Lesson 2 Code

lesson2.lecture.dependencyexample

package lesson2.lecture.dependencyexample;

public class RightTriangle {

public static double computeHypotenuseLength(double base, double height) {

return Math.*sqrt*(Math.*pow*(base, 2) + Math.*pow*(height, 2));

}

}

package lesson2.lecture.dependencyexample;

public class Main {

public static void main(String[] args) {

System.*out*.printf(

"%.2f", RightTriangle.*computeHypotenuseLength*(50, 4)

);

}

}

lesson2.lecture.unidirectional.oneone

package lesson2.lecture.unidirectional.onetoone;

public class Customer {

private final String name;

private final ShoppingCart shoppingCart;

public Customer(String name) {

this.name = name;

this.shoppingCart = new ShoppingCart();

}

public ShoppingCart getShoppingCart() {

return shoppingCart;

}

public String getName() {

return name;

}

}

package lesson2.lecture.unidirectional.onetoone;

import java.util.ArrayList;

import java.util.List;

public class ShoppingCart {

private List<Item> items;

ShoppingCart() {

items = new ArrayList<>();

}

public void addItem(Item item) {

items.add(item);

}

public List<Item> getItems() {

return items;

}

}

package lesson2.lecture.unidirectional.onetoone;

public class Item {

private final String itemName;

public Item(String itemName) {

this.itemName = itemName;

}

@Override

public String toString() {

return "Item{" +

"itemName='" + itemName + '\'' +

'}';

}

}

package lesson2.lecture.unidirectional.onetoone.ext;

import lesson2.lecture.unidirectional.onetoone.Customer;

import lesson2.lecture.unidirectional.onetoone.Item;

import lesson2.lecture.unidirectional.onetoone.ShoppingCart;

public class Main {

public static void main(String[] args) {

Customer customer = new Customer("Tom");

ShoppingCart shoppingCart = customer.getShoppingCart();

shoppingCart.addItem(new Item("Pen"));

shoppingCart.addItem(new Item("Pencil"));

System.*out*.println(shoppingCart.getItems());

}

}

There are different ways to implement this association. lesson02.lecture.unidirectional.oneToZeroOne

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one;

public class Customer {

private final String name;

private ShoppingCart shoppingCart;

public Customer(String name) {

this.name = name;

}

public ShoppingCart getShoppingCart() {

return shoppingCart;

}

public void setShoppingCart(ShoppingCart shoppingCart) {

this.shoppingCart = shoppingCart;

}

}

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one;

import java.util.ArrayList;

import java.util.List;

public class ShoppingCart {

private List<Item> items;

private ShoppingCart() {

items = new ArrayList<>();

}

public static ShoppingCart createShoppingCart(Customer customer) {

if (customer == null) {

throw new IllegalArgumentException("Customer is null");

}

ShoppingCart shoppingCart = new ShoppingCart();

customer.setShoppingCart(shoppingCart);

return shoppingCart;

}

public void addItem(Item item) {

items.add(item);

}

public List<Item> getItems() {

return items;

}

}

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one.ext;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one.Customer;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one.Item;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one.ShoppingCart;

public class Main {

public static void main(String[] args) {

Customer customer = new Customer("Tom");

ShoppingCart.*createShoppingCart*(customer);

ShoppingCart shoppingCart = customer.getShoppingCart();

shoppingCart.addItem(new Item("Apple"));

shoppingCart.addItem(new Item("Banana"));

System.*out*.println(shoppingCart.getItems());

}

}

lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy;

public class Customer {

private String name;

private ShoppingCart shoppingCart;

public Customer(String name) {

this.name = name;

}

public ShoppingCart getShoppingCart() {

return shoppingCart;

}

public void addCart() {

if (shoppingCart == null) {

shoppingCart = new ShoppingCart();

}

}

}

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy;

import java.util.ArrayList;

import java.util.List;

public class ShoppingCart {

private List<Item> items;

ShoppingCart() {

items = new ArrayList<>();

}

public void addItem(Item item) {

items.add(item);

}

public List<Item> getItems() {

return items;

}

}

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy;

public class Item {

private String itemName;

public Item(String itemName) {

this.itemName = itemName;

}

@Override

public String toString() {

return "Item{" +

"itemName='" + itemName + '\'' +

'}';

}

}

package lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy.ext;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy.Customer;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy.Item;

import lesson2.lecture.unidirectional.one\_to\_zero\_or\_one\_easy.ShoppingCart;

public class Main {

public static void main(String[] args) {

Customer customer = new Customer("Jack");

customer.addCart();

ShoppingCart shoppingCart = customer.getShoppingCart();

shoppingCart.addItem(new Item("Java in Action"));

shoppingCart.addItem(new Item("Android in Action"));

System.*out*.println(shoppingCart.getItems());

}

}

one\_to\_many or one\_to\_zero\_or\_many

package lesson2.lecture.unidirectional.one\_to\_many;

import java.time.LocalDate;

import java.util.ArrayList;

import java.util.List;

public class Customer {

private String name;

private List<Order> orders;

public Customer(String name) {

this.name = name;

this.orders = new ArrayList<>();

}

public Order addOrder(LocalDate orderDate) {

Order order = new Order(orderDate);

orders.add(order);

return order;

}

public List<Order> getOrders() {

return orders;

