EASTERN INTERNATIONAL UNIVERSITY

SCHOOL OF COMPUTING

AND INFORMATION TECHNOLOGY

Practice Assignment – Quarter 2, 2023-2024

Course Name: OOP

Course Code: CSE 203

Student's Full Name:

Student ID:

Lab 6

1. Jdialog

You are going to create a program that help user to create students and save to an ArrayList.

Your program should have the following classes:

- **Student.java**

  Represent a student entity. A student will have follow information:

  i. **String studentID**
  ii. **String lastName**
  iii. **String midName**
  iv. **String firstName**
  v. **int yearOfBirth**
  vi. **String gender** (Male/Female)
  vii. **String schoolStage** (Elementary School/Middle School/High School)

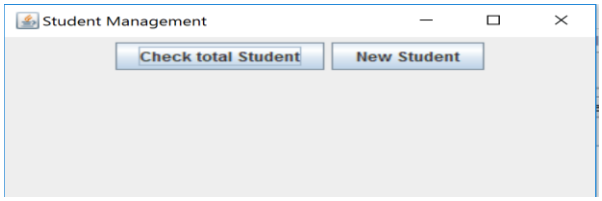
- **StudentManager**

  This class is used to manage student by maintaining an ArrayList of Student. Implement following methods:

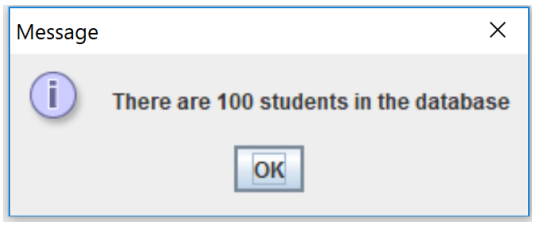
  i. **Student findStudentById(String studentID)**: return a student with a specific id. Return **null** if cannot found.
  ii. **boolean addStudent(Student stu)**: if the added **student's id** is existed in the database, return false. Otherwise return true.
  iii. **ArrayList<Student> getListStudent()**: return the listStudent.

- **MainFrame.java**

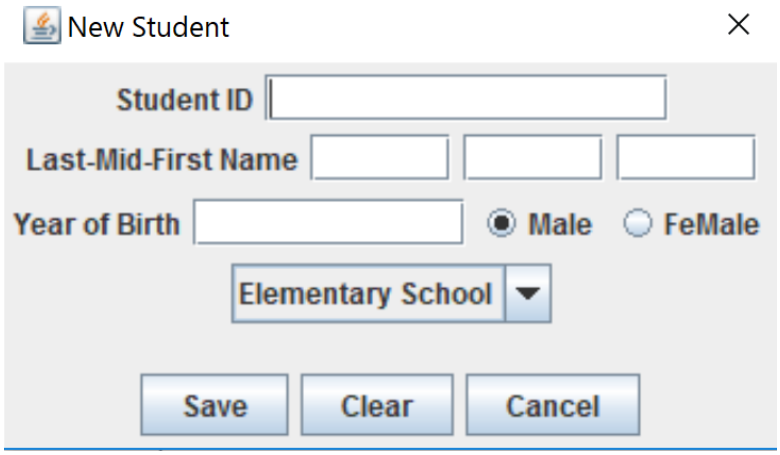
  This is a frame that have 2 buttons: **Check Total Student** and **New Student**



  i. When user clicks **New Student** button, **New Student** Dialog should be appeared
  ii. When user clicks **Check Total Student**, a message dialog appeared and show the total number of student in the listStudent



- **NewStudentDialog.java**
  This is a JDialog that helps the user to enter information for adding a new Student to the database. If the id is already exist in the database, an error message should be showed. Otherwise, a successful message should be showed and the Dialog is disposed.



