



# WEB TECHNOLOGIES USING **JAVA**

**COURSE 9 – JPA / HIBERNATE**

# AGENDA

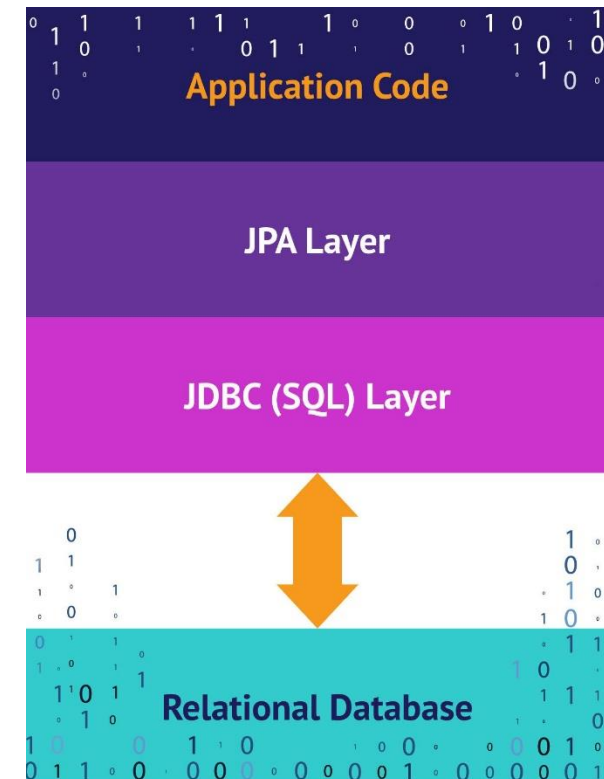
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- JPA / HIBERNATE OVERVIEW
- JPA ARCHITECTURE
- ENTITIES
- RELATIONSHIPS

# JPA / HIBERNATE OVERVIEW

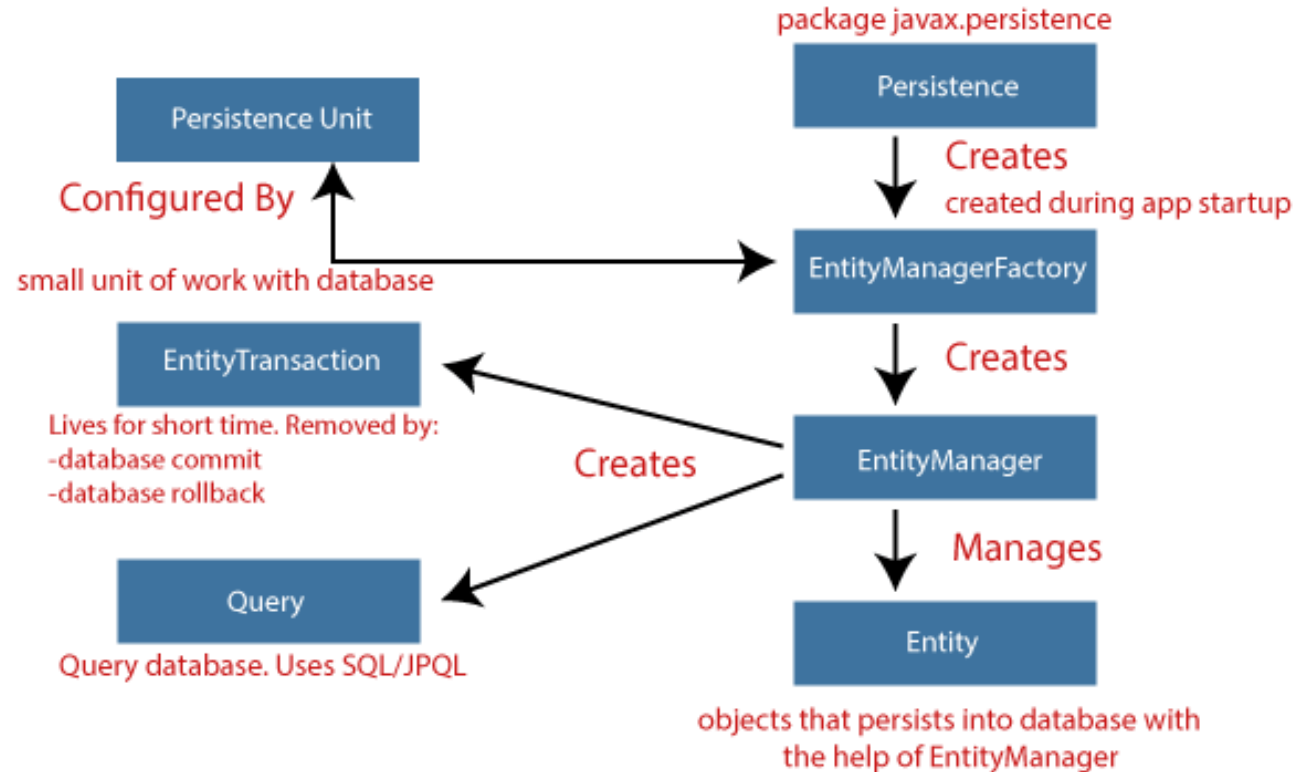
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- JPA is a specification that lets you define which objects should be persisted, and how those objects should be persisted in your Java applications.
- JPA defines a set of concepts that can be implemented by any tool or framework.
- Every JPA implementation provides an ORM layer.
- The ORM layer converts Java classes and objects so that they can be stored and managed in a relational database:
  - Names of persisted objects --> tables
  - Fields of persisted objects --> columns
  - Objects --> rows
- Hibernate is a JPA implementation.



