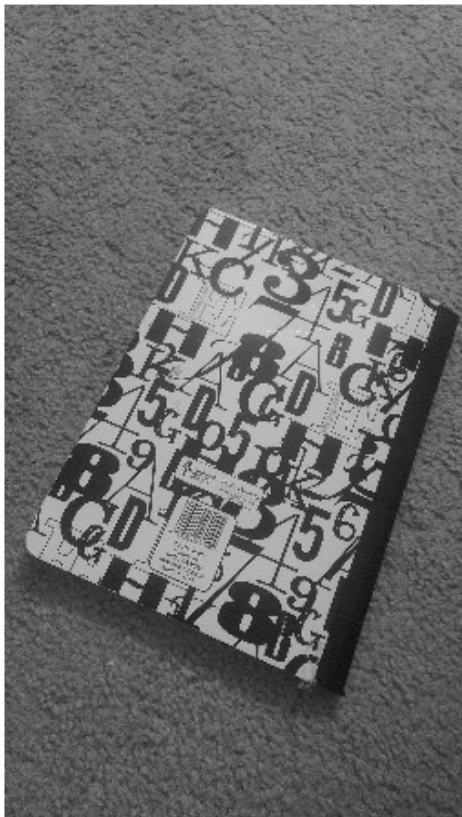


```
%AUTHOR RAHUL THAWAL AAKASH BANDARI
```

## Read\_Images.

```
clear; close all  
Name_File = 'book_ab.jpg';  
Image = im2double(rgb2gray(imread(Name_File))); % Converted to Gray Scale.  
Name = 'book_ab';  
figure, imshow(Image);  
hold on;
```

Warning: Image is too big to fit on screen; displaying at 17%



## Impixel\_Points.

```
[x y p] = impixel; % Used to Click Points  
Scale = [0 11; 11 11; 11 0; 0 0]; %Scale base by desired size of cell in pixels.  
T_Form = cp2tform([x y],Scale*80,'projective'); % Matlab function for Tranformation. Old  
Method used.  
T = T_Form.tdata.T;
```

## Display\_Points\_Images.

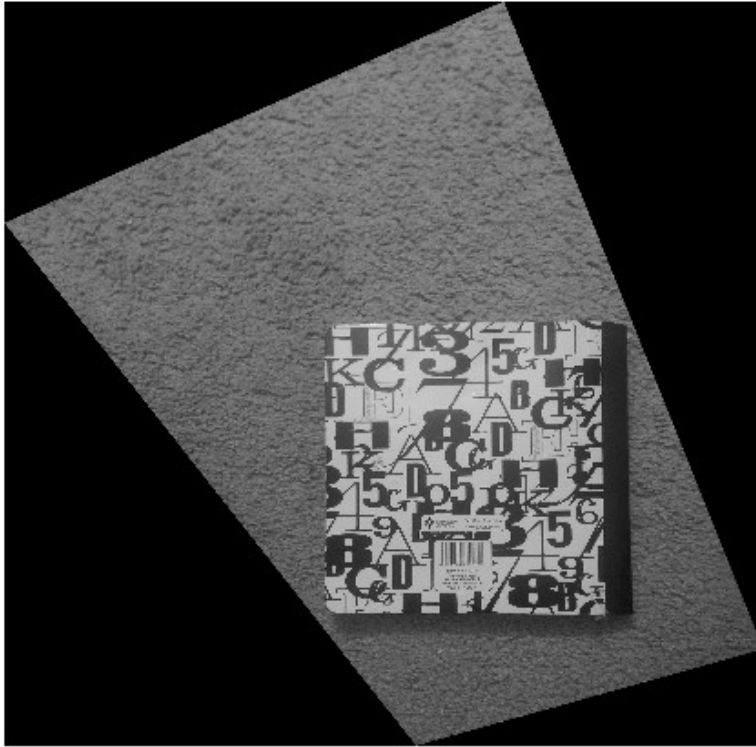
```
imshow(Image);  
hold on;  
plot([x;x(1)], [y;y(1)], 'g', 'Linewidth', 2);  
text(x(1), y(1), '0, 1', 'Color', 'w'); % Display those points selected by user.  
text(x(2), y(2), '1, 1', 'Color', 'w');  
text(x(3), y(3), '1, 0', 'Color', 'w');  
text(x(4), y(4), '0, 0', 'Color', 'w');  
hold off;  
Frame = getframe();  
G_Frame = frame2im(Frame);
```



