first example

employee.java

package com.cybage.model;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

@Entity

public class Employee {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private int id;

private String name;

public Employee() {

super();

}

public Employee( String name) {

super();

this.name = name;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

@Override

public String toString() {

return "Employee [id=" + id + ", name=" + name + "]";

}

}

package com.cybage.repository;

import org.springframework.data.jpa.repository.JpaRepository;

import com.cybage.model.Employee;

public interface EmployeeRepository extends JpaRepository<Employee, Integer>{

}

application.properties

spring.jpa.generate-ddl=false

spring.jpa.hibernate.ddl-auto=none

spring.datasource.url=jdbc:mysql://localhost:3306/cyb

spring.datasource.username=root

spring.datasource.password=admin123

spring.jpa.properties.hibernate.dialect = org.hibernate.dialect.MySQL5Dialect

data.sql

insert into users values(101, 'dm101');

insert into users values(102, 'dm102');

insert into users values(103, 'dm103');

insert into users values(104, 'dm104');

schema.sql

DROP TABLE IF EXISTS users;

create table users(id int primary key, name varchar(20));

query from method name

package com.cybage.repository;

import java.util.List;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository <User, Long> {

User findByEmailAddress(String emailAddress);

List < User > findByLastname(String lastname);

}

package com.cybage;

import java.util.Date;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

public class FirstExampleApplication implements CommandLineRunner {

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

private UserRepository userRepository;

@Override

public void run(String...args) throws Exception {

User user = new User();

user.setActive(1);

user.setAge(35);

user.setEmailAddress("dm@gmail.com");

user.setFirstname("dm");

user.setLastname("jadhav");

user.setStartDate(new Date());

user = userRepository.save(user);

System.out.println("-------------------------------------:: " + user.getId());

System.out.println(" ---------------@NamedQuery ---------------------");

System.out.println("--------------findByEmailAddress -----------------");

User user2 = userRepository.findByEmailAddress("dm@gmail.com");

System.out.println(user2.toString());

System.out.println(" ---------------@NamedQuery ---------------------");

System.out.println("--------------findByLastname -----------------");

List < User > user3 = userRepository.findByLastname("jadhav");

System.out.println(user3.get(0).toString());

}

}

query from method name

package com.cybage.model;

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "user")

public class User {

private long id;

private String firstname;

private String lastname;

private Date startDate;

private int age;

private int active;

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getFirstname() {

return firstname;

}

public void setFirstname(String firstname) {

this.firstname = firstname;

}

public String getLastname() {

return lastname;

}

public void setLastname(String lastname) {

this.lastname = lastname;

}

public Date getStartDate() {

return startDate;

}

public void setStartDate(Date startDate) {

this.startDate = startDate;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

public int getActive() {

return active;

}

public void setActive(int active) {

this.active = active;

}

}

package com.cybage.repository;

import java.util.Collection;

import java.util.Date;

import java.util.List;

import java.util.Optional;

import org.hibernate.sql.Insert;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository<User, Long> {

Optional<User> findByLastnameAndFirstname(String lastname, String firstname );

List<User> findByLastnameOrFirstname(String lastname, String firstname);

List<User> findByStartDateBetween(Date date1, Date date2);

List<User> findByAgeLessThan(int age);

List<User> findByAgeLessThanEqual(int age);

List<User> findByAgeGreaterThan(int age);

List<User> findByAgeGreaterThanEqual(int age);

List<User> findByStartDateAfter(Date date);

List<User> findByStartDateBefore(Date date);

List<User> findByAgeIsNull();

List<User> findByFirstnameLike(String firstname);

List<User> findByFirstnameNotLike(String firstname);

Optional<User> findByFirstnameStartingWith(String firstname);

List<User> findByFirstnameEndingWith(String firstname);

List<User> findByFirstnameContaining(String firstname);

Optional<User> findByAgeOrderByLastnameDesc(int age);

List<User> findByLastnameNot(String lastname);

List<User> findByAgeIn(Collection<Integer> ages);

List<User> findByAgeNotIn(Collection<Integer> ages);

List<User> findByActiveTrue();

List<User> findByActiveFalse();

List<User> findByFirstnameIgnoreCase(String firstname);

}

package com.cybage.controller;

import java.util.List;

import java.util.Optional;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.web.bind.annotation.GetMapping;

import org.springframework.web.bind.annotation.RequestMapping;

import org.springframework.web.bind.annotation.RestController;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@RestController

