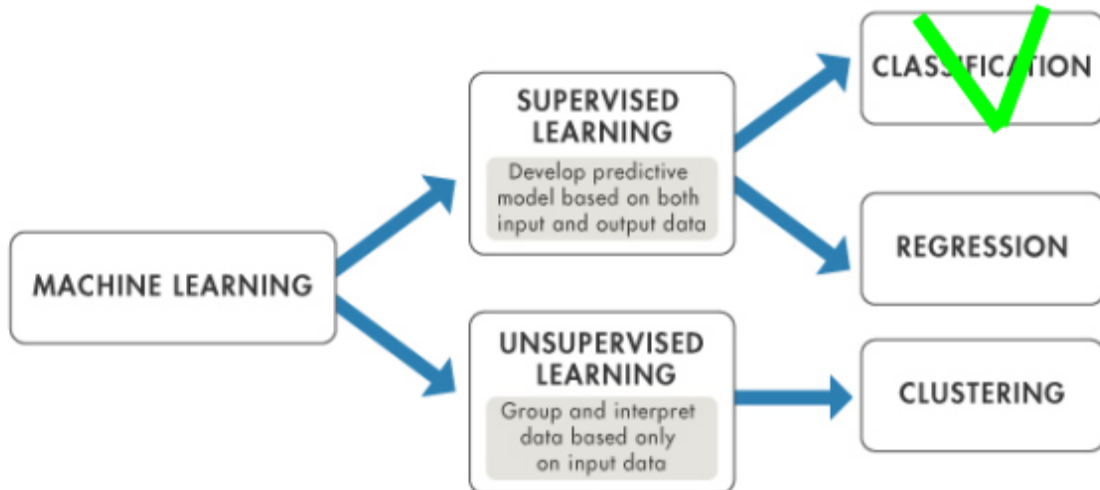


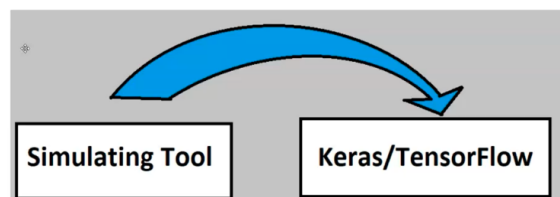
[2022.02] Python Keras exercise (Classification) (James McCaffrey)



Video

Get started with Machine Learning i Python.

See Video [“From DNN Simulator til Keras”](#)



Video

If you have not already seen it, the watch the first 35 min. from [this video](#). This will help you understand the problem.

YouTube ^{DK} Sø

What is a neural network?

Age 38 → 3.8
Income 51,000 → 5.1
Sex M → -1.0
Religion Pres → 0.0, 1.0, 0.0

input hidden output

0.43
0.20
0.37

Politics
Dem

//build/

Developing Neural Networks c#

65,599 visninger • 25. dec. 2015

850 31 DEL GEM ...

DATA

Same data as in previous exercise.

Use only the first 5 rows for training.
Use the last row for testing.

What type of problems does a neural network solve?

Age	Income	Sex	Religion	Politics
27	\$24,000.00	F	Pres	Dem
48	\$98,000.00	M	Cath	Rep
33	\$44,000.00	M	Other	Rep
30	\$29,000.00	F	Cath	Ind
66	\$65,000.00	M	Pres	Dem
38	\$51,000.00	M	Pres	??

Training data

Independent variables/predictors/
attributes/regressors/x-values

"The thing to classify (predict)"/
dependent variable/y

Exercise 1

Data Preparation

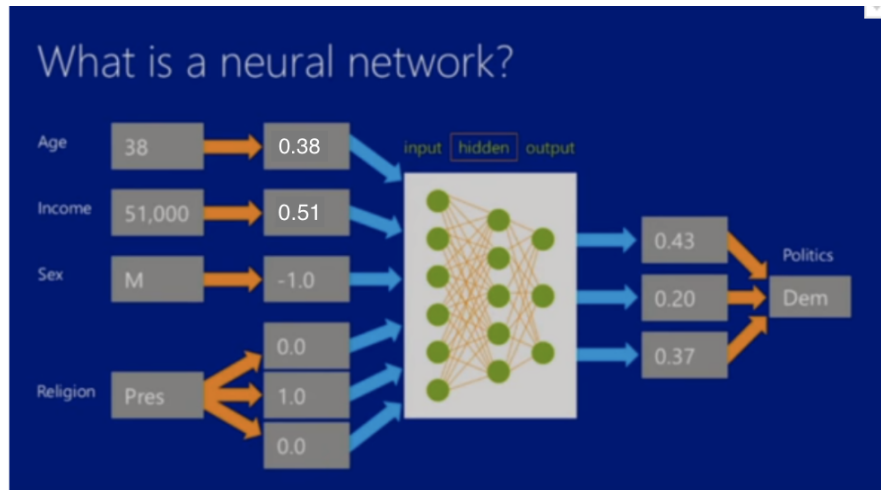
You have to convert the raw data to numbers between -1.0 and 1.0.

Note that the Sex category has been changed to -1.0 and 1.0 for Male, Female respectively.

Also the Religion category has been changed to three subcategories (Dem, Rep, Ind)

As you can see, the whole dataset is now more similar in range.

Save your prepared data in a **NumPy array**.



Exercise 2

Make a Keras model:

And train with the data from the NumPy array above.

Make predictions:

When training is done, see if your model can predict "Democrats" just as the image on the right does.

You may choose to hand-in this exercise or the [XOR exercise](#).

In any case, Hand in a 1 min. video of your solution here: [LINK til video aflevering](#)

