Pouring Coffee into the Matrix

Java applications on Neo4j

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Who Am I?

- Developer + Advocate
- Continuous learner
- Technical content writer
- Conference speaker
- Other: geek

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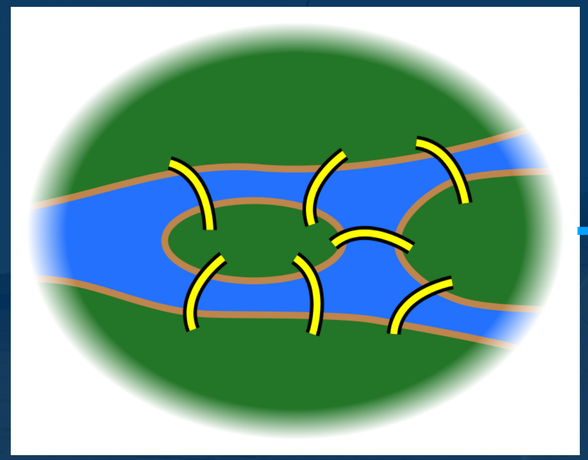
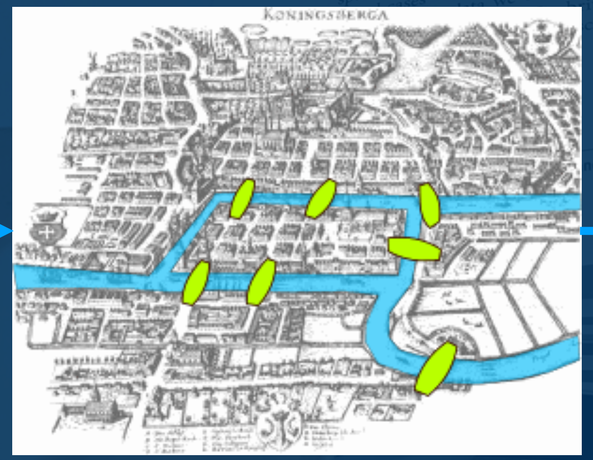
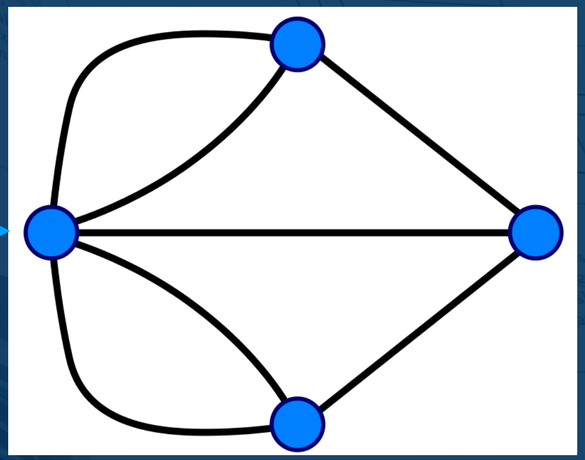
What is graph?

What is a graph?

- Graph much older than technology of the last decade…
- Arose from solution need (then and now)



