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% 19ucc023 - Mohit Akhouri
% CVFA Task 2

% clearing the MATLAB variables and list of images
clc;
clear all;
close all;

% Reading the images
img2 = imread('fig2.jpg'); % Christmas Scene
img3 = imread('fig3.jpg'); % Tom image
img4 = imread('fig4.jpg'); % Jerry image

% Plotting the original images before resizing
figure;
subplot(3,1,1);
imshow(img2);
title('fig2.jpg');
subplot(3,1,2);
imshow(img3);
title('fig3.jpg');
subplot(3,1,3);
imshow(img4);
title('fig4.jpg');
sgtitle('19ucc023 - Mohit Akhouri');

% Resizing the above images
img2_rs = imresize(img2,[256,256]);
img3_rs = imresize(img3,[256,256]);
img4_rs = imresize(img4,[256,256]);

% Plotting the resized images
figure;
subplot(3,1,1);
imshow(img2_rs);
title('Resized fig2.jpg');
subplot(3,1,2);
imshow(img3_rs);
title('Resized fig3.jpg');
subplot(3,1,3);
imshow(img4_rs);
title('Resized fig4.jpg');
sgtitle('19ucc023 - Mohit Akhouri');

% im_add consists of added images img3 and img4
im_add = imadd(img3_rs,img4_rs);
figure;
imshow(im_add);
title('Result after adding fig3 (tom) and fig4 (jerry)');

% Converting the above image to gray and then binarize it
im_add_gray = rgb2gray(im_add);
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im_binary = imbinarize(im_add_gray);

% Plotting of Gray and Binarized image
figure;
imshow(im_add_gray);
title('Gray Image for previous image');
figure;
imshow(im_binary);
title('Binary image after Binarization');

% Complementing the above binary image
im_comp = imcomplement(im_binary);
figure;
imshow(im_comp);
title('Complemented image for the binary image');

% The main algorithm for concatenation of image is as follows

% Separating the R,G and B channels
img2_R = img2_rs(:,:,1);
img2_G = img2_rs(:,:,2);
img2_B = img2_rs(:,:,3);
% Mutliplying the R,G and B channels with complemented image
img2_new_R = immultiply(img2_R,im_comp);
img2_new_G = immultiply(img2_G,im_comp);
img2_new_B = immultiply(img2_B,im_comp);
% Concatenating the above R,G and B channels
img2_new = cat(3,img2_new_R,img2_new_G,img2_new_B);

figure;
imshow(img2_new);
title('Image after concatenating the R,G and B channels');

img_final = imadd(img2_new,im_add);
figure;
imshow(img_final);
title('Final Result obtained');
```

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fig2.jpg



fig3.jpg



fig4.jpg



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Resized fig2.jpg



Resized fig3.jpg



Resized fig4.jpg



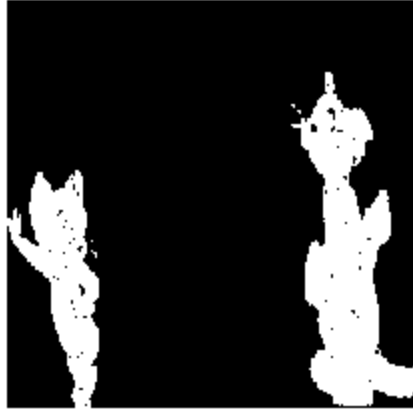
Result after adding fig3 (tom) and fig4 (jerry)



Gray Image for previous image



Binary image after Binarization



Complemented image for the binary image

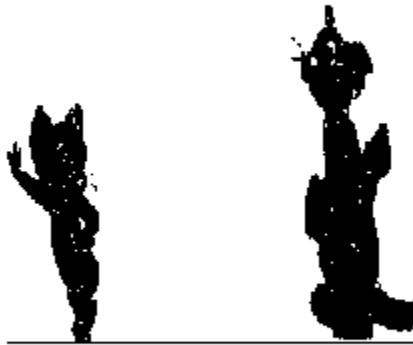


Image after concatenating the R,G and B channels



Final Result obtained



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