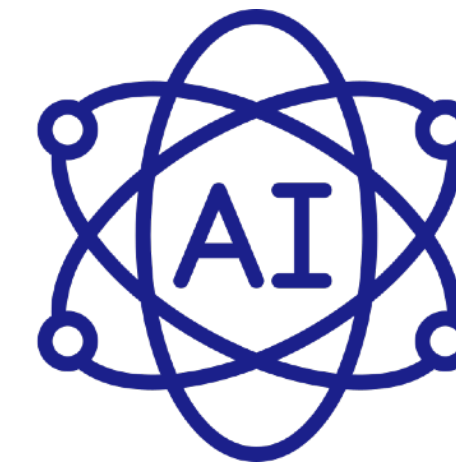


**Jacksonville JAVA User Group**



# Jakarta EE Meets



## Integrating AI in Your Enterprise Java Applications

**Ivar Grimstad**



*Jakarta EE Developer Advocate*

*Eclipse Foundation*



**@ivar\_grimstad**



**@ivar\_grimstad@mastodon.social**



**<https://github.com/ivargrimstad>**



**<https://www.linkedin.com/in/ivargrimstad>**



**[https://www.threads.net/@ivargrimstad\\_official](https://www.threads.net/@ivargrimstad_official)**



**ivargrimstad\_official**

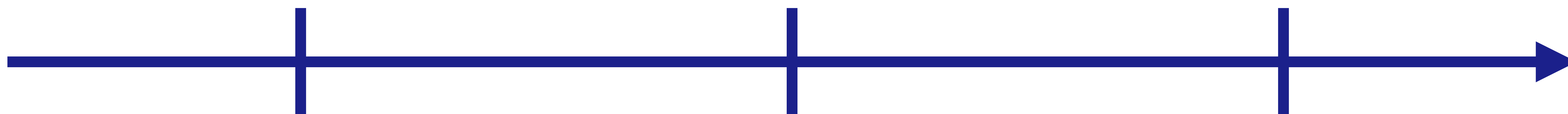


**Oracle ACE  
Pro**





JAKARTA EE



2020

2022

2024

`javax.*` -> `jakarta.*`

**Jakarta EE Core Profile**

**Java 21**  
**Embrace Records**  
**Jakarta Data**  
**CDI Centric**  
**Removals and Deprecations**

## Final Specification

Specification  
Document

API

TCK

Compatible  
Implementation(s)

NEW RELEASE

# Jakarta EE 10

Community-Driven

Modernized

Simplified

Lightweight



JAKARTA® EE

	Authentication 3.0	Persistence 3.1	
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Enterprise Beans 4.0	Standard Tag Libraries 3.0	Transactions 2.0	CDI Lite 4.0

- Updated
- Not Updated
- New



# Jakarta EE 11

# Jakarta EE 11 Platform



	Authentication 3.1	<b>Data 1.0</b>	
Authorization 3.0	Concurrency 3.1	Persistence 3.2	RESTful Web Services 4.0
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Enterprise Beans 4.0	Standard Tag Libraries 3.0	Transactions 2.0	CDI Lite 4.1

Updated

Not Updated

New



# Jakarta EE 11 Web Profile



Authentication 3.1	<b>Data 1.0</b>	
Concurrency 3.1	Persistence 3.2	RESTful Web Services 4.0
CDI 4.1	Pages 4.0	JSON Processing 2.1
Expression Language 6.0	WebSocket 2.2	JSON Binding 3.0
Faces 4.1	Validation 3.1	Annotations 3.0
Security 4.0	Debugging Support 2.0	Interceptors 2.2
Servlet 6.1	Enterprise Beans Lite 4.0	Dependency Injection 2.0
Standard Tag Libraries 3.0	Transactions 2.0	CDI Lite 4.1

