```
%     softmaxLayer
%     classificationLayer];

%     convolution2dLayer([5 5], 6, 'Padding', 'same')
%     tanhLayer
%     averagePooling2dLayer([2 2], 'Padding', 'same', 'Stride', [2 2])
%     convolution2dLayer([5 5], 6, 'Padding', 'same')
%     tanhLayer

options1 = trainingOptions('adam',...
    'MaxEpochs', 5,...
    'InitialLearnRate', 1e-3,...
    'L2Regularization', 1e-4,...
    'ValidationData', {X_valid, y_valid},...
    'Verbose', false,...
    'Plots', 'training-progress');

net1 = trainNetwork(X_train, y_train, layers1, options1);
```

Plot confusion matrix of train and validation data

```
figure(4)
y_pred1 = classify(net1, X_train);
plotconfusion(y_train, y_pred1);
title('Confusion Matrix of Train Data');

figure(5)
y_pred1 = classify(net1, X_valid);
plotconfusion(y_valid, y_pred1);
title('Confusion Matrix of Validation Data');
```

Plot confusion matrix of test data

```
figure(6)
y_pred1 = classify(net1, X_test);
plotconfusion(y_test, y_pred1);
title('Confusion Matrix of Test Data');
```

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