

Instructions: Please complete and submit your work to the appropriate folder in LumiNUS. You may work in study groups, but each student must be responsible for their own submission.

Please submit all the following documents as a single zip file named StudentID-Name-HW1.zip:

- (i) Completed Word file named as StudentID-Name-HW1.docx (with all results)
- (ii) Print preview of ipynb file named as StudentID-Name-HW1.pdf (with all results)
- (iii) Working ipynb file named as StudentID-Name-HW1.ipynb

1. A machine learning application scenario can be seen from four perspectives: (i) what is the technical problem to be solved, (ii) the data requirements, meaning can you get the data needed, (iii) security and privacy considerations, meaning what happens if data is leaked and (iv) the value proposition that machine learning brings to the table.

Choose two industries from the list below (or be creative and come up with your own) and give one example from each industry of how supervised machine learning can be applied. Your examples should follow the 4 perspectives outlined above.

Try to give different examples from those given in lecture. You may consult the Internet, but you must think things through yourself.

Retail	Fashion	Industry 4.0
Banking	Education	Social Media
Healthcare	Communication Networks	Smart Home

2. Redo Problem 1 for the unsupervised learning scenario. Give one example of an application scenario that is different from the examples discussed in the lectures.
3. Redo Problem 1 for the reinforcement learning scenario. Give one example of an application scenario that is different from the examples discussed in the lectures.
4. Suppose we want to remove vowels from a sentence. Write Python code to do this using iterators and list comprehension. The input sentence is: "The quick brown fox jumps over the lazy dog".
 - a. Paste you Python code below, as well as the output of your program with the given input.
 - b. Submit your iPython notebook file (ipynb file) as well as a pdf print preview of the ipynb file as instructed above.