Updated

Not Updated

New

# Jakarta EE 11 Core Profile



RESTful Web Services 4.0

JSON Processing 2.1

JSON Binding 3.0

Annotations 3.0

Interceptors 2.2

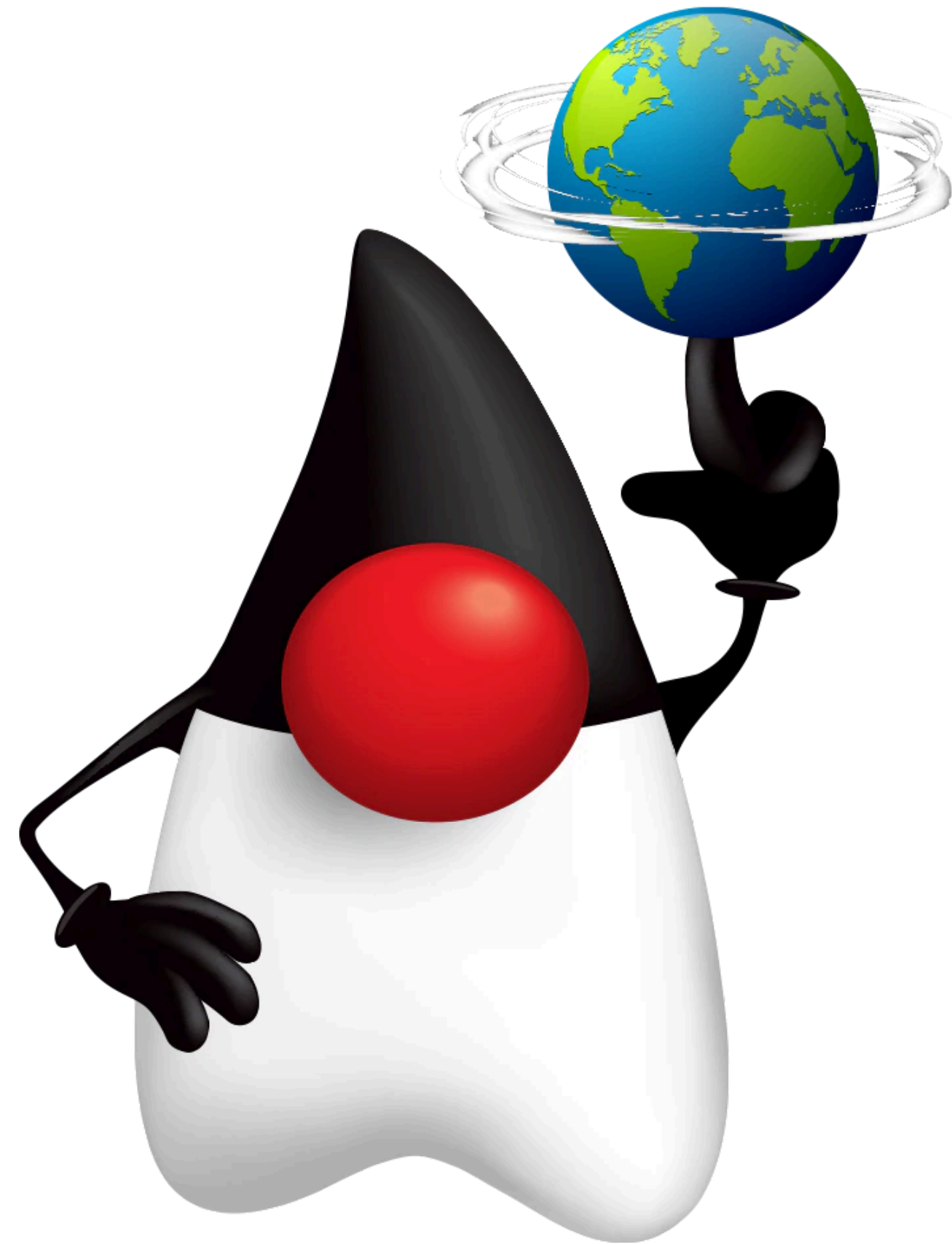
Dependency Injection 2.0

CDI Lite 4.1

Updated

Not Updated

New



# Jakarta EE 11

API source level: **Java SE 17**

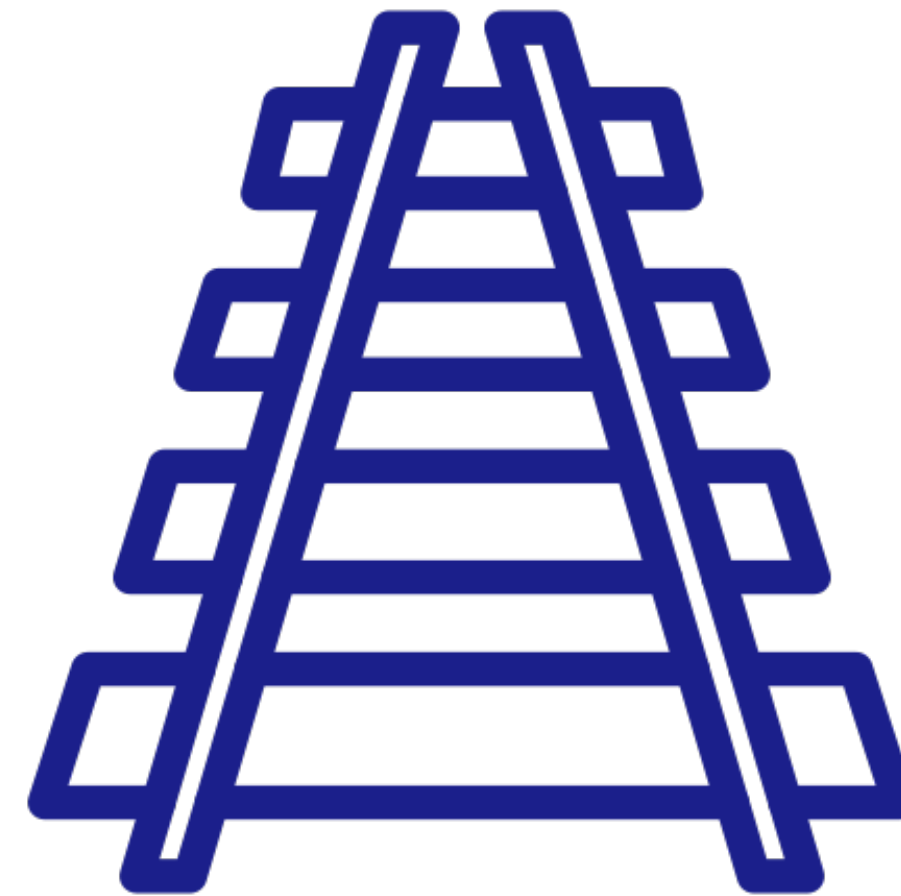
API binary level: **Java SE 17**

TCK run with: **Java SE 17+21**

**App Developers (YOU) can use Java SE 21 features if you like !!**



JAKARTA EE



# Release Cadence

**~6-9 Months after the latest LTS of Java**





**Milestone 1**

**December, 2023**



**Milestone 2**

**March, 2024**



**Milestone 3**

**April, 2024**



**Milestone 4**

**May, 2024**



## Milestone 4

**May, 2024**

- **Feature complete**
- **All API jars released**
- **For each API at least one compatible implementation (e.g. Hibernate, Mojarra)**
- **Each compatible implementation passed standalone TCK**

```
<dependency>
  <groupId>jakarta.platform</groupId>
  <artifactId>jakarta.jakartaee-api</artifactId>
  <version>11.0.0-M4</version>
  <scope>provided</scope>
</dependency>
```

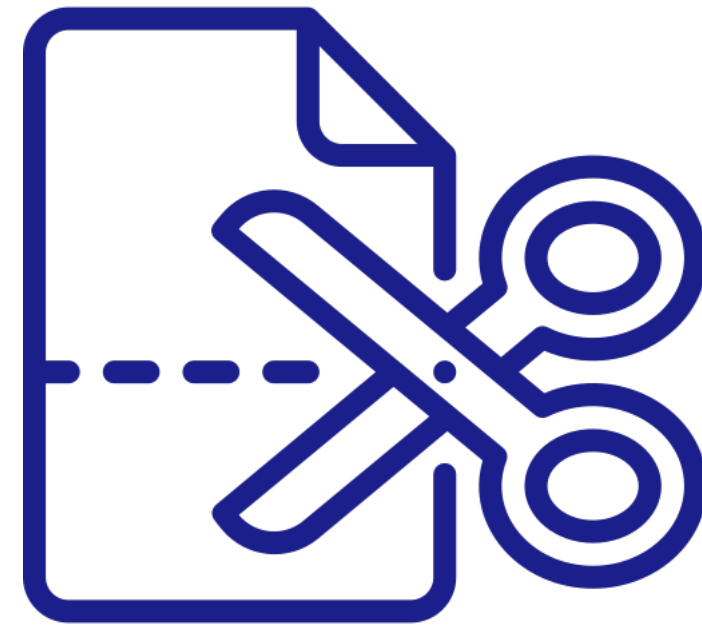


JAKARTA EE

JAKARTA EE **11**

***DEVELOPER PRODUCTIVITY  
AND PERFORMANCE***

**Q3, 2024**



# Cross-Cutting Concerns



~~Managed Beans 2.0~~

**Removed**  
**Replaced by CDI**

# Optional ~~Features~~

**Jakarta EE Platform**  
**Jakarta EE Web Profile**  
**Jakarta EE Core Profile**

Jakarta SOAP with Attachments 4.0

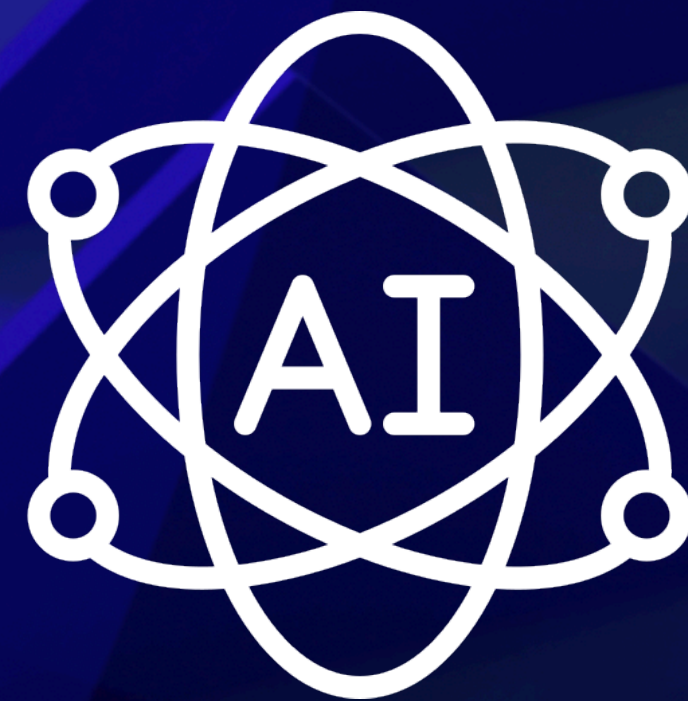
Jakarta XML Web Service 4.0

Jakarta XML Binding 4.0

# SecurityManager Removed

**JEP 411: Deprecate the  
Security Manager for Removal**

# Embrace Java Records



# Jakarta EE 11 Platform



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Enterprise Beans 4.0	Standard Tag Libraries 3.0	Transactions 2.0	CDI Lite 4.1

Updated

Not Updated

New

# Jakarta RESTful Web Services 4.0

<https://jakarta.ee/specifications/restful-ws/4.0/>

- **Remove Jakarta XML Binding dependency**
- **Remove ManagedBean support**
- **Mentally prepare to deprecate native component model**



- **Convenience method for checking header value lists**
- **Add `getMatchedResourceTemplate` method to `UriInfo`**
- **Add `JSON Merge Patch` constant**

# Jakarta EE 11 Platform



	Authentication 3.1	<b>Data 1.0</b>	
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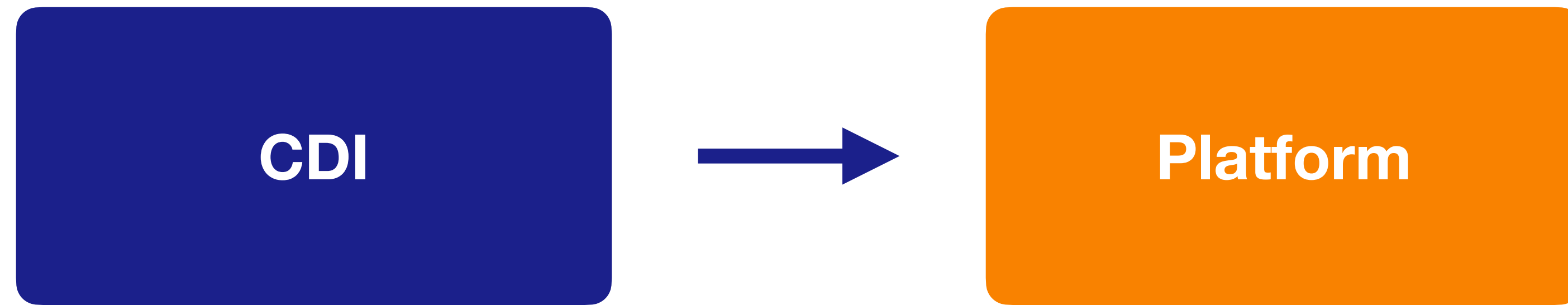
- Updated
- Not Updated
- New

# Jakarta Contexts and Dependency Injection 4.1

<https://jakarta.ee/specifications/cdi/4.1/>

**Support** Records **and** Sealed Types  
**Deprecate Expression Language SPI**  
**@Priority on producers**

# Move Integration Requirements



# Jakarta EE 11 Platform



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Enterprise Beans 4.0	Standard Tag Libraries 3.0	Transactions 2.0	CDI Lite 4.1

Updated

Not Updated

New

# Jakarta JSON Binding 3.0

<https://jakarta.ee/specifications/jsonb>



# Jakarta EE 11 Platform



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- Updated
- Not Updated
- New**



**NEW in Jakarta EE 11**

# Jakarta Data 1.0

**Standardizes the repository pattern for data access**

**<https://jakarta.ee/specifications/data/1.0/>**



```
@Repository
public interface GreetingRepository extends
    CrudRepository<Greeting, Long> {

    Optional<Greeting> findByName (String name);

}
```

