Department of Computer Engineering - AYBU
CENG201 – Object Oriented Programming
FALL 2018 -2019
Lab Guide #7

OBJECTIVE: Abstract, Interface with GUI and System Class	
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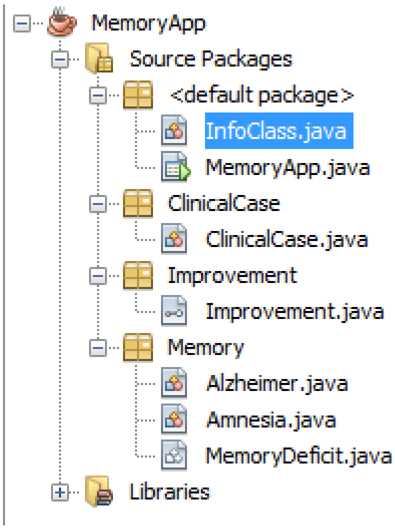
You are going to have a project view same with the below demonstration.



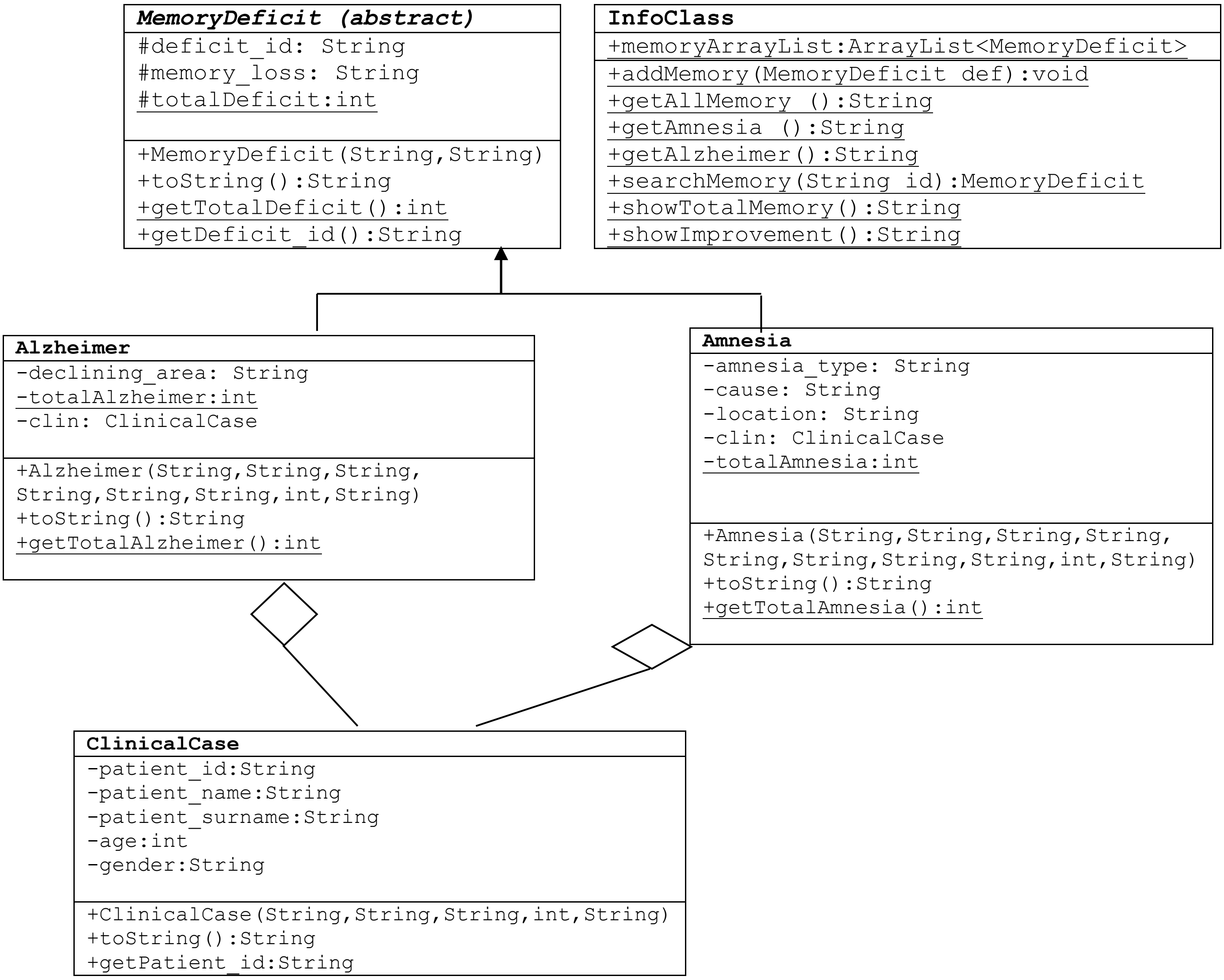
```
MemoryApp
  Source Packages
    <default package>
      InfoClass.java
      MemoryApp.java
    ClinicalCase
      ClinicalCase.java
    Improvement
      Improvement.java
    Memory
      Alzheimer.java
      Amnesia.java
      MemoryDeficit.java
  Libraries
```