@RequestMapping("/user")

public class EmpCrudOperations {

@Autowired

UserRepository ur;

@GetMapping

public List<User> findAll() {

return ur.findAll();

}

@GetMapping("/1")

public Optional<User> findByLastnameAndFirstname(){

return ur.findByLastnameAndFirstname("jadhav", "asha");

}

@GetMapping("/2")

public List<User> findByLastnameOrFirstname(){

return ur.findByLastnameOrFirstname("jadhav123", "asha");

}

@GetMapping("/3")

public List<User> findByAgeLessThan(){

return ur.findByAgeLessThan(37);

}

}

named queries

package com.cybage.model;

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.NamedQueries;

import javax.persistence.NamedQuery;

import javax.persistence.Table;

@Entity

@Table(name = "user")

@NamedQueries(

value= {

@NamedQuery(name="User.findByAge", query = "select u from User u where u.age < ?1"),

@NamedQuery(name="User.findByActive", query = "select u from User u where u.active < ?1")

})

public class User {

private long id;

private String firstname;

private String lastname;

private Date startDate;

private int age;

private int active;

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getFirstname() {

return firstname;

}

public void setFirstname(String firstname) {

this.firstname = firstname;

}

public String getLastname() {

return lastname;

}

public void setLastname(String lastname) {

this.lastname = lastname;

}

public Date getStartDate() {

return startDate;

}

public void setStartDate(Date startDate) {

this.startDate = startDate;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

public int getActive() {

return active;

}

public void setActive(int active) {

this.active = active;

}

}

package com.cybage.repository;

import java.util.Collection;

import java.util.Date;

import java.util.List;

import java.util.Optional;

import org.hibernate.sql.Insert;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository<User, Long> {

public List<User> findByAge(int age);

public List<User> findByActive(int active);

}

named native queries

package com.cybage;

import java.util.Date;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

public class FirstExampleApplication implements CommandLineRunner {

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

private UserRepository userRepository;

@Override

public void run(String...args) throws Exception {

User user = new User();

user.setActive(1);

user.setAge(28);

user.setEmailAddress("dm@gmail.com");

user.setFirstname("dm");

user.setLastname("jadhav");

user.setStartDate(new Date());

user = userRepository.save(user);

System.out.println("--------------findByEmailAddress -----------------");

User user2 = userRepository.findByEmailAddress("dm@gmail.com");

System.out.println(user2.toString());

System.out.println(" ---------------@NamedNativeQueries ---------------------");

System.out.println("--------------findByLastname -----------------");

List < User > user3 = userRepository.findByLastname("jadhav");

System.out.println(user3.get(0).toString());

}

}

package com.cybage.model;

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.NamedNativeQueries;

import javax.persistence.NamedNativeQuery;

import javax.persistence.NamedQueries;

import javax.persistence.NamedQuery;

import javax.persistence.Table;

@Entity

@Table(name = "user")

@NamedNativeQuery(name = "User.findByEmailAddress", query = "select \* from user where email\_address = ?1", resultClass = User.class)

@NamedNativeQueries(value = {

@NamedNativeQuery(name = "User.findByLastname", query = "select \* from user where lastname = ?1", resultClass = User.class) })

public class User {

private long id;

private String firstname;

private String lastname;

private Date startDate;

private String emailAddress;

private int age;

private int active;

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getFirstname() {

return firstname;

}

public void setFirstname(String firstname) {

this.firstname = firstname;

}

public String getLastname() {

return lastname;

}

public void setLastname(String lastname) {

this.lastname = lastname;

}

public Date getStartDate() {

return startDate;

}

public void setStartDate(Date startDate) {

this.startDate = startDate;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

public int getActive() {

return active;

}

public void setActive(int active) {

this.active = active;

}

public String getEmailAddress() {

return emailAddress;

}

public void setEmailAddress(String emailAddress) {

this.emailAddress = emailAddress;

}

@Override

public String toString() {

return "User [id=" + id + ", firstname=" + firstname + ", lastname=" + lastname + ", startDate=" + startDate +

", emailAddress=" + emailAddress + ", age=" + age + ", active=" + active + "]";

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository < User, Long > {

User findByEmailAddress(String emailAddress);

List <User> findByLastname(String lastname);

}

@query

package com.cybage;

import java.util.Date;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

public class FirstExampleApplication implements CommandLineRunner {

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

private UserRepository userRepository;

