Java 9

What's New in Oracle JDK 9. Release 9. E77563-05
September 2017

Noi caracteristici in Java 9

- Factory Methods for Immutable List, Set, Map and Map.Entry

- Try With Resources Improvement

- Private methods in Interfaces

- Java 9 Module System

- Java 9 REPL (JShell)

- Diamond Operator for Anonymous Inner Class

- Optional Class Improvements

- Reactive Streams

- Stream API Improvements

- Process API Improvements

- Enhanced @Deprecated annotation

- HTTP 2 Client

- Multi-Resolution Image API

Java 9

Factory Methods for Immutable List, Set, Map, Map.Entry

Crearea unei liste **IMUTABILE** in Java 8 si in **Java 9:**

List<Punct> lista = new ArrayList<> ();

lista.add (new Punct(1, 1));

lista.add (new Punct(2, 2));

lista.add (new Punct(3, 3));

lista.add (new Punct(4, 4));

lista = Collections.**unmodifiableList** (lista);

List<Punct> lista = List.of (new Punct(1, 1),
new Punct(2, 2), new Punct(3, 3),
new Punct(4, 4));

In Java 9:

- List immutableList = List.of();
- List immutableList = List.of("one","two","three");
- Map dict = Map.of();
- Map.Entry me = Map. ofEntries();

Metoda of()

static <E> List<E> of(E e1);

static <E> List<E> of(E e1,E e2);

static <E> List<E> of(E e1,E e2,E e3);

. . . s.a.m.d

static <E> List<E> of(E e1,E e2,E e3,E e4,E e5,
                                         E e6,E e7,E e8,E e9,E e10);

static <E> List<E> of(E... elements);

Caracteristici Colectii imutable

- Elementele nu pot fi adaugate, modificate sau eliminate

- Nu pot cntine elementul null

- Exceptii daca se incearca

Observatie. Nu sunt permise schimbari la nivel structural al colectiilor (ex. o lista de Studenti, studentul 2 nu poate fi update (inlocuit cu un alt student), in schimb putem apela setter-ii Student; efectiv referinta 2 nu poate fi modificata)..

Try-with-resources

final Resource resource1 = new Resource("resource1");

Resource resource2 = new Resource("resource2");

try (Resource r1 = resource1; Resource r2 = resource2) { ... }

```
// Java SE 9
try (resource1; resource2)
{ ... }
```

Metode private in interfete

Interfete in Java <= 7

- Constant variables
- Abstract methods

Interfete in Java 8

- Constant variables
- Abstract methods
- Default methods
- Static methods

Interfete in Java 9

- Constant variables
- Abstract methods
- Default methods
- Static methods
- Private methods
- Private Static methods

```java
package com.journaldev.java9;

public interface DBLogging {
    String MONGO_DB_NAME = "ABC_Mongo_Datastore";
    String NEO4J_DB_NAME = "ABC_Neo4J_Datastore";
    String CASSANDRA_DB_NAME = "ABC_Cassandra_Datastore";

    default void logInfo(String message) {
        log(message, "INFO");
    }

    default void logWarn(String message) {
        log(message, "WARN");
    }

    default void logError(String message) {
        log(message, "ERROR");
    }

    default void logFatal(String message) {
        log(message, "FATAL");
    }

    private void log(String message, String msgPrefix) {
        // Step 1: Connect to DataStore
        // Step 2: Log Message with Prefix and styles etc.
        // Step 3: Close the DataStore connection
    }
    // Any other abstract, static, default methods
}
```

