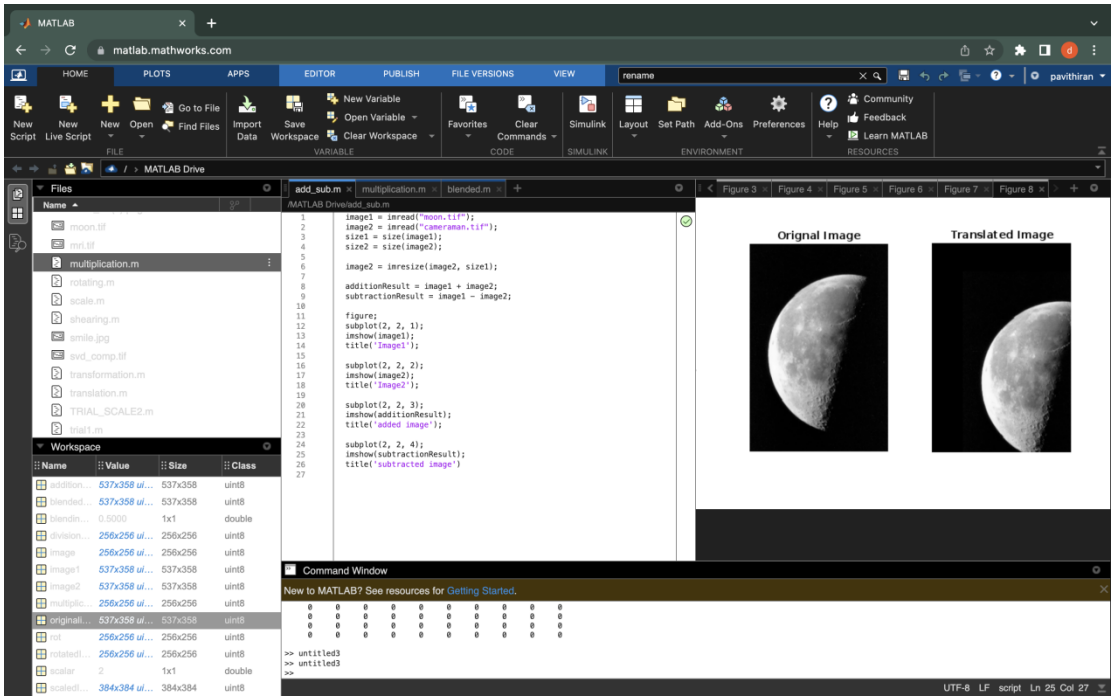
Exercise on Arithmetic and Logical operations in computer vision using MATLAB

TASK-2

EXERCISE 1: IMAGE ADDITION AND SUBTRACTION

Code

```
image1 = imread("moon.tif");
image2 = imread("cameraman.tif");
size1 = size(image1);
size2 = size(image2);

image2 = imresize(image2, size1);

additionResult = image1 + image2;
subtractionResult = image1 - image2;

figure;
subplot(2, 2, 1);
imshow(image1);
title('Image1');

subplot(2, 2, 2);
imshow(image2);
title('Image2');

subplot(2, 2, 3);
imshow(additionResult);
title('added image');

subplot(2, 2, 4);
imshow(subtractionResult);
title('subtracted image')
```