@Override

public void run(String...args) throws Exception {

User user = new User();

user.setActive(1);

user.setAge(28);

user.setEmailAddress("dm@gmail.com");

user.setFirstname("dm");

user.setLastname("jadhav");

user.setStartDate(new Date());

user = userRepository.save(user);

System.out.println("-------------------------------------:: " + user.getId());

System.out.println(" ---------------@Query ---------------------");

System.out.println("--------------findByEmailAddress -----------------");

User user2 = userRepository.findByEmailAddress("dm@gmail.com");

System.out.println(user2.toString());

System.out.println(" ---------------@Query ---------------------");

System.out.println("--------------findByLastname -----------------");

List < User > user3 = userRepository.findByFirstnameEndsWith("dm");

System.out.println(user3.get(0).toString());

}

}

package com.cybage.model;

import java.util.Date;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.NamedQueries;

import javax.persistence.NamedQuery;

import javax.persistence.Table;

@Entity

@Table(name = "users")

public class User {

private long id;

private String firstname;

private String lastname;

private Date startDate;

private String emailAddress;

private int age;

private int active;

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getFirstname() {

return firstname;

}

public void setFirstname(String firstname) {

this.firstname = firstname;

}

public String getLastname() {

return lastname;

}

public void setLastname(String lastname) {

this.lastname = lastname;

}

public Date getStartDate() {

return startDate;

}

public void setStartDate(Date startDate) {

this.startDate = startDate;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

public int getActive() {

return active;

}

public void setActive(int active) {

this.active = active;

}

public String getEmailAddress() {

return emailAddress;

}

public void setEmailAddress(String emailAddress) {

this.emailAddress = emailAddress;

}

@Override

public String toString() {

return "User [id=" + id + ", firstname=" + firstname + ", lastname=" + lastname + ", startDate=" + startDate +

", emailAddress=" + emailAddress + ", age=" + age + ", active=" + active + "]";

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.data.jpa.repository.Query;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository < User, Long > {

@Query("select u from User u where u.emailAddress = ?1")

User findByEmailAddress(String emailAddress);

@Query("select u from User u where u.firstname like %?1")

List < User > findByFirstnameEndsWith(String firstname);

//native query with @Query

// @Query(value = "select \* from users where first\_name like %?1", nativeQuery = true)

// List < User > findByFirstnameEndsWith(String firstname);

//

// @Query(value = "SELECT \* FROM USERS WHERE EMAIL\_ADDRESS = ?1", nativeQuery = true)

// User findByEmailAddress(String emailAddress);

}

sorting

package com.cybage;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.data.domain.Page;

import org.springframework.data.domain.PageRequest;

import org.springframework.data.domain.Sort;

import org.springframework.data.web.config.EnableSpringDataWebSupport;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

@EnableSpringDataWebSupport

public class FirstExampleApplication implements CommandLineRunner{

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

UserRepository ur;

@Override

public void run(String... args) throws Exception {

System.out.println("------inserting records-----");

User user1 = new User("adm101", "swimming", 41);

User user2 = new User("bdm101", "cycling", 40);

User user3 = new User("cdm101", "running", 39);

User user4 = new User("ddm101", "dancing", 38);

User user5 = new User("edm101", "swimming", 37);

User user6 = new User("fdm101", "swimming", 42);

User user7 = new User("fdm101", "swimming", 41);

User user8 = new User("fdm101", "swimming", 40);

ur.save(user1);

ur.save(user2);

ur.save(user3);

ur.save(user4);

ur.save(user5);

ur.save(user6);

ur.save(user7);

ur.save(user8);

System.out.println("------printing all records-----");

System.out.println(ur.findAll());

System.out.println("------printing certain hobbies-----");

System.out.println(ur.findByHobbyOrderByNameAsc("swimming"));

System.out.println("------JPQL order by clause (asc)-----");

System.out.println(ur.findUsersAsc());

System.out.println("------JPQL order by clause (desc)-----");

System.out.println(ur.findUsersDesc());

System.out.println("-------Sorting with a Sort Parameter-----------");

System.out.println(ur.findAll(Sort.by(Sort.Direction.ASC, "name")));

System.out.println("-------Sorting with a Sort Parameter-----------");

System.out.println(ur.findAll(Sort.by("age")));

System.out.println("-------Sorting with a Sort Parameter-----------");