# Jakarta Data Query Language (JDQL)

<https://github.com/jakartaee/data/blob/main/spec/src/antlr/JDQL.g4>

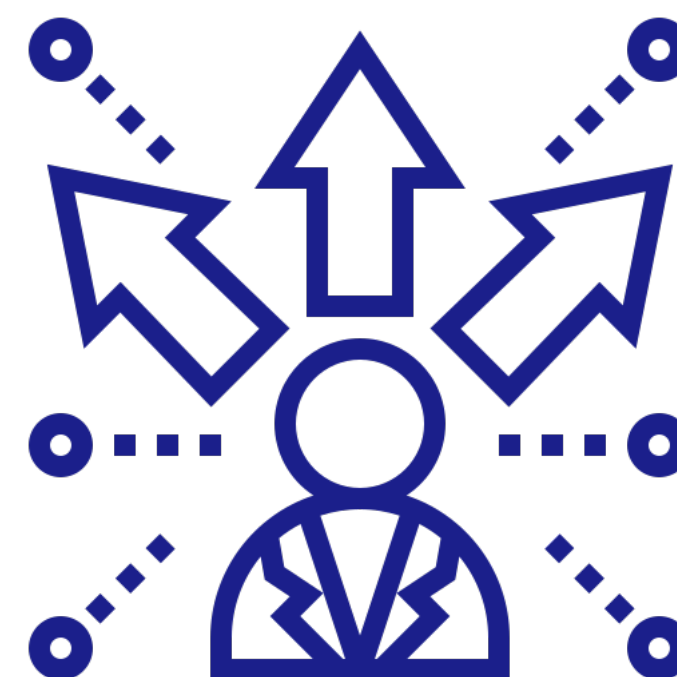
```
@Query("where title like :title")  
List<Book> booksByType(String title);
```