}

}

package lesson2.lecture.unidirectional.one\_to\_many;

import java.time.LocalDate;

import java.util.ArrayList;

import java.util.List;

public class Order {

private LocalDate orderDate;

private List<Item> items;

Order(LocalDate orderDate) {

this.orderDate = orderDate;

this.items = new ArrayList<>();

}

public void addItem(Item item) {

items.add(item);

}

public List<Item> getItems() {

return items;

}

@Override

public String toString() {

return "Order{" +

"orderDate=" + orderDate +

", items=" + items +

'}';

}

}

package lesson2.lecture.unidirectional.one\_to\_many;

public class Item {

private String name;

public Item(String name) {

this.name = name;

}

@Override

public String toString() {

return "Item{" +

"name='" + name + '\'' +

'}';

}

}

package lesson2.lecture.unidirectional.one\_to\_many.ext;

import lesson2.lecture.unidirectional.one\_to\_many.Customer;

import lesson2.lecture.unidirectional.one\_to\_many.Item;

import lesson2.lecture.unidirectional.one\_to\_many.Order;

import java.time.LocalDate;

public class Main {

public static void main(String[] args) {

Customer customer = new Customer("Jack");

Order order = customer.addOrder(LocalDate.*now*());

order.addItem(new Item("Book"));

order.addItem(new Item("Paper"));

System.*out*.println(order.getItems());

order = customer.addOrder(LocalDate.*now*());

order.addItem(new Item("Rose Mary plant"));

order.addItem(new Item("Hibiscus plant"));

System.*out*.println(customer.getOrders());

}

}

bidirectional.one\_to\_one

package lesson2.lecture.bidirectional.one\_to\_one;

public class Customer {

private String name;

private ShoppingCart shoppingCart;

public Customer(String name) {

this.name = name;

this.shoppingCart = new ShoppingCart(this);

}

public ShoppingCart getShoppingCart() {

return shoppingCart;

}

public String getName() {

return name;

}

}

package lesson2.lecture.bidirectional.one\_to\_one;

import java.util.ArrayList;

import java.util.List;

public class ShoppingCart {

private List<Item> items;

private Customer customer;

ShoppingCart(Customer customer) {

items = new ArrayList<>();

this.customer = customer;

}

public List<Item> getItems() {

return items;

}

public Customer getCustomer() {

return customer;

}

public void addItem(Item item) {

items.add(item);

}

}

package lesson2.lecture.bidirectional.one\_to\_one;

public class Item {

private String name;

public Item(String name) {

this.name = name;

}

@Override

public String toString() {

return "Item{" +

"name='" + name + '\'' +

'}';

}

}

package lesson2.lecture.bidirectional.one\_to\_one.ext;

import lesson2.lecture.bidirectional.one\_to\_one.Customer;

import lesson2.lecture.bidirectional.one\_to\_one.Item;

import lesson2.lecture.bidirectional.one\_to\_one.ShoppingCart;

public class Main {

public static void main(String[] args) {

Customer customer = new Customer("Tom");

ShoppingCart shoppingCart = customer.getShoppingCart();

shoppingCart.addItem(new Item("Modem"));

shoppingCart.addItem(new Item("Switch"));

System.*out*.println(shoppingCart.getItems());

System.*out*.println(shoppingCart.getCustomer().getName());

}

}

bidirectional.one\_to\_one\_factory.ext

package lesson2.lecture.bidirectional.one\_to\_one\_factory;

public class Customer {

private String name;

private ShoppingCart shoppingCart;

Customer(String name) {

this.name = name;

}

public void setShopingCart(ShoppingCart shoppingCart) {

this.shoppingCart = shoppingCart;

}

public ShoppingCart getShoppingCart() {

return shoppingCart;

}

public String getName() {

return name;

}

}

package lesson2.lecture.bidirectional.one\_to\_one\_factory;

import java.util.ArrayList;

import java.util.List;

public class ShoppingCart {

private Customer customer;

private List<Item> items;

ShoppingCart() {

items = new ArrayList<>();

}

public void setCustomer(Customer customer) {

this.customer = customer;

}

public void addItem(Item item) {

items.add(item);

}

public List<Item> getItems() {

return items;

}

public Customer getCustomer() {

return customer;

}

}

package lesson2.lecture.bidirectional.one\_to\_one\_factory;

public class CustomerShoppingCart {

public static Customer createCustomer(String name) {

Customer customer = new Customer(name);

ShoppingCart shoppingCart = new ShoppingCart();

customer.setShopingCart(shoppingCart);

shoppingCart.setCustomer(customer);

return customer;

}

}

package lesson2.lecture.bidirectional.one\_to\_one\_factory.ext;

import lesson2.lecture.bidirectional.one\_to\_one\_factory.Customer;

import lesson2.lecture.bidirectional.one\_to\_one\_factory.CustomerShoppingCart;

import lesson2.lecture.bidirectional.one\_to\_one\_factory.Item;

import lesson2.lecture.bidirectional.one\_to\_one\_factory.ShoppingCart;

public class Main {

public static void main(String[] args) {

Customer customer = CustomerShoppingCart.*createCustomer*("Tom");

ShoppingCart shoppingCart = customer.getShoppingCart();

shoppingCart.addItem(new Item("Office 365"));

shoppingCart.addItem(new Item("Autocad"));

System.*out*.println(

shoppingCart.getCustomer().getName() + " added items such as " +

shoppingCart.getItems()

);

}

}