Page<User> page = ur.findAll(PageRequest.of(0, 3, Sort.Direction.ASC, "name"));

System.out.println(page.getContent());

//query using query generation and sorting

System.out.println("query using query generation and sorting");

List<User> result = ur.findByName("fdm101", Sort.by(Sort.Direction.DESC, "age"));

System.out.println(result);

//with sort inside method of @Query

System.out.println("with sort inside method of @Query");

System.out.println(ur.myMethodofSorting(Sort.by(Sort.Direction.DESC, "name")));

}

}

package com.cybage.model;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "user")

public class User {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private long id;

private String name;

private String hobby;

private int age;

public User() {

super();

// TODO Auto-generated constructor stub

}

public User(String name, String hobby, int age) {

super();

this.name = name;

this.hobby = hobby;

this.age = age;

}

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getHobby() {

return hobby;

}

public void setHobby(String hobby) {

this.hobby = hobby;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

@Override

public String toString() {

return "\nUser [id=" + id + ", name=" + name + ", hobby=" + hobby + ", age=" + age + "]";

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.domain.Sort;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.data.jpa.repository.Query;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends JpaRepository<User, Long>{

public List<User> findByHobby(String Hobby, Sort sort);

List<User> findByHobbyOrderByNameAsc(String hobby);

@Query("select u from User u order by u.name asc")

public List<User> findUsersAsc();

@Query("select u from User u order by u.name desc")

public List<User> findUsersDesc();

//with sort inside method of @Query

@Query("select u from User u")

public List<User> myMethodofSorting(Sort sort);

//query using query generation and sorting

public List<User> findByName(String name, Sort sort);

}

sorting and pagination

package com.cybage;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.data.domain.Page;

import org.springframework.data.domain.PageRequest;

import org.springframework.data.domain.Sort;

import org.springframework.data.web.config.EnableSpringDataWebSupport;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

@EnableSpringDataWebSupport

public class FirstExampleApplication implements CommandLineRunner{

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

UserRepository ur;

@Override

public void run(String... args) throws Exception {

System.out.println("------inserting records-----");

User user1 = new User("adm101", "swimming", 41);

User user2 = new User("bdm101", "cycling", 40);

User user3 = new User("cdm101", "running", 39);

User user4 = new User("ddm101", "dancing", 38);

User user5 = new User("edm101", "swimming", 37);

User user6 = new User("fdm101", "swimming", 42);

User user7 = new User("fdm101", "swimming", 41);

User user8 = new User("fdm101", "swimming", 40);

ur.save(user1);

ur.save(user2);

ur.save(user3);

ur.save(user4);

ur.save(user5);

ur.save(user6);

ur.save(user7);

ur.save(user8);

System.out.println("------printing all records-----");

System.out.println(ur.findAll());

System.out.println("------printing all records-----");

System.out.println(ur.findAll(Sort.by(Sort.Direction.ASC, "age")));

}

}

package com.cybage.model;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "user")

public class User {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private long id;

private String name;

private String hobby;

private int age;

public User() {

super();

// TODO Auto-generated constructor stub

}

public User(String name, String hobby, int age) {

super();

this.name = name;

this.hobby = hobby;

this.age = age;

}

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getHobby() {

return hobby;

}

public void setHobby(String hobby) {

this.hobby = hobby;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

@Override

public String toString() {

return "\nUser [id=" + id + ", name=" + name + ", hobby=" + hobby + ", age=" + age + "]";

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.domain.Sort;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.data.jpa.repository.Query;

import org.springframework.data.repository.PagingAndSortingRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends PagingAndSortingRepository<User, Long>{

}

pagination

package com.cybage;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.data.domain.Page;

import org.springframework.data.domain.PageRequest;

import org.springframework.data.domain.Pageable;

import org.springframework.data.domain.Sort;

import org.springframework.data.web.config.EnableSpringDataWebSupport;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@SpringBootApplication

@EnableSpringDataWebSupport

public class FirstExampleApplication implements CommandLineRunner{

public static void main(String[] args) {

SpringApplication.run(FirstExampleApplication.class, args);

}

@Autowired

UserRepository ur;

@Override

public void run(String... args) throws Exception {

System.out.println("------inserting records-----");

User user1 = new User("adm101", "swimming", 41);

User user2 = new User("bdm102", "cycling", 40);

User user3 = new User("cdm103", "running", 39);

