METADATA

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Abstract

Although an extensive body of literature exists on the Python programming language, the Greek equivalent is notably sparse. It generally focuses on grasping Python's core concepts rather than exploring its extensive library ecosystem. Our examination of the available resources through the Eudoxus platform and a review of the content in existing books revealed that they tend to skim the surface, aiming to introduce the Python language and basic programming concepts. Our intention, however, is to take a different approach by presenting the most popular libraries to ensure that students gain not only a proficiency in Python but also a comprehensive understanding of the ecosystem surrounding it. Our aspiration is for our book to serve as a supplementary aid across a variety of courses, rather than as the main textbook for a single subject. The book will begin with a conceptual overview of the language, covering foundational elements such as data types, arithmetic and logical operations, variables, control structures like loops and flow control, functions, file handling, and database management. It will also address the object-oriented aspects of programming in Python, including objects, classes, inheritance, polymorphism and encapsulation. Following this, we will delve into specialized libraries for file management, graphical user interfaces, sockets, databases, machine vision, digital game development, data analysis, numeric and vector processing, mathematical computations (linear algebra, statistics, vector calculus etc.), graph plotting, statistical result visualization, machine learning, artificial intelligence, neural networks and interactive user interface development. In conclusion, the book will outline the standard text processors and Integrated Development Environments (IDEs) utilized in Python programming, alongside the most effective debugging techniques, to equip students with practical skills in software development.

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