Colour Segmentation

In this script, we will go over how to manipulate individual pixels of an image. Specifically, we would like to separate out parts of the image based on what colour channel is bright in it, and then replace it with the maximum colour value for that channel. Although rather simple, this is a great introduction to how to access and manipulate images at the pixel level.

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First, clear the workspace and start new.

```
close all
clearvars
clc
```

Load an image

```
I = imread('lighthouse.png');
imshow(I)
```

Now detect only bright Colours in each channel

```
I_red = detectColour(I,1); % 1 indicates channel 1.
imshow(I_red)
```

```
% Do the same in the green channel.
I_green = detectColour(I,2);
imshow(I_green)
```

```
%%If you were to do this in the blue channel, how would it be?

%I_blue = detectColour(I,2);
%imshow(I_blue)
```

Here's the function detectColour - which is used in the code above:

```
function I_detected = detectColour(im, channel)

% Set bright pixels(meaning component > 175) to 255
threshold = 175;

I_detected = im;
I_detected(:,:,:) = 0;

rows = size(I_detected,1);
```

```matlab
columns = size(I_detected,2);

for i = 1:rows
    for j= 1:columns
        if( im(i,j,channel)> threshold)
            I_detected(i,j,channel)=255;
        else
            I_detected(i,j,channel)=0;
        end
    end
end
end
```