****

**package** boundary;

**import** java.util.Scanner;

**import** control.TeacherControl;

**public** **class** Start

{

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

{

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

**int** input;

TeacherControl teacherControl = **new** TeacherControl();

**do**

{

System.*out*.println("Choose 1 for text read");

System.*out*.println("Choose 2 for bin write");

System.*out*.println("Choose 3 for bin read");

input = scan.nextInt();

**switch** (input)

{

**case** 1:

teacherControl.createTeachers();

**break**;

**case** 2:

teacherControl.SaveTeachers();

**break**;

**case** 3:

teacherControl.retrieveTeachers();

**break**;

**default**:

**break**;

}

}

**while** (input == 1 || input == 2 || input == 3);

}

}

**package** boundary;

**import** java.io.BufferedReader;

**import** java.io.FileInputStream;

**import** java.io.FileOutputStream;

**import** java.io.FileReader;

**import** java.io.IOException;

**import** java.io.ObjectInputStream;

**import** java.io.ObjectOutputStream;

**import** java.util.ArrayList;

**import** entity.Teacher;

**public** **class** FileIO

{

**public** **void** writeToBinFile(ArrayList <Teacher> teachers)

{

String fileName = "teachers.dat";

**try**

{

FileOutputStream fileOutputStream = **new** FileOutputStream(fileName);

ObjectOutputStream objectOutputStream = **new** ObjectOutputStream(fileOutputStream);

objectOutputStream.writeObject(teachers);

fileOutputStream.close();

objectOutputStream.close();

}

**catch**(Exception e)

{

System.*out*.println("Something went wrong while writing to bin file!!");

System.*out*.println(e);

System.*out*.println(e.getMessage());

}

// finally()

// {

//

// }

}

**public** ArrayList<Teacher> readFromBinFile()

{

String fileName = "teachers.dat";

ArrayList<Teacher>teachers = **new** ArrayList<Teacher>();

**try**

{

FileInputStream fileInputStream = **new** FileInputStream(fileName);

ObjectInputStream objectInputStream = **new** ObjectInputStream(fileInputStream);

teachers = (ArrayList<Teacher>)objectInputStream.readObject();

fileInputStream.close();

objectInputStream.close();

}

**catch**(Exception e)

{

System.*out*.println("Something went wrong while reading to bin file!!");

System.*out*.println(e);

System.*out*.println(e.getMessage());

}

**return** teachers;

}

**public** ArrayList<String> readFromTextFile()

{

String fileName = "teachers.txt";

String teacherLine;

ArrayList <String> teacherLines = **new** ArrayList<String>();

**try**

{

FileReader fileReader = **new** FileReader(fileName);

BufferedReader bufferedReader = **new** BufferedReader(fileReader);

**while**((teacherLine = bufferedReader.readLine()) != **null**)

{

teacherLines.add(teacherLine);

}

bufferedReader.close();

fileReader.close();

}

**catch**(IOException e)

{

System.*out*.println("Something went wrong while reading from text file!!");

}

**int** size = teacherLines.size();

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

{

System.*out*.println(teacherLines.get(i));

}

**return** teacherLines;

}

}

**package** control;

**import** java.util.ArrayList;

**import** java.util.Scanner;

**import** boundary.FileIO;

**import** entity.Teacher;

**public** **class** TeacherControl

{

**private** ArrayList <Teacher> teachers;

**private** FileIO fileIO;

**public** TeacherControl()

{

fileIO = **new** FileIO();

teachers = **new** ArrayList<Teacher>();

}

**public** **void** createTeachers()

{

ArrayList <String >teachersText = **new** ArrayList<String>();

teachersText = fileIO.readFromTextFile();

Scanner scan;

String firstName = "", lastName = "", email = "";

**int** roomNumber = 0;

Teacher teacher;

**int** size = teachersText.size();

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

{

scan = **new** Scanner(teachersText.get(i));

scan.useDelimiter(", ");

**if**(scan.hasNext())

{

firstName = scan.next();

}

**if**(scan.hasNext())

{

lastName = scan.next();

}

**if**(scan.hasNext())

{

email = scan.next();

}

**if**(scan.hasNext())

{

roomNumber = Integer.*parseInt*(scan.next());

}

teacher = **new** Teacher (firstName, lastName, email, roomNumber);

teachers.add(teacher);

}

printTeacherArrayList();

}

**public** **void** SaveTeachers()

{

fileIO.writeToBinFile(teachers);

}

**public** **void** retrieveTeachers()

{

teachers = fileIO.readFromBinFile();

printTeacherArrayList();

}

**private** **void** printTeacherArrayList()

{

**int** size = teachers.size();

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

{

System.*out*.println(teachers.get(i).toString());

}

}

}

**package** entity;

**import** java.io.Serializable;

**public** **class** Teacher **implements** Serializable

{

**private** String firstName;

**private** String lastName;

**private** String email;

**private** **int** roomNumber;

**public** Teacher(String firstName, String lastName, String email, **int** roomNumber)

{

**this**.firstName = firstName;

**this**.lastName = lastName;

**this**.email = email;

**this**.roomNumber = roomNumber;

}

**public** String toString()

{

**return** firstName + " " + lastName + "\nemmail: " + email + "\nRoom: " + roomNumber+ "\n\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_";

}

}