CSCI 3302: Introduction to Robotics
Homework 3: Clustering and Classification

Due Date: Nov 22, 2019 @ 5:00pm

Using the base code, implement the functionality required for K-Means clustering (50%) and Weighted K-Nearest Neighbor classification (50%). You may use numpy or any math library you prefer, though this is not necessary. **You are not permitted to call k-Means or k-NN classifiers from other packages to implement your own (i.e., you may not just write a wrapper that calls sklearn's implementations)**.

The provided Python file will output your k-Means cluster centers and assess your kNN classifier accuracy using Leave-One-Out-Cross Validation (https://en.wikipedia.org/wiki/Cross-validation_(statistics)#Leave-one-out_cross-validation).

You are to complete this assignment on your own (without collaboration).

Submit your fully implemented Homework3.py file, as well as the hw3_kmeans_*.pkl file containing your cluster centers to Moodle for full credit.