PART A: Implement your classes!!

➔ Your objective is to implement a program to understand the memory deficits of the clinical cases. Memory Deficit is divided into two parts as Alzheimer and Amnesia.

Alzheimer and Amnesia are all memory deficits. Each has its own patient/s or we can just call them as clinical cases.

Java Class Diagram:



Relationships between classes:

➔ There is a IS-A Relationship between the classes MemoryDeficit, Alzheimer and Amnesia that can be seen from the class diagram.

➔ There is a HAS-A Relationship between Alzheimer and ClinicalCase classes and a HAS-A Relationship between Amnesia and ClinicalCase classes

➔ Implement your classes according to these important notifications given above.

Some information related with classes:

For all non-visual classes, there is no default value for the non-static data members.

➔ Write only the necessary accessor and mutator methods inside the classes!! You may add methods other than the given ones, IF you are going to use them!!

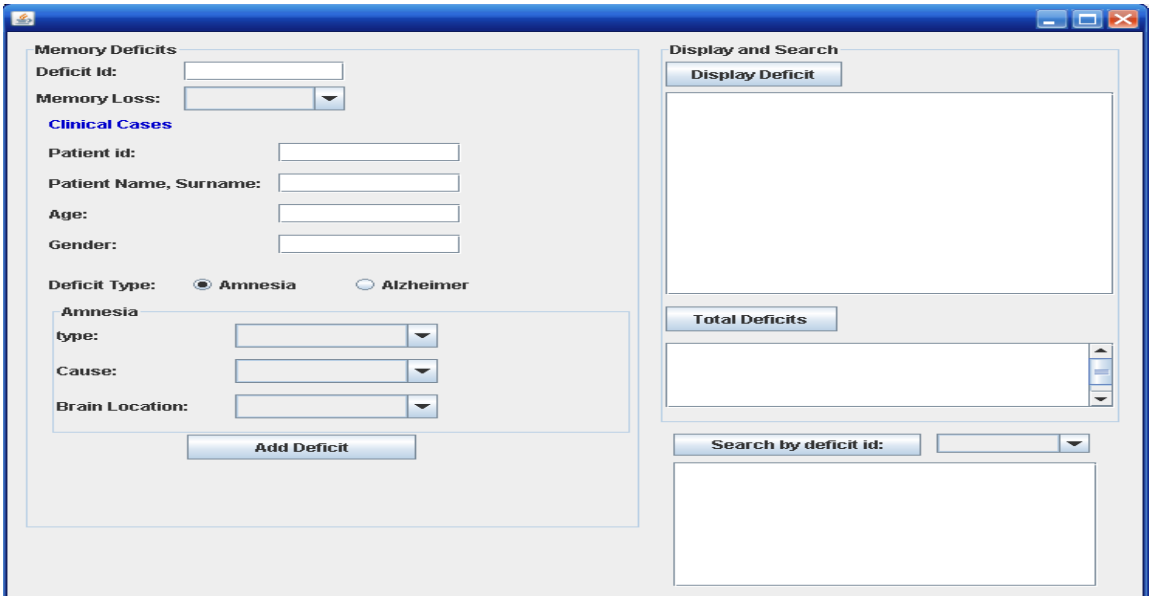
➔ toString() method for all the classes: will return the necessary data field information **related with** the implemented class.

PART B: Implement your GUI!!

Create a frame in your project named as **MemoryApp**.