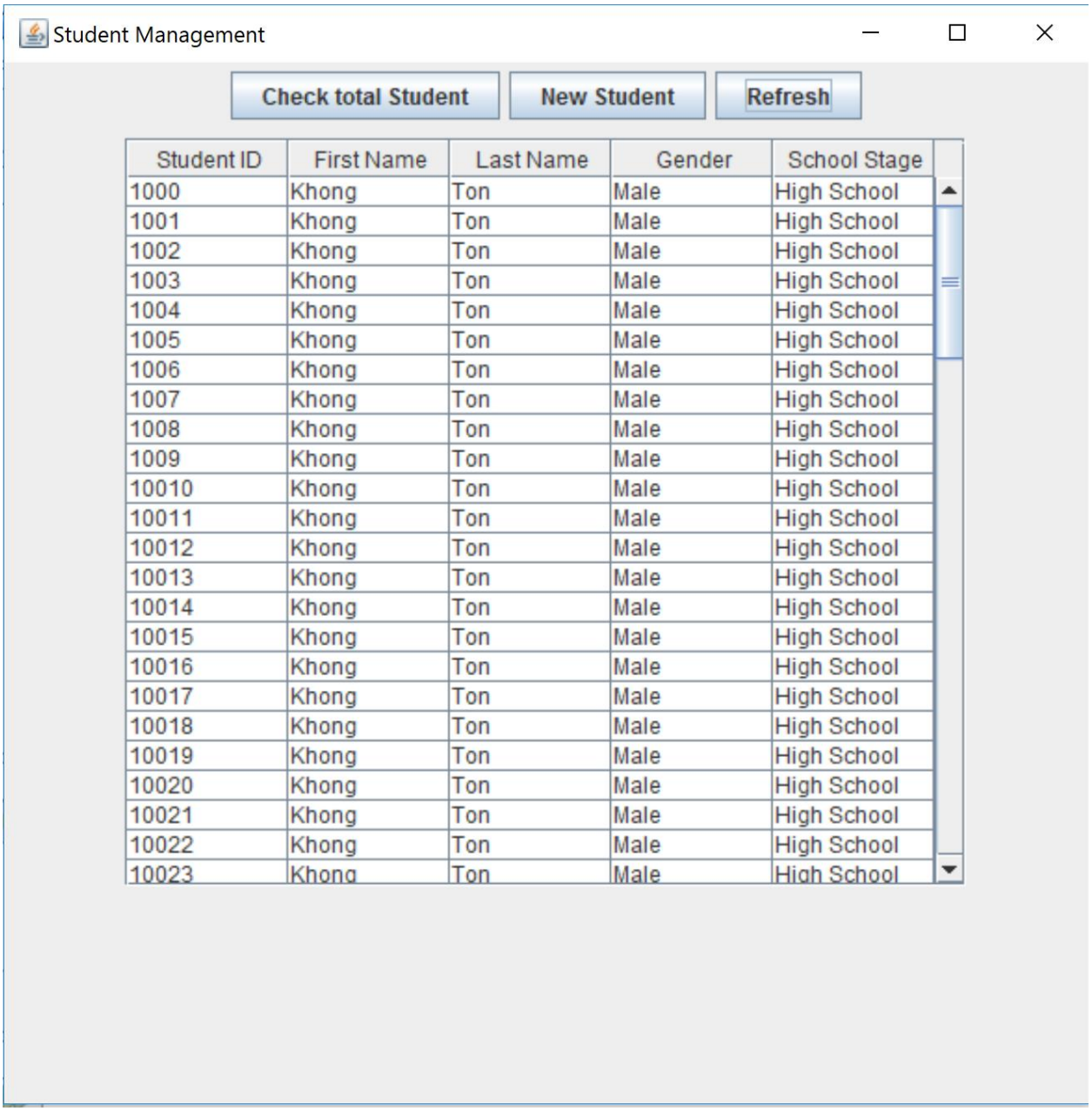
- **Main.java**

2. Jtable

Continue on the previous assignment. Your program is have to display information of all student in your database using Jtable which is attached on the MainFrame.

You will need to do the following things:

- Create **StudentTableModel.java** to make your own table model.
- **StudentManager.java**
  Add method:
  StudentTableModel getStudentTableModel() to return your table model
- **MainFrame.java**
  i. Add a new button “Refresh Table”
  ii. Add a JTable to a JscrollPane then add that JscrollPane to MainFrame
  iii. Add a method **fillInStudentTable()** to fill data from listStudent to the added table.
  iv. When user clicks on the “**Refresh Table**” button, the data displayed on table will be refreshed.
  v. Select 1 line on Jtable and press the "delete" key to delete the data (Ask before deleting). After deleting the data is refreshed.



3. **Save data to the file "Student.Dat".**

Sample source code of JTable

```
import javax.swing.*;
import javax.swing.table.DefaultTableModel;
import java.awt.*;
import java.util.ArrayList;

public class ArrayListToJTableExample extends JFrame {
    private JTable table;
    private DefaultTableModel model;
```

```
    public ArrayListToJTableExample() {
        setTitle("ArrayList to JTable Example");
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setPreferredSize(new Dimension(400, 300));

        // Create JTable and DefaultTableModel
        model = new DefaultTableModel();
        table = new JTable(model);

        // Add columns to the table
        model.addColumn("Student Code");
        model.addColumn("Name");
        model.addColumn("Age");
        model.addColumn("Major");

        // Add table to a scroll pane
        JScrollPane scrollPane = new JScrollPane(table);
        getContentPane().add(scrollPane, BorderLayout.CENTER);

        // Populate ArrayList with sample data
        ArrayList<String[]> dataList = new ArrayList<>();
        dataList.add(new String[]{"CSE001", "Nguyen Van A", "19","IT"});
        dataList.add(new String[]{"CSE002", "Tran Thi B", "20", "IT"});

        // Add data from ArrayList to DefaultTableModel
        for (String[] rowData : dataList) {
            model.addRow(rowData);
        }

        pack();//Automatically resize according to the components it contains.
        setLocationRelativeTo(null);
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(() -> {
            new ArrayListToJTableExample().setVisible(true);
        });
    }
}
```

//Get row index of JTable: table.getSelectedRow()

Submitted: github link (public) and all source code (*.rar file) submitted to moodle