# Demo



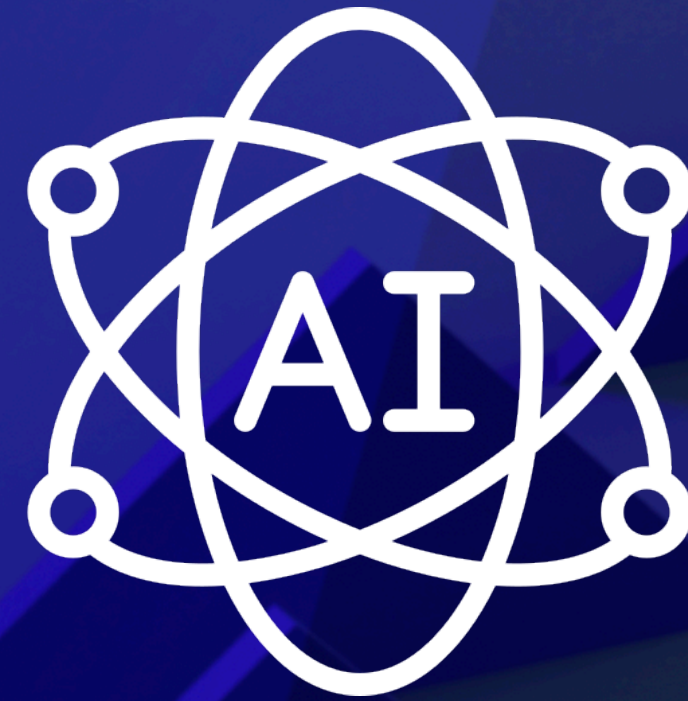
JAKARTA EE



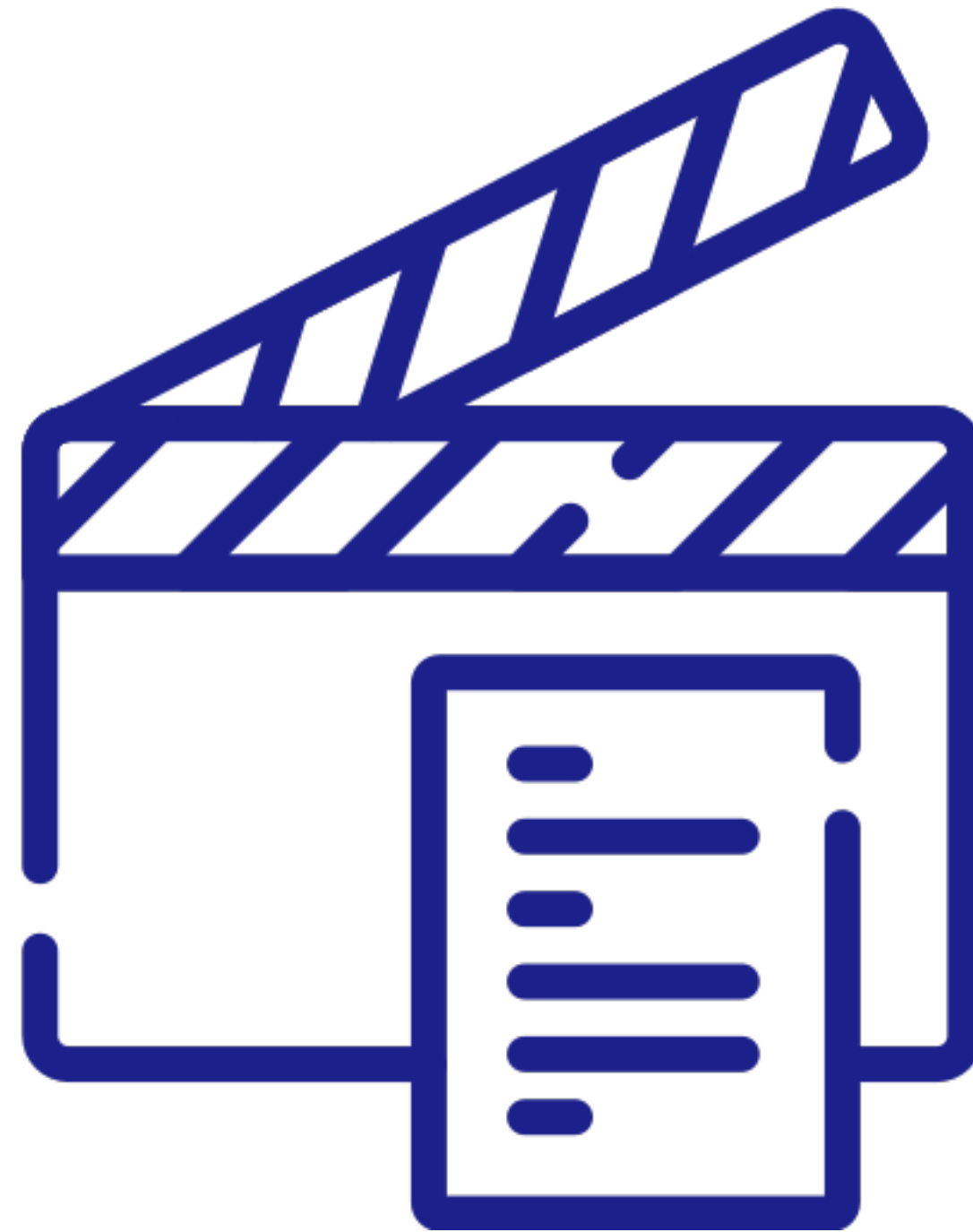
# An Opportunity

**Jakarta Data  
implementation**





**and**  
**Jakarta EE**

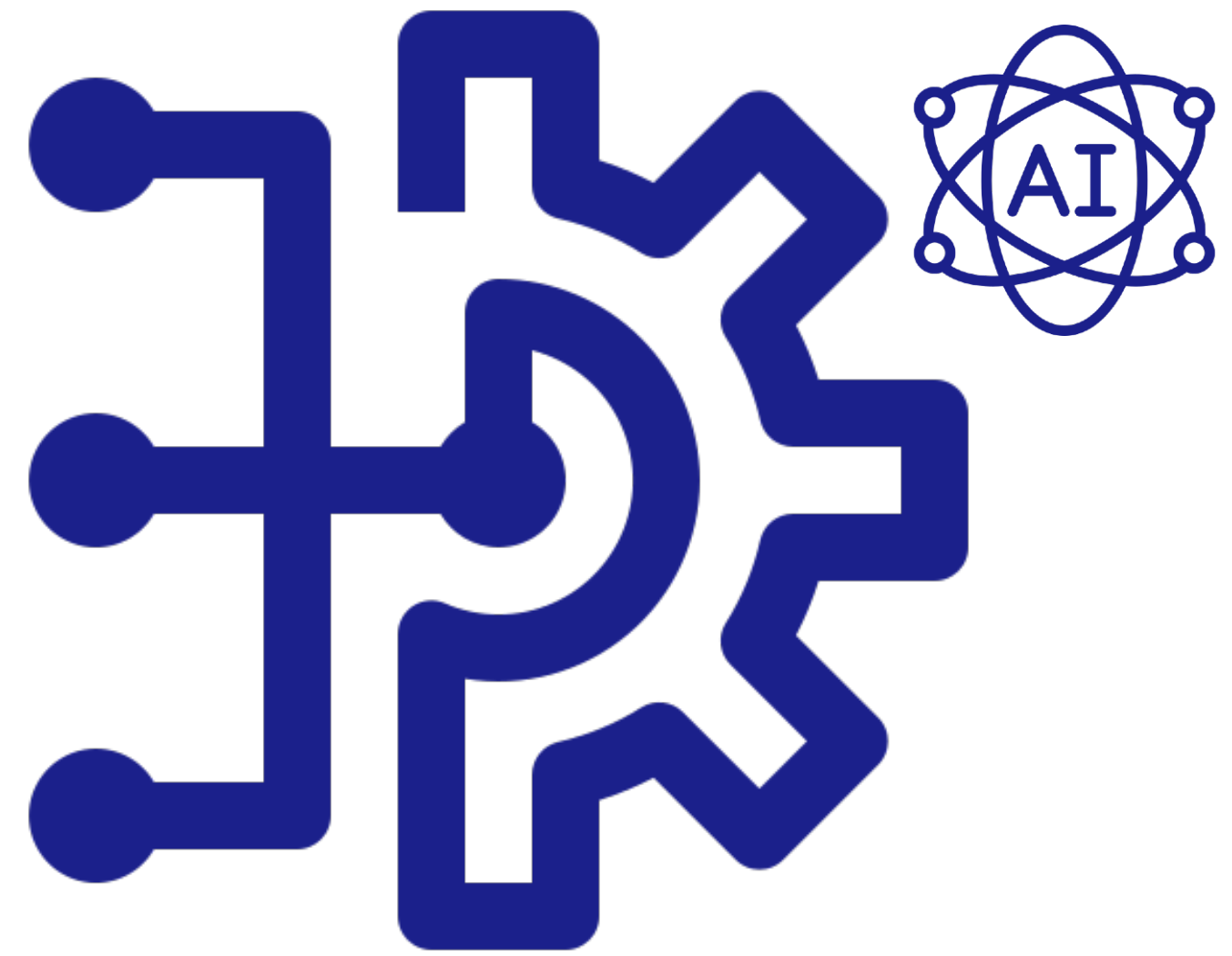
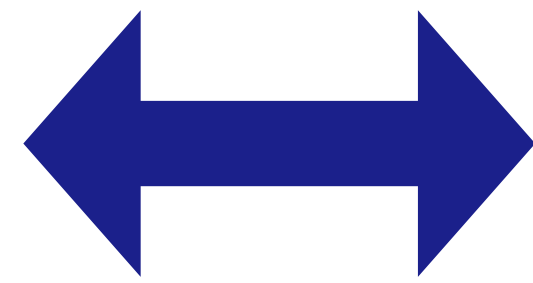


# Demo





**Application**

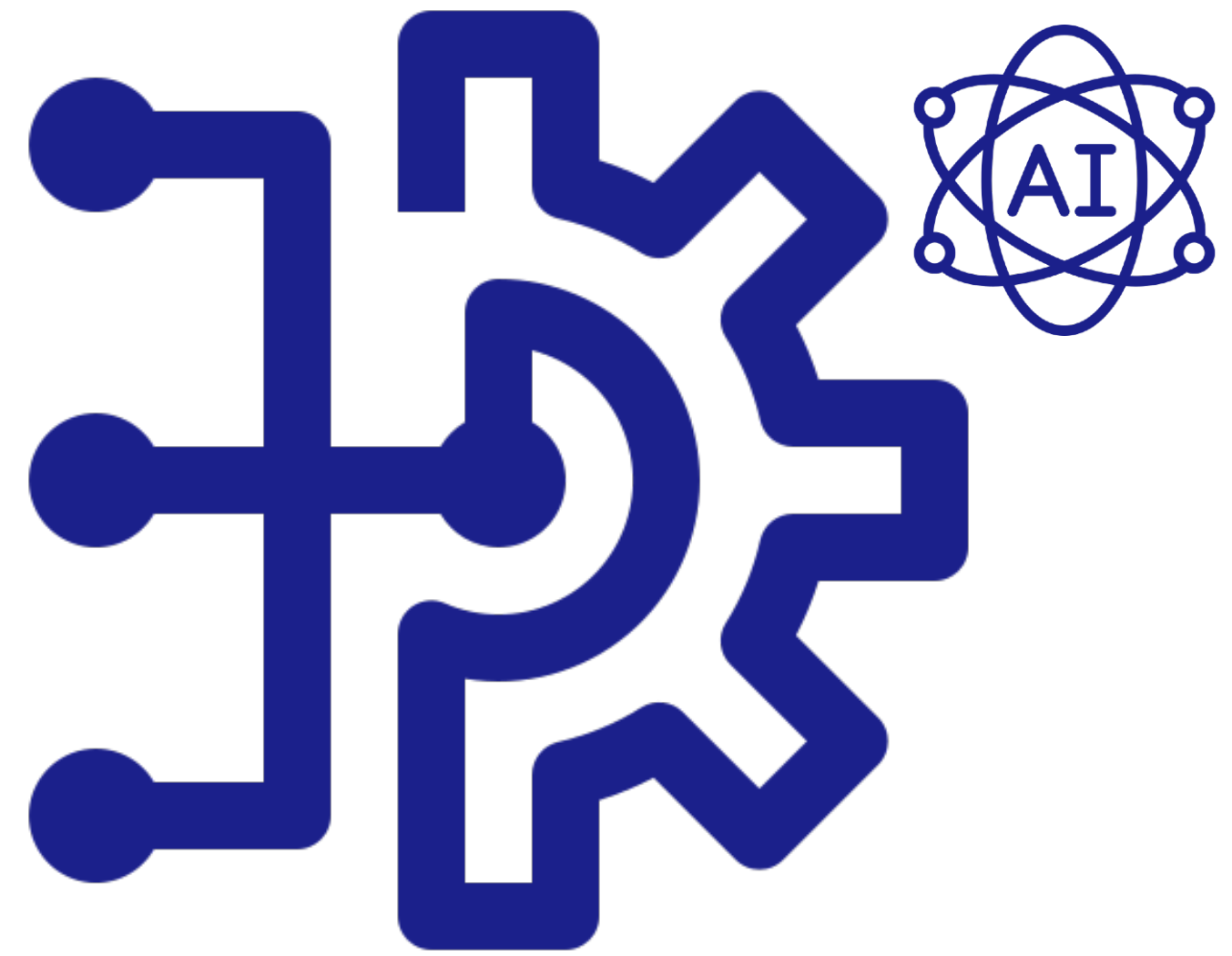
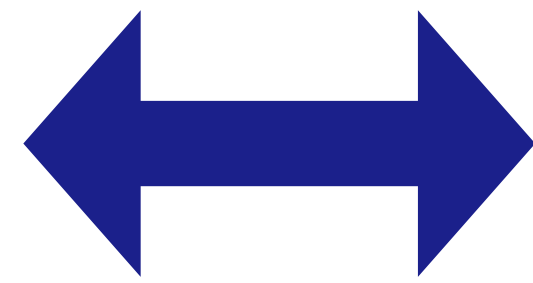


**AI**





**Application**

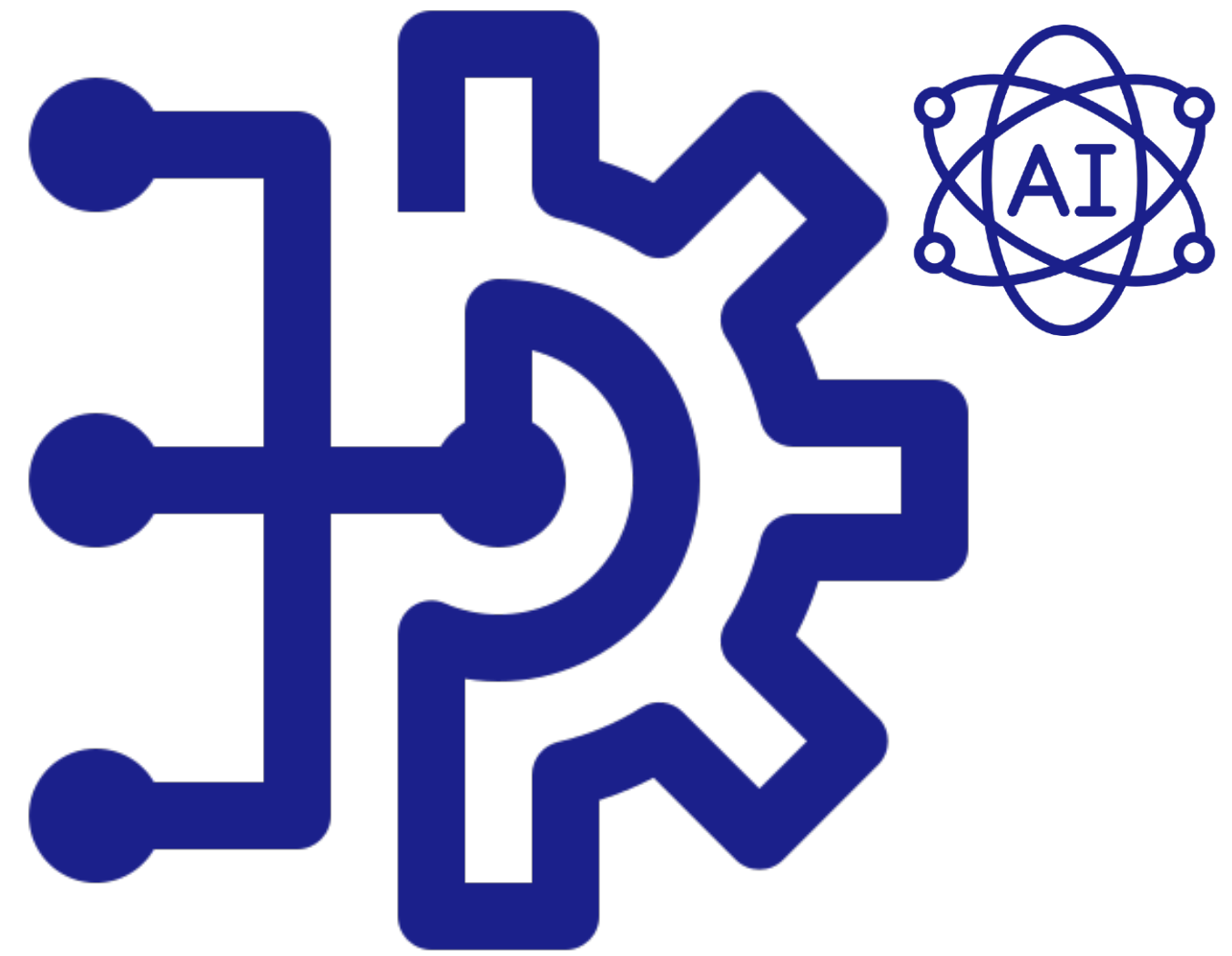
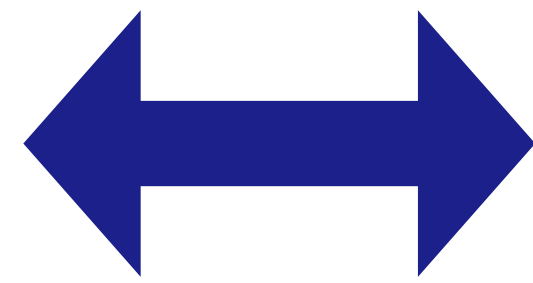


