Lab5 – ML.NET

Due Date: Midnight of Week#13's Friday

Purpose: The purpose of this assignment is to help you:

- Understand the ML.NET pipeline
- Identify the type of problems that can be solved with ML.NET

Instructions: Be sure to read the following general instructions carefully:

This assignment should be completed individually by all the students. You are encouraged to demonstrate your solution, and submit your solution **through the dropbox**. You must name your submission according to the following rule:
studentID(yourlastname)_Labnumber.zip. e.g., 300123456(**smith)_Lab#5**.zip

Rubric

	Functionality	Marks
Q1	1.1 Regression algorithm	1
	1.2 Classification	1
	1.3 Clustering	1
	1.4 Anomaly detection	1
	1.5 ML.NET pipeline	2
Q2	2.1 Generate cost prediction regression model	3
	2.2 Consume the generated model	2
Q3	3.1 Student class and ClusterPrediction class	1
	3.2 Customize options for K-Means	1
	3.3 Create the pipeline	1
	3.4 Instantiate an instance of Student class	1
	3.5 Create the prediction engine from the model and perform the prediction	1

Question 1 [6 marks]

1.1 List two problems that regression algorithms can be used to solve [1 mark]
1.2 List two problems that belong to classification problem [1 mark]
1.3 List two problems that can be solved by using clustering algorithm(s) [1 mark]
1.4 What is anomaly detection? [1 mark]
1.5 Use an example to illustrate what the ML.NET pipeline is [2 marks]

Question 2 [5 marks]

Implement C# application to predict the medical cost by using ML.NET based on the dataset insurance.csv

Question 3 [5 marks]

Implement C# application to predict student's knowledge level by using ML.NET based on the dataset Student.csv and readme.txt

[**Hint**] you can do it by mimicking the tutorial at https://docs.microsoft.com/en-us/dotnet/machine-learning/tutorials/iris-clustering