Frame-1: This frame is the default start up frame. At first, users will enter the id of the deficit and choose the type of the memory loss from the combo box. Then, the user will enter the information of the clinical cases representing the patients.

- Be careful while entering the name and surname of the patient. Do not forget to separate them by using comma (,) after getting from the user.
- The deficit type divided into two parts as Amnesia and Alzheimer. Use radio buttons to differentiate them and to open related panels.
- You may use different number of panels, however do not forget to implement the ones which have the titled border.
- User cannot edit text areas.



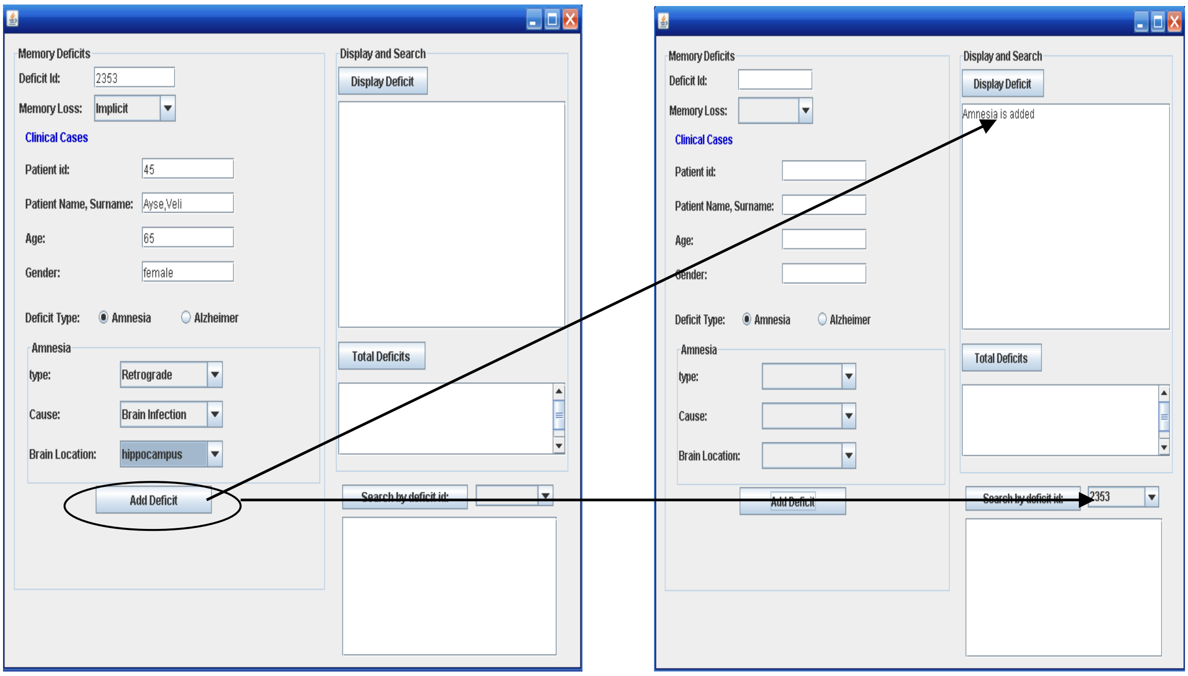
Frame -1

Frame-2 and 3: Enter the necessary information, choose the radio button “Amnesia” in order to enter information about this type of memory deficit.

"ADD DEFICIT" button for "Amnesia": When the user presses "ADD DEFICIT" button, the information about the memory deficit "Amnesia" must be kept from the necessary components. You will create an Amnesia object with using this information. Then, you will add that object into the InfoClass's ArrayList without creating an InfoClass Object (try to use InfoClass's addMemory method). Also before the add operation ended, all the necessary text fields must be cleared and the combo box values must be appeared as empty just like the opening frame.

- The added "Amnesia" must be sent to the first text area as a message of "Amnesia is added".
- The value of the "deficit id" will be sent to another combo box at the right side of the frame, next to the "Search by deficit id" button.