User user4 = new User("ddm104", "dancing", 38);

User user5 = new User("edm105", "swimming", 37);

User user6 = new User("fdm106", "swimming", 42);

User user7 = new User("fdm107", "swimming", 41);

User user8 = new User("fdm108", "swimming", 40);

ur.save(user1);

ur.save(user2);

ur.save(user3);

ur.save(user4);

ur.save(user5);

ur.save(user6);

ur.save(user7);

ur.save(user8);

//without sorting

Page<User> result = ur.findAll(PageRequest.of(0, 4));

for(User r : result) {

System.out.println(r);

}

//with sorting

System.out.println("with sorting");

result = ur.findAll(PageRequest.of(0, 4, Sort.by("age")));

for(User r : result) {

System.out.println(r);

}

}

}

package com.cybage.model;

import javax.persistence.Entity;

import javax.persistence.GeneratedValue;

import javax.persistence.GenerationType;

import javax.persistence.Id;

import javax.persistence.Table;

@Entity

@Table(name = "user")

public class User {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private long id;

private String name;

private String hobby;

private int age;

public User() {

super();

// TODO Auto-generated constructor stub

}

public User(String name, String hobby, int age) {

super();

this.name = name;

this.hobby = hobby;

this.age = age;

}

public long getId() {

return id;

}

public void setId(long id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getHobby() {

return hobby;

}

public void setHobby(String hobby) {

this.hobby = hobby;

}

public int getAge() {

return age;

}

public void setAge(int age) {

this.age = age;

}

@Override

public String toString() {

return "\nUser [id=" + id + ", name=" + name + ", hobby=" + hobby + ", age=" + age + "]";

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.domain.PageRequest;

import org.springframework.data.repository.PagingAndSortingRepository;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends PagingAndSortingRepository<User, Long>{

}

pagination repository

package com.cybage;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.data.domain.Page;

import org.springframework.data.domain.PageRequest;

import org.springframework.web.bind.annotation.GetMapping;

import org.springframework.web.bind.annotation.RestController;

import com.cybage.model.User;

import com.cybage.repository.UserRepository;

@RestController

public class UserController {

@Autowired

UserRepository ur;

@GetMapping("/user")

public void getUsers() {

System.out.println("finding all");

Page<User> result = ur.findAll(PageRequest.of(0, 3));

for(User u: result) {

System.out.println(u);

}

System.out.println("find using hobby");

System.out.println(ur.findByHobby("swimming", PageRequest.of(0, 2)));

System.out.println("find using age");

System.out.println(ur.findByAge(35, PageRequest.of(0, 2)));

System.out.println("finding by name");

System.out.println(ur.findByName("adm", PageRequest.of(0, 2)));

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.data.domain.Page;

import org.springframework.data.domain.Pageable;

import org.springframework.data.domain.Sort;

import org.springframework.data.jpa.repository.JpaRepository;

import org.springframework.data.jpa.repository.Query;

import org.springframework.data.repository.query.Param;

import org.springframework.stereotype.Repository;

import com.cybage.model.User;

@Repository

public interface UserRepository extends org.springframework.data.repository.Repository<User, Long>{

Page<User> findAll(Pageable p);

public List<User> findByHobby(String hobby, Pageable pr);

public List<User> findByAge(int age, Pageable pr);

//with query annotation

@Query(value = "select \* from user where name = :name", nativeQuery = true)

public List<User> findByName(@Param("name")String name, Pageable pr);

}

inheritance single table

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import javax.persistence.\*;

@Entity

@Inheritance(strategy = InheritanceType.SINGLE\_TABLE)

@DiscriminatorColumn(name="EmployeeType", discriminatorType = DiscriminatorType.STRING)

public abstract class Employee {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private int id;

private String name;

public Employee() {

super();

}

public Employee(String name) {

super();

this.name = name;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

@Override

public String toString() {

return "Employee [id=" + id + ", name=" + name + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

@DiscriminatorValue(value="CURRENT")

public class Current extends Employee{

private int salary;

public Current() {

super();

}

public Current(String name, int salary) {

super(name);

this.salary = salary;

}

public int getSalary() {

return salary;

}

public void setSalary(int salary) {

this.salary = salary;

}

@Override

public String toString() {

return "Current [salary=" + salary + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

@DiscriminatorValue("RETIRED")

public class Retired extends Employee{

private int pension;

public Retired() {

super();

