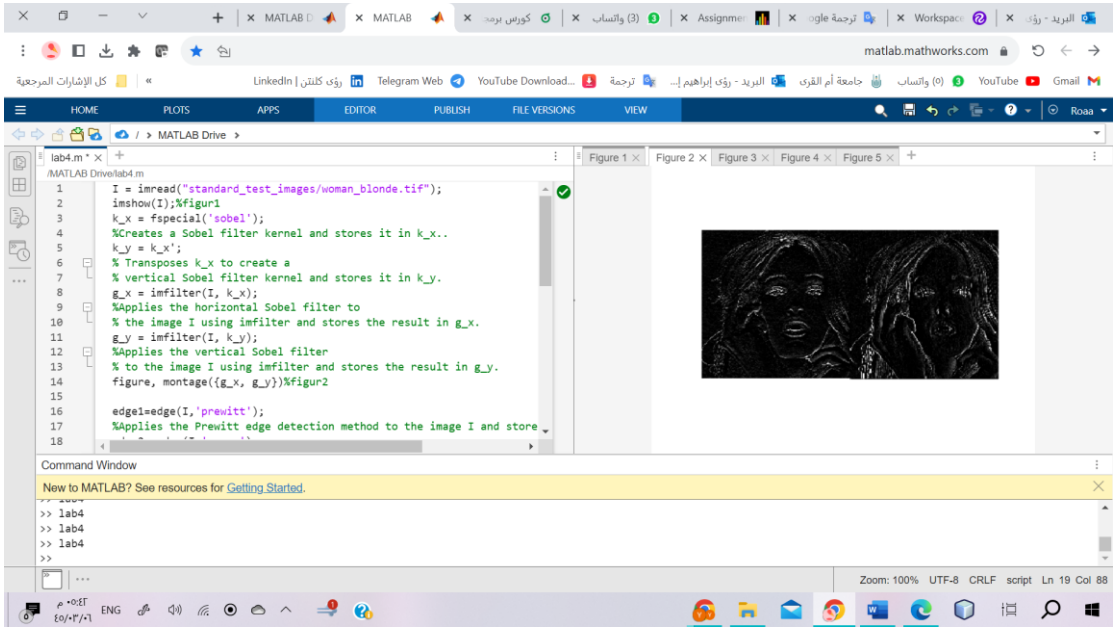
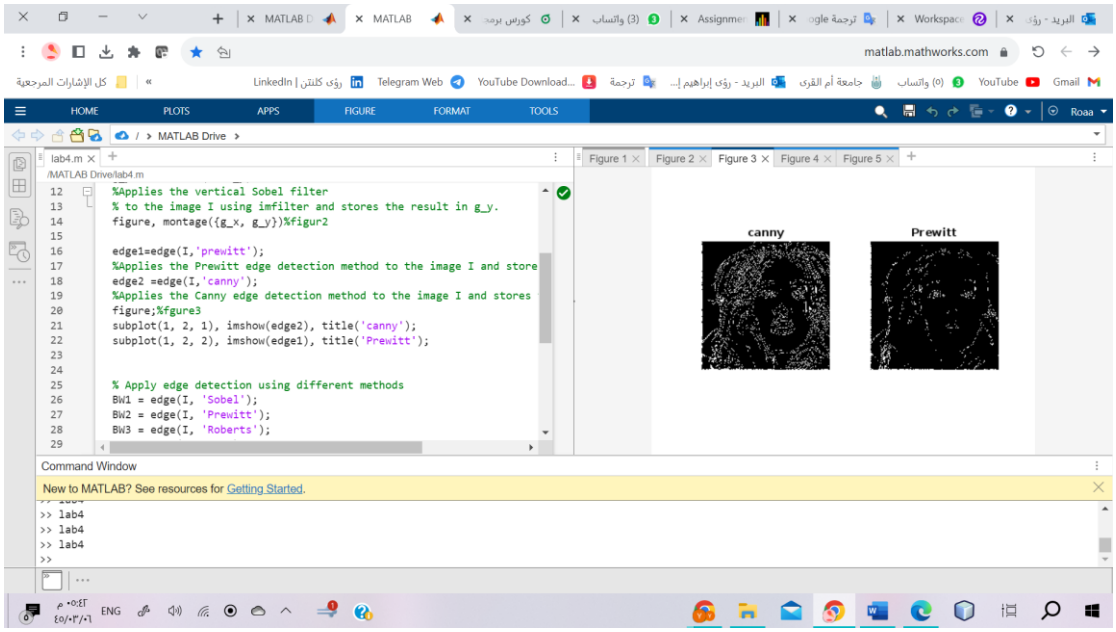
رؤى إبراهيم كلنتن 441004834
معالجة صور شعبة نظري 1 شعبة العملي 4