⇨ **BE CAREFUL; USE ONLY ONE ARRAYLIST which belongs to the InfoClass's static one for holding memory deficit information. DO NOT TRY to separate them into two array lists.**


Frame -2:

Memory Deficits
Deficit Id: 2353
Memory Loss: Implicit
Clinical Cases
Patient id: 45
Patient Name, Surname: Ayse,Veli
Age: 65
Gender: female
Deficit Type: ● Amnesia ○ Alzheimer
Amnesia
type: Retrograde
Cause: Brain Infection
Brain Location: hippocampus

Frame -3:

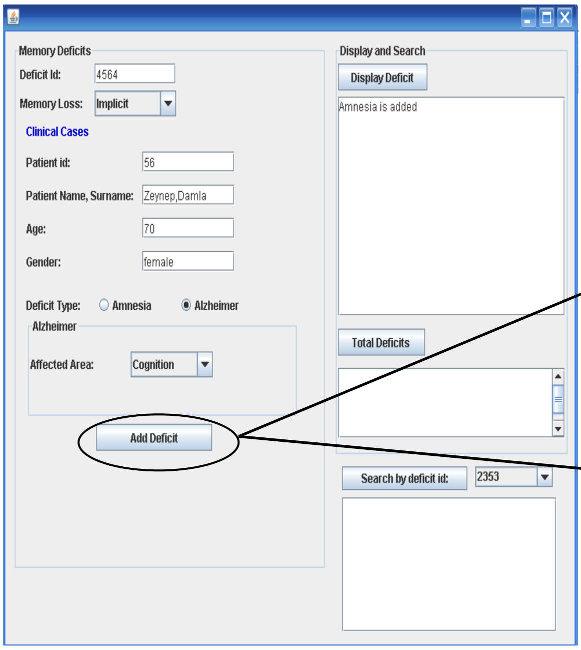
Deficit Type: ● Amnesia ○ Alzheimer
Amnesia is added
Search by deficit id: 2353

Frame -2 **Frame -3**

Frame-4 and 5: Enter the necessary information; choose the radio button "Alzheimer" in order to enter information about this type of memory deficit.

"ADD DEFICIT" button for "Alzheimer": When the user presses "ADD DEFICIT" button, the information about the memory deficit "Alzheimer" must be kept from the necessary components. You will create an Alzheimer object with using this information. Then, you will add that object into the InfoClass's ArrayList without creating an InfoClass Object (try to use InfoClass's addMemory method). Also, before the add operation ended, all the necessary text fields must be cleared and the combo box values must be appeared as empty just like the opening frame.

- The added "Alzheimer" must be sent to the first text area as a message of "Alzheimer is added".
- The value of the "deficit id" will be sent to another combo box at the right side of the frame, next to the "Search by deficit id" button.

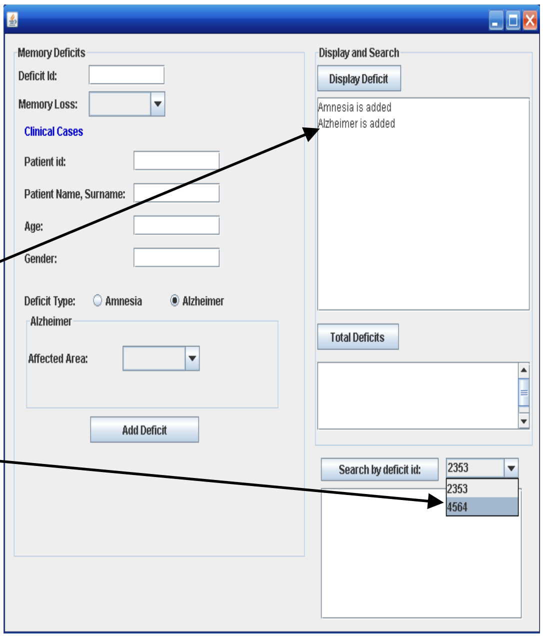


Deficit Id: 4564
Memory Loss: Implicit
Patient id: 56
Patient Name, Surname: Zeynep,Damla
Age: 70
Gender: female
Deficit Type: ○ Amnesia ● Alzheimer
Affected Area: Cognition

```
Amnesia is added
```

