picture1=bwareaopen(picture,3000);
end
figure,imshow(picture1)
picture2=picture-picture1;
figure,imshow(picture2)
picture2=bwareaopen(picture2,200);
figure,imshow(picture2)

[L,Ne]=bwlabel(picture2);
propied=regionprops(L,'BoundingBox');
hold on
pause(1)
for n=1:size(propied,1)
    rectangle('Position',propied(n).BoundingBox,'EdgeColor','g','LineWidth',2)
end
hold off

figure
final_output=[];
t=[];
for n=1:Ne
    [r,c] = find(L==n);
    n1=picture(min(r):max(r),min(c):max(c));
    n1=imresize(n1,[42,24]);
    imshow(n1)
    pause(0.2)
    x=[ ];
    totalLetters=size(imgfile,2);

    for k=1:totalLetters

        y=corr2(imgfile{1,k},n1);
        x=[x y];

    end
    t=[t max(x)];
    if max(x)>.45
        z=find(x==max(x));
        out=cell2mat(imgfile(2,z));

    final_output=[final_output out];
end
end
```

FUNCTION NAME : WHAT IT DOES

uigetfile: Opens a dialog box to select files interactively in MATLAB, making it easier to work with specific data files or images during the execution of a script or function.

rgb2gray: Converts an RGB image to grayscale.

strel: Creates a structuring element for morphological operations.

imerode: Erodes an image using a structuring element.

imshow: Displays an image.

imdilate: Dilates an image using a structuring element.

graythresh: Computes a global image threshold using Otsu's method.

im2bw: Converts an image to binary.

bwareaopen: Removes small objects from a binary image.

bwlabel: Labels connected components in a binary image.

regionprops: Measures properties of image regions.

rectangle: Draws a rectangle on a figure.

find: Finds indices of non-zero elements.

corr2: Computes the 2-D correlation coefficient.

cell2mat: Converts a cell array to an ordinary array.