add_sub.m | multiplication.m | blended.m

/MATLAB Drive/add_sub.m

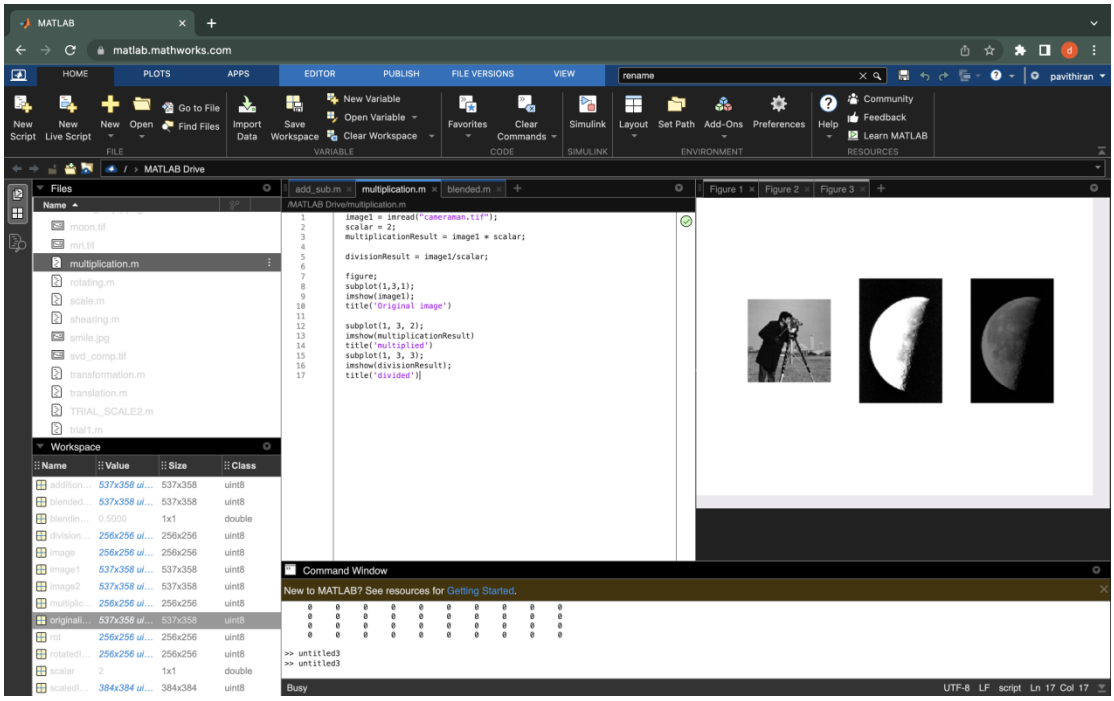
```
1   image1 = imread("moon.tif");
2   image2 = imread("cameraman.tif");
3   size1 = size(image1);
4   size2 = size(image2);
5
6   image2 = imresize(image2, size1);
7
8   additionResult = image1 + image2;
9   subtractionResult = image1 - image2;
10
11  figure;
12  subplot(2, 2, 1);
13  imshow(image1);
14  title('Image1');
15
16  subplot(2, 2, 2);
17  imshow(image2);
18  title('Image2');
19
20  subplot(2, 2, 3);
21  imshow(additionResult);
22  title('added image');
23
24  subplot(2, 2, 4);
25  imshow(subtractionResult);
26  title('subtracted image')
27
```



EXERCISE 2: IMAGE MULTIPLICATION AND DIVISION

CODE

```
image1 = imread("cameraman.tif");
scalar = 2;
multiplicationResult = image1 * scalar;

divisionResult = image1/scalar;

figure;
subplot(1,3,1);
imshow(image1);
title('Original image')

subplot(1, 3, 2);
imshow(multiplicationResult)
title('multiplied')
subplot(1, 3, 3);
imshow(divisionResult);
title('divided')
```



add_sub.m | multiplication.m | blended.m

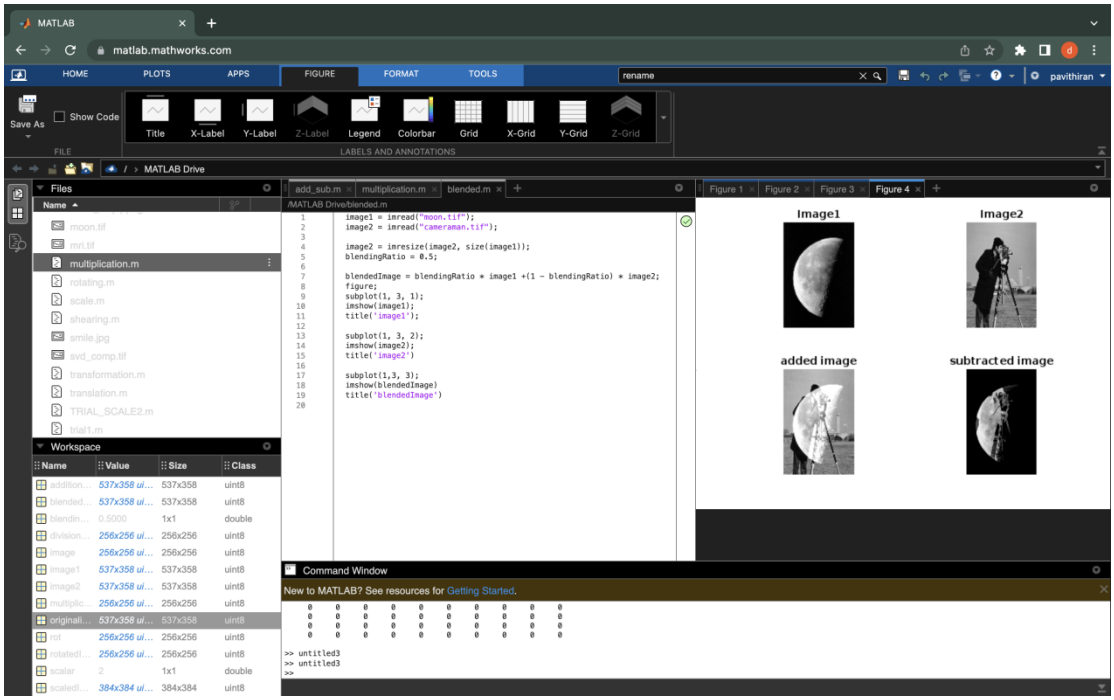
/MATLAB Drive/multiplication.m

```
1  image1 = imread("cameraman.tif");
2  scalar = 2;
3  multiplicationResult = image1 * scalar;
4
5  divisionResult = image1/scalar;
6
7  figure;
8  subplot(1,3,1);
9  imshow(image1);
10 title('Original image')
11
12 subplot(1, 3, 2);
13 imshow(multiplicationResult)
14 title('multiplied')
15 subplot(1, 3, 3);
16 imshow(divisionResult);
17 title('divided')
```