Search by deficit id: 2353

Frame -4



Deficit Type: ○ Amnesia ● Alzheimer

```
Amnesia is added
Alzheimer is added
```

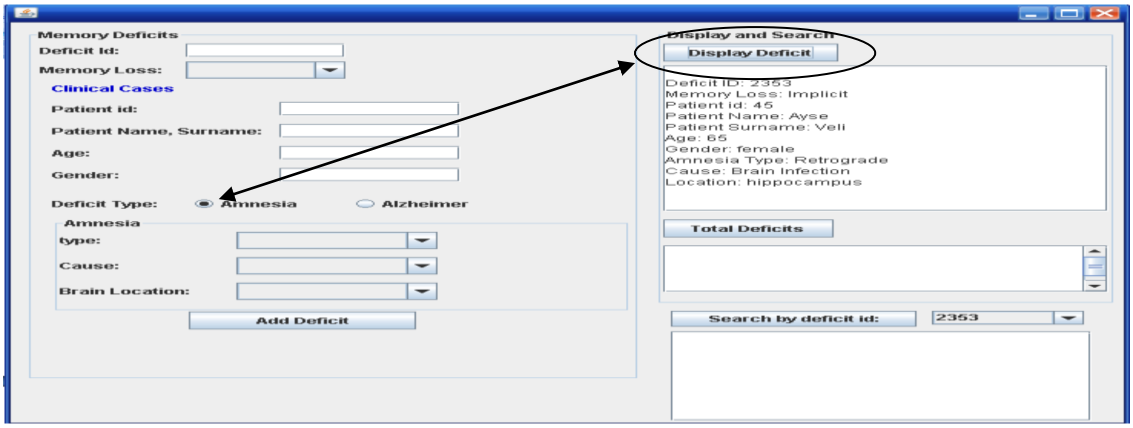
Search by deficit id: 2353
2353
4564

Frame -5

Frame-6-7:

Display Deficit button: in order to display information about the memory deficit types use "Display Deficit" button. You are supposed to use InfoClass's getAllMemory() method.

- Use radio buttons to differentiate the memory deficit types.
- If the user selects "Amnesia" radio button and presses the "Display Deficit" button, all the information about this deficit type will be displayed. You are supposed to use InfoClass's static getAmnesia() method to do this.



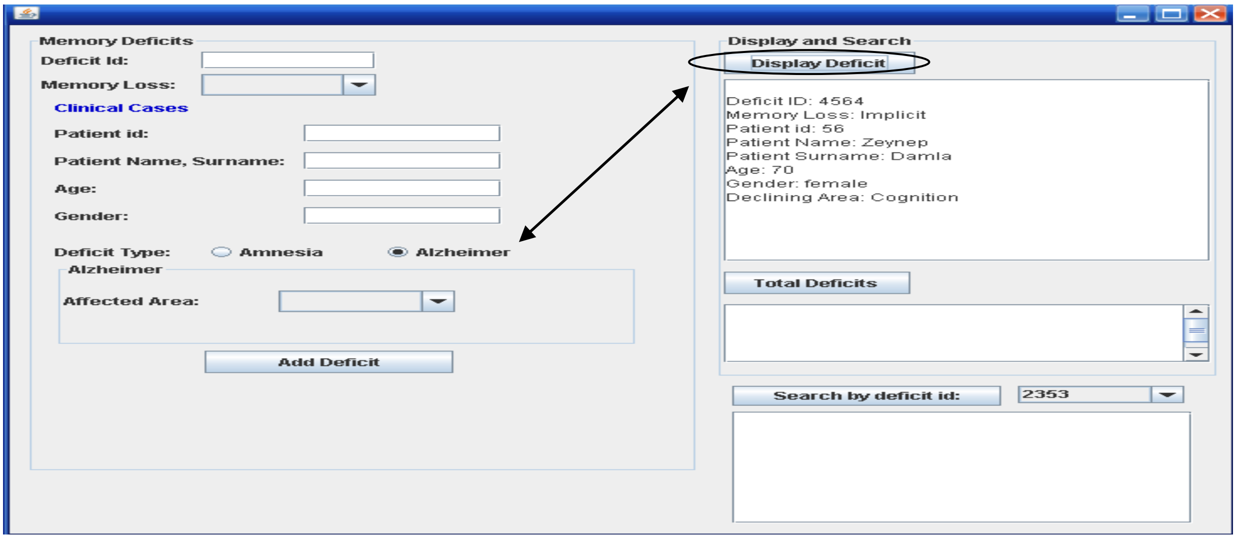
Deficit Type: ● Amnesia ○ Alzheimer

```
Deficit ID: 2353
Memory Loss: Implicit
Patient id: 45
Patient Name: Ayse
Patient Surname: Veli
Age: 65
Gender: female
Amnesia Type: Retrograde
Cause: Brain Infection
Location: hippocampus
```

