EE257 Homework #1 – SPRING 20
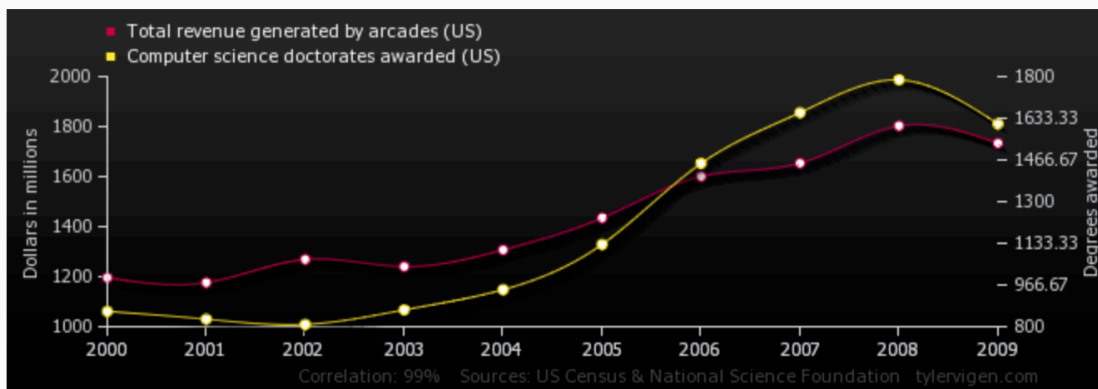**DUE:** Feb 12 at 3:00PM
(You can submit both online or/and inclass.)

PROBLEM 1-2

ISLR Textbook - 2.4 Exercises – Conceptual Problems 1&2

PROBLEM 3 (DO NOT USE ANY COMPUTER PROGRAM)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Total revenue generated by arcades (US) Dollars in millions (US Census)	1,196	1,176	1,269	1,240	1,307	1,435	1,601	1,654	1,803	1,734
Computer science doctorates awarded (US) Degrees awarded (National Science Foundation)	861	830	809	867	948	1,129	1,453	1,656	1,787	1,611

(a) Identify if there are any outliers in the dataset (check both "total revenue" and "computer science doctorates"). Use the outlier definition given in the class.
(b) Find the summary statistics (mean, median, standard deviation) for both data columns
(c) Find the correlation coefficient between "total revenue" and "computer science doctorates"
(d) Will playing more arcade games generate more computer science doctorates?

PROBLEM 4 (SUBMIT a PDF of your code/figures/notes ONLINE)

Use the following link for the Servo Data Set.
https://archive.ics.uci.edu/ml/datasets/Servo

(a) Explain the dataset in one paragraph.

(b) Download the Servo Data Set. Convert the file extension from .data to .csv by manually overwriting. Read the help file using *pandas.read_csv* command. Understand how to use *names* variable in *read_csv* and use it properly.

(c) Explore the Servo data set in Jupyter Notebook using both visualizations and data summaries. Mainly, repeat the exercises we did in Class on Feb 3rd for this data set. Use the following sections of the reference textbook for Python/Jupyter help:
   o Chapter 2: Get the Data & Discover and Visualize the Data to Gain Insight
      ▪ (page 40-59) in Hands-on Machine Learning with ScikitLearn and Tensor Flow (v1)   OR
      ▪ (page 42-61) in Hands-On Machine Learning with Scikit-Learn, Keras & Tensorflow (v2)

PROBLEM 5 (AI IMPACT)
Watch the following videos and write one paragraph about AI, Philosopy, Ethics, and Impact:

Watson and the Jeopardy! Challenge
https://www.youtube.com/watch?v=P18EdAKuC1U

Sophia 2020 – A glimpse at What's to Come
https://www.youtube.com/watch?v=XrSAQoetF0A

Human Need Not Apply
https://www.youtube.com/watch?v=7Pq-S557XQU