



DIGITAL TECHNOLOGY

Academic Year 2022-23

Prof. Barbara PERNICI

Exam 17/7/2023

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 [11 points]

Briefly illustrate and then compare the following technologies: Database Managements Systems, Datawarehouses, Data Lakes.

Question 2 [11 points]

Explain the role of the product owner in agile project management, and discuss how the product owner's responsibilities differ from those of the project manager in traditional project management. Provide examples of how the product owner's involvement can help to ensure the success of an agile project.

Question 3 – Python [11 points]

1) Given the following Python data structure, containing stock identifiers and price data:

```
stock_prices = [('OBE', 6.18), ('EQX', 4.72), ('OBE', 6.16), ('MXC', 12.28), ('MXC', 12.19)]
```

Implement in Python:

- The count of unique identifiers
- The average of prices

2) Having converted the data structure of question 1 to a Pandas DataFrame:

```
df = pd.DataFrame(stock_prices, columns = ['stock_id', 'price'])
```

Extract the maximum price per stock.