// User.java

@Entity

@Table(name = "user")

public class User {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "us\_id")

private int id;

@Column(name = "us\_name")

private String name;

@Column(name = "us\_email")

private String email;

@OneToMany(mappedBy = "user", cascade = CascadeType.ALL)

private Set<Attempt> attempts;

// Getters and setters

}

// Attempt.java

@Entity

@Table(name = "attempt")

public class Attempt {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "at\_id")

private int id;

@Column(name = "at\_date")

private Date date;

@Column(name = "at\_score")

private Double score;

@ManyToOne

@JoinColumn(name = "at\_us\_id")

private User user;

@OneToMany(mappedBy = "attempt", cascade = CascadeType.ALL, fetch = FetchType.LAZY)

private Set<AttemptQuestion> attemptQuestions;

// Getters and setters

}

// Question.java

@Entity

@Table(name = "question")

public class Question {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "qt\_id")

private int id;

@Column(name = "qt\_text")

private String text;

@OneToMany(mappedBy = "question")

private Set<Option> options;

// Getters and setters

}

// Option.java

@Entity

@Table(name = "options")

public class Option {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "op\_id")

private int id;

@Column(name = "op\_text")

private String text;

@Column(name = "op\_score")

private double score;

@ManyToOne

@JoinColumn(name = "op\_qt\_id")

private Question question;

// Getters and setters

}

// AttemptQuestion.java

@Entity

@Table(name = "attempt\_question")

public class AttemptQuestion {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "aq\_id")

private int id;

@ManyToOne

@JoinColumn(name = "aq\_at\_id")

private Attempt attempt;

@ManyToOne

@JoinColumn(name = "aq\_qt\_id")

private Question question;

@OneToMany(mappedBy = "attemptQuestion", cascade = CascadeType.ALL)

private Set<AttemptOption> attemptOptions;

// Getters and setters

}

// AttemptOption.java

@Entity

@Table(name = "attempt\_option")

public class AttemptOption {

@Id @GeneratedValue(strategy = GenerationType.IDENTITY)

@Column(name = "ao\_id")

private int id;

@ManyToOne

@JoinColumn(name = "ao\_op\_id")

private Option option;

@ManyToOne

@JoinColumn(name = "ao\_aq\_id")

private AttemptQuestion attemptQuestion;

@Column(name = "ao\_selected")

private boolean selected;

// Getters and setters

}

// AttemptRepository.java

@Repository

public interface AttemptRepository extends JpaRepository<Attempt, Integer> {

@Query("SELECT a FROM Attempt a " +

"JOIN FETCH a.user u " +

"LEFT JOIN FETCH a.attemptQuestions aq " +

"LEFT JOIN FETCH aq.question q " +

"LEFT JOIN FETCH aq.attemptOptions ao " +

"LEFT JOIN FETCH ao.option o " +

"WHERE u.id = :userId AND a.id = :attemptId")

Attempt getAttemptDetails(@Param("userId") int userId, @Param("attemptId") int attemptId);

}

// AttemptService.java

@Service

public class AttemptService {

@Autowired

private AttemptRepository attemptRepository;

@Transactional

public Attempt getAttempt(int userId, int attemptId) {

return attemptRepository.getAttemptDetails(userId, attemptId);

}

}

// OrmLearnApplication.java (Test Method)

private static AttemptService attemptService;

private static void testGetAttemptDetail() {

LOGGER.info("Start");

Attempt attempt = attemptService.getAttempt(1, 1);

System.out.println("User: " + attempt.getUser().getName());

System.out.println("Attempt Date: " + attempt.getDate());

for (AttemptQuestion aq : attempt.getAttemptQuestions()) {

System.out.println("\n" + aq.getQuestion().getText());

for (AttemptOption ao : aq.getAttemptOptions()) {

Option op = ao.getOption();

System.out.printf(" %d) %-12s %-5.1f %-5s\n",

op.getId(), op.getText(), op.getScore(), ao.isSelected());

}

}

LOGGER.info("End");

}