

These are the topics subject to be asked:

- **Data repositories:** Big data, Data lake, Analytical databases, Data warehouse, raw data.
- **Types of learning:** Supervised, unsupervised.
- **Training error:** Objective function, algorithms to optimize the function. Gradient = 0 method, gradient descent, distance definition.
- **Testing error (Evaluate):** Validation, cross-validation, overfitting prevention.
- **Machine learning models:**
 1. Regression (Linear, Quadratic, Polynomial)
 2. NN, K-NN Nearest Neighbor (regression and classification)
 3. Bayesian model (Statistical principles and example)
 4. ANN perceptron
 5. Code examples

The exam will have **2 questions (Theory)** and **2 examples/exercises** from the topics above.