Multi Class Classification Problem

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68) key phrase… “One Hot Encoding”

- ***Binary representation of yi***
  - **All but one are 1**
  - *Remaining all are 0*

Example 1

I am learning machine learning
The dictionary is [am, i, learning, machine]
one-hot-encoding for ‘am’ is [1,0,0,0]
one-hot-encoding for ‘learning’ is [0,0,1,0]
likewise…

Example 2

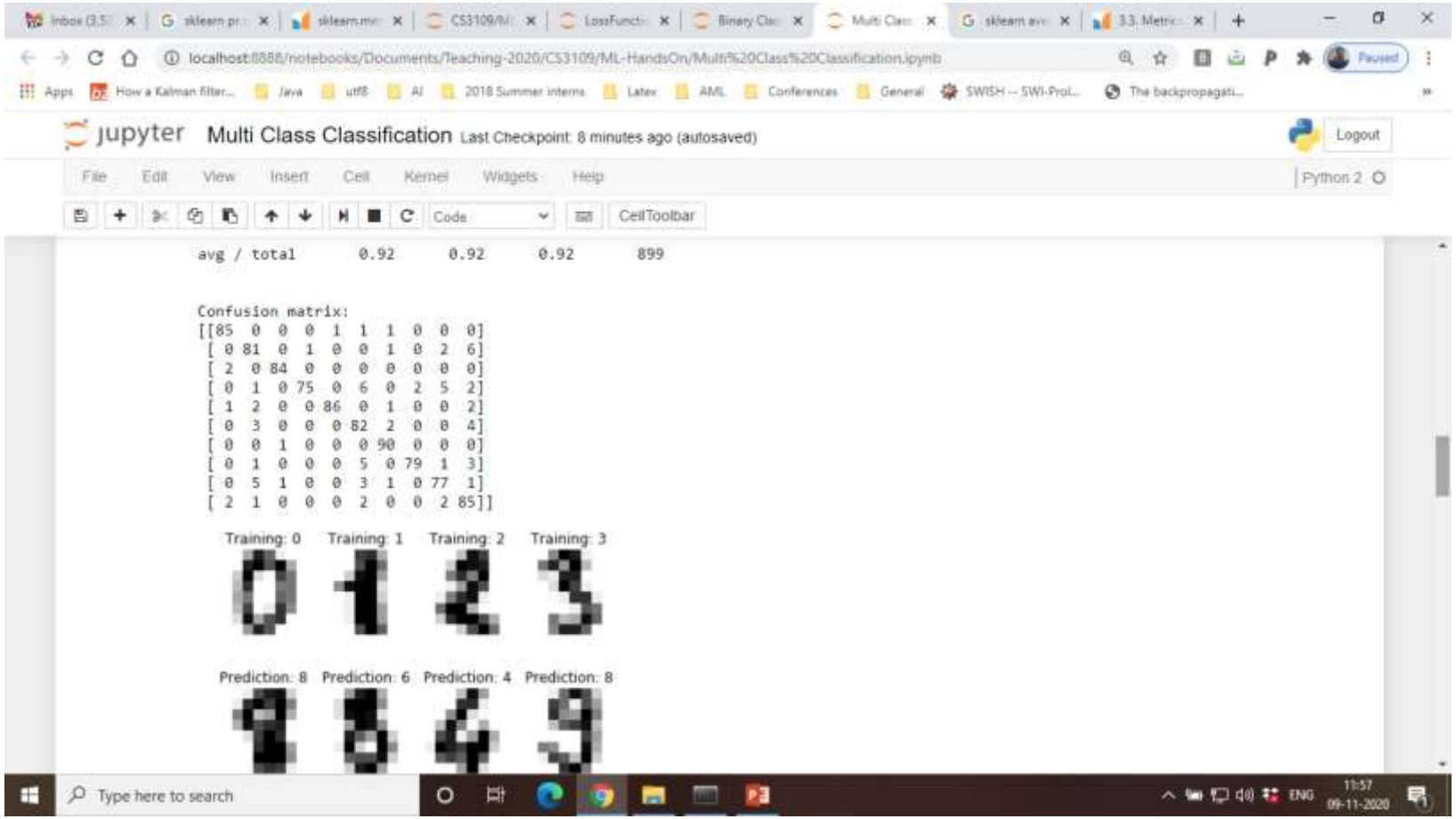
If output is a category, e.g. ‘animal’, ‘person’, ‘bike’, ‘truck’
The dictionary is [‘animal’,’bike’,’person’,’truck’]
Then, one-hot-encoding for ‘animal’ is [1,0,0,0]
Then, one-hot-encoding for ‘person’ is, [0,0,1,0]
likewise

