```
 1 C:\Users\vince\anaconda3\python.exe "D:/
   Documents/Choses école/UQAC/Session7/8INF436-
   Forage_de_donnees/TP3/main.py"
 2 2021-04-06 11:22:16.739223: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cudart64_110.dll'; dlerror: cudart64_110.dll
   not found
 3 2021-04-06 11:22:16.739323: I tensorflow/
   stream_executor/cuda/cudart_stub.cc:29]
   Ignore above cudart dlerror if you do not
   have a GPU set up on your machine.
 4 Missing values per attribute:
 5  id                     0
 6 gender                  0
 7 age                     0
 8 hypertension            0
 9 heart_disease           0
10 ever_married            0
11 work_type               0
12 Residence_type          0
13 avg_glucose_level       0
14 bmi                     0
15 smoking_status          0
16 stroke                  0
17 dtype: int64
18 C:\Users\vince\anaconda3\lib\site-packages\
   pandas\core\indexing.py:1736:
   SettingWithCopyWarning:
19 A value is trying to be set on a copy of a
   slice from a DataFrame.
20 Try using .loc[row_indexer,col_indexer] =
   value instead
21
22 See the caveats in the documentation: https
   ://pandas.pydata.org/pandas-docs/stable/
   user_guide/indexing.html#returning-a-view-
   versus-a-copy
```

```
23    isetter(loc, value[:, i].tolist())
24 <class 'pandas.core.frame.DataFrame'>
25 Int64Index: 4860 entries, 0 to 5109
26 Data columns (total 10 columns):
27  #    Column            Non-Null Count  Dtype

28 ---   ------            --------------  -----

29  0    gender            4860 non-null
   float64
30  1    age               4860 non-null
   float64
31  2    hypertension      4860 non-null
   float64
32  3    heart_disease     4860 non-null
   float64
33  4    ever_married      4860 non-null
   float64
34  5    work_type         4860 non-null
   float64
35  6    Residence_type    4860 non-null
   float64
36  7    avg_glucose_level 4860 non-null
   float64
37  8    bmi               4860 non-null
   float64
38  9    smoking_status    4860 non-null
   float64
39 dtypes: float64(10)
40 memory usage: 417.7 KB
41 None
42
43 Auto-encodeurs non-linéaires incomplets à 3
   couches
44 La couche 1 possède 2 unités
45 La couche 2 possède 2 unités
46 2021-04-06 11:22:18.653445: I tensorflow/
   compiler/jit/xla_cpu_device.cc:41] Not
```

46 creating XLA devices,
tf_xla_enable_xla_devices not set

47 2021-04-06 11:22:18.653915: I tensorflow/
stream_executor/platform/default/dso_loader.
cc:49] Successfully opened dynamic library
nvcuda.dll

48 2021-04-06 11:22:18.678053: I tensorflow/core
/common_runtime/gpu/gpu_device.cc:1720] Found
device 0 with properties:

49 pciBusID: 0000:08:00.0 name: GeForce RTX 2080
computeCapability: 7.5

50 coreClock: 1.71GHz coreCount: 46
deviceMemorySize: 8.00GiB
deviceMemoryBandwidth: 417.23GiB/s

51 2021-04-06 11:22:18.678785: W tensorflow/
stream_executor/platform/default/dso_loader.
cc:60] Could not load dynamic library '
cudart64_110.dll'; dlerror: cudart64_110.dll
not found

52 2021-04-06 11:22:18.679342: W tensorflow/
stream_executor/platform/default/dso_loader.
cc:60] Could not load dynamic library '
cublas64_11.dll'; dlerror: cublas64_11.dll
not found

53 2021-04-06 11:22:18.679883: W tensorflow/
stream_executor/platform/default/dso_loader.
cc:60] Could not load dynamic library '
cublasLt64_11.dll'; dlerror: cublasLt64_11.
dll not found