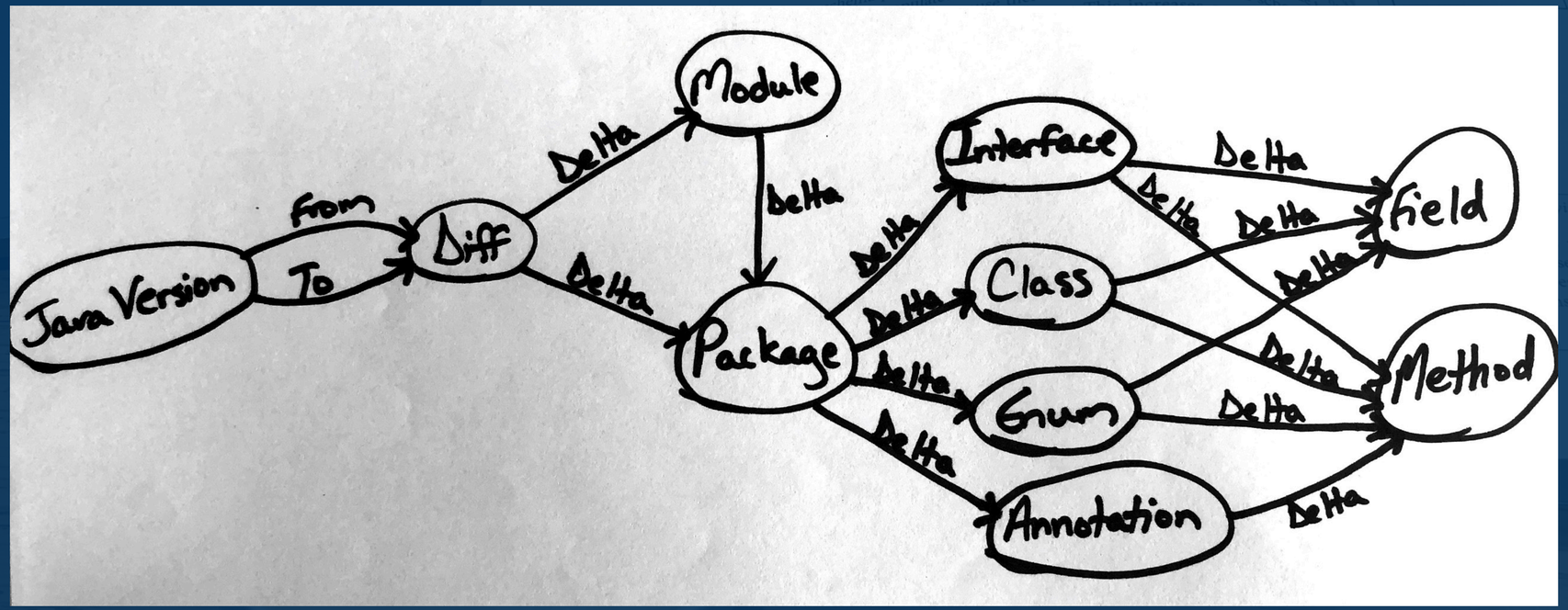




Seven Bridges of Konigsberg problem. Leonhard Euler, 1735

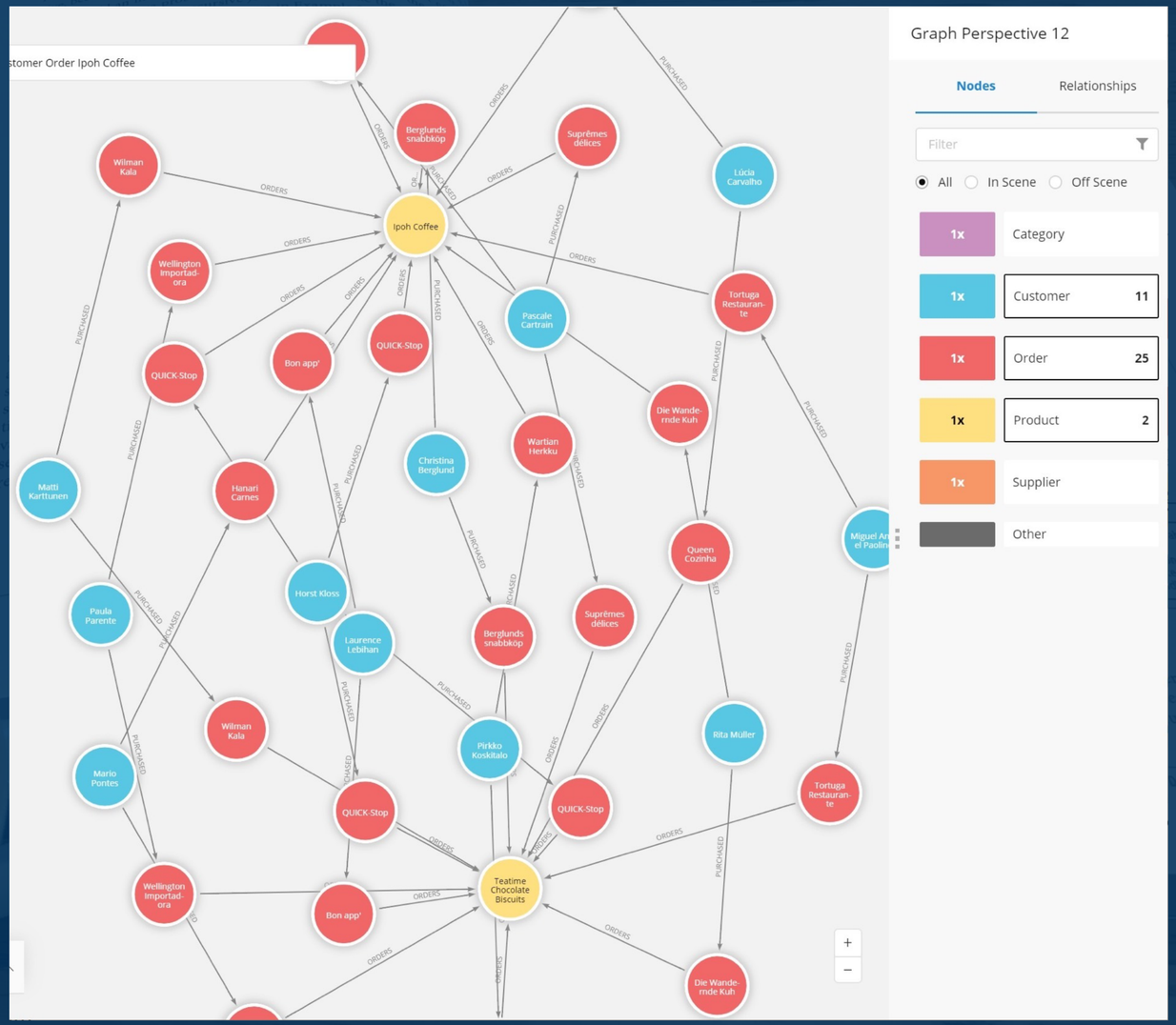
Java domain

- Find field changes between Java 17 and Java 8?
- Update doc URL for a Class
- Find most similar diffs (which affected same components)



