# Task Evaluation Guidance

In Section Results, the report needs to answer the following main questions. Each question is assigned a certain number of points according to the importance of the task. The details are listed below.

**A. Data Organization (10 points)**
1. Data Modelling

- What is the data modelling design (1 point)
- How to implement it (3 points)
- Why do you design it in this way (1 point)

2. How to organize the training set and test set

- What is training set/test set (1 point)
- How to design and organize the training set and test set (2 points)
- Why do you design it in this way (2 points)

**B. Training, Testing and Evaluation (18 points)**
1. SVM (9 points)

- What is the SVM mechanism (2 points)
- How to implement it (5 points: if use package (3 points), if programming with coding (5 points))
- Why do you design it in this way (2 points)

2. Logistic Regression (9 points)

- What is the mechanism (2 points)
- How to implement it (5 points: if use package (3 points), if programming with coding (5 points))
- Why do you design it in this way (2 points)

**C. Evaluation (36 points)**
1) Why do we need and how to evaluate the performance (2 points)
2) What are the TP, FP, TN, FN? (4 points )
3) What are the common used metrics for the evaluation and their meaning (10 points)
(Accuracy, precision, sensitivity, specificity, F1-Score, Confusion Matrix, AUC, ROC,
each one for 1' and the rest points are for how the explanation of the answer and
writing is)
4) What are the metrics do you use and how to implement them (10' same as above)
5) Why do you use that (10' same as above)

**D. Improvement (18 points)**
1. How to improve the performance of SVM (9 points)

- Why is inferior performance of the model (2 points)
- How to improve it and implement it (5 points)
- Why do you design it in this way (2 points)

2. How to improve the performance of Logistic Regression (9 points)

- Why is inferior performance of the model (2 points)
- How to improve it and implement it (5 points)
- Why do you design it in this way (2 points)

**E. PCA (9 points)**

1. How to use PCA for training

- What is the PCA mechanism (2 points)
- How to implement it (5 points: if use package (3 points), if programming it with coding (5 points))
- Training and testing with PCA, and why do we use it in machine learning (2 points)

**F. LDA (9 points)**

1. How to use LDA for training

- What is the LDA mechanism (2 points)
- How to implement it (5 points: if use package (3 points), if programming it with coding (5 points))
- Training and testing with LDA, and why do we use it in machine learning (2 points)

**TOTAL POINTS: 100**