DIGITAL TECHNOLOGY

Academic Year 2022-23
Prof. Barbara PERNICI

Exam 2/2/2024
Total time 1.30 h

Last name	
First name	
Matricola or 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.

Write each answer in a separate sheet of paper, marking your name and the number of the question.

Question 1)

Given the following table derived from the integration of different sources, identify data quality issues present in the table.
Write a SQL query to count the number of cases occurring in Milan (explain how you propose to deal with the data quality issues in this case).

ID	Diagnosis	Hospital	Province	Date	Cost
1	Flu	SR	Milan	01/05/08	200
2	Flu	SR	Milan	24/05/08	180-220
3	Flu	SR	Milan	04/05/08	9999
4	Influenza	SC	Trento	03.05.2008	
5	Influenza	SC	Trento	03.04.2008	230
6	Influenza	SC	Trento	10.07.2008	
7	Flu Type A	CG	Milano	04/04/08	130
8	Flu	OS	Bolzano	23/04/08	130
9	Flu	OS	Bolzano	11/05/08	200

Question 2)

Explain the role of the scrum master in agile project management and discuss how the scrum master's responsibilities and approach differ from those of the project manager in traditional project management. Provide examples of how the scrum master's involvement can help to ensure the success of a digital project.

Question 3)

Consider the following fragment of Python code:

```
list_of_lists = [[0, 1, 1, 0], [1, 1], [0, 0, 1]]

def my_special_function(input):

  output = []
  for el in input:
    output.append(sum(el))
  return output

o = my_special_function(list_of_lists)

import pandas as pd

df = pd.DataFrame({'sums': o})
df['ssums'] = df['sums'] * df['sums'] + 1
```

Questions:

1) What does **my_special_function** do?

2) Modify **my_special_function** so that it prints out the total **sum** of all the elements in **list_of_lists**

3) Describe the output of **df** at the end of the execution