Lisbon School of Economics & Management
Universidade de Lisboa

LISBOA
UNIVERSIDADE DE LISBOA

Academic Year: 2025/2026

PROGRAMMING FOUNDATIONS

Apresentação

- Learning Objectives
- Program
- Evaluation rules
- Bibliography
- Professor

Course Objectives

The student should obtain the following skills:

Objectives

LO1. Understand the fundamental concepts of procedural programming.

LO2. Comprehend the essential principles of object-oriented programming.

LO3. Develop problem-solving skills using programming techniques and methods.

LO4. Use key libraries for data processing, web programming, and text manipulation.

LO5. Apply programming knowledge to real-world applications and projects.

Course Syllabus

1. Introduction to Programming Languages

2. Programming Fundamentals

- Variables and data types
- Basic data structures.
- Control structure

2. Object-Oriented Programming (OOP)

- Classes and objects: Core concepts of OOP.
- Inheritance and polymorphism
- Encapsulation and abstraction.

3. Essential Libraries for Programming

- Data Processing (e.g., NumPy, Pandas).
- Text Manipulation (e.g., string methods).
- Web Programming (e.g., Flask).

4. Practical Applications

- Project development and implementation
- Case studies and hands-on exercises

Learning Process

- All the classes are **theoretical** and **practical**.
- Lectures typically have a small presentation of theory, context of usage and techniques used.
- Lecturer also illustrate some practical cases.
- In this demonstration, the lecturer needs to use computer and adequate compilers/interpreters and IDE.
- Students may or may not follow this presentation in his own desktop.
- There are several exercises where students are supported by the lecturer. Individual work is complemented with groupworks.

Evaluation

- Laboratory work may be individual or group work.
- Students also must perform a project in group.

Students performance evaluation will derive from

- laboratory work, submitted during classes (30%)
- the assigned teamwork project presented during the semester (40%)
- final individual exam (30%).

Bibliography

Albon, C. (2018). *Machine learning with python cookbook: Practical solutions from preprocessing to deep learning*. O'Reilly Media, Inc.

Martins J. P. (2015) *Programação em PYTHON: Introdução à Programação Utilizando Múltiplos Paradigmas*, IST Press.

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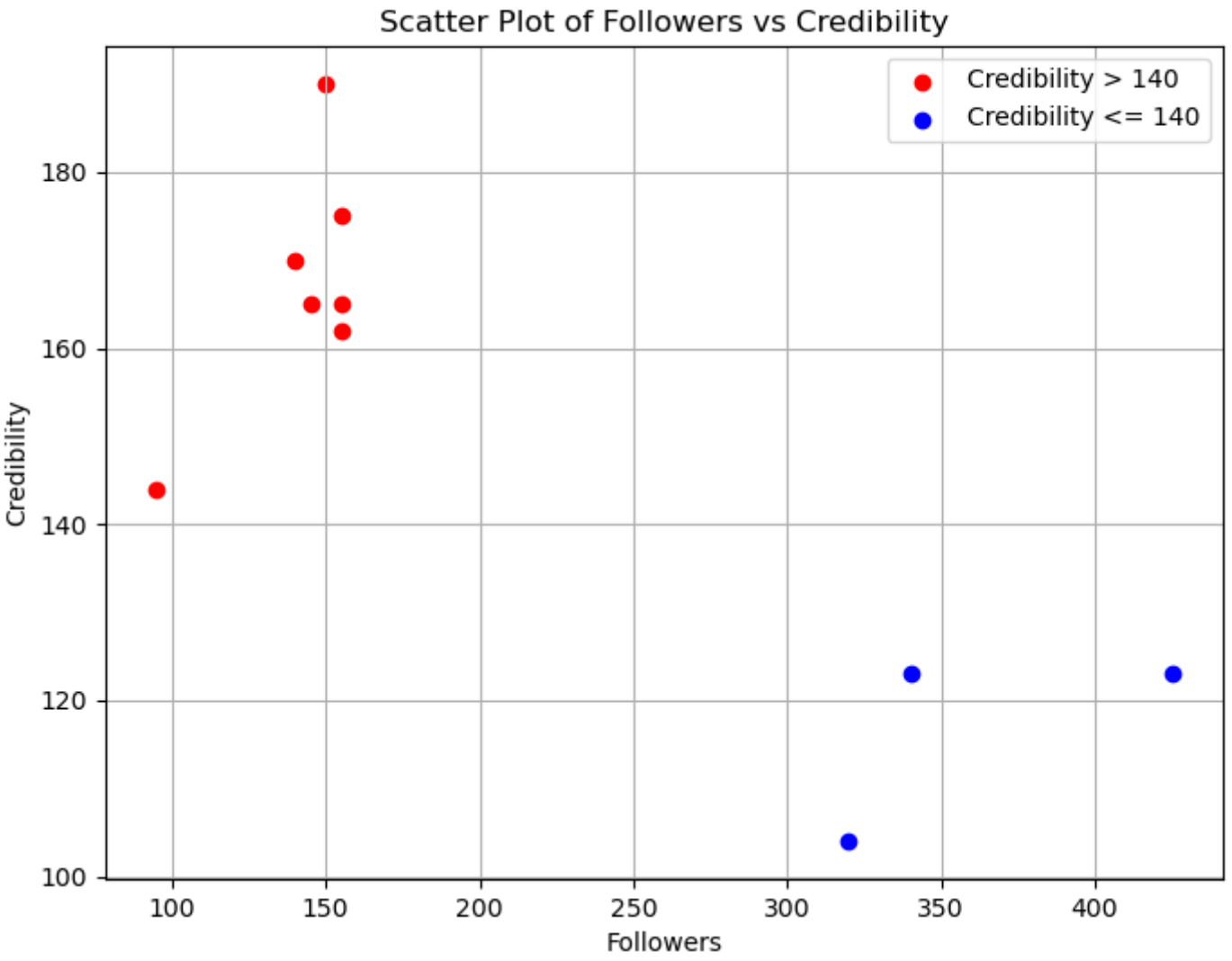
Scatter Plot of Followers vs Credibility
Credibility > 140
Credibility <= 140
Credibility
Followers
180
160
140
120
100
100
150
200
250
300
350
400