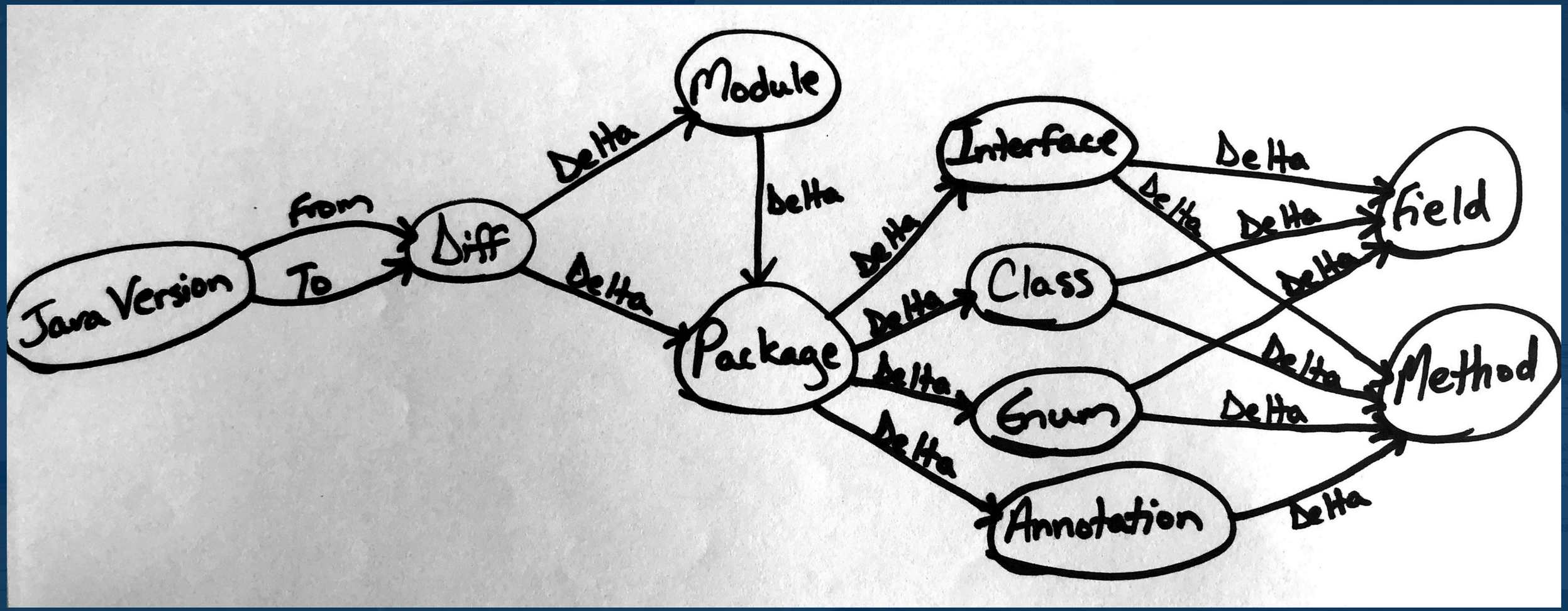
Enter stage right - graphs

- Document path (not just data)
- Answering how and why
- Understanding connections
- Find alternates, impacts, etc
- Produce better assumptions, decisions