Lab4






```
I = imread("standard_test_images/woman_blonde.tif");
imshow(I);%figur1
k_x = fspecial('sobel');
%Creates a Sobel filter kernel and stores it in k_x..
k_y = k_x';
% Transposes k_x to create a
% vertical Sobel filter kernel and stores it in k_y.
g_x = imfilter(I, k_x);
%Applies the horizontal Sobel filter to
% the image I using imfilter and stores the result in g_x.
g_y = imfilter(I, k_y);
%Applies the vertical Sobel filter
% to the image I using imfilter and stores the result in g_y.
figure, montage({g_x, g_y})%figur2

edge1=edge(I,'prewitt');
```

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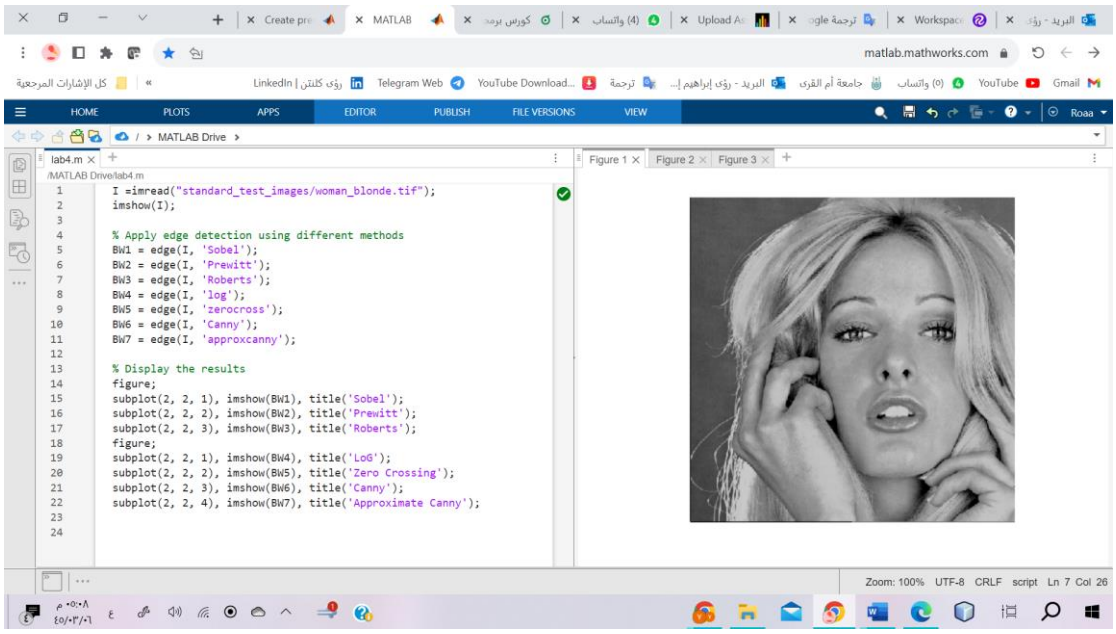
```
%Applies the Prewitt edge detection method to the image I and stores the
result in edge1.
edge2 =edge(I,'canny');
%Applies the Canny edge detection method to the image I and stores the
result in edge2.
figure;%fgure3
subplot(1, 2, 1), imshow(edge2), title('canny');
subplot(1, 2, 2), imshow(edge1), title('Prewitt');


% Apply edge detection using different methods
BW1 = edge(I, 'Sobel');
BW2 = edge(I, 'Prewitt');
BW3 = edge(I, 'Roberts');
BW4 = edge(I, 'log');
BW5 = edge(I, 'zerocross');
BW6 = edge(I, 'Canny');
BW7 = edge(I, 'approxcanny');

% Display the results
figure;%fgure3
subplot(2, 2, 1), imshow(BW1), title('Sobel');
subplot(2, 2, 2), imshow(BW2), title('Prewitt');
subplot(2, 2, 3), imshow(BW3), title('Roberts');
figure;%fgure3
subplot(2, 2, 1), imshow(BW4), title('LoG');
subplot(2, 2, 2), imshow(BW5), title('Zero Crossing');
subplot(2, 2, 3), imshow(BW6), title('Canny');
subplot(2, 2, 4), imshow(BW7), title('Approximate Canny');
```