54 2021-04-06 11:22:18.680419: W tensorflow/
stream_executor/platform/default/dso_loader.
cc:60] Could not load dynamic library '
cufft64_10.dll'; dlerror: cufft64_10.dll not
found

55 2021-04-06 11:22:18.680934: W tensorflow/
stream_executor/platform/default/dso_loader.
cc:60] Could not load dynamic library '
curand64_10.dll'; dlerror: curand64_10.dll

55 not found

56 2021-04-06 11:22:18.681451: W tensorflow/stream_executor/platform/default/dso_loader.cc:60] Could not load dynamic library 'cusolver64_10.dll'; dlerror: cusolver64_10.dll not found

57 2021-04-06 11:22:18.681962: W tensorflow/stream_executor/platform/default/dso_loader.cc:60] Could not load dynamic library 'cusparse64_11.dll'; dlerror: cusparse64_11.dll not found

58 2021-04-06 11:22:18.682478: W tensorflow/stream_executor/platform/default/dso_loader.cc:60] Could not load dynamic library 'cudnn64_8.dll'; dlerror: cudnn64_8.dll not found

59 2021-04-06 11:22:18.682565: W tensorflow/core/common_runtime/gpu/gpu_device.cc:1757] Cannot dlopen some GPU libraries. Please make sure the missing libraries mentioned above are installed properly if you would like to use GPU. Follow the guide at https://www.tensorflow.org/install/gpu for how to download and setup the required libraries for your platform.

60 Skipping registering GPU devices...

61 2021-04-06 11:22:18.683252: I tensorflow/core/platform/cpu_feature_guard.cc:142] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: AVX2

62 To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.

63 2021-04-06 11:22:18.684194: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1261] Device interconnect StreamExecutor with

