Homework Assignment # 4

Due: Wednesday, April 26, 2017, 11:59 p.m.
Total marks: 100

Question 1. [100 MARKS]

Pick any three learning methods and run them on a dataset or problem of your choice. You can pick amongst the algorithms that you implemented from the previous assignments, or even use algorithms from packages. Use your knowledge about model comparison to formally conclude which of the three algorithms is better. This includes proper training-test splits, statistical significance tests, and proper meta-parameter selection techniques (e.g., cross-validation). You can use statistical significance tests built-in to python (or other languages). Provide a precise conclusion of your experiment. You can now use optimization software, such as lbfgs in scipy.

Homework policies:

Your assignment will be submitted as a single pdf document and a zip file with code, on canvas. The questions must be typed; for example, in Latex, Microsoft Word, Lyx, etc. or must be written legibly and scanned. Images may be scanned and inserted into the document if it is too complicated to draw them properly. All code (if applicable) should be turned in when you submit your assignment. Use Matlab, Python, R, Java or C.

Policy for late submission assignments: Unless there are legitimate circumstances, late assignments will be accepted up to 5 days after the due date and graded using the following rule:

on time: your score 1

1 day late: your score 0.9

2 days late: your score 0.7

3 days late: your score 0.5

4 days late: your score 0.3

5 days late: your score 0.1

For example, this means that if you submit 3 days late and get 80 points for your answers, your total number of points will be $80 \times 0.5 = 40$ points.

All assignments are individual, except when collaboration is explicitly allowed. All the sources used for problem solution must be acknowledged, e.g. web sites, books, research papers, personal communication with people, etc. Academic honesty is taken seriously; for detailed information see Indiana University Code of Student Rights, Responsibilities, and Conduct.

Good luck!