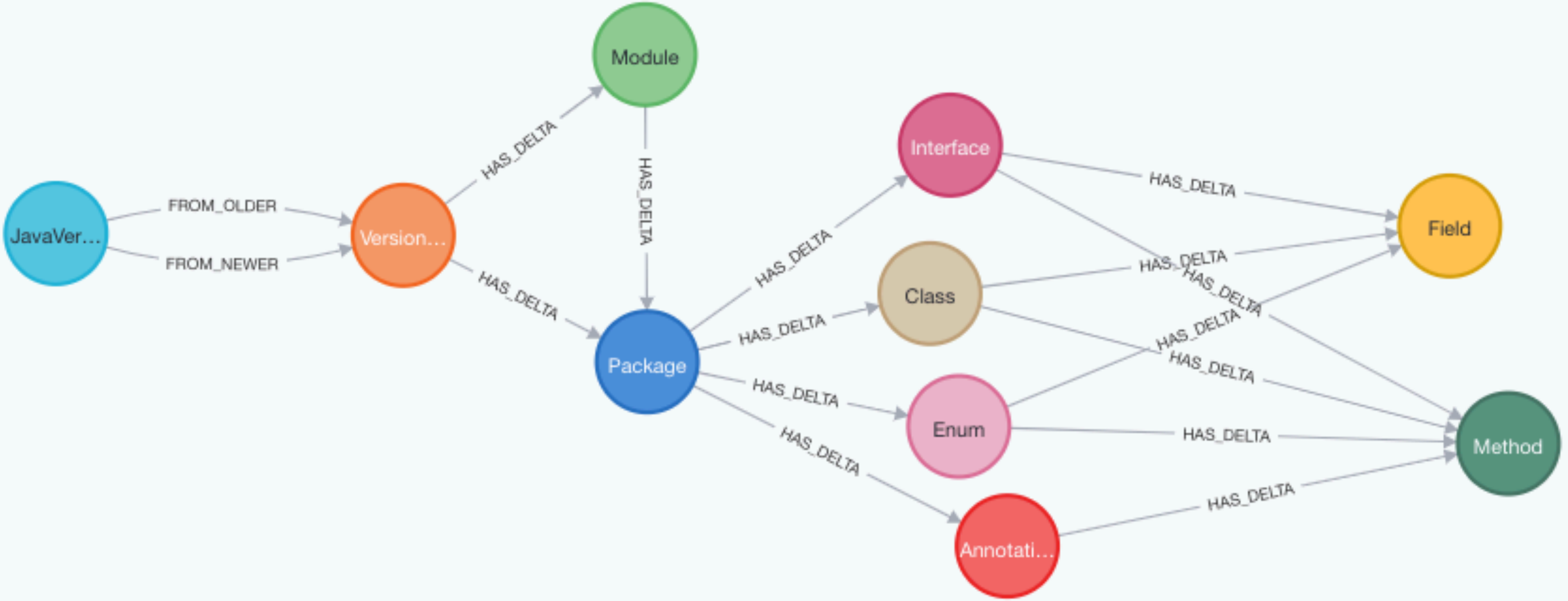


Understanding the model

Whiteboard friendliness



Graph data


JavaVer…
FROM_OLDER
FROM_NEWER
Version…
HAS_DELTA
HAS_DELTA
Module