# JPA ARCHITECTURE

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# ENTITIES

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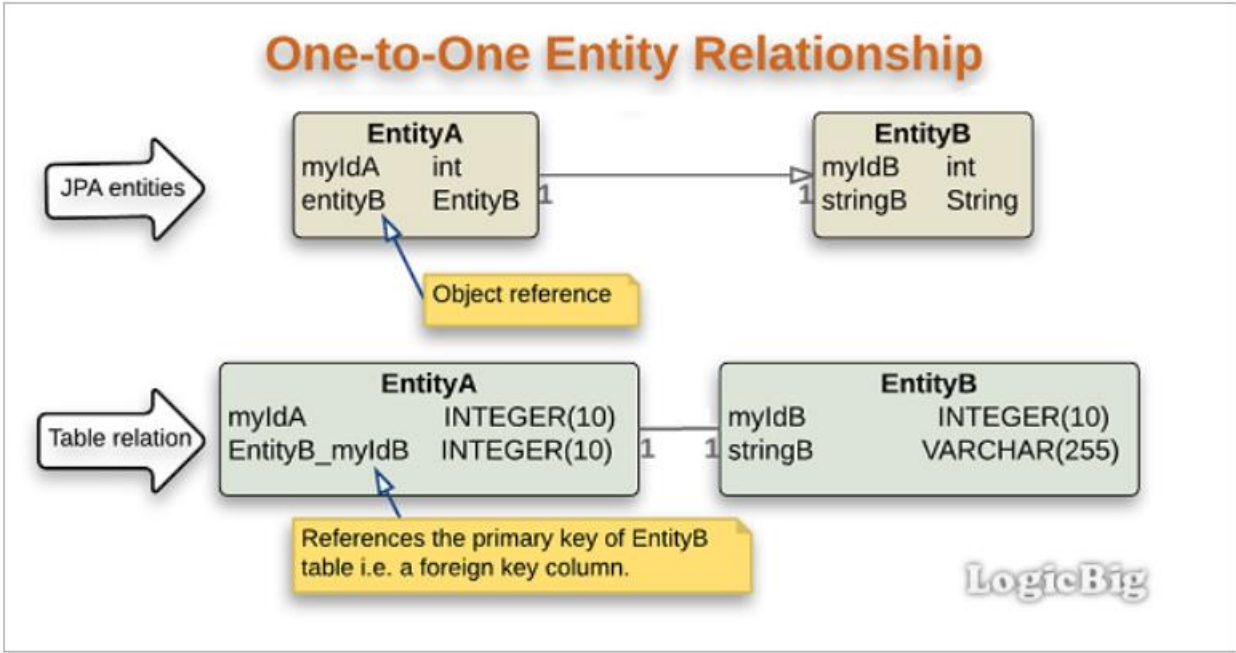
- @Entity
- @Table
- @Column
- @Id
- @Enumerated

