COSC 311 Homework 3 (10 points)

Due Sunday, 23 April 2023 at 11:59 PM

Please finish the following tasks and submit your homework report via MyClasses. Your submission must contain your source code file (one ".py" file for all code) and a PDF document. The PDF contains the results (may use screenshot) of your program.

Food type recognition application

1. Dataset
- Please download the "Food type recognition dataset" named "***FoodTypeDataset.csv***" from this homework assignment.
- In this dataset, each sample contains 65 attributes (column 1 – 65) and one food type label (column 66). The attribute values are normalized and can be directly used for model training and testing. The food type label is from 1 to 20, representing 20 different food types.
- There are 933 samples collected from multiple users.

2. Tasks
- Randomly split this dataset into two parts: 80% for training and 20% for testing.
- Select a classification algorithm (any classification algorithm), set appropriate parameters to build a classification model, which can obtain the highest testing accuracy on the testing data.
- Use Classification Report to show the classification performance of the above test.
- Use a heatmap to show the classification confusion matrix of the above test. Explain the misclassification between food types.