}

public Retired(String name, int pension) {

super(name);

this.pension = pension;

}

public int getPension() {

return pension;

}

public void setPension(int pension) {

this.pension = pension;

}

@Override

public String toString() {

return "Retired [pension=" + pension + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface CurrentRepository extends EmployeeRepository{

}

package com.cybage.repository;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import com.cybage.Employee;

@NoRepositoryBean

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface RetiredRepository extends EmployeeRepository{

}

package com.cybage;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.CurrentRepository;

import com.cybage.repository.RetiredRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class InheritanceSingleTableApplication implements CommandLineRunner{

@Autowired

CurrentRepository cr;

@Autowired

RetiredRepository rr;

public static void main(String[] args) {

SpringApplication.run(InheritanceSingleTableApplication.class, args);

}

@Override

public void run(String... args) throws Exception {

Employee ce = new Current("dm", 123);

Employee re = new Retired("dm1", 12);

cr.save(ce);

rr.save(re);

}

}

inheritance table per class

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import javax.persistence.\*;

@Entity

@Inheritance(strategy = InheritanceType.TABLE\_PER\_CLASS)

public class Employee {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private int id;

private String name;

public Employee() {

super();

}

public Employee(String name) {

super();

this.name = name;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

@Override

public String toString() {

return "Employee [id=" + id + ", name=" + name + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

@DiscriminatorValue(value="CURRENT")

public class Current extends Employee{

private int salary;

public Current() {

super();

}

public Current(String name, int salary) {

super(name);

this.salary = salary;

}

public int getSalary() {

return salary;

}

public void setSalary(int salary) {

this.salary = salary;

}

@Override

public String toString() {

return "Current [salary=" + salary + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

@DiscriminatorValue("RETIRED")

public class Retired extends Employee{

private int pension;

public Retired() {

super();

}

public Retired(String name, int pension) {

super(name);

this.pension = pension;

}

public int getPension() {

return pension;

}

public void setPension(int pension) {

this.pension = pension;

}

@Override

public String toString() {

return "Retired [pension=" + pension + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface CurrentRepository extends EmployeeRepository{

}

package com.cybage.repository;

import org.springframework.context.annotation.Primary;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import org.springframework.stereotype.Repository;

import com.cybage.Employee;

@Repository

@Primary

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface RetiredRepository extends EmployeeRepository{

}

package com.cybage;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.CurrentRepository;

import com.cybage.repository.EmployeeRepository;

import com.cybage.repository.RetiredRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class InheritanceTPC implements CommandLineRunner{

@Autowired

EmployeeRepository er;

@Autowired

CurrentRepository cr;

@Autowired

RetiredRepository rr;

public static void main(String[] args) {

SpringApplication.run(InheritanceTPC.class, args);

}

@Override

public void run(String... args) throws Exception {

Employee emp = new Employee("dm3");

Employee ce = new Current("dm1", 123);

Employee re = new Retired("dm2", 12);

er.save(emp);

cr.save(ce);

rr.save(re);

System.out.println(er.findById(3));

}

}

inheritance joined table

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import javax.persistence.\*;

@Entity

@Inheritance(strategy = InheritanceType.JOINED)

public class Employee {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private int id;

private String name;

public Employee() {

super();

}

public Employee(String name) {

super();

this.name = name;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

@Override

public String toString() {

return "Employee [id=" + id + ", name=" + name + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

public class Current extends Employee{

private int salary;

public Current() {

super();

}

public Current(String name, int salary) {

super(name);

this.salary = salary;

}

public int getSalary() {

return salary;

}

public void setSalary(int salary) {

this.salary = salary;

}

@Override

public String toString() {

return "Current [salary=" + salary + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage;

import javax.persistence.DiscriminatorValue;

import javax.persistence.Entity;

@Entity

public class Retired extends Employee{

private int pension;

public Retired() {

super();

}

public Retired(String name, int pension) {

super(name);

this.pension = pension;

}

public int getPension() {

return pension;

}

public void setPension(int pension) {

this.pension = pension;

}

@Override

public String toString() {

return "Retired [pension=" + pension + ", getId()=" + getId() + ", getName()=" + getName() + "]";

}

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface CurrentRepository extends EmployeeRepository{

}

package com.cybage.repository;

import org.springframework.context.annotation.Primary;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import org.springframework.stereotype.Repository;

import com.cybage.Employee;