# RELATIONSHIPS

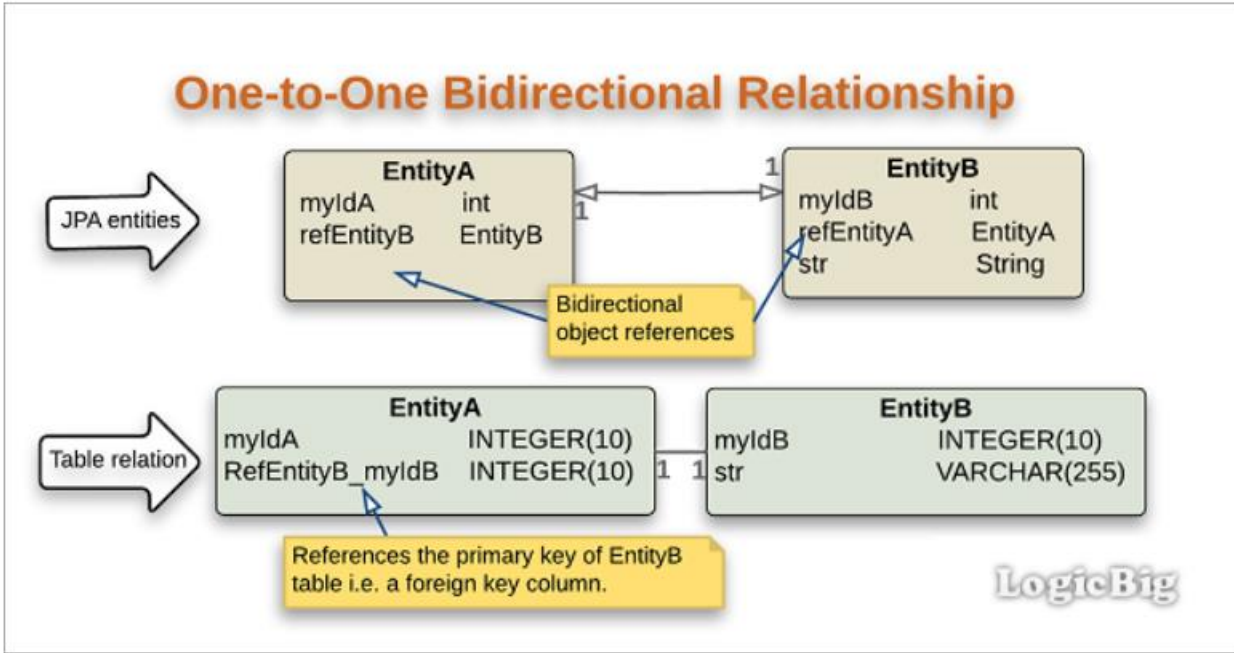
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- @OneToOne
- @OneToMany
- @ManyToOne
- @ManyToMany
  
- May be **unidirectional** or **bidirectional**.