**Open AI**





**Application**



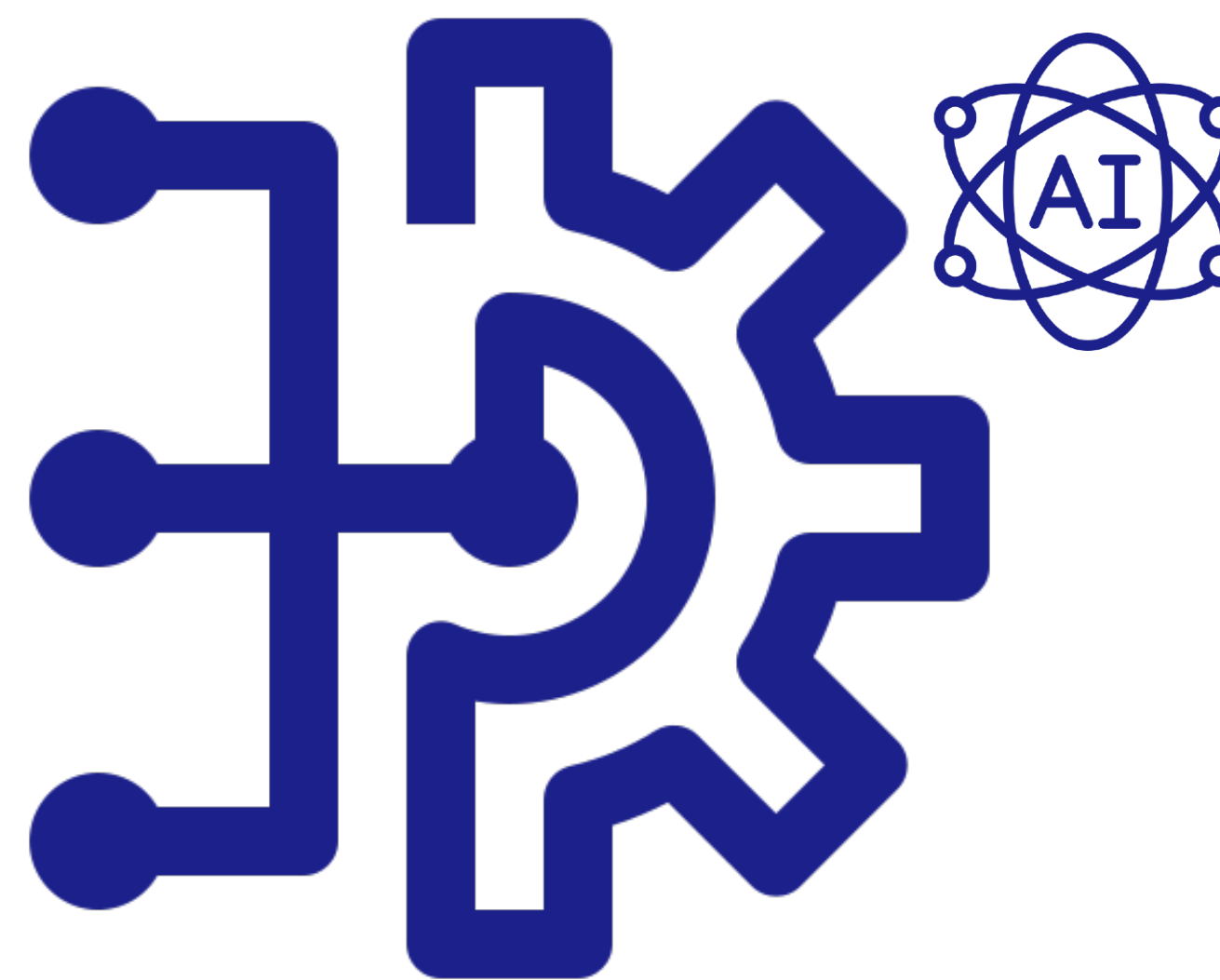
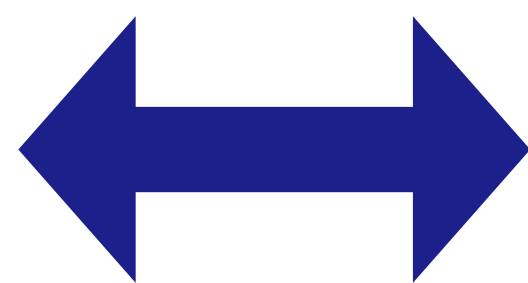
**Open AI**



