# Homework 1：

### Step 1：

**Load Data**: We load the Iris dataset using sklearn.datasets.load\_iris.

 **Feature Selection**: We select a single feature (sepal length (cm) in this example) and apply a threshold to classify the data.

 **Threshold Classification**: We create binary classifications based on whether the feature value is above or below the threshold.

 **Train/Test Split**: We split the dataset into training and testing sets to evaluate the classification performance.

 **Accuracy Calculation**: We calculate and print the accuracy of the classification.

### Step 2：

vary the threshold and plot the ROC curve:

1. Compute the predicted probabilities for the positive class using the chosen feature.
2. Vary the threshold to generate different classifications.
3. Compute the True Positive Rate (TPR) and False Positive Rate (FPR) for each threshold.
4. Plot the ROC curve using these values.