# RELATIONSHIPS

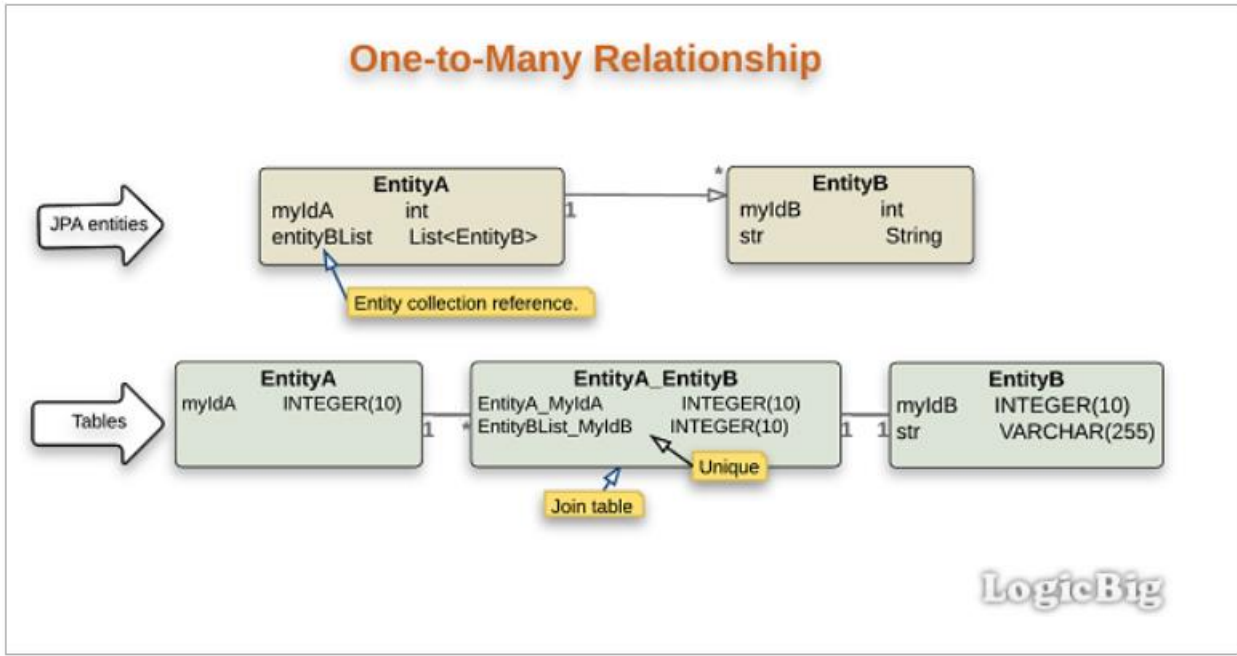


# RELATIONSHIPS

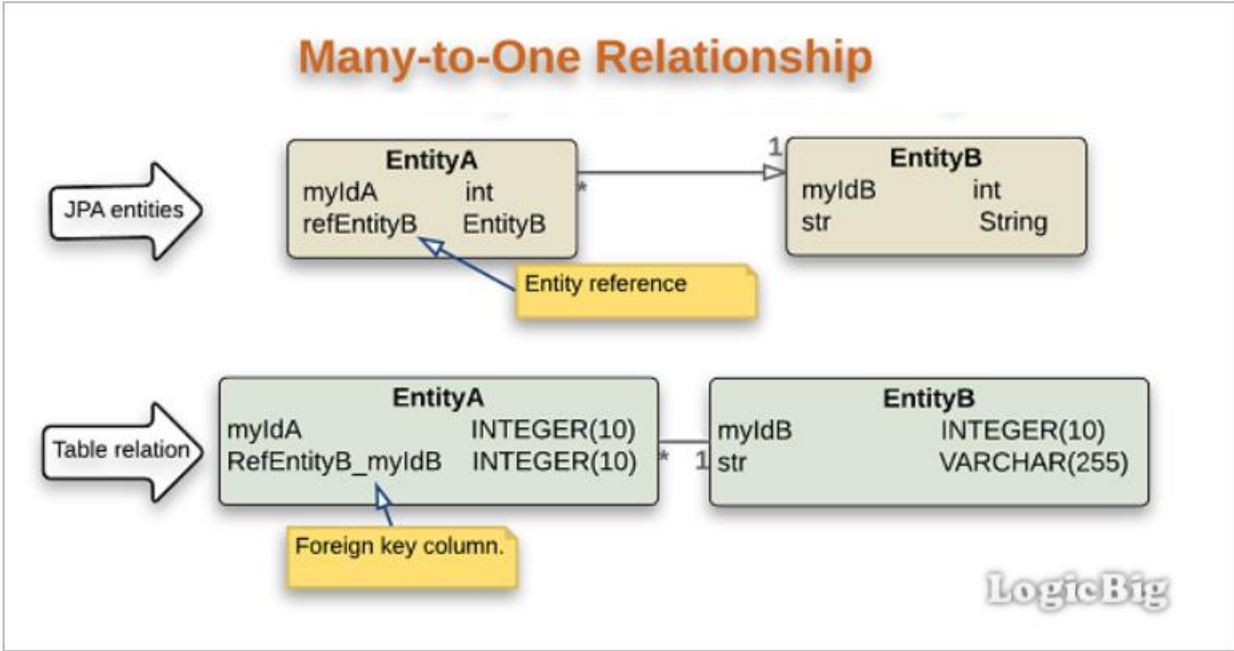




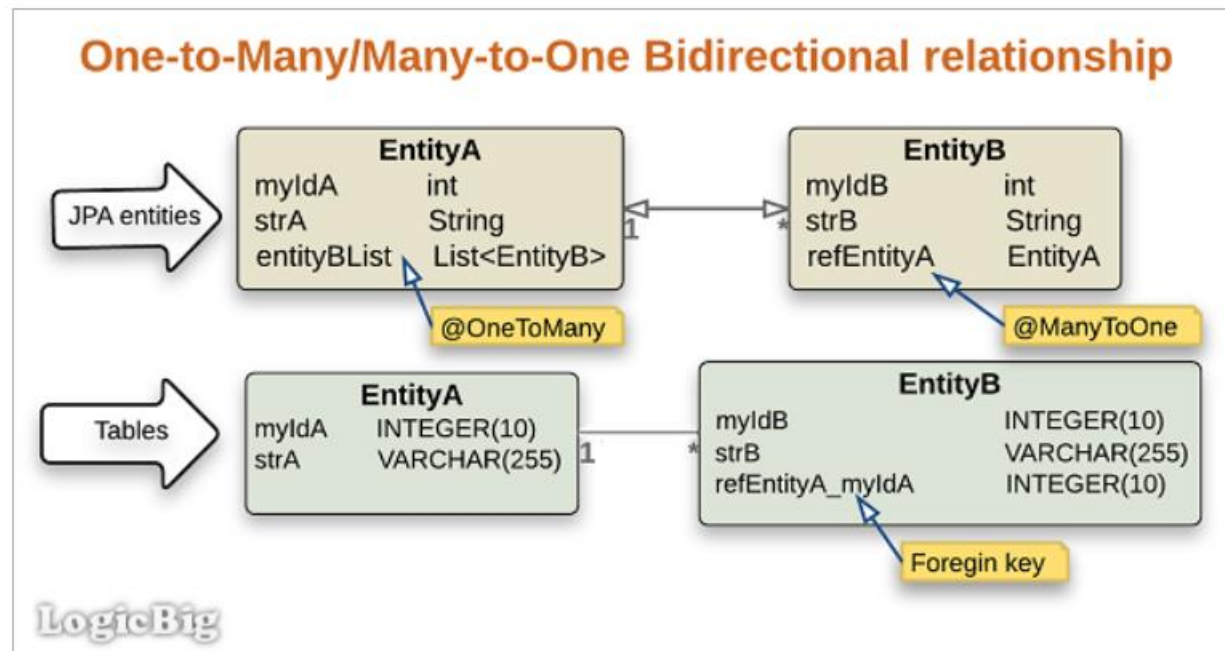
# RELATIONSHIPS



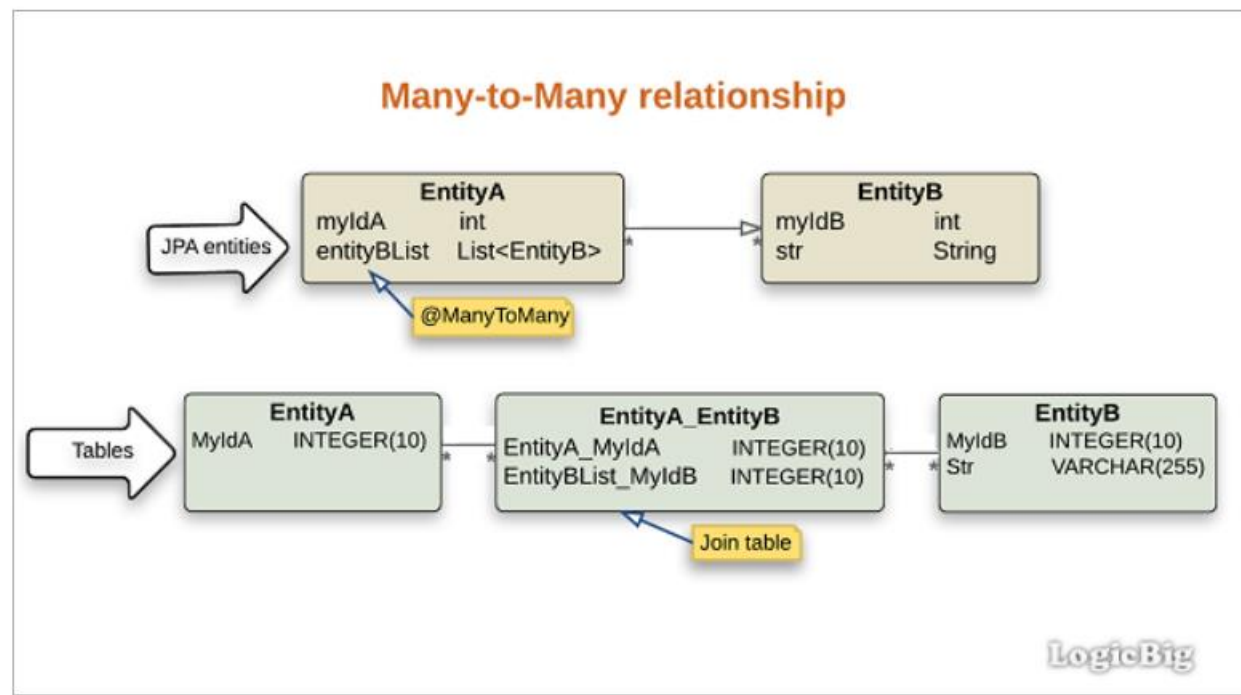
