```
 1 C:\Users\vince\anaconda3\python.exe "D:/
   Documents/Choses école/UQAC/Session7/8INF436-
   Forage_de_donnees/TP3/main.py"
 2 2021-04-06 11:46:42.491960: 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 11:46:42.492062: 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 <class 'pandas.core.frame.DataFrame'>
19 Int64Index: 4860 entries, 0 to 5109
20 Data columns (total 10 columns):
21  #   Column              Non-Null Count  Dtype

22 ---  ------              --------------  -----

23  0   gender              4860 non-null
    float64
24  1   age                 4860 non-null
    float64
25  2   hypertension        4860 non-null
```

```
25 float64
26  3    heart_disease     4860 non-null
   float64
27  4    ever_married      4860 non-null
   float64
28  5    work_type         4860 non-null
   float64
29  6    Residence_type    4860 non-null
   float64
30  7    avg_glucose_level 4860 non-null
   float64
31  8    bmi               4860 non-null
   float64
32  9    smoking_status    4860 non-null
   float64
33 dtypes: float64(10)
34 memory usage: 417.7 KB
35 None
36
37 Auto-encodeurs linéaires incomplets à 2
   couches avec dropout de 0.1
38 La couche 1 possède 2 unités
39 C:\Users\vince\anaconda3\lib\site-packages\
   pandas\core\indexing.py:1736:
   SettingWithCopyWarning:
40 A value is trying to be set on a copy of a
   slice from a DataFrame.
41 Try using .loc[row_indexer,col_indexer] =
   value instead
42
43 See the caveats in the documentation: https
   ://pandas.pydata.org/pandas-docs/stable/
   user_guide/indexing.html#returning-a-view-
   versus-a-copy
44   isetter(loc, value[:, i].tolist())
45 2021-04-06 11:46:44.226915: I tensorflow/
   compiler/jit/xla_cpu_device.cc:41] Not
   creating XLA devices,
```

45 tf_xla_enable_xla_devices not set
46 2021-04-06 11:46:44.227370: I tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:49] Successfully opened dynamic library
   nvcuda.dll
47 2021-04-06 11:46:44.248483: I tensorflow/core
   /common_runtime/gpu/gpu_device.cc:1720] Found
    device 0 with properties:
48 pciBusID: 0000:08:00.0 name: GeForce RTX 2080
    computeCapability: 7.5
49 coreClock: 1.71GHz coreCount: 46
   deviceMemorySize: 8.00GiB
   deviceMemoryBandwidth: 417.23GiB/s
50 2021-04-06 11:46:44.249194: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cudart64_110.dll'; dlerror: cudart64_110.dll
   not found
51 2021-04-06 11:46:44.249750: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cublas64_11.dll'; dlerror: cublas64_11.dll
   not found
52 2021-04-06 11:46:44.250307: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cublasLt64_11.dll'; dlerror: cublasLt64_11.
   dll not found
53 2021-04-06 11:46:44.250851: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cufft64_10.dll'; dlerror: cufft64_10.dll not
   found
54 2021-04-06 11:46:44.251391: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   curand64_10.dll'; dlerror: curand64_10.dll
   not found

55 2021-04-06 11:46:44.251938: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cusolver64_10.dll'; dlerror: cusolver64_10.
   dll not found
56 2021-04-06 11:46:44.252575: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cusparse64_11.dll'; dlerror: cusparse64_11.
   dll not found
57 2021-04-06 11:46:44.253370: W tensorflow/
   stream_executor/platform/default/dso_loader.
   cc:60] Could not load dynamic library '
   cudnn64_8.dll'; dlerror: cudnn64_8.dll not
   found
58 2021-04-06 11:46:44.253471: 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.
59 Skipping registering GPU devices...
60 2021-04-06 11:46:44.254010: 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
61 To enable them in other operations, rebuild
   TensorFlow with the appropriate compiler
   flags.
62 2021-04-06 11:46:44.254641: I tensorflow/core
   /common_runtime/gpu/gpu_device.cc:1261]
   Device interconnect StreamExecutor with
   strength 1 edge matrix:

```
63 2021-04-06 11:46:44.254723: I tensorflow/
   core/common_runtime/gpu/gpu_device.cc:1267
   ]
64 2021-04-06 11:46:44.254773: I tensorflow/
   compiler/jit/xla_gpu_device.cc:99] Not
   creating XLA devices,
   tf_xla_enable_xla_devices not set
65 2021-04-06 11:46:44.314271: I tensorflow/
   compiler/mlir/mlir_graph_optimization_pass.