@NoRepositoryBean

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

}

package com.cybage.repository;

import org.springframework.stereotype.Repository;

@Repository

public interface RetiredRepository extends EmployeeRepository{

}

package com.cybage;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.CurrentRepository;

import com.cybage.repository.EmployeeRepository;

import com.cybage.repository.RetiredRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class InheritanceJT implements CommandLineRunner{

@Autowired

CurrentRepository cr;

@Autowired

RetiredRepository rr;

public static void main(String[] args) {

SpringApplication.run(InheritanceJT.class, args);

}

@Override

public void run(String... args) throws Exception {

Employee emp = new Employee("dm3");

Employee ce = new Current("dm1", 123);

Employee re = new Retired("dm2", 12);

cr.save(ce);

rr.save(re);

System.out.println(cr.findById(1));

System.out.println(cr.findById(2));

}

}

collection mapping

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import javax.persistence.\*;

@Entity

public class Employee {

@Id

@GeneratedValue(strategy = GenerationType.AUTO)

private int id;

private String name;

@ElementCollection(fetch = FetchType.EAGER)

@CollectionTable(name="emp\_phone",

joinColumns = @JoinColumn(name = "id"))

private List<String> phone = new ArrayList<String>();

public Employee() {

super();

}

public Employee(int id, String name, List<String> phone) {

super();

this.id = id;

this.name = name;

this.phone = phone;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public List<String> getPhone() {

return phone;

}

public void setPhone(List<String> phone) {

this.phone = phone;

}

@Override

public String toString() {

return "Employee [id=" + id + ", name=" + name + ", phone=" + phone + "]";

}

}

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.EmployeeRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class CollectionMapping implements CommandLineRunner{

@Autowired

EmployeeRepository er;

public static void main(String[] args) {

SpringApplication.run(CollectionMapping.class, args);

}

@Override

public void run(String... args) throws Exception {

List<String > phones = new ArrayList<String>();

phones.add("1234");

phones.add("2234");

phones.add("3234");

phones.add("4234");

Employee emp = new Employee();

emp.setId(101);

emp.setName("dm101");

emp.setPhone(phones);

er.save(emp);

System.out.println(er.findById(1));

}

}

package com.cybage.repository;

import org.springframework.context.annotation.Primary;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import org.springframework.stereotype.Repository;

import com.cybage.Employee;

@Repository

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

}

one to one mapping

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import javax.persistence.\*;

@Entity

public class Employee {

@Id

private int empId;

private String name;

@OneToOne

(fetch = FetchType.LAZY,

cascade = CascadeType.ALL,

mappedBy = "employee")

private Account account;

public Employee() {

super();

}

public Employee(int empId, String name, Account account) {

super();

this.empId = empId;

this.name = name;

this.account = account;

}

public int getEmpId() {

return empId;

}

public void setEmpId(int empId) {

this.empId = empId;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public Account getAccount() {

return account;

}

public void setAccount(Account account) {

this.account = account;

}

@Override

public String toString() {

return "Employee [empId=" + empId + ", name=" + name + ", account=" + account + "]";

}

}

package com.cybage;

import javax.persistence.Entity;

import javax.persistence.FetchType;

import javax.persistence.Id;

import javax.persistence.JoinColumn;

import javax.persistence.OneToOne;

@Entity

public class Account {

@Id

private int accountId;

private String accountName;

@OneToOne(fetch = FetchType.LAZY, optional = false)

@JoinColumn(name="empId", nullable = false)

private Employee employee;

public Account() {

super();

}

public Account(int accountId, String accountName, Employee employee) {

super();

this.accountId = accountId;

this.accountName = accountName;

this.employee = employee;

}

public int getAccountId() {

return accountId;

}

public void setAccountId(int accountId) {

this.accountId = accountId;

}

public String getAccountName() {

return accountName;

}

public void setAccountName(String accountName) {

this.accountName = accountName;

}

public Employee getEmployee() {

return employee;

}

public void setEmployee(Employee employee) {

this.employee = employee;

}

@Override

public String toString() {

return "Account [accountId=" + accountId + ", accountName=" + accountName + "]";

}

}

package com.cybage;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.AccountRepository;

import com.cybage.repository.EmployeeRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class OneToOneMapping implements CommandLineRunner{

@Autowired

EmployeeRepository er;

