

Programming Principles

In the AI Era (Using Java)

Mr. SOK Pongsametrey
metreysk@gmail.com

About

- We are in the AI-era, that transform the way we learn programming
- In today's world, where AI is rapidly transforming how we build and use software
- it's more important than ever to understand not just what code does, but how and why it works.

Our Goal

- Build a **strong foundation in programming using Java**
- Learn essential concepts like data types, control flow, functions, and object-oriented programming
- How your code interacts with **data, APIs, multi-threading, and even AI-driven tools**
- We emphasize **problem-solving, modular thinking, and ethical responsibility**
- Be a modern programmer who is **AI-aware, solution-driven, and ethically grounded**

Let's begin this journey step by step —
one concept, one project, and one
breakthrough at a time.

2025-2026

Course Overview: Programming Concepts in the AI Era (Java)

- For Master of IT students with low-to-medium programming experience
- Covers Java basics + real-world software development practices
- Includes APIs, JSON, multi-threading, and AI integration
- Focuses on problem-solving and ethical programming
- Ends with a real-world capstone project

Courses Outline (1/2)

- Week 1: Intro to Programming & AI Context
- Week 2: Data Types, Variables & Control Flow
- Week 3: Functions & Modular Thinking
- Week 4: Arrays and Data Structures
- Week 5: OOP – Part 1 (Classes & Objects)
- Week 6: OOP – Part 2 (Inheritance & Polymorphism)

Courses Outline (2/2)

- Week 7: Exception Handling and File I/O
- Week 8: Algorithms and Problem Solving
- Week 9: Java Threads and Concurrency
- Week 10: APIs and JSON
- Week 11: Capstone Project – Planning
- Week 12: Capstone Presentation + AI Ethics

& MORE...

Java References

1. Java(TM) Programming Language, The (4th Edition), by Ken Arnold
Addison-Wesley Professional ©2005 (ISBN: 0321349806)
<https://www.amazon.com/Java-Programming-Language-forth-Text/dp/B004RAF8F6/>
2. CodeNotes for J2EE: EJB, JDBC, JSP, and Servlets, Gregory Brill, 2002 (e-ISBN 0-679-64727-9)
<https://www.amazon.com/CodeNotes-J2EE-EJB-JDBC-Servlets/dp/0812991907>
3. Getting started with Spring Framework: a hands-on guide to begin developing applications using Spring Framework (Ashish Sarin, J Sharma, 2014)
<https://www.amazon.com/Getting-started-Spring-Framework-hands-/dp/1534985085>

Additional Readings

1. Lukas Eder: 10 Things You Didn't Know About Java <https://goo.gl/qLvxxmx>
2. Eugen Paraschiv: Java 8 Resources Collection <http://www.baeldung.com/java8>
3. Java EE 6 Tutorials (<https://docs.oracle.com/javaee/6/tutorial/doc/>)
4. Collection of books/articles to read by Scottlogic.com (<https://goo.gl/j9181e>)

AI Resources: Book

- **Books:**

- *AI-Powered Developer* – Zoiner Tejada (O'Reilly)
- *Artificial Intelligence: A Guide for Thinking Humans* – Melanie Mitchell (W.W. Norton)
- *The Hundred-Page Machine Learning Book* – Andriy Burkov (themlbook.com)

AI Resources

- **Online Tools & Docs:**

- GitHub Copilot:

- <https://docs.github.com/en/copilot>

- ChatGPT: <https://openai.com/blog/chatgpt>

- Claude (Anthropic):

- <https://www.anthropic.com/index/claude-for-developers>

- AWS CodeWhisperer:

- <https://aws.amazon.com/codewhisperer>

- Tabnine: <https://www.tabnine.com/faq>