EXERCISE 5: IMAGE BLENDING

Code

```
image1 = imread("moon.tif");
image2 = imread("cameraman.tif");

image2 = imresize(image2, size(image1));
blendingRatio = 0.5;

blendedImage = blendingRatio * image1 +(1 - blendingRatio) * image2;
figure;
subplot(1, 3, 1);
imshow(image1);
title('image1');

subplot(1, 3, 2);
imshow(image2);
title('image2')

subplot(1,3, 3);
imshow(blendedImage)
title('blendedImage')
```



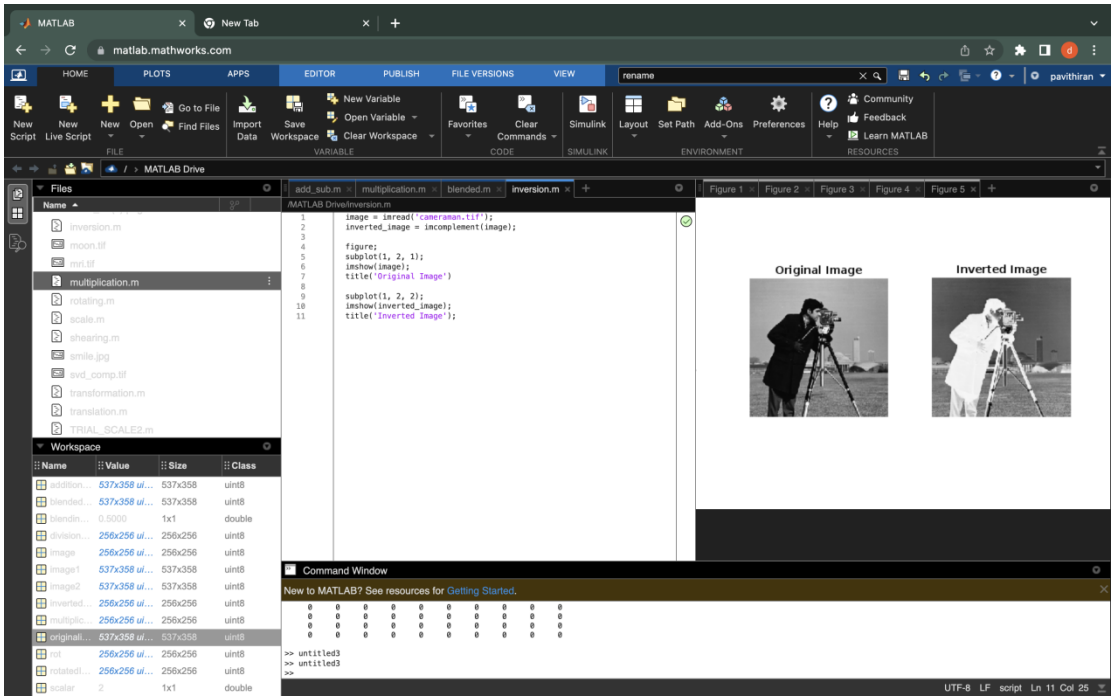
add_sub.m | multiplication.m | blended.m

MATLAB Drive/blended.m

```
1   image1 = imread("moon.tif");
2   image2 = imread("cameraman.tif");
3
4   image2 = imresize(image2, size(image1));
5   blendingRatio = 0.5;
6
7   blendedImage = blendingRatio * image1 +(1 - blendingRatio) * image2;
8   figure;
9   subplot(1, 3, 1);
10  imshow(image1);
11  title('image1');
12
13  subplot(1, 3, 2);
14  imshow(image2);
15  title('image2')
16
17  subplot(1,3, 3);
18  imshow(blendedImage)
19  title('blendedImage')
20
```

EXERCISE 6: IMAGE INVERSION

```
image = imread('cameraman.tif');
inverted_image = imcomplement(image);

figure;
subplot(1, 2, 1);
imshow(image);
title('Original Image')

subplot(1, 2, 2);
imshow(inverted_image);
title('Inverted Image');
```



add_sub.m | multiplication.m | blended.m | inversion.m

/MATLAB Drive/inversion.m

```
1  image = imread('cameraman.tif');
2  inverted_image = imcomplement(image);
3
4  figure;
5  subplot(1, 2, 1);
6  imshow(image);
7  title('Original Image')
8
9  subplot(1, 2, 2);
10 imshow(inverted_image);
11 title('Inverted Image');
```

Original Image

Inverted Image