

Goal

Get knowledge about relationships and querying in JPA.

Advanced Mapping

1. Add `gender` attribute into `Person` entity.
2. Try to run `main` method and look to generated database schema.
3. Change `gender` attribute configuration to be mandatory (i.e. not null) and to be stored as `VARCHAR(6)`.
4. Modify main method to set appropriate gender to entities and try to execute main method.
5. Add `birthdate` attribute with `java.util.Date` type.
6. Modify main method to set appropriate birthdate to entities and try to execute main method.
7. Modify dump method to show also gender and birthdate attribute and try to execute main method.

Relationships

Extend person entity

1. Add `father` attribute with `Person` type into `Person` entity and create uni-directional relationship between person and its father.
2. Add new transaction to the end of `main` method that creates *Paul Brown Jr.* entity with the same address as Paul Brown and set Paul Brown as his father.
3. Create `Trait` entity with attributes person and trait.
4. Create bi-directional `OneToMany` relationship between `Person` and `Trait`. Configure this relationship to persist, update or delete all traits automatically when person is persisted, updated or deleted.
5. Add new transaction to the end of `main` method that creates some person entity with at least two traits..

Querying

JPQL

1. Modify main method to add also these entities:
 - a. John Novacek, Prague, 25. 4. 1968
 - b. Petr Novacek, Prague, 25. 4. 1986, son of John Novacek
 - c. Jane Novacek, Prague, 25. 4. 1986, daughter of John Novacek
2. Create method that returns all people with at least one children in database using named query.

3. Try to call this method at the end of main method and print result to stdout in suitable form.
4. Create method that returns list of person names for all person entities in database with given birthdate.
5. Try to call this method at the end of main method and print result to stdout in suitable form.
6. Create PersonTO class that contains attributes id, name and childrenCount.
7. Create method that returns list of PersonTO instances for all person entities in database with given name.
8. Try to call this method at the end of main method and print result to stdout in suitable form.
9. Create method that returns count of person entities with no children.
10. Try to call this method at the end of main method and print result to stdout in suitable form.

Criteria API

1. Modify dump(...) method to be implemented using Criteria API.