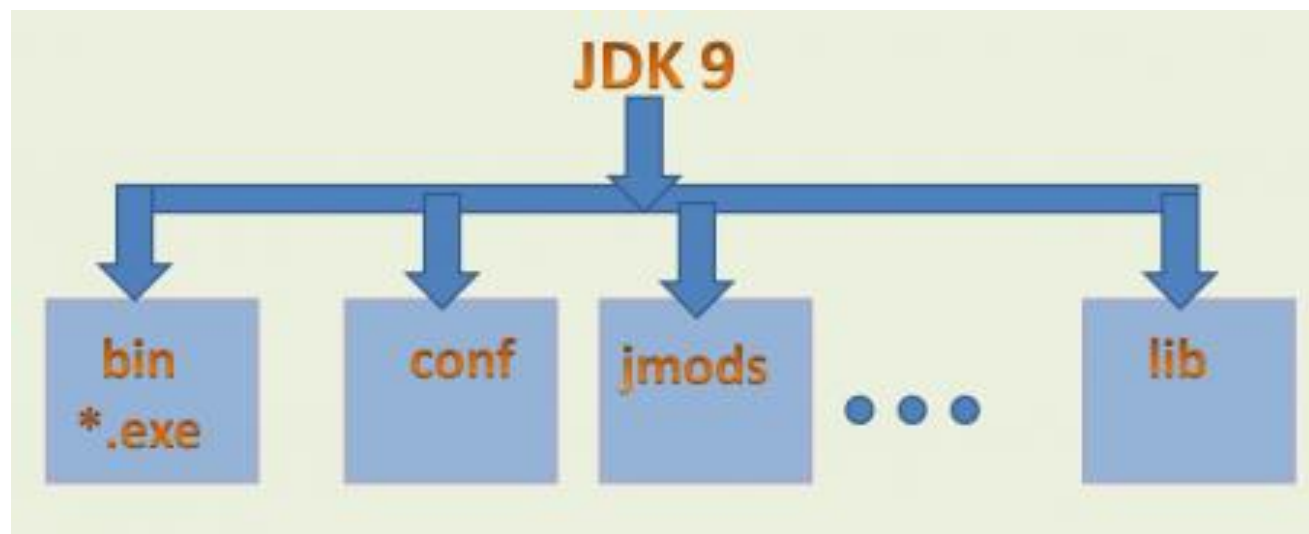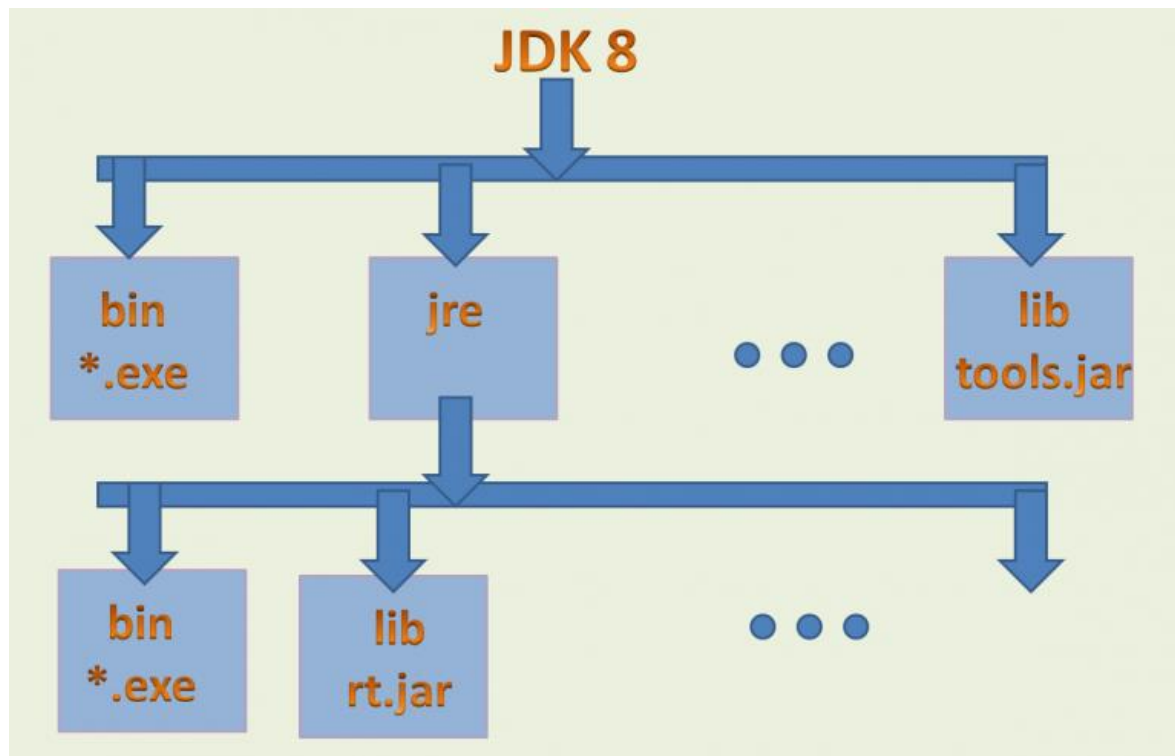# De ce ar fi nevoie de metode private

- Se evita duplicatele in scrierea programelor
- Se expun clientilor doar intentiile de implementare

JDK 9 Module System

JDK 9 Modules

- JDK fiind prea mare nu este scalabil (dezavantaj dispozitive mici)

- Proiectul **Jigsaw**

JDK 8

bin
*.exe

jre

lib
tools.jar

bin
*.exe

lib
rt.jar

JDK 9

bin
*.exe

conf

jmods

lib

Java 9 REPL (JShell)

- Oracle Corp introduce un nou instrument **jshell** (Java Shell) numit si REPL (Read Evaluate Print Loop). Poate fi folosit la verificarea oricarei secvente Java (class, interface, enum, obiecte, instructiuni etc).

```
jshell> int counter = 0
counter ==> 0
jshell> counter++
$6 ==> 0
jshell> counter
counter ==> 1
```

BIBLIOGRAFIE

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