DIGITAL TECHNOLOGY

Academic Year 2022-23
Prof. Barbara PERNICI

Exam 16/1/2024
Total time 1.30 h

Last name	
First name	
Matricola/Person code	
Signature	

Please remember that:
- *The exam is closed books.*
- *The use of cellular phones or any other electronic device during the exam is forbidden.*

It is necessary to answer at least partially all the questions for a positive evaluation.
Given answers should be explained, lists of bullet items are not sufficient to answer a question.

Question 1 [11 points]

Illustrate briefly the technological approaches illustrated in the course that can be used to identify objects and compare their characteristics.

Question 2 [11 points]

Describe the data quality dimensions described in the course and given an example of data quality problem for each of them.

[please turn over]

Question 3 [11 points]

Consider the following fragment of Python code:

```
list_of_tuples = [(1, 2), (1, 2, 3, 10), (7, 8, 9)]

def my_function(input):

  output = []

  for el in input:
    output.append(len(el))

  return output

o = my_function(list_of_tuples)

import pandas as pd

num_elements = len(list_of_tuples)
ids = list(range(0, num_elements))

df = pd.DataFrame({'id': ids, 'n': o})
```

Questions:

1) What is the content of **df** at the end of the execution?

2) Modify **my_function** to return the sums of the values, one sum for each tuple of the input

3) Add a new column to df named "**3n**" containing the values in column **n** multiplied by **3**.