63 strength 1 edge matrix:
64 2021-04-06 11:22:18.684296: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1267]
65 2021-04-06 11:22:18.684347: I tensorflow/compiler/jit/xla_gpu_device.cc:99] Not creating XLA devices, tf_xla_enable_xla_devices not set
66 2021-04-06 11:22:18.748404: I tensorflow/compiler/mlir/mlir_graph_optimization_pass.cc:116] None of the MLIR optimization passes are enabled (registered 2)
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    364us/step
404 23/23 [==============================] - 0s
    364us/step
405 23/23 [==============================] - 0s
    364us/step
406 23/23 [==============================] - 0s
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407 23/23 [==============================] - 0s
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408 23/23 [==============================] - 0s
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409 23/23 [==============================] - 0s
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410 23/23 [==============================] - 0s
    318us/step
411 23/23 [==============================] - 0s
    364us/step
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412 23/23 [==============================] - 0s
    364us/step
413 La couche 1 possède 6 unités
414 La couche 2 possède 3 unités
415 23/23 [==============================] - 0s
    364us/step
416 23/23 [==============================] - 0s
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417 23/23 [==============================] - 0s
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418 23/23 [==============================] - 0s
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423 23/23 [==============================] - 0s
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424 23/23 [==============================] - 0s
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425 La couche 1 possède 6 unités
426 La couche 2 possède 4 unités
427 23/23 [==============================] - 0s
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428 23/23 [==============================] - 0s
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429 23/23 [==============================] - 0s
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437 La couche 1 possède 6 unités
438 La couche 2 possède 5 unités
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448 23/23 [=============================] - 0s
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449 La couche 1 possède 6 unités
450 La couche 2 possède 6 unités
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452 23/23 [=============================] - 0s
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453 23/23 [=============================] - 0s
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454 23/23 [==============================] - 0s
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460 23/23 [==============================] - 0s
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461 La couche 1 possède 6 unités
462 La couche 2 possède 7 unités
463 23/23 [==============================] - 0s
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470 23/23 [==============================] - 0s
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471 23/23 [==============================] - 0s
    409us/step
472 23/23 [==============================] - 0s
    318us/step
473 La couche 1 possède 6 unités
474 La couche 2 possède 8 unités
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475 23/23 [==============================] - 0s
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476 23/23 [==============================] - 0s
    364us/step
477 23/23 [==============================] - 0s
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483 23/23 [==============================] - 0s
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484 23/23 [==============================] - 0s
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485 La couche 1 possède 7 unités
486 La couche 2 possède 2 unités
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497 La couche 1 possède 7 unités
498 La couche 2 possède 3 unités
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509 La couche 1 possède 7 unités
510 La couche 2 possède 4 unités
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521 La couche 1 possède 7 unités
522 La couche 2 possède 5 unités
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533 La couche 1 possède 7 unités
534 La couche 2 possède 6 unités
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545 La couche 1 possède 7 unités
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557 La couche 1 possède 7 unités
558 La couche 2 possède 8 unités
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569 La couche 1 possède 8 unités
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581 La couche 1 possède 8 unités
582 La couche 2 possède 3 unités
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593 La couche 1 possède 8 unités
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605 La couche 1 possède 8 unités
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617 La couche 1 possède 8 unités
618 La couche 2 possède 6 unités
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628 23/23 [=============================] - 0s
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629 La couche 1 possède 8 unités
630 La couche 2 possède 7 unités
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640 23/23 [==============================] - 0s 318us/step
641 La couche 1 possède 8 unités
642 La couche 2 possède 8 unités
643 23/23 [==============================] - 0s 318us/step
644 23/23 [==============================] - 0s 318us/step
645 23/23 [==============================] - 0s 318us/step
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651 23/23 [==============================] - 0s 318us/step
652 23/23 [==============================] - 0s 318us/step
653 Scores moyens(précision moyenne et écart-type) pour les auto-encodeurs non-linéaires incomplets à 3 couches:
654 {'2,2': (0.1561181888875084, 0.1605), '2,3': (0.13411550285086343, 0.2776), '2,4': (0.15167254301116442, 0.2207), '2,5': (0.14793248976142448, 0.2895), '2,6': (0.1247289857038691, 0.4233), '2,7': (0.1225413283857871, 0.2829), '2,8': (0.14824523443680618, 0.3172), '3,2': (0.15318865161416068, 0.2892), '3,3': (0.14849895344310368, 0.2335), '3,4': (0.141482294124851, 0.3066), '3,5': (0.1568157727450352, 0.2246), '3,6': (0.

654 13125782567818317, 0.3162), '3,7': (0.
11547189500859385, 0.4469), '3,8': (0.
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12579089268735066, 0.365), '4,7': (0.
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12485310311819378, 0.2314), '5,4': (0.
11306110886532092, 0.4417), '5,5': (0.
11754728944120658, 0.4424), '5,6': (0.
13327664795759087, 0.2937), '5,7': (0.
11781897199492355, 0.499), '5,8': (0.
11446367445907697, 0.5526), '6,2': (0.
11846470227292438, 0.3766), '6,3': (0.
14733621881242479, 0.3871), '6,4': (0.
11355042812387664, 0.3879), '6,5': (0.
11468039611576138, 0.3898), '6,6': (0.
12119732100738242, 0.401), '6,7': (0.
09380419782747565, 0.5066), '6,8': (0.
09501919569356615, 0.5345), '7,2': (0.
13784950042428606, 0.2346), '7,3': (0.
142605953220208, 0.273), '7,4': (0.
12073526000063539, 0.2743), '7,5': (0.
12601745988208538, 0.4965), '7,6': (0.
10164037272481033, 0.6972), '7,7': (0.
08671824571195151, 0.3991), '7,8': (0.
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1390230299727543, 0.31), '8,3': (0.
13912761734400009, 0.4187), '8,4': (0.
10048054618069217, 0.2256), '8,5': (0.
11466883023362404, 0.4096), '8,6': (0.
10037318183473451, 0.4518), '8,7': (0.
08522444878779786, 0.5133), '8,8': (0.
07664668492200087, 0.3944)}

655
656 Process finished with exit code 0
657