



California State University, Sacramento
College of Engineering and Computer Science

CSc 20: Programming Concepts and Methodology II

Semester Project

Objective: The objective of this project is to practice using files of objects and gain more experiences in developing interactive GUI using Java Swing and AWT toolkits.

Project description:

In this assignment, you are to design a Java program to maintain a binary file of student records for the class. A student record in the file should include the following information:

- . ID number, a 9-digit integer.
- . Name, a string of characters
- . Gender, a character
- . Class level, an integer between 1 and 5.
- . Age, an integer less than 100.
- . 10 lab scores, integers between 0 and 100.

Your program should allow the instructor to do the following:

1. Create a new class.
2. Load students from a file.
3. Add new students.
4. View/Delete students
5. Enter lab scores.
6. Backup Students to a file
7. Sort Students (optional)

User interface requirement:

Your program should have a GUI closely similar to the following.

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Use The Buttons below To Manage Students

Class Name: Number of students:

0. Create a New Class	1. Load Students From ...	2. Add New Studentss	3. Enter Lab Scores
4. Sort Students	5. View/Delete Students	6. Backup Students To ...	7. Exit

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Create a New Class

Class Name:

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Load Students From a File

Class Name:

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Enter Student Information

SSN:

Name:

Gender: ▼

Age:

Academic Level: ▼

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Enter lab scores

Lab Number:

Score for :

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Sort Students

☒ By ID
 ☐ By Name

Sort

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Student List

ID	Name	Level	Gender	Age	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6	Lab 7	Lab 8	Lab 9	Lab 10
123456789	a a	Fresh...	M	22	0	0	0	0	0	0	0	0	0	0
987654321	b b	Sopho...	F	23	0	0	0	0	0	0	0	0	0	0
111111111	c c	Senior	M	24	0	0	0	0	0	0	0	0	0	0
222222222	d d	Gradu...	M	25	0	0	0	0	0	0	0	0	0	0

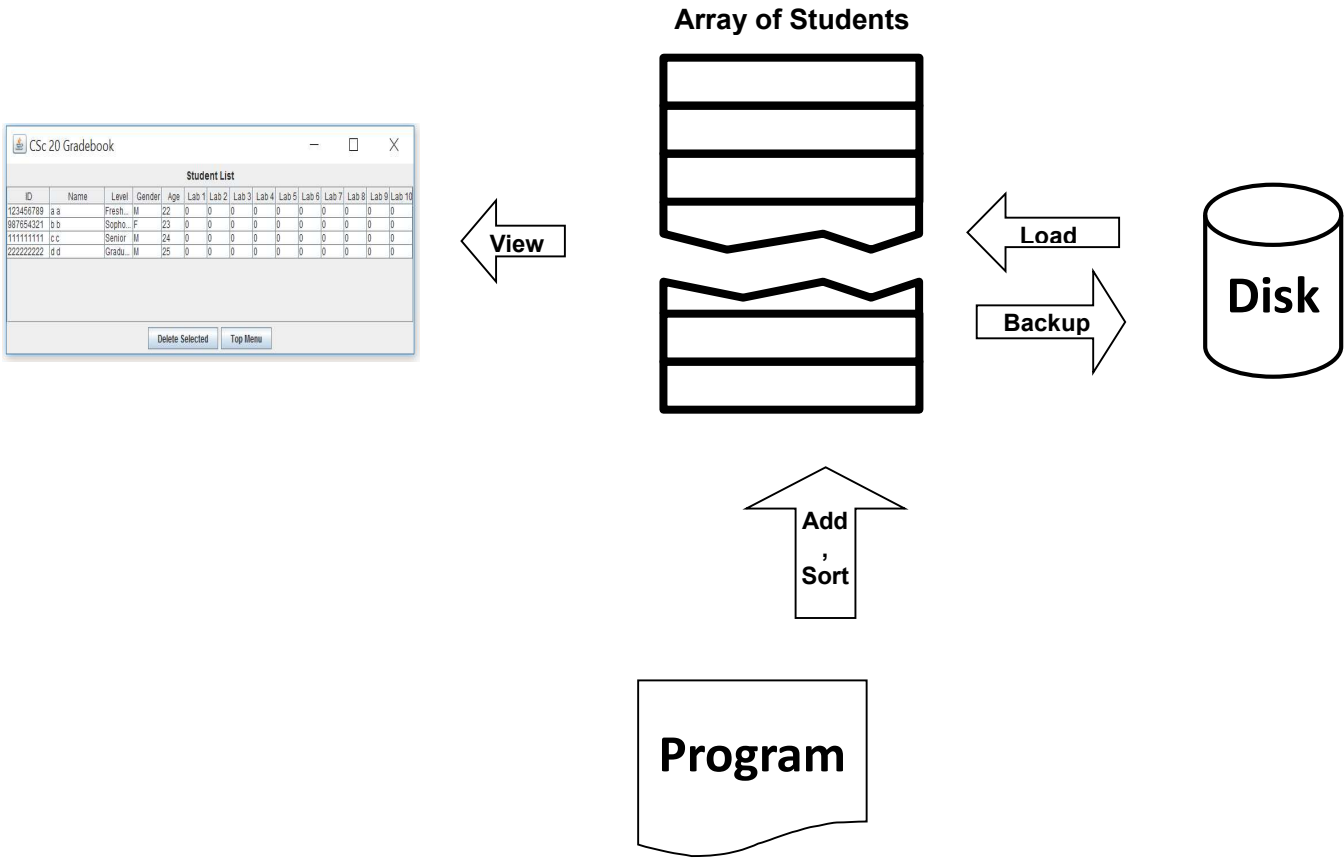
Delete Selected

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To submit your project:

1. A hardcopy of your Java source code.
2. Email a softcopy of your source code.
3. Demo your program on Athena before **12/06/2018**.

Programming hint about your program structure



Programming hint about JLabel: To change the font size of a JLabel.

```
new JLabel("<html><font size=5><b>JLabel text</b></html>");
```

Programming hints about JTable and JScrollPane:

1. In the main method, create a JScrollPane and add it to the center of a JPanel, `viewPane`.

```
scrollPane = new JScrollPane();  
  
viewPane.add(scrollPane, BorderLayout.CENTER);
```

2. In actionPerformed method,

a. Create a 2-D array of strings, `data`.

b. Create a JTable.

```
JTable abtable = new JTable(data, columnName);
```

c. Use the JTable to create a temporary JScrollPane.

```
JScrollPane tmp = new JScrollPane(abtable);
```

d. Get the viewport from the temporary JScrollPane and add it to the original JScrollPane.

```
scrollPane.setViewportView(tmp.getViewport());
```