69) key phrase… “one-hot-encoder”

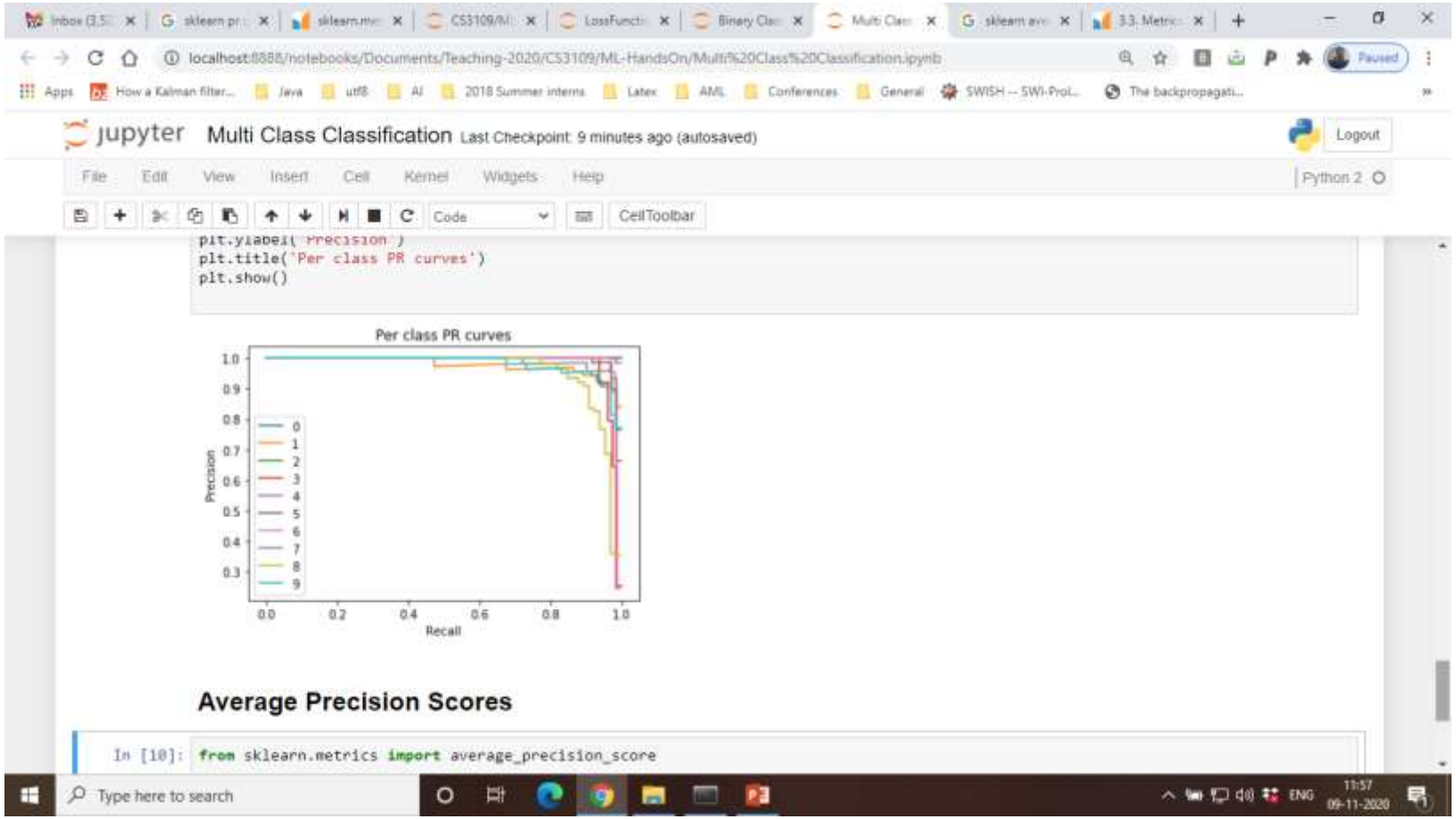
- Consider,
  - xi k-dimensional input
  - yi is m-dimensional output (in one-hot-encoding representation)
  - W is a transformation matrix (machine learning)
- model, $X_{N\times k} \times W_{k\times m} = Y'_{N\times m}$
- Data set $\{(x_i, y_i)\}_{i\in[1\ldots N]}$
- Loss function, is $L(W)$???

  Deviation between prediction vector and the actual vector
- Prediction scores, $y_{pred\_scores} = W^T x_{new}$ → followed by some transformations, we see!

Confusion Matrix



70) key phrase… “Class Specific PR Curve”



71) key phrase… “Mean Average Precision”