Programming Methodology - Lab

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Lab task 3. Greedy algorithms

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Milk production (I)

- **Assumptions:**
  - N cows for sale (e.g. N=30)
  - Each cow:
    - Necessary space
    - Necessary food
    - Milk produced
  - Plot meters (new farm): M

- **Objective 1:**
  - Selection of cows to maximize milk produced
  - Assumption: free food for cows!
- **Objective 2:**
  - Selection of cows to minimise the feed cost
  - Assumption: All cows produce the same number of milk litres.

Milk production (II)

- **Session 1**
  - Read carefully the problem description
  - Identify auxiliary classes and basic methods (read from csv file, keyboard, object creation, etc.)
  - Think and provide answer to the main greedy elements:
    - *Objective, candidate set, selected set, feasibility criterion, solution function, etc.*
  - Think about the greedy strategies to follow and their relationship with some canonical examples

Milk production (II)

- **Session 2**
  - Implement the greedy algorithms in Java (and auxiliary methods to show results in an appropriate way)
  - Calculate the teoretical complexity
  - Provide answers about the optimality of your algorithms
    - Is your algorithm optimal? Why? Why not? Justify your answers!