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Interface
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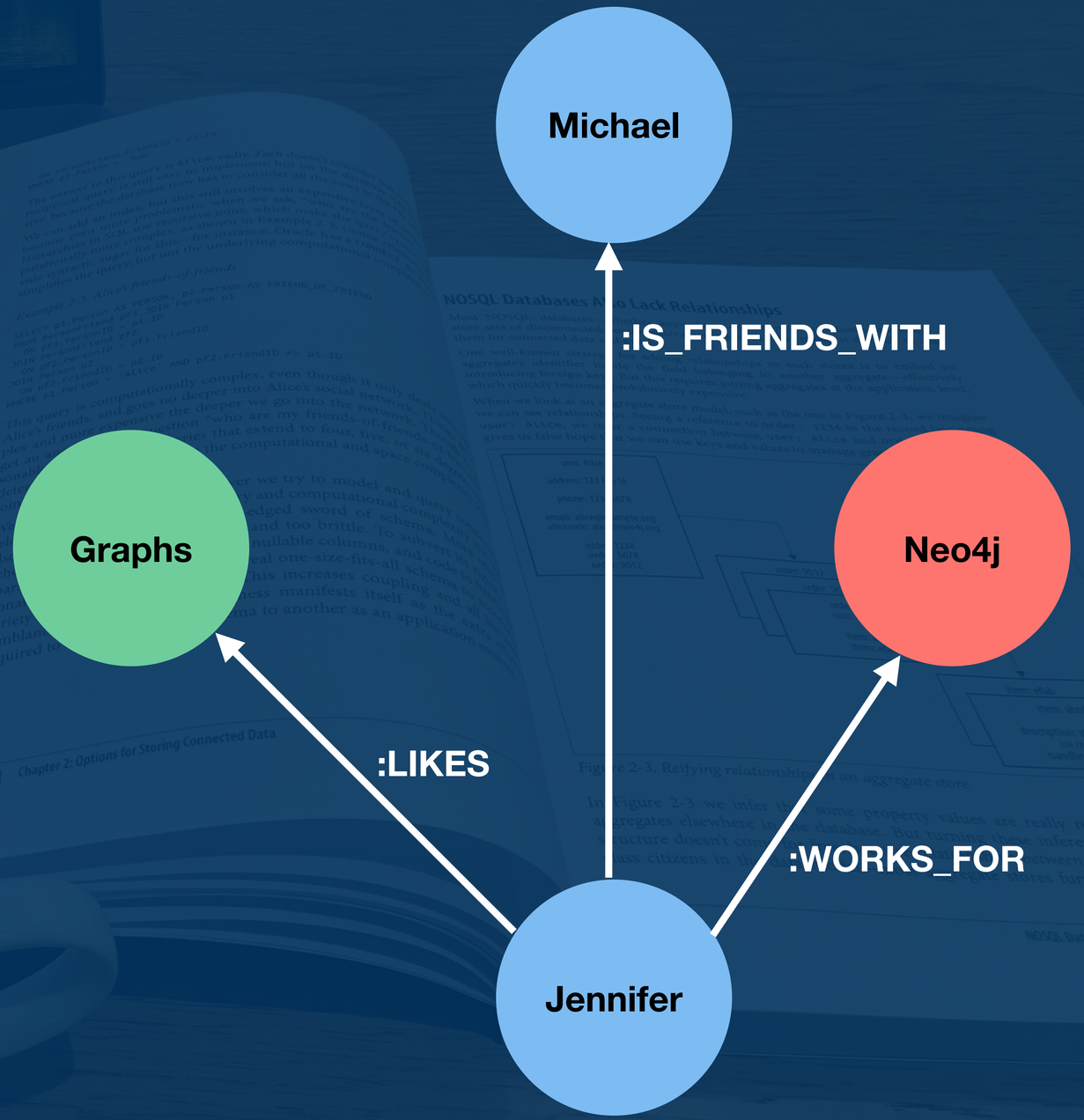
Field
Method

