**Lab Week 7**

**Evaluation Metrics**

**Part A: Evaluation Metrics**

Based on the python file given, write a proper code according to the output in each cell.

**Part B: K-Fold Cross Validation**

1. Import libraries:
   1. numpy
   2. load\_digits from sklearn.datasets
   3. SVC
   4. Random Forest
   5. Train test split from sklearn.model\_selection
2. Use load\_digits to load the dataset.
3. Use train\_test\_split to split the dataset whereby training size is 70% and testing size is 30%.
4. Build a model using SVC.
5. Fit the training dataset into SVC model.
6. Test the accuracy of SVC model using testing dataset.
7. Build a model using Random Forest.
8. Fit the training dataset into Random Forest model.
9. Test the accuracy of Random Forest model using testing dataset.
10. Import KFold from sklearn.model\_selection
11. Build a KFold model with parameter number of folds = 5.
12. For each fold, split the training and testing samples.
13. Build a function to fit the training dataset into your model and test the accuracy of the model.
14. For each fold:
    1. Split the dataset of training and testing
    2. Test the accuracy of both SVC and Random Forest based on the function built in (13).
15. Display the accuracy of each fold for both SVC and Random Forest.
16. Import cross\_val\_score from sklearn.model\_selection.
17. Find the accuracy of each model using cross\_val\_score.
18. Find the average accuracy score based on KFold cross validation accuracy.