**JAKARTA<sup>®</sup> EE**



**Application**



**Open AI**

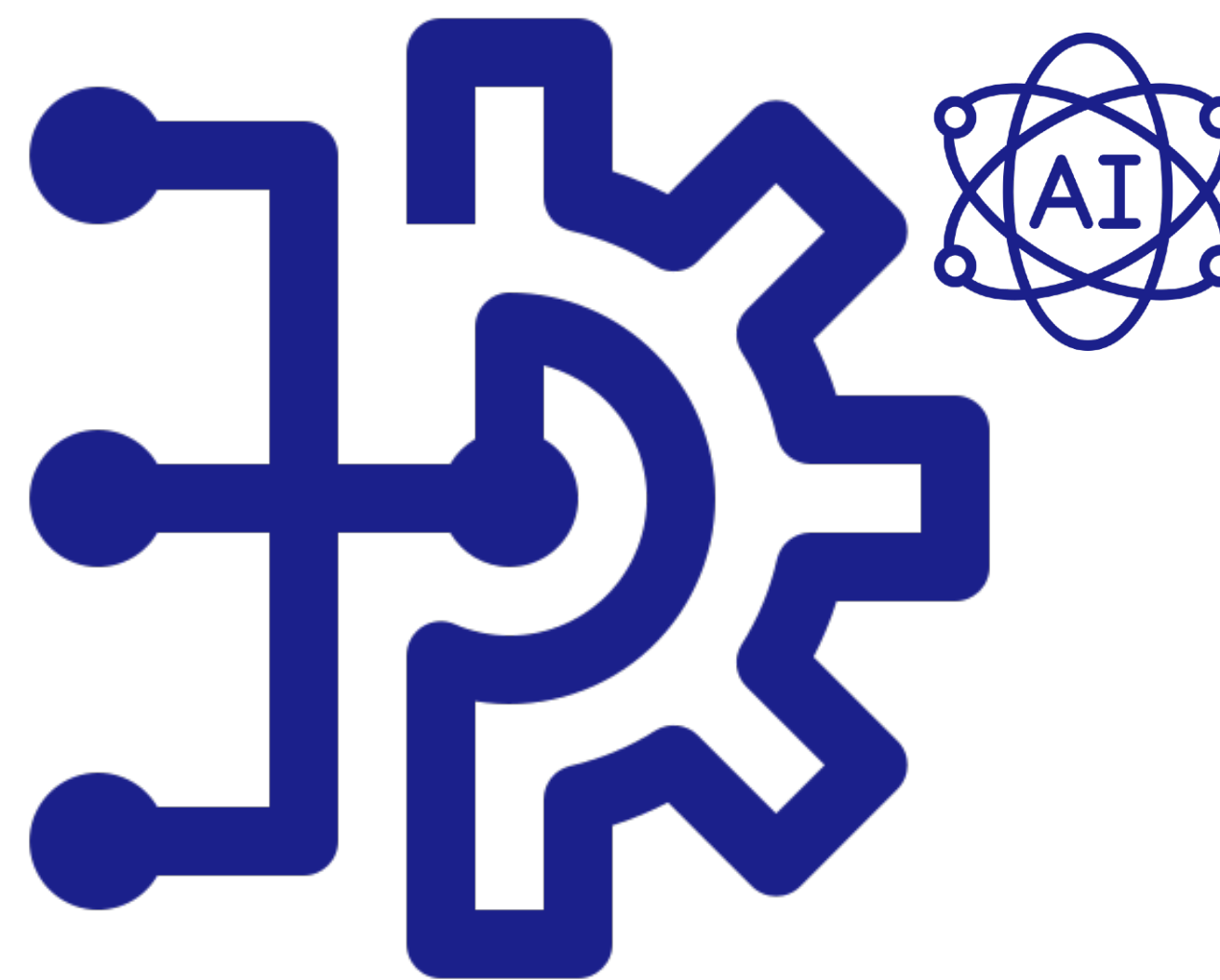


<https://docs.langchain4j.dev>





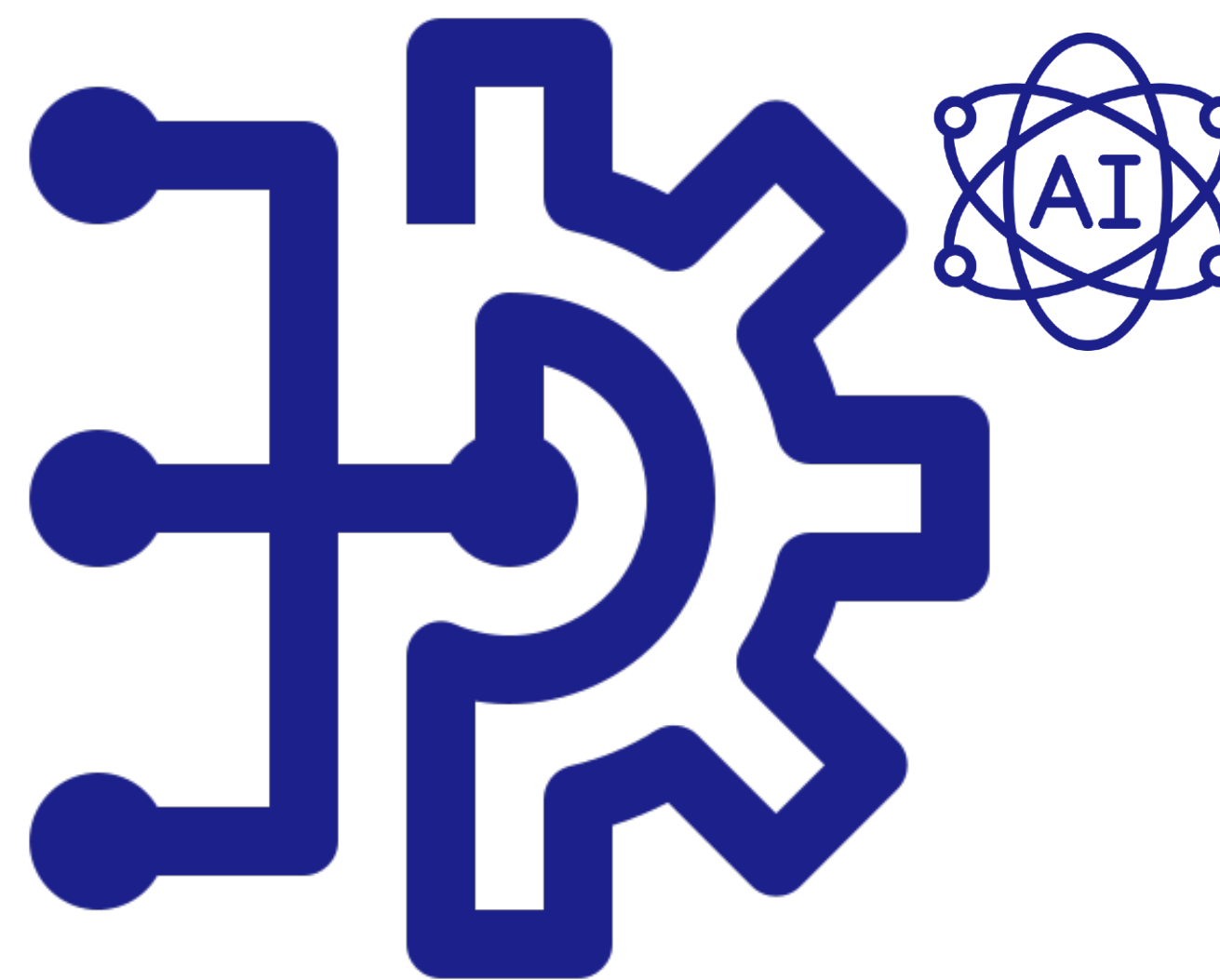
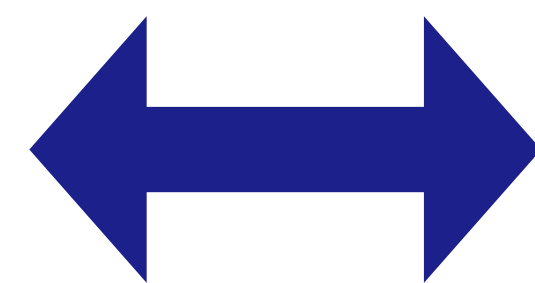
**Application**



**Open AI**



**Application**



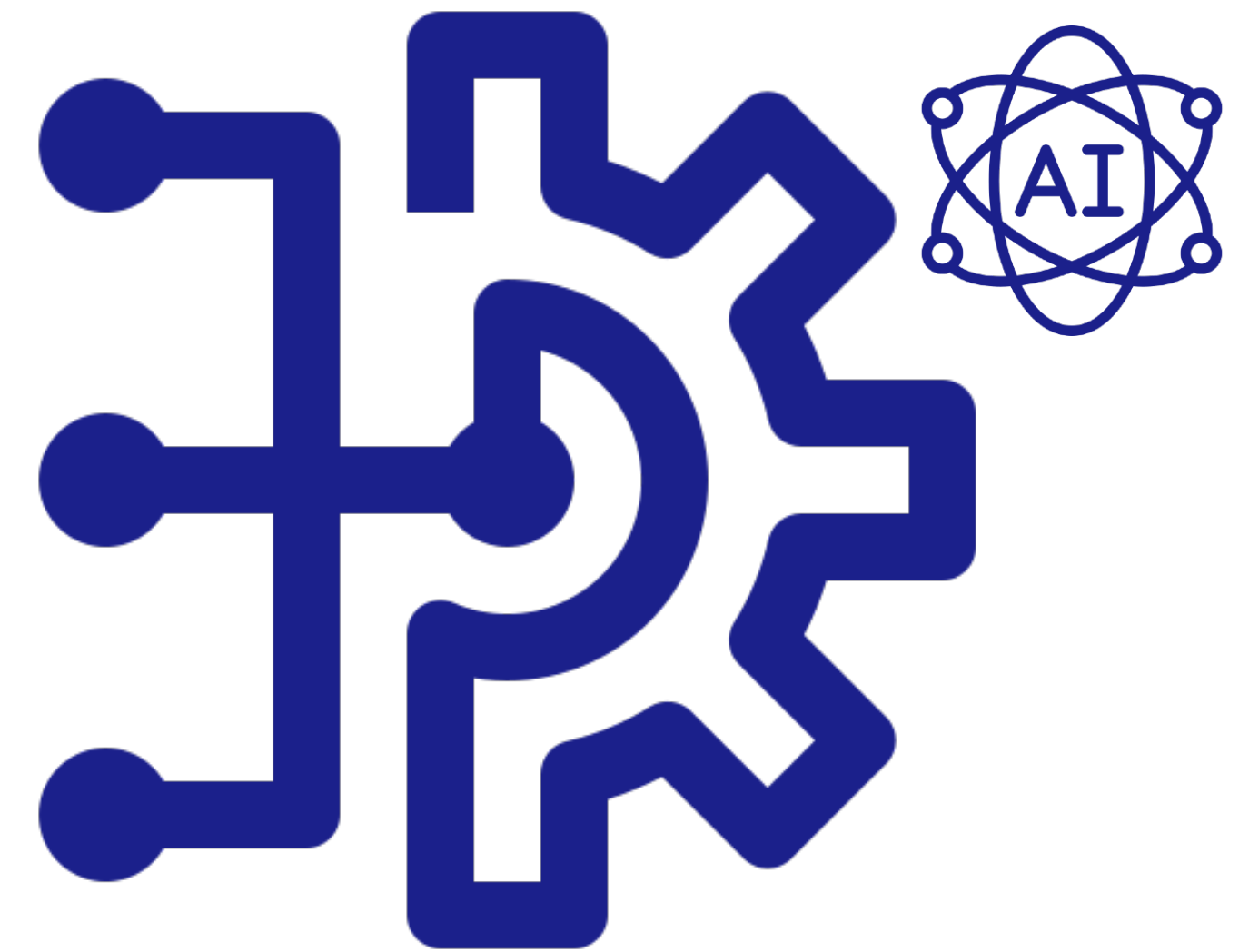
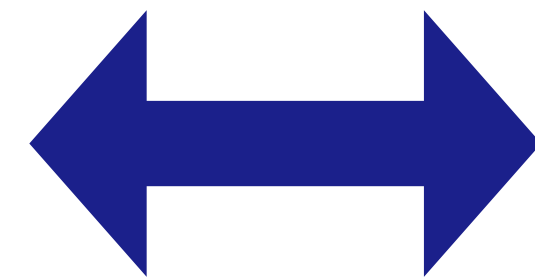
**Open AI**

