Assignment: Module 2

Deadline: 15th October

Choice 1:

Pick up a research paper that uses Machine Learning to solve any problem related to economics. You may use some of the papers discussed in the slides by Michael Koelle or Esther Duflo that are uploaded in the "Class Materials" folder of our MS Teams channel.

Write a 2-page report on the paper, clearly stating the objectives, posing it as a Machine Learning problem, mentioning the algorithm used, the inputs and outputs to the algorithm. Also mention the data sources and performance evaluation.

Choice 2:

Compare LASSO and Double LASSO regression for causal discovery problem in the presence of confounders. Consider 10 variables which include an outcome (y), a treatment (x), one or more confounders (z1, z2, ….) and more variables (v) which may or may not affect x or y. Assume parametric linear relationships among these variables, such as y = a*x + b*z1 + c*v4 + (random noise). Generate a synthetic dataset based on these variables, and try to estimate the causal relationships using LASSO and Double LASSO.

Choice 3:

Consider the stock price forecasting problem as given here: https://www.kaggle.com/arashnic/time-series-forecasting-with-yahoo-stock-price. Try out one or more time-series forecasting model to predict the stock prices.