# RELATIONSHIPS



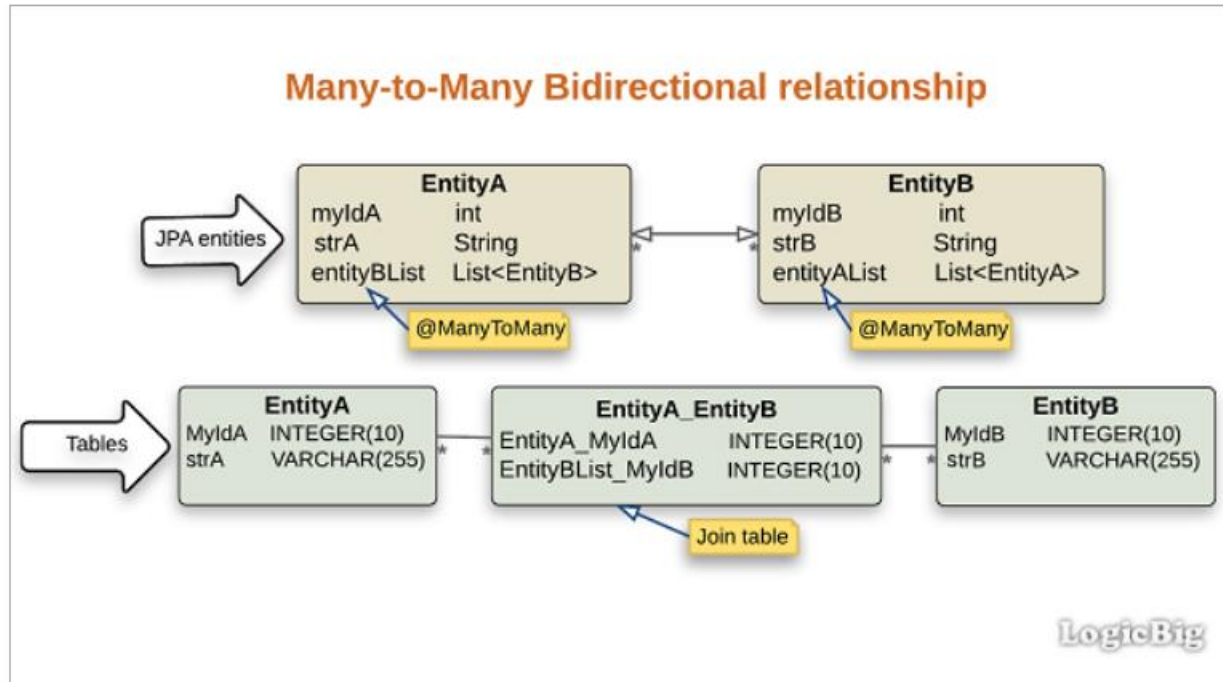
# RELATIONSHIPS



# RELATIONSHIPS



# RELATIONSHIPS



# BIBLIOGRAPHY

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- Spring in Action, by Craig Walls
- Spring REST, by Balaji Varanasi, Sudha Belida
- Pro JPA 2, Mike Keith, Merrick Schincariol

# Q&A

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**THANK YOU**

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