## Image Transformation.

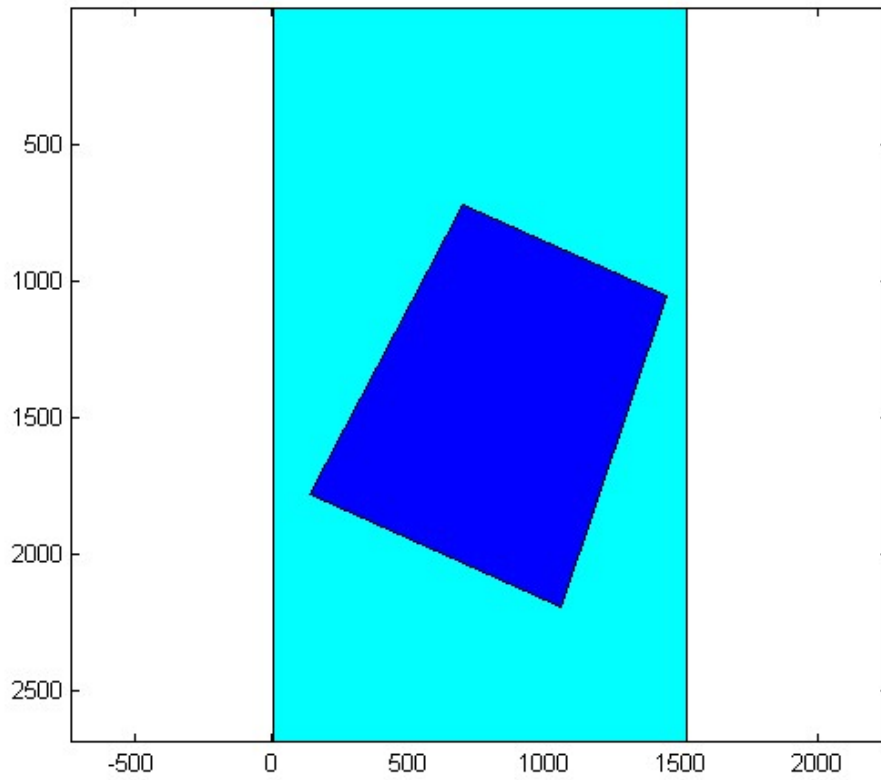
```
[Image_1, XData, YData] = imtransform(Image, T_Form); %Transforms the image according to 2  
-D spatial transformation defined by tform.  
figure, imshow(Image_1)  
imwrite(Image_1, [Name '_Registration.jpg']);
```

Warning: Image is too big to fit on screen; displaying at  
17%

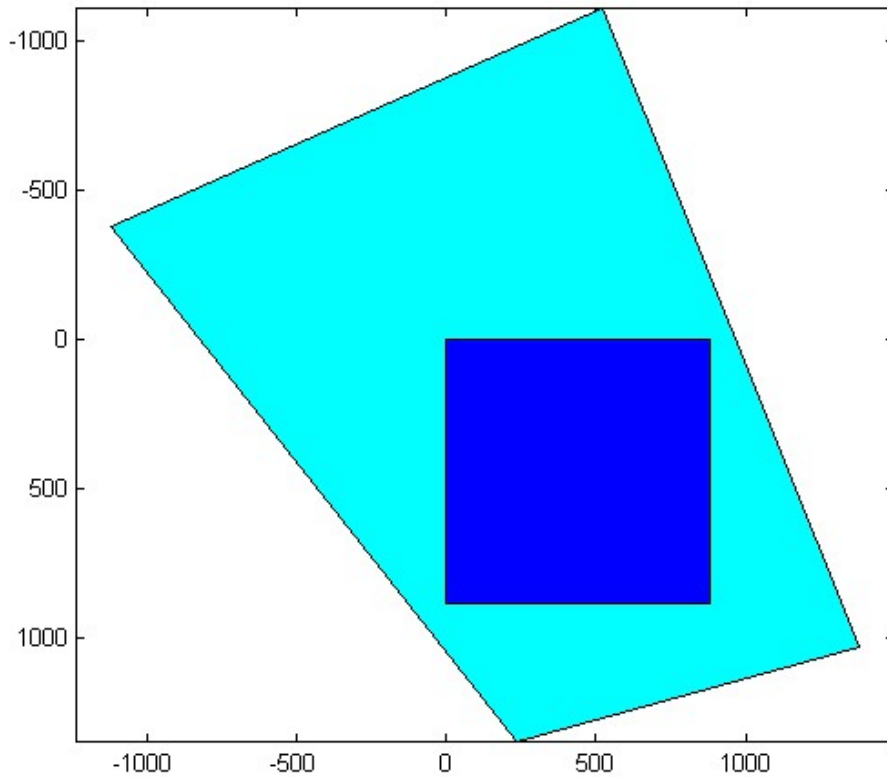


Simplified\_Form\_Original\_Images.

```
Original_Image = [1 1; 1520 1; 1520 2688; 1 2688]; % Image Size is 1520 X 2688
fill(Original_Image(:,1),Original_Image(:,2),'c'); % Fill cyan color for the Image.
axis ij;
hold on
fill(x,y,'b'); % Fill Points selected in Image to Blue.
hold off
axis equal
```



```
% Transformed_Images.  
r = tformfwd(T_Form,[x y]); % Forward Transformation.  
b = tformfwd(T_Form,Original_Image); % Points for cyan Region.  
fill(b(:,1),b(:,2),'c'); % Fill that Region in cyan.  
axis ij;  
hold on;  
fill(r(:,1),r(:,2),'b') %Points selected in IMAGE & Make Blue.  
axis equal;  
hold off;
```



```
% Control_Points -> Target Points.
control_point = [x y ones(4,1)]*T;
% repmat(X,Y,Z) makes matrix consisting of Y-Z of X.
% Get two Copies of Third, Homogeneous.
% The Result is to convert Homogeneous to Normale.
u_v = control_point(:,1:2)./repmat(control_point(:,3),1,2);
disp('uv/80 = ');
disp(u_v/80)
```

```
uv/80 =
      0    11.0000
  11.0000    11.0000
  11.0000    -0.0000
      0    -0.0000
```

```
%Truncate the Transformation.
%We used the previous plot to select the XData and YData limits.
Image_2 = imtransform(Image,T_Form,'XData', [ -100 1000],'YData',[-60 950]); % XData & YD
ata is selected from previous TRANSFORM Image.
figure,imshow(Image_2)
```

```
Warning: Image is too big to fit on screen; displaying at
50%
```

