**Ye,Zhengkun**

**Project 6**

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**package** com.Phonebook;

**import** java.io.BufferedReader;

**import** java.io.File;

**import** java.io.FileInputStream;

**import** java.io.InputStreamReader;

**import** java.io.PrintStream;

**import** java.util.Scanner;

**import** java.util.regex.Matcher;

**import** java.util.regex.Pattern;

**public** **class** Phonebook {

**public** String name, number, notes;

**public** **static** **int** *size* = 0, *initial*;

**public** **static** Phonebook[] *entryList* = **new** Phonebook[200];

**public** **static** **void** readPhoneBook (String FileName)

**throws** Exception{

**for**(**int** i=0; i<*entryList*.length; i++){

*entryList*[i] = **new** Phonebook();

}

//try {

String encoding = "GBK";

File file = **new** File(FileName);

**if**(file.isFile() && file.exists()){

InputStreamReader read = **new** InputStreamReader(

**new** FileInputStream(file),encoding);

BufferedReader br = **new** BufferedReader(read);

String text = **null**;

**while**((text = br.readLine()) != **null**) {

//System.out.println(text);

text = text.trim();

String[] temp = text.split("\t");

*entryList*[*size*].name = temp[0];

*entryList*[*size*].number = temp[1];

**if**(temp.length == 3){

*entryList*[*size*].notes = temp[2];

}

**else** {

*entryList*[*size*].notes = "";

}

*size*++;

//System.out.println("Size:" + size);

}

*initial* = *size*;

read.close();

}**else**{

System.*out*.println("Cannot find the file!");

}

//} //catch (Exception e){

//System.out.println("Error when reading the source file!");

//e.printStackTrace();

// }

//finally{

// System.out.println(entryList[0].name + entryList[0].number);

//}

}

**public** **static** **int** operateEntry() {

System.*out*.print("Command: ");

Scanner sc = **new** Scanner(System.*in*);

String text = sc.nextLine();

String[] input = text.split(" ");

**if**(input[0].equals("help")){

System.*out*.println("\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

System.*out*.println("\t\*\t#1. For adding someone's information, the format is \"e name\" \t\*");

System.*out*.println("\t\*\twhere 'e' indicate that you want enter, and 'name' is some- \t\*");

System.*out*.println("\t\*\tone's name you want to add, between 'e' and 'name' there is \t\*");

System.*out*.println("\t\*\ta space.Then follow the notice to enter the number and notes \t\*");

System.*out*.println("\t\*\t#2. For finding someone's information, the format is \"f name\" \t\*");

System.*out*.println("\t\*\twhere the name is case-insensitive, e.g. You can search for \t\*");

System.*out*.println("\t\*\t\"Johnson\" by entering \"johnson\" or \"JOHNSON\",etc.\t\t\*");

System.*out*.println("\t\*\t#3. For showing all the entries, you need just to enter 'l' \t\*");

System.*out*.println("\t\*\t#4. Enter 'q' for quit the program, if you have added new \t\*");

System.*out*.println("\t\*\tentry, it will be stored into the sourcefile.\t\t\t\*");

System.*out*.println("\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");

**return** 1;

}

**else** **if**(input[0].length() > 1){

System.*out*.println("Wrong code, please check your input!\n");

**return** 1;

}

**char** ch = input[0].charAt(0);

**switch**(ch) {

**case** 'e':

*entryList*[*size*].name = input[1].trim();

System.*out*.print("Enter number: ");

String number = sc.nextLine().trim();

**while**(!*validatePhoneNumber*(number)){

System.*out*.println("Invalid phone number, please enter again...");

System.*out*.print("Enter number: ");

number = sc.nextLine();

}

*entryList*[*size*].number = number;

System.*out*.print("Enter notes: ");

String notes = sc.nextLine();

**if**(notes != **null**)

*entryList*[*size*].notes = notes;

**else**

*entryList*[*size*].notes = "";

*size*++;

**break**;

**case** 'f':

String name = input[1].trim();

name = name.toLowerCase();

**boolean** found = **false**;

**for**(**int** i=0; i<*size*; i++){

String temp = *entryList*[i].name;

temp = temp.toLowerCase();

**if**(temp.equals(name)){

found = **true**;

System.*out*.println("-- "+ *entryList*[i].name);

System.*out*.println("-- "+ *entryList*[i].number);

**if**(*entryList*[i].notes != "")

System.*out*.println("-- "+ *entryList*[i].notes);

}

}

**if**(!found)

System.*out*.println("\*\* No entry with code " + name);

**break**;

**case** 'l':

*listAllEntriess*();

**break**;

**case** 'q':

**return** 0;

**default**:

System.*out*.println("Wrong code, please check your input!");

**break**;

}

System.*out*.print("\n");

**return** 1;

}

**public** **static** **void** listAllEntriess(){

**if**(*size* == 0){

System.*out*.println("No entry for now.");

**return**;

}

**for**(**int** i=0; i<*size*; i++){

System.*out*.println("## Entry "+ (i+1));

System.*out*.println("-- "+ *entryList*[i].name);

System.*out*.println("-- "+ *entryList*[i].number);

**if**(*entryList*[i].notes != "")

System.*out*.println("-- "+ *entryList*[i].notes); //would not show up if no notes is entered

System.*out*.print("\n");

}

}

**public** **static** **void** storePhoneBook (String FileName)

**throws** Exception{

PrintStream P = **new** PrintStream(FileName);

**for** (**int** i=0; i <*size*; i++){

P.println(*entryList*[i].name + "\t" +

*entryList*[i].number + "\t" +

*entryList*[i].notes );

}

P.close();

System.*out*.println("Phonebook stored.");

}

**public** **static** **boolean** validatePhoneNumber(String phoneNumber){

String regex = "(^\\d{3}-\\d{3}-\\d{4}$)|(^\\(\\d{3}\\)\\d{3}-\\d{4}$)|(^\\d{3}-\\d{4}$)" ;

Pattern pat = Pattern.*compile*(regex);

Matcher ma = pat.matcher(phoneNumber);

**boolean** rs = ma.find();

**return** rs;

}

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

String filename = "info1.txt";

**try**{

*readPhoneBook*(filename);

}**catch**(Exception e) {

e.printStackTrace();

}

System.*out*.println("Codes are entered as 1 to 8 characters.");

System.*out*.println("Use \"e\" for enter, \"f\" for find, \"l\" to list, \"q\" to quit, \"help\" for all details.");

**while**(*operateEntry*() == 1);

**try**{

*storePhoneBook*("info1.txt");

}**catch**(Exception e){

e.printStackTrace();

}

**if**(*initial* != *size*){

System.*out*.println("The external file is updated with entries added.");

}

}

}



