This document is designed to guide readers in opening saved sessions from Matlab's Classification Learner and reproducing the accuracy and MCC calculations for different variance explanation ratios or the number of predictors, as presented in Table VI of the main text.

1. Open the file run.m

   You can see the following content in the code

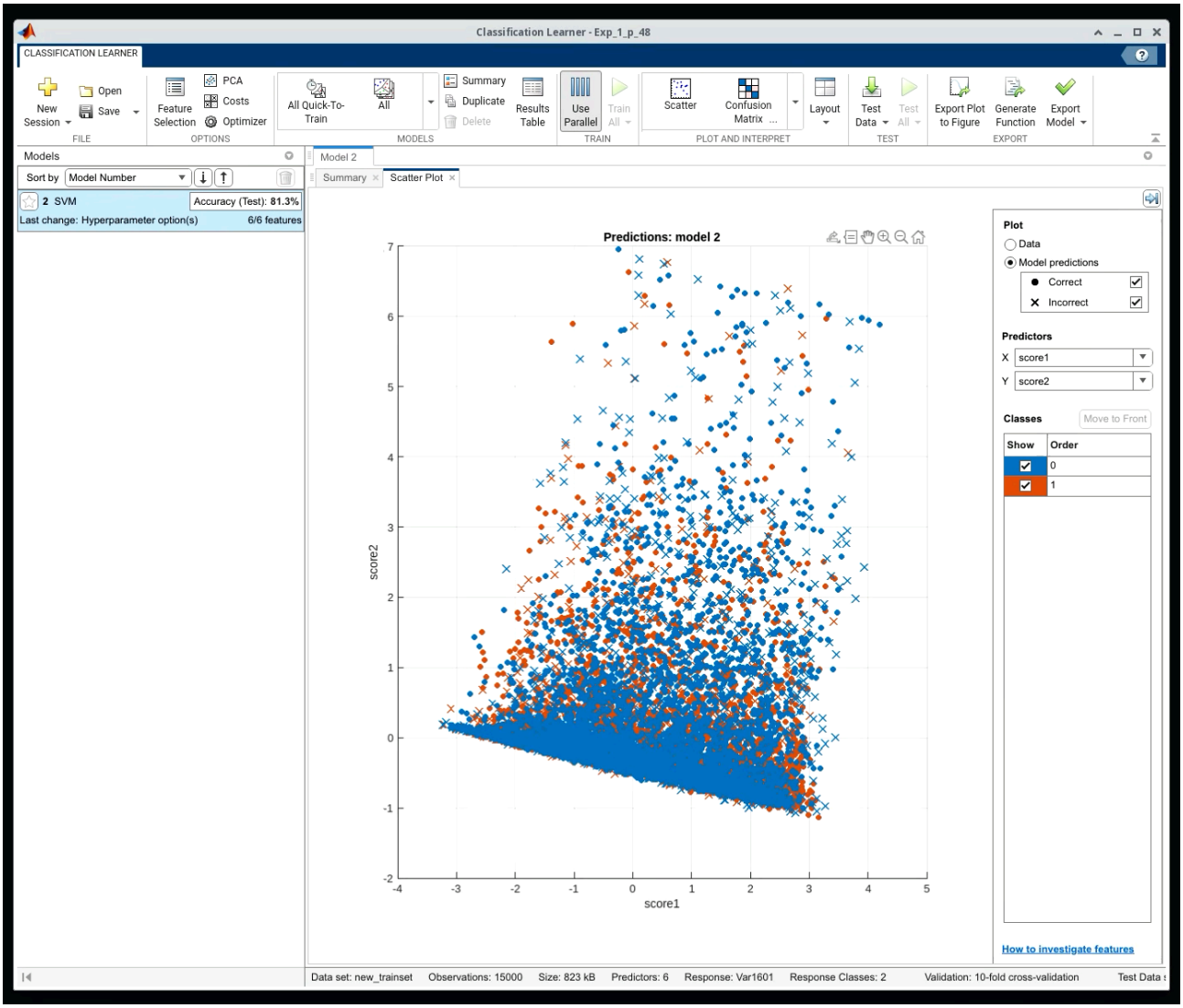
```
% percentage - num of predictors
% 48% - 6
% 45% - 5
% 40% - 4
% 35% - 3
% 30% - 2
% 23% - 1

% Here to set the percentage of var explained in PCA
percentage_ = 48;
```

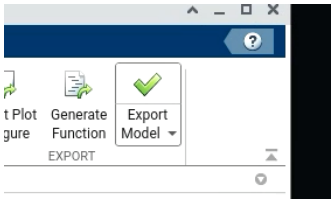
   The variable percentage_ represents the variance explanation ratio. Its value, along with the number of predictors, is detailed in the comments above. Be sure to adjust it to the desired value for your analysis.

2. Run the file run.m

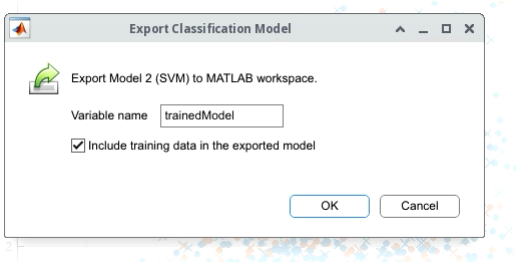
   Using Matlab R2023a as an example, run this file and wait a moment. You should see a window similar to the one shown below. The accuracy is clearly visible in the SVM tab on the left panel. In the example below, it is shown as 81.3%.



3. Click the button “Export Model”

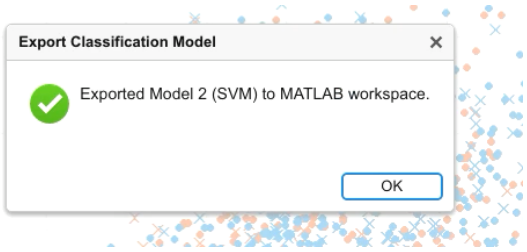


Then you can see a new windows as follow:



Keep the variable name as: trainedModel

Then press OK, the following window will come out:



Press OK again.

4. Go back to the main window of MATLAB, open the file mcc_.m, and run it
Then you can get the MCC

The MCC value is 0.626

mcc_.m

```
f = trainedModel;
XTest = new_testset(:, 1:end-1);
YTest = new_testset(:, end);
YTest = YTest.Var1601;
YPredicted = f.predictFcn(XTest);
confMat = confusionmat(YTest, YPredicted);

TP = confMat(1, 1);
FN = confMat(1, 2);
FP = confMat(2, 1);
TN = confMat(2, 2);
numerator = (TP * TN) - (FP * FN);
denominator = sqrt((TP + FP) * (TP + FN) * (TN + FP) * (TN + FN));

if denominator == 0
    mcc = NaN;
else
    mcc = numerator / denominator;
end

disp('Confusion matrix:');
disp(confMat);
fprintf('Matthews Correlation Coefficient (MCC): %.3f\n', mcc);

```

Command Window

New to MATLAB? See resources for Getting Started.

```
Warning: X does not support locale en_GB.UTF-8
>> run
Warning: MATLAB has disabled some advanced graphics rendering features by switching to software
OpenGL. For more information, click here.
Structure 'trainedModel' exported from Classification Learner.
To make predictions on a new table, T:
  [yfit,scores] = trainedModel.predictFcn(T)
For more information, see How to predict using an exported model.
>> mcc_
Confusion matrix:
       12232        2768
        2845       12155

Matthews Correlation Coefficient (MCC): 0.626
>>
```