Graph components

- Node (vertex)
  - Objects

Graph components

- Node (vertex)
  - Objects
- Relationship (edge)
  - Connections



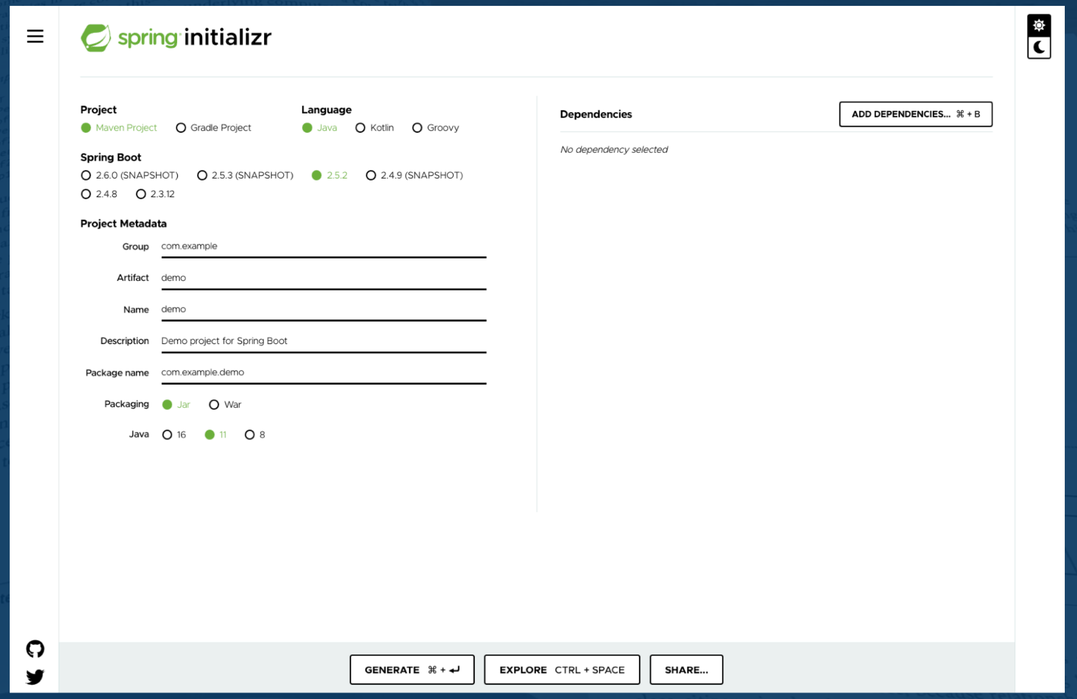
Developing applications

Language drivers

- Neo4j Java driver (official)
- Spring Data Neo4j
  - Uses Neo4j Java driver at base
- Other options:
  - Official drivers-> Python, JavaScript, Go, .NET
  - Java frameworks-> Quarkus, Helidon, Micronaut, etc

Spring provisions

- Spring Initializr
- Spring Boot’s reduction of boilerplate
- Annotation-based OGM for POJOs
- Query derivation + DSL for custom (Cypher)
- Spring Data’s easy connection to Neo4j
  - BOLT



Let’s see some code!

Demo time!

Resources

- Source code: github.com/JMHReif/pouring-coffee-into-matrix-lombok
- Spring Data Neo4j documentation: dev.neo4j.com/sdn-docs
- SDN reactive: github.com/JMHReif/sdnrx-marvel-basic
- Neo4j AuraDB: dev.neo4j.com/aura (FREE instance!)

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