Міністерство освіти і науки України

Національний університет «Львівська політехніка»



**Лабораторна робота №11**

на тему:

«Основи програмування Java»

з курсу:

«ООР»

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*Лабораторна робота № 11*

***Мета роботи:*** розширити вміння працювати з мовою Java, розглянути основні функції мови Java.

**Програмний код**

**AutoStation.java**

**import** java.util.InputMismatchException;

**import** java.util.Scanner;

**public** **class** AutoStation {

**private** **static** Scanner *scanner* = **new** Scanner(System.***in***);

**public** **static** **void** main(String[] args){

Data information = **new** Data();

**boolean** flag = **true**, secondFlag = **false**;

String numberInput, numInput;

//Terminal "Home Screen"

**while**(**true**) {

flag = **true**;

System.***out***.println("Please, input the city to see more information: 'Kyiv', 'Rivne', 'Lublin', 'Paris' \n" +

" [tickets] - Your tickets \n [time] - When your transport will dispatch \n [exit] - Exit program");

information.direction = *scanner*.next();

**if**(information.direction.equals("tickets")){

information.iterator();

**continue**;

} **else** **if**(information.direction.equals("exit")){

**break**;

}

**switch** (information.direction) {

**case** "time":

System.***out***.println("Input city: ");

String city = *scanner*.next();

System.***out***.println("Dispatching to " + city + " in " + information.timeToGo(city)

+ " minutes.");

**break**;

}

**while** (flag) {

System.***out***.println("\n [0] - Seats left \n [1] - What's the price \n " +

"[2] - Confirm the city and buy tickets \n [3] - Back \n");

numberInput = *scanner*.next();

**switch** (numberInput) {

**case** "0":

System.***out***.println("There are/is " + information.freeSpace(information.direction) + " seat/seats left.");

**break**;

**case** "1":

System.***out***.println("The price is " + information.seePrice(information.direction) + "$.");

**break**;

**case** "2":

System.***out***.println("You are heading to " + information.whereToGo(information.direction) + ".");

secondFlag = **true**;

**break**;

**case** "3":

flag = **false**;

**break**;

**default**:

System.***out***.println("Wrong input, retry:");

**break**;

}

//Buying process:

**while** (secondFlag) {

**int** money;

System.***out***.println("How many tickets do you want? (" + information.freeSpace(information.direction) + " left) \n");

**while** (information.seats > information.freeSpace(information.direction)) {

information.seats = *scanner*.nextInt();

**if** (information.seats > information.freeSpace(information.direction)) {

System.***out***.println("There are not so many seats left, sorry.");

} **else** **if** (information.seats == -1) {

secondFlag = **false**;

**break**;

}

} **if**(!secondFlag){

**break**;

}

**int** localPrice = information.priceCounter(information.price, information.seats);

System.***out***.println("Pay " + localPrice + "$ for the ticket: ");

money = *scanner*.nextInt();

**if** (money == -10) {

secondFlag = **false**;

**break**;

}

**if** (information.buyTicket(money) >= 0) {

**if**(information.buyTicket(money) == 0) {

System.***out***.println("Thank you and good luck!");

} **else** {

System.***out***.println("Payback of " + information.buyTicket(money) + "$. Thank you and good luck!");

}

secondFlag = **false**;

flag = **false**;

**switch** (information.direction){

**case** "Kyiv":

information.kyivSeats = information.kyivSeats - information.seats;

**break**;

**case** "Rivne":

information.rivneSeats = information.rivneSeats - information.seats;

**break**;

**case** "Lublin":

information.lublinSeats = information.lublinSeats - information.seats;

**break**;

**case** "Paris":

information.parisSeats = information.parisSeats - information.seats;

**break**;

}

Papers ticket = **new** Papers(information.direction, information.seats);

information.ticketDataBase.add(ticket);

**break**;

} **else** {

System.***out***.println("Not enough money. input -10 to Exit");

}

}

}

}

}

}

**Data.java**

**import** java.util.ArrayList;

**import** java.util.Iterator;

**public** **class** Data {

**public** **int** price = 100000000, seats = 100000000;

**public** **boolean** bought = **false**;

**public** String direction;

**public** **int** kyivSeats = 3, rivneSeats = 50, lublinSeats = 30, parisSeats = 5;

//creating ArrayList for storing Tickets.

**public** ArrayList <Papers> ticketDataBase = **new** ArrayList <>();

//iterator method

**public** **void** iterator(){

Iterator itr = ticketDataBase.iterator();

//traverse elements of ArrayList object

**while**(itr.hasNext()){

Papers t = (Papers) itr.next();

System.***out***.println(t.destination + " " + t.seatsNumber);

}

}

**public** **int** priceCounter(**int** money, **int** seats){

price = seats \* money;

**return** price;

}

**public** String whereToGo(String direction){

**switch**(direction){

**case** "Kyiv":

price = 250;

**return** direction;

**case** "Rivne":

price = 150;

**return** direction;

**case** "Lublin":

price = 1000;

**return** direction;

**case** "Paris":

price = 2000;

**return** direction;

**default**:

**break**;

}

**return** "Unknown";

}

**public** **int** seePrice(String direction){

**int** price;

**switch** (direction){

**case** "Kyiv":

price = 250;

**return** price;

**case** "Rivne":

price = 150;

**return** price;

**case** "Lublin":

price = 1000;

**return** price;

**case** "Paris":

price = 2000;

**return** price;

**default**:

**break**;

}

**return** 0;

}

**public** **int** buyTicket(**int** money){

**int** payback;

**if** (money >= price) {

payback = money - price;

bought = **true**;

**return** payback;

} **else** {

**return** -1;

}

}

**public** **int** timeToGo(String direction){

**int** time;

**switch**(direction){

**case** "Kyiv":

time = 20;

**return** time;

**case** "Rivne":

time = 10;

**return** time;

**case** "Lublin":

time = 120;

**return** time;

**case** "Paris":

time = 60;

**return** time;

**default**:

**return** 0;

}

}

**public** **int** freeSpace(String direction){

**switch**(direction){

**case** "Kyiv":

**return** kyivSeats;

**case** "Rivne":

**return** rivneSeats;

**case** "Lublin":

**return** lublinSeats;

**case** "Paris":

**return** parisSeats;

**default**:

**return** 0;

}

}

}

**Papers.java**

**public** **class** Papers {

String destination;

Integer seatsNumber;

Papers(String destination, Integer seatsNumber){

**this**.destination = destination;

**this**.seatsNumber = seatsNumber;

}

}