METADATA

Title: Introduction to Java

Other Titles: From Procedural to Object Oriented Model

Language: Greek

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ISBN: 978-618-5726-12-6

Subject: MATHEMATICS AND COMPUTER SCIENCE

Keywords: Procedural model / Object-Oriented model / Computer Programming / Encapsulation / Inheritance

Bibliographic Reference: Moussiades, L., & Kiourt, C. (2023). Introduction to Java [Undergraduate textbook]. Kallipos, Open Academic Editions. http://dx.doi.org/10.57713/kallipos-129

Abstract

This undergraduate book presents the procedural and object-oriented programming model with the Java language. After a brief historical review, key concepts, design principles and technologies of Java are presented. Next is the installation of Java and the NetBeans development environment. Fundamental types, local variables, operators, essential input and output, flow control, one-dimensional and multi-dimensional arrays, static variables and functions, function overloading, parameters, accessors, Java packages, application development stages including documentation, debugging and testing, recursion, mutual recursion, fundamental features of object-oriented programming, encapsulation, inheritance and polymorphism, enumerated types, nested classes are discussed in detail. Also it is included an introduction to some widely used Java classes, interfaces, handling structured files, binary files, random access files, data serialization, java generics and the exception mechanism. The compendium ends with a presentation of special topics such as lambda expressions and memorization. Each chapter includes solved and unsolved exercises, classics and originals. At the same time, two evaluation criteria are provided, one concerning the procedural model and one the object-oriented model. Finally, two appendices are added, one explaining integer encoding and one listing Java keywords.

The Project is funded by the National Development Programme 2021-2025 of the Ministry of Education and Religious Affairs and implemented by the Special Account for Research Funds of the National Technical University of Athens and the Hellenic Academic Libraries Link.