**Lab 7** Array of Reference and ArrayList

**977-210** Object-Oriented Programming

**7.1 Array of References**

(1) Create Subject class with

* Attributes: subjectId, name, credit
* Constructor to assign initial value to object variables
* Method printSubject to show subject information

(2) Write program SubjectArrayDemo

* Declare Subject array for 10 subjects
* Add 2 Subject’ objects and assign value for them
* Allow users to add new Subject objects in the array by enter data from keyboard
* User can search a subject by name and show list of subjects
* User can search a subject by subjectId to edit subject info or delete the subject
* List all objects in ArrayList

**7.2 Array of Reference**

From the given Student class, write the program to • Declare an ArrayList of Student ojbects

* Add 2 Student objects to the ArrayList
* User can select menu to insert, update, delete, show report
* Allow users to add new Student objects by enter data from keyboard
* User can search a student by id, name to • Print student info
* Edit student GPA
* Delete student object
* The report consists of the list of students data, number of students, average GPA

**7.3 Registration System**

Design java classes for a registration system. Write a java program for Registration System.

**Note:** Use ArrayList to store data.

Example result:

\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **1**

Student List...

1. Student ID:1111 Name:Thana GPA: 3.0

2. Student ID:2211 Name:Somchai GPA: 2.1

3. Student ID:3331 Name:Supansa GPA: 3.1

\*\*\*\* REGSISTRATION SYSTEM \*\*\*\*

1 : Show student list

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4 : Search student by name

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6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **2**

\*\*\* Add new student \*\*\*

Enter ID:**4444**

Enter Name:**Jenny Kim**

Enter GPA:**3.5**

Add more? [y|n]: **y**

Enter ID:**5555**

Enter Name:**Anna**

Enter GPA:**2.5**

Add more? [y|n]: **n**

Added 2 record(s) successfully.

1. Student ID:1111 Name:Thana GPA: 3.0

2. Student ID:2211 Name:Somchai GPA: 2.1

3. Student ID:3331 Name:Supansa GPA: 3.1

4. Student ID:4444 Name:Jenny Kim GPA: 3.5

5. Student ID:5555 Name:Anna GPA: 2.5

\*\*\*\* REGSISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **3**

Edit/delete student..

Search student by ID: **2211**

Student ID:2211 Name:Somchai GPA: **2.1**

Do you want to delete or edit GPA? [d|e]: **d**

Deleted successfully.

1. Student ID:1111 Name:Thana GPA: 3.0

2. Student ID:3331 Name:Supansa GPA: 3.1

3. Student ID:4444 Name:Jenny Kim GPA: 3.5

4. Student ID:5555 Name:Anna GPA: 2.5

\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **3**

Edit/delete student..

Search student by ID: **5555**

Student ID:5555 Name:Anna GPA: **2.5**

Do you want to delete or edit GPA? [d|e]: **e**

Enter new GPA: **2.8**

Update successfully.

1. Student ID:1111 Name:Thana GPA: 3.0

2. Student ID:3331 Name:Supansa GPA: 3.1

3. Student ID:4444 Name:Jenny Kim GPA: 3.5

4. Student ID:5555 Name:Anna GPA: 2.8

\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **4**

Search student by name...

Enter name:**Jenny**

Student ID:4444 Name:Jenny Kim GPA: 3.5

\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **5**

Subject List...

Subject: 977-210 OOP(3 credits)

Subject: 977-200 Calculus(3 credits)

Subject: 977-216 Computer Architecture(3 credits)

Subject: 969-092 E-Sport(1 credits)

Subject: 980-096 Scuba Diving(1 credits)

Subject: 969-061 Systematic Solving(2 credits)

Subject: 988-061 Logical Thinking(2 credits)

\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **6**

Enter student ID:**4444**

Student ID:4444 Name:Jenny Kim GPA: **3.5**

\*\*Select subjects for registration\*\*

Enter subject ID:**977-200**

Subject: 977-200 Calculus(3 credits)

Do you want to enroll this subject? [y|n]:**y**

Enter subject ID:**980-096**

Subject: 980-096 Scuba Diving(1 credits)

Do you want to enroll this subject? [y|n]:**y**

Enter subject ID:**988-061**

Subject: 988-061 Logical Thinking(2 credits)

Do you want to enroll this subject? [y|n]:**n**

\*\*\*\*REGISTRATION RESULT OF SEMESTER 2/2022\*\*\*

Student ID: 4444 Name: Jenny Kim

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Subject: 977-200 Calculus(3 credits)

Subject: 980-096 Scuba Diving(1 credits)

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Total credits = 4

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\*\*\*\* REGISTRATION SYSTEM \*\*\*\*

1 : Show student list

2 : Add new student

3 : Edit/delete student

4 : Search student by name

5 : Show subject list

6 : Register

9 : Exit

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

Select menu: **9**

Bye...