# What if I really like



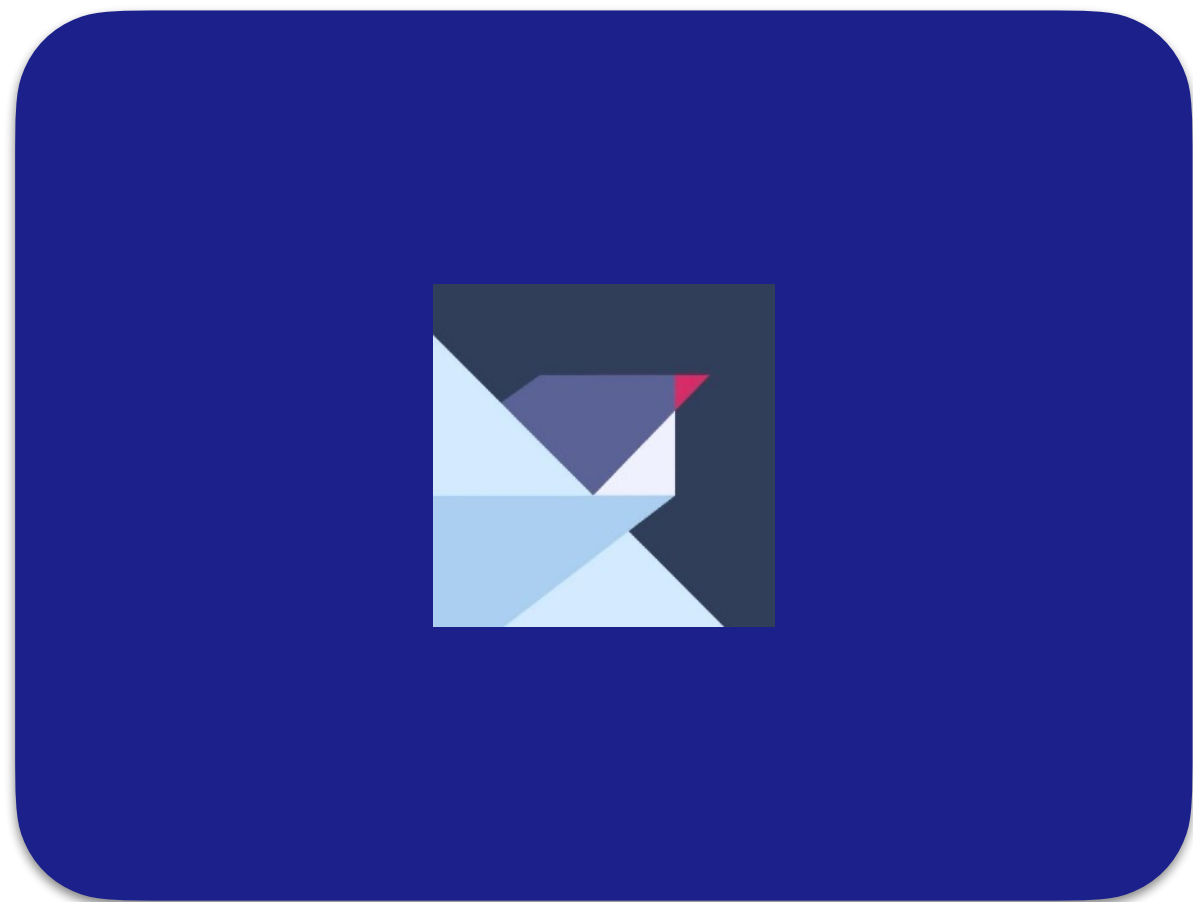


**Application**

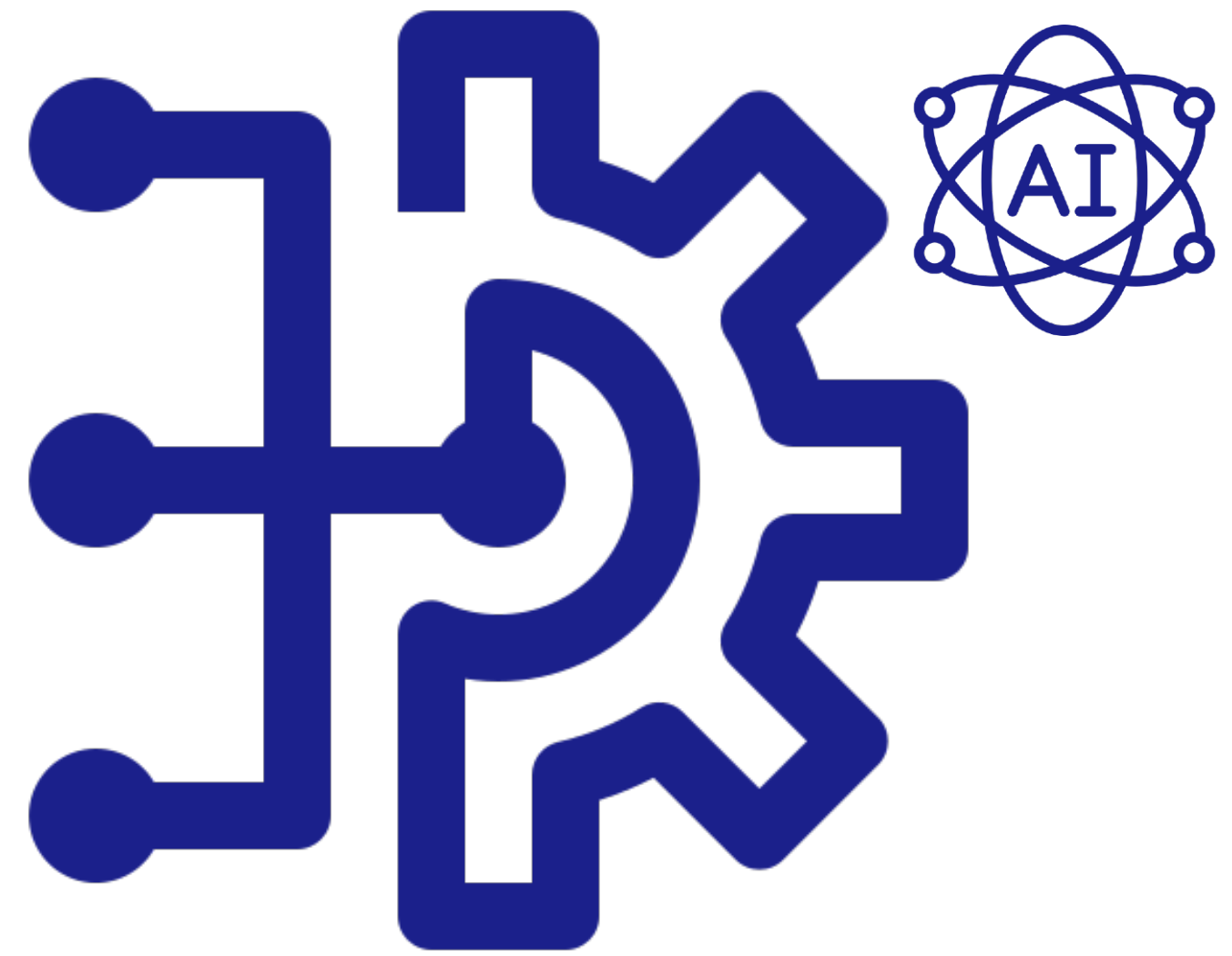
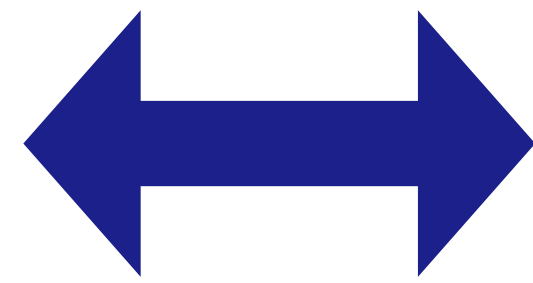


**Open AI**





**Application**



**Open AI**

# Summary

NEW RELEASE

# Jakarta EE 10

Community-Driven

Modernized

Simplified

Lightweight



JAKARTA® EE



# Jakarta EE 10 Platform



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- Updated
- Not Updated
- New

