[Pre-Lab] Feedforward Neural Network (FFNN)

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Pre-Lab due: Before next lab session
Evaluation: Show and explain the code and results to the professor during next lab session.
Remark:

- Only groups of two or three people accepted (preferably three).
- During next lab session, you must show the pre-lab task results to the professor.
- No plagiarism. If plagiarism happens, both the "lender" and the "borrower" will have a zero.
- Code yourself from scratch **following the theory given in class**.
- **No pre-lab and lab works will be considered if any ML library is used.**
- Do thoroughly all the demanded tasks.
- Study the theory for the questions.
- There is NO make-up lab session.

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1 Tasks

1. Download the data stored in the file `data_ffnn.txt` available on the course website. This dataset consists of three columns: $x1$, $x2$ and y. Notice that this is a multi-class problem.

2. Plot the data in 2D, each data with a color depending on its class.

3. For at least one iteration, implement the forward propagation of a feedforward neural network (FFNN) consisting of three layers, in which the hidden layer has K neurons (at your choice).

   - You need to show $X, \overline{X}, V, \overline{\overline{X}}, F, \overline{F}, W, \overline{\overline{F}}, G, E$.

   Remember: use all the data available in the file as training examples.

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