IE 5400 Healthcare Systems Modeling and Analysis
Assignment 04
Spring 2021

Instructor: *Chun-An Chou*

Due 11:59 PM 03/19/2021

All Exercises are referred in the textbook authored by Ozcan.

Question 1 (10%)
Exercise 3.14

Question 2 (10%)
Exercise 3.25

Question 3 (10%)
Exercise 4.3

Question 4 (30%)
As a manager considers to 5 potential warehouses to store medical supply materials in order to cover the demand of the 10 hospitals in the area. The geographical information are provided in the attached Excel file. The demand of hospitals and the capacity and setup cost of warehouses are also provided. If you were the manager, how will you make decisions for the following plans? Develop and solve mathematical optimization models accordingly to provide resulting information to support your decisions.
(1) How to determine the assignment of hospitals to warehouses by only considering minimum travel distance regardless of demand. A warehouse could cover more than one hospital.
(2) Now only two warehouses can be installed among 5 potential locations to cover the demand of 10 hospitals maximally within a minimum distance. Which two locations will be the best choice regardless of setup cost? And what is assignment plan?
(3) Regardless of warehouse capacity, what is development plan including how many warehouses to install and hospital assignment?
Note: you are required to use Python/Gurobi or equivalent packages for this question.

Question 5 (10%)
Exercise 10.8

Question 6 (xx%)
To be assigned

Question 7 (xx%)
To be assigned