   cc:116] None of the MLIR optimization passes
    are enabled (registered 2)
66 31/31 [==============================] - 0s
   300us/step
67 31/31 [==============================] - 0s
   333us/step
68 31/31 [==============================] - 0s
   300us/step
69 31/31 [==============================] - 0s
   333us/step
70 31/31 [==============================] - 0s
   333us/step
71 31/31 [==============================] - 0s
   300us/step
72 31/31 [==============================] - 0s
   333us/step
73 31/31 [==============================] - 0s
   300us/step
74 31/31 [==============================] - 0s
   333us/step
75 31/31 [==============================] - 0s
   300us/step
76 La couche 1 possède 3 unités
77 31/31 [==============================] - 0s
   300us/step
78 31/31 [==============================] - 0s
   367us/step
79 31/31 [==============================] - 0s
   333us/step
```

```
80 31/31 [==============================] - 0s
   333us/step
81 31/31 [==============================] - 0s
   333us/step
82 31/31 [==============================] - 0s
   300us/step
83 31/31 [==============================] - 0s
   333us/step
84 31/31 [==============================] - 0s
   333us/step
85 31/31 [==============================] - 0s
   333us/step
86 31/31 [==============================] - 0s
   400us/step
87 La couche 1 possède 4 unités
88 31/31 [==============================] - 0s
   333us/step
89 31/31 [==============================] - 0s
   300us/step
90 31/31 [==============================] - 0s
   300us/step
91 31/31 [==============================] - 0s
   300us/step
92 31/31 [==============================] - 0s
   300us/step
93 31/31 [==============================] - 0s
   333us/step
94 31/31 [==============================] - 0s
   333us/step
95 31/31 [==============================] - 0s
   333us/step
96 31/31 [==============================] - 0s
   333us/step
97 31/31 [==============================] - 0s
   333us/step
98 La couche 1 possède 5 unités
99 31/31 [==============================] - 0s
   333us/step
```

```
100 31/31 [==============================] - 0s
    333us/step
101 31/31 [==============================] - 0s
    300us/step
102 31/31 [==============================] - 0s
    300us/step
103 31/31 [==============================] - 0s
    333us/step
104 31/31 [==============================] - 0s
    367us/step
105 31/31 [==============================] - 0s
    333us/step
106 31/31 [==============================] - 0s
    333us/step
107 31/31 [==============================] - 0s
    333us/step
108 31/31 [==============================] - 0s
    300us/step
109 La couche 1 possède 6 unités
110 31/31 [==============================] - 0s
    300us/step
111 31/31 [==============================] - 0s
    333us/step
112 31/31 [==============================] - 0s
    300us/step
113 31/31 [==============================] - 0s
    333us/step
114 31/31 [==============================] - 0s
    300us/step
115 31/31 [==============================] - 0s
    6ms/step
116 31/31 [==============================] - 0s
    333us/step
117 31/31 [==============================] - 0s
    300us/step
118 31/31 [==============================] - 0s
    300us/step
119 31/31 [==============================] - 0s
```

```
119 333us/step
120 La couche 1 possède 7 unités
121 31/31 [==============================] - 0s
    300us/step
122 31/31 [==============================] - 0s
    333us/step
123 31/31 [==============================] - 0s
    333us/step
124 31/31 [==============================] - 0s
    300us/step
125 31/31 [==============================] - 0s
    333us/step
126 31/31 [==============================] - 0s
    300us/step
127 31/31 [==============================] - 0s
    333us/step
128 31/31 [==============================] - 0s
    333us/step
129 31/31 [==============================] - 0s
    300us/step
130 31/31 [==============================] - 0s
    333us/step
131 La couche 1 possède 8 unités
132 31/31 [==============================] - 0s
    333us/step
133 31/31 [==============================] - 0s
    300us/step
134 31/31 [==============================] - 0s
    333us/step
135 31/31 [==============================] - 0s
    333us/step
136 31/31 [==============================] - 0s
    300us/step
137 31/31 [==============================] - 0s
    300us/step
138 31/31 [==============================] - 0s
    300us/step
139 31/31 [==============================] - 0s
```

```
139 300us/step
140 31/31 [==============================] - 0s
    300us/step
141 31/31 [==============================] - 0s
    300us/step
142 Scores moyens(précision moyenne et écart-
    type) pour les auto-encodeurs linéaires
    incomplets à 2 couches avec dropout de 0.1:
143 {2: (0.1501134834814974, 0.0577), 3: (0.
    14562598226095685, 0.1712), 4: (0.
    13550708771880107, 0.1553), 5: (0.
    12577418239888835, 0.2108), 6: (0.
    142863946173934, 0.128), 7: (0.
    11905072111542543, 0.2343), 8: (0.
    11298558148236344, 0.2065)}
144
145 Process finished with exit code 0
146
```