**Under Development**

# Jakarta EE 11 Platform



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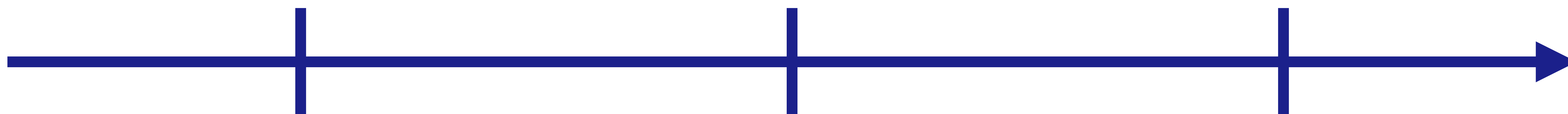
Updated

Not Updated

New



JAKARTA EE



2020

2022

2024

`javax.*` -> `jakarta.*`

**Jakarta EE Core Profile**

**Java 21**  
**Embrace Records**  
**Jakarta Data**  
**CDI Centric**  
**Removals and Deprecations**

JAKARTA EE **11**



***DEVELOPER PRODUCTIVITY  
AND PERFORMANCE***



# Jakarta EE 11

API source level: **Java SE 17**

API binary level: **Java SE 17**

TCK run with: **Java SE 17+21**

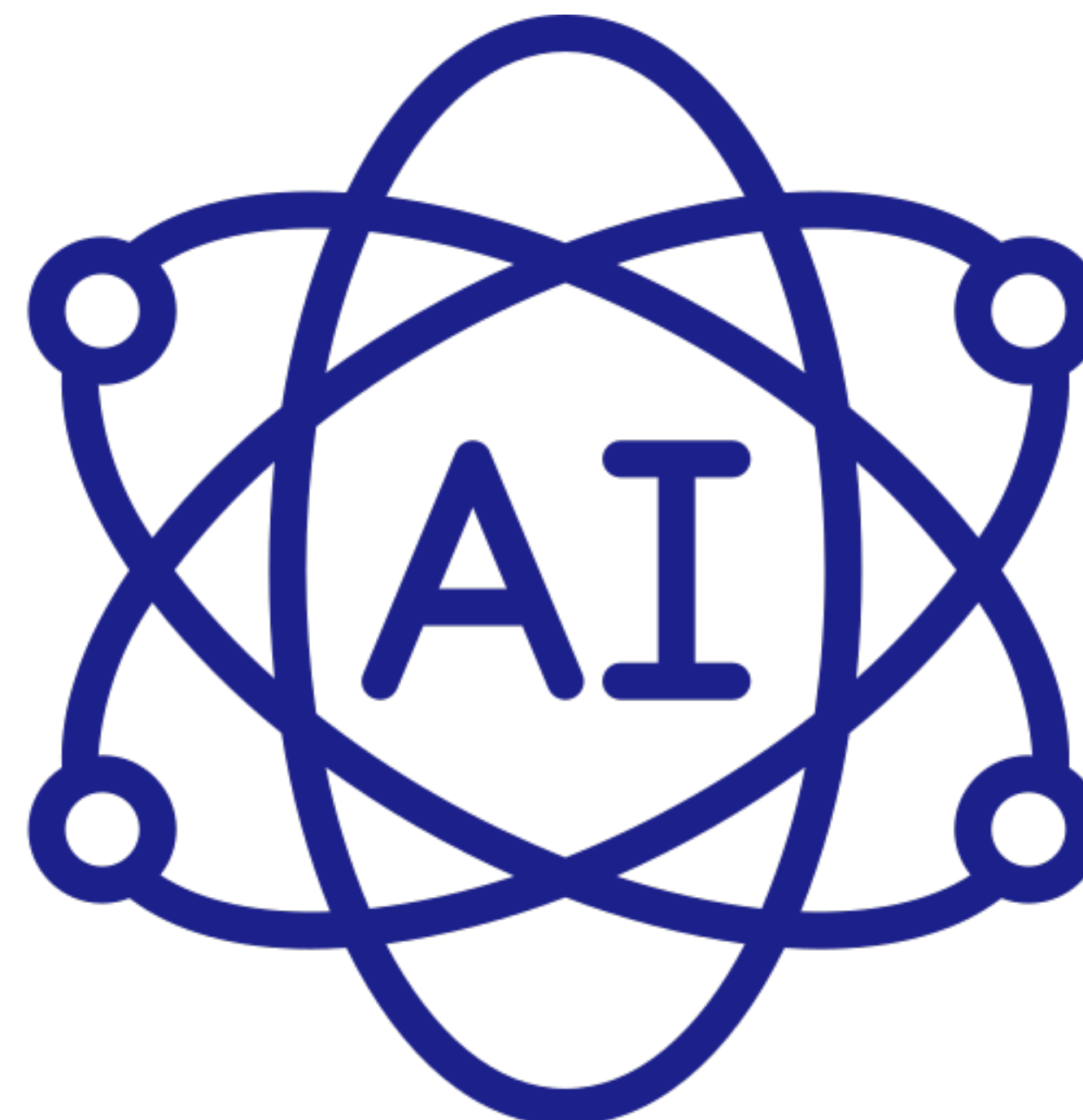
**App Developers (YOU) can use Java SE 21 features if you like !!**

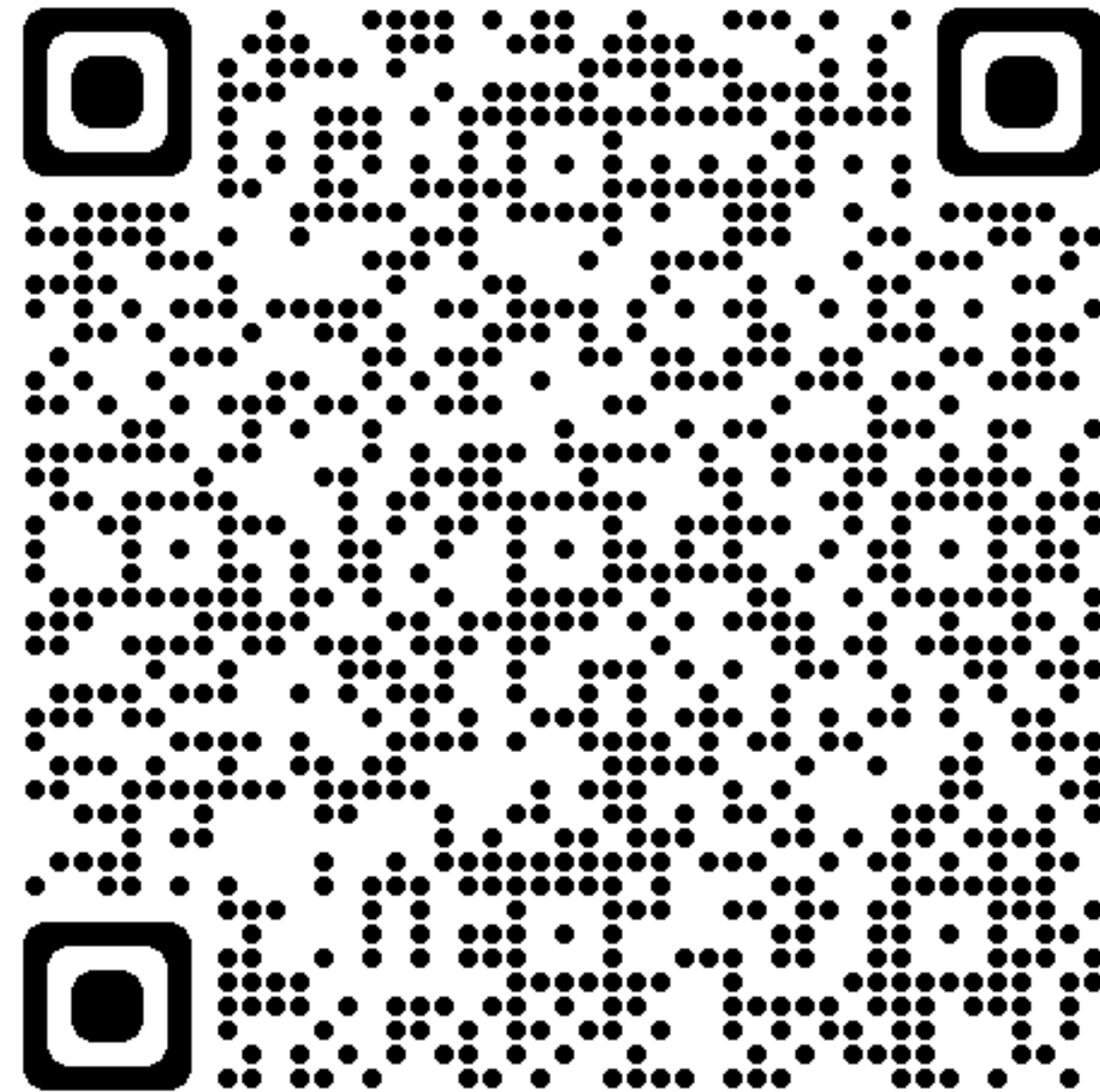


JAKARTA EE



+





# **Jakarta EE Overview**

**Course available on [LinkedIn Learning](#)**

## **Jakarta EE**

**<https://jakarta.ee>**

## **Get Started**

**<https://start.jakarta.ee>**

## **Demo Code**

**<https://github.com/ivargrimstad/duke-ai>**

## **More**

**<https://jakarta.ee/community/developer-advocate>**