Proplem



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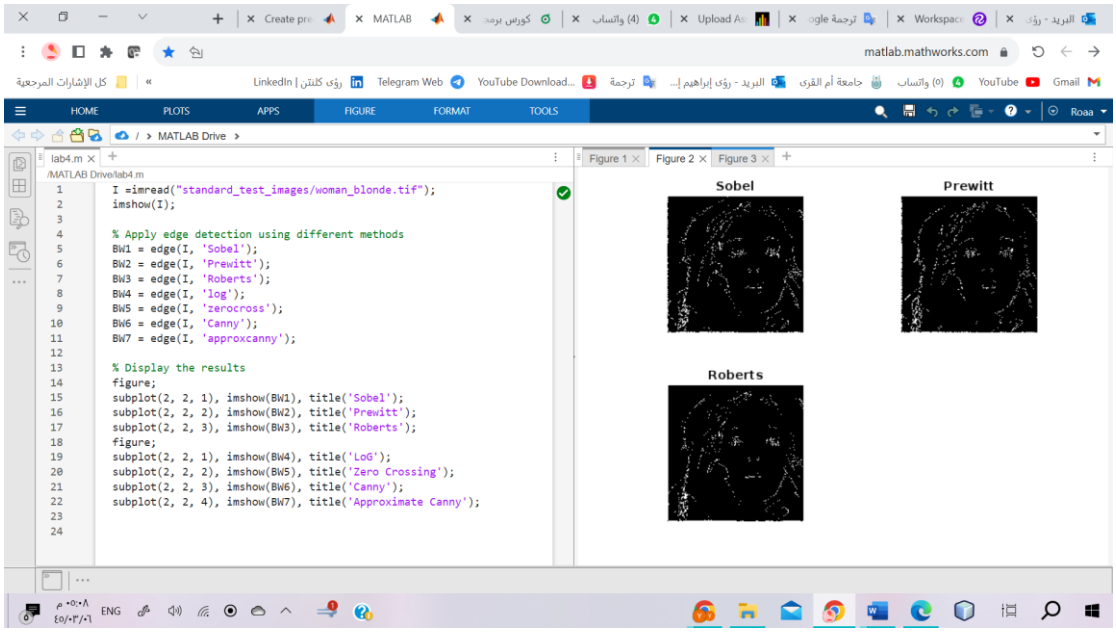

