Họ tên: Lý Trọng Nhân

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Link GitHub: https://github.com/vra-nhanlt/vra-nhanlt

Hàm hiển thị 1 ảnh

```
function buoi02_showanimage( images, labels, number )
    figure;
    tmpImage = images(:, number);
    tmp2DImage = reshape(tmpImage, 28, 28);
    tmpLabel = num2str(labels(number));
    tmpLabel = [tmpLabel, '(', num2str(number), ')'];
    imshow(tmp2DImage);
    title(tmpLabel);
end
```

Buổi 1 VĐ1

```matlab
function buoi02_recognition001_digits()
    % Load data
    fprintf('\nStarting loading data...')
    allTrainingImages = loadMNISTImages('./train-images.idx3-ubyte');
    allTrainingLabels = loadMNISTLabels('./train-labels.idx1-ubyte');
    allTestingImages = loadMNISTImages('./t10k-images.idx3-ubyte');
    allTestingLabels = loadMNISTLabels('./t10k-labels.idx1-ubyte');
    fprintf('\nLoading data completed.')
end
```

```matlab
function buoi02_recognition001_digits()
    % Load data
    fprintf('\nStarting loading data...')
    allTrainingImages = loadMNISTImages('./train-images.idx3-ubyte');
    allTrainingLabels = loadMNISTLabels('./train-labels.idx1-ubyte');
    allTestingImages = loadMNISTImages('./t10k-images.idx3-ubyte');
    allTestingLabels = loadMNISTLabels('./t10k-labels.idx1-ubyte');
    fprintf('\nLoading data completed.')
```

Buổi 1 VĐ2

```matlab
function buoi02_recognition002_digits()
    % Load data
    allTrainingImages = loadMNISTImages('./train-images.idx3-ubyte');
    allTrainingLabels = loadMNISTLabels('./train-labels.idx1-ubyte');
    allTestingImages = loadMNISTImages('./t10k-images.idx3-ubyte');
    allTestingLabels = loadMNISTLabels('./t10k-labels.idx1-ubyte');

    % Get figures
    trainingImagesCount = size(allTrainingImages, 2);
    trainingLablesCount = size(allTrainingLabels, 1);
    testingImagesCount = size(allTestingImages, 2);
    testingLablesCount = size(allTestingLabels, 1);
    sizeOfTrainingImage = size(allTrainingImages, 1);

    % Show figures
    fprintf('\n trainingImagesCount: %d',  trainingImagesCount);
    fprintf('\n trainingLablesCount: %d',  trainingLablesCount);
    fprintf('\n testingImagesCount: %d',  testingImagesCount);
    fprintf('\n testingLablesCount: %d',  testingLablesCount);
    fprintf('\n sizeOfTrainingImage: %d',  sizeOfTrainingImage);
end
```

Buổi 1 VĐ3

```matlab
function buoi02_recognition003_digits()
    % Load data
    allTrainingImages = loadMNISTImages('./train-images.idx3-ubyte');
    allTrainingLabels = loadMNISTLabels('./train-labels.idx1-ubyte');
    allTestingImages = loadMNISTImages('./t10k-images.idx3-ubyte');
    allTestingLabels = loadMNISTLabels('./t10k-labels.idx1-ubyte');

    % Get trainingImagesCount
    trainingImagesCount = size(allTrainingImages, 2);

    % Show the first training image
    buoi02_showanimage(allTrainingImages, allTrainingLabels, 1);

    % Show the last training image
    buoi02_showanimage(allTrainingImages, allTrainingLabels,
trainingImagesCount);
end
```

Buổi 1 VĐ4

```matlab
function buoi02_recognition004_digits()
    % Load data
    allTrainingImages = loadMNISTImages('./train-images.idx3-ubyte');
    allTrainingLabels = loadMNISTLabels('./train-labels.idx1-ubyte');
    allTestingImages = loadMNISTImages('./t10k-images.idx3-ubyte');
    allTestingLabels = loadMNISTLabels('./t10k-labels.idx1-ubyte');

    % Show random training image
    % Init a random number
    trainingImagesCount = size(allTrainingImages, 2);
    randomNumber = randi([1 trainingImagesCount]);
    % Show image
    buoi02_showanimage(allTrainingImages, allTrainingLabels, randomNumber);

    % Show random testing image
    % Init a random number
    testingImagesCount = size(allTestingImages, 2);
    randomNumber = randi([1 testingImagesCount]);
    % Show image
    buoi02_showanimage(allTestingImages, allTestingLabels, randomNumber);
end
```