@Autowired

AccountRepository ar;

public static void main(String[] args) {

SpringApplication.run(OneToOneMapping.class, args);

}

@Override

public void run(String... args) throws Exception {

Account account = new Account();

account.setAccountId(101111);

account.setAccountName("account name");

Employee emp = new Employee();

emp.setEmpId(101);

emp.setName("dm101");

emp.setAccount(account);

account.setEmployee(emp);

er.save(emp);

System.out.println(er.findAll());

}

}

package com.cybage.repository;

import org.springframework.data.repository.CrudRepository;

import org.springframework.stereotype.Repository;

import com.cybage.Account;

@Repository

public interface AccountRepository extends CrudRepository<Account, Integer> {

}

package com.cybage.repository;

import org.springframework.context.annotation.Primary;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import org.springframework.stereotype.Repository;

import com.cybage.Employee;

@Repository

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

}

one to many mapping

package com.cybage;

import java.util.List;

import javax.persistence.\*;

@Entity

public class Employee {

@Id

private int empId;

private String name;

@OneToMany(targetEntity = Account.class, cascade = CascadeType.ALL, fetch = FetchType.EAGER)

@JoinColumn(name = "ca\_fk", referencedColumnName = "empId")

private List<Account> accounts;

public Employee() {

super();

}

public Employee(int empId, String name, List<Account> accounts) {

super();

this.empId = empId;

this.name = name;

this.accounts = accounts;

}

public int getEmpId() {

return empId;

}

public void setEmpId(int empId) {

this.empId = empId;

}

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public List<Account> getAccounts() {

return accounts;

}

public void setAccounts(List<Account> accounts) {

this.accounts = accounts;

}

@Override

public String toString() {

return "Employee [empId=" + empId + ", name=" + name + ", accounts=" + accounts + "]";

}

}

package com.cybage;

import javax.persistence.Entity;

import javax.persistence.FetchType;

import javax.persistence.Id;

import javax.persistence.JoinColumn;

import javax.persistence.ManyToOne;

import javax.persistence.OneToOne;

import org.hibernate.annotations.OnDelete;

import org.hibernate.annotations.OnDeleteAction;

@Entity

public class Account {

@Id

private int accountId;

private String accountName;

public Account() {

super();

}

public Account(int accountId, String accountName) {

super();

this.accountId = accountId;

this.accountName = accountName;

}

public int getAccountId() {

return accountId;

}

public void setAccountId(int accountId) {

this.accountId = accountId;

}

public String getAccountName() {

return accountName;

}

public void setAccountName(String accountName) {

this.accountName = accountName;

}

@Override

public String toString() {

return "Account [accountId=" + accountId + ", accountName=" + accountName + "]";

}

}

package com.cybage;

import java.util.ArrayList;

import java.util.List;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.boot.CommandLineRunner;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import com.cybage.repository.AccountRepository;

import com.cybage.repository.EmployeeRepository;

@SpringBootApplication(scanBasePackages = "com.cybage")

public class OneToManyMapping implements CommandLineRunner{

@Autowired

EmployeeRepository er;

@Autowired

AccountRepository ar;

public static void main(String[] args) {

SpringApplication.run(OneToManyMapping.class, args);

}

@Override

public void run(String... args) throws Exception {

List<Account> accounts = new ArrayList<Account>();

accounts.add(new Account(11111, "account1"));

accounts.add(new Account(22222, "account2"));

Employee emp = new Employee();

emp.setEmpId(101);

emp.setName("dm101");

emp.setAccounts(accounts);

er.save(emp);

System.out.println(er.findById(101));

System.out.println(er.findNameAndAccount());

}

}

package com.cybage.repository;

import java.util.List;

import org.springframework.context.annotation.Primary;

import org.springframework.data.jpa.repository.Query;

import org.springframework.data.repository.CrudRepository;

import org.springframework.data.repository.NoRepositoryBean;

import org.springframework.stereotype.Repository;

import com.cybage.Employee;

@Repository

public interface EmployeeRepository extends CrudRepository<Employee , Integer> {

@Query("select new com.cybage.repository.AccountDto(e.name, a.accountId) from Employee e join e.accounts a")

public List<AccountDto> findNameAndAccount();

}

package com.cybage.repository;

import org.springframework.data.repository.CrudRepository;

import org.springframework.stereotype.Repository;

import com.cybage.Account;

@Repository

public interface AccountRepository extends CrudRepository<Account, Integer> {

}