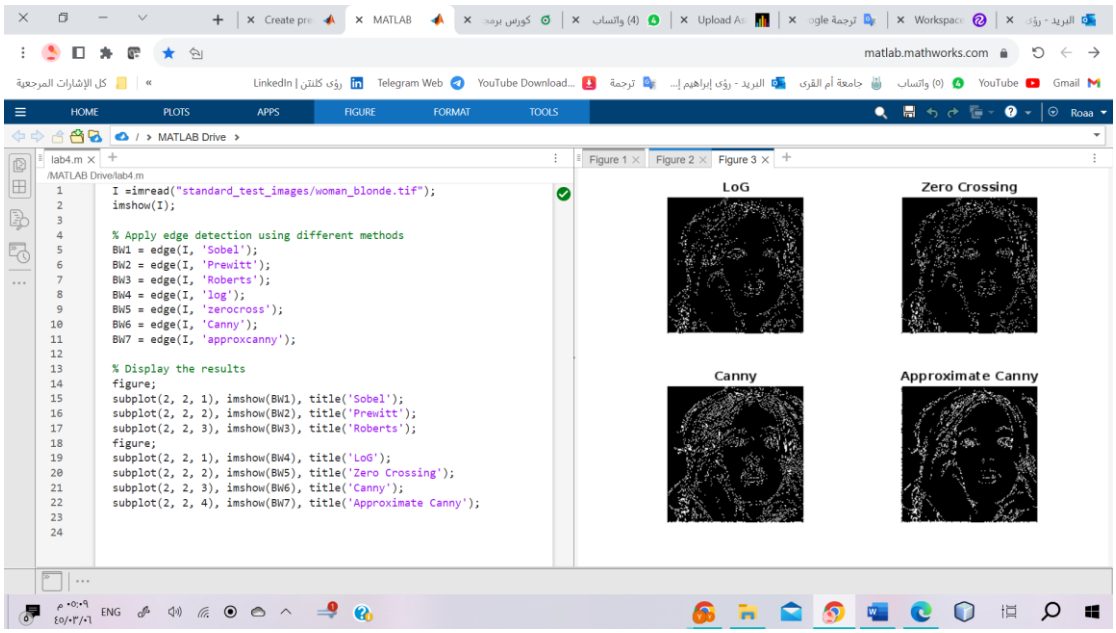


```
I =imread("standard_test_images/woman_blonde.tif");
imshow(I);

% Apply edge detection using different methods
BW1 = edge(I, 'Sobel');
BW2 = edge(I, 'Prewitt');
BW3 = edge(I, 'Roberts');
BW4 = edge(I, 'log');
BW5 = edge(I, 'zerocross');
BW6 = edge(I, 'Canny');
BW7 = edge(I, 'approxcanny');

% Display the results
figure;
subplot(2, 2, 1), imshow(BW1), title('Sobel');
subplot(2, 2, 2), imshow(BW2), title('Prewitt');
subplot(2, 2, 3), imshow(BW3), title('Roberts');
figure;
```

```
subplot(2, 2, 1), imshow(BW4), title('LoG');
subplot(2, 2, 2), imshow(BW5), title('Zero Crossing');
subplot(2, 2, 3), imshow(BW6), title('Canny');
subplot(2, 2, 4), imshow(BW7), title('Approximate Canny');
```

note:-

1. Edge detection using different methods:
   - BW1 = edge(I, 'Sobel');: This line applies the Sobel edge detection method to the image I using the edge function and stores the resulting binary edge image in the variable BW1.
   - BW2 = edge(I, 'Prewitt');: This line applies the Prewitt edge detection method to the image I and stores the result in BW2.
   - BW3 = edge(I, 'Roberts');: This line applies the Roberts edge detection method to the image I and stores the result in BW3.
   - BW4 = edge(I, 'log');: This line applies the Laplacian of Gaussian (LoG) edge detection method to the image I and stores the result in BW4.
   - BW5 = edge(I, 'zerocross');: This line applies the zero-crossing edge detection method to the image I and stores the result in BW5.
   - BW6 = edge(I, 'Canny');: This line applies the Canny edge detection method to the image I and stores the result in BW6.
   - BW7 = edge(I, 'approxcanny');: This line applies an approximate version of the Canny edge detection method to the image I and stores the result in BW7.
2. Displaying the results:
   - figure;: This line creates a new figure window to display the results separately.
   - subplot(2, 2, 1), imshow(BW1), title('Sobel');: This line creates a subplot in the figure and displays the binary edge image BW1 using the imshow function. The title of the subplot is set to 'Sobel'.
   - subplot(2, 2, 2), imshow(BW2), title('Prewitt');: This line creates another subplot and displays BW2 with the title 'Prewitt'.
   - subplot(2, 2, 3), imshow(BW3), title('Roberts');: This line creates a third subplot and displays BW3 with the title 'Roberts'.
   - figure;: This line creates another new figure window.
   - subplot(2, 2, 1), imshow(BW4), title('LoG');: This line creates a subplot in the new figure and displays BW4 with the title 'LoG'.
   - subplot(2, 2, 2), imshow(BW5), title('Zero Crossing');: This line creates another subplot and displays BW5 with the title 'Zero Crossing'.
   - subplot(2, 2, 3), imshow(BW6), title('Canny');: This line creates a third subplot and displays BW6 with the title 'Canny'.
   - subplot(2, 2, 4), imshow(BW7), title('Approximate Canny');: This line creates a fourth subplot and displays BW7 with the title 'Approximate Canny'.