Instructions: Please complete and submit your work to the appropriate folder in LumiNUS. You may work in study groups, but each student must be responsible for their own submission.
Please submit the completed Word file named as StudentID-Name-HW4.docx (with all results).

1. Consider the metrics accuracy, precision, and recall.
   a. Give one example when accuracy would not be a good performance metric. Give a numerical example.
   b. Given one example of a supervised machine learning classification problem when higher <u>precision</u> is desired. Please give a different example than the ones given in class. This need not be a numerical example but must be clearly defined classification problem and dataset.
   c. Given one example of a supervised machine learning classification problem when higher <u>recall</u> is desired. Please give a different example than the ones given in class. This need not be a numerical example but must be clearly defined classification problem and dataset.

2. Suppose you are given the same test dataset and two binary classifiers. Give a numerical example such that Classifier 1 has higher accuracy than Classifier 2, but Classifier 2 has both higher precision and higher recall than Classifier 1? Hint: Give a hypothetical 2x2 confusion matrix for each classifier.