Search by deficit id: 2353

Frame -6

- If the user selects "Alzheimer" radio button and presses the "Display Deficit" button, all the information about this deficit type will be displayed. You are supposed to use InfoClass's static getAlzheimer() method to do this.
- Be careful, "display deficit" button will display all the amnesia information, or all the Alzheimer information hold in the array list.



Deficit Type: ○ Amnesia ● Alzheimer

Search by deficit id: 2353

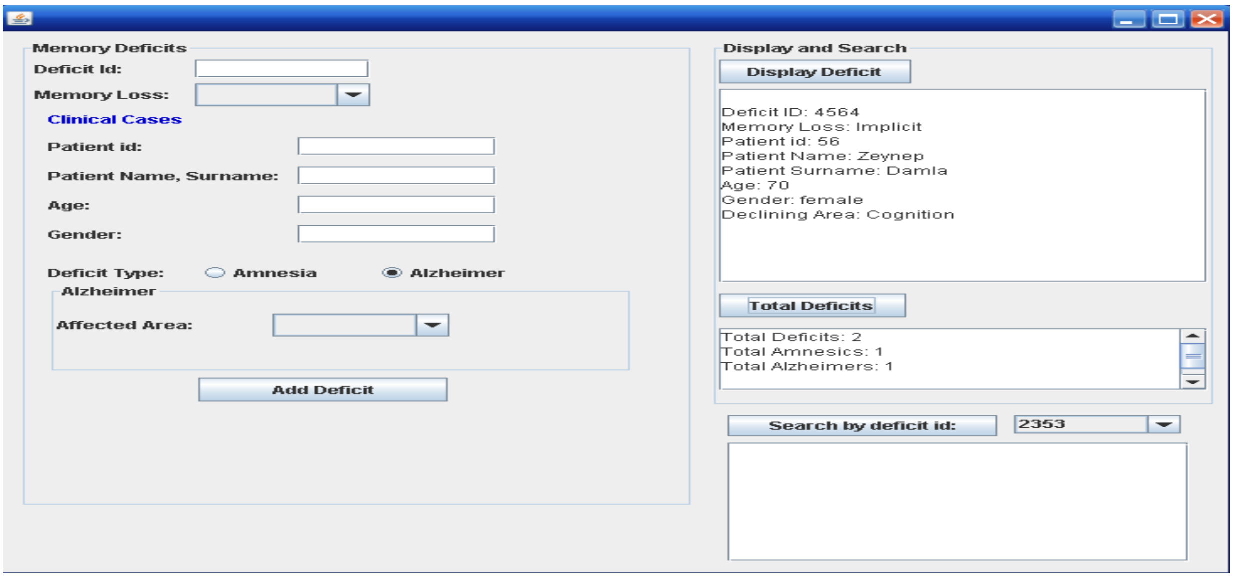
```
Deficit ID: 4564
Memory Loss: Implicit
Patient id: 56
Patient Name: Zeynep
Patient Surname: Damla
Age: 70
Gender: female
Declining Area: Cognition
```

Frame -7

Frame-8:

Total Deficits button: When the user presses "Total Deficits" button, in the second text area the information about the total numbers of "Total Deficits", "Total Amnesics" and "Total Alzheimers" will be appeared. You are supposed to use InfoClass's showTotalMemory() method which calls the MemoryDeficit class's static method of getTotalDeficit(). If you need similar static methods for the other total values, add them too.

- Since, we just entered two information, the number of "Total Deficits" is 2, "Total Amnesics" is 1 and the number of "Total Alzheimers" is 1.
- For every added memory deficit whether "Amnesia" or "Alzheimer", the values here must be increment.



Deficit Type: ○ Amnesia ● Alzheimer

Search by deficit id: 2353

```
Deficit ID: 4564
Memory Loss: Implicit
Patient id: 56
Patient Name: Zeynep
Patient Surname: Damla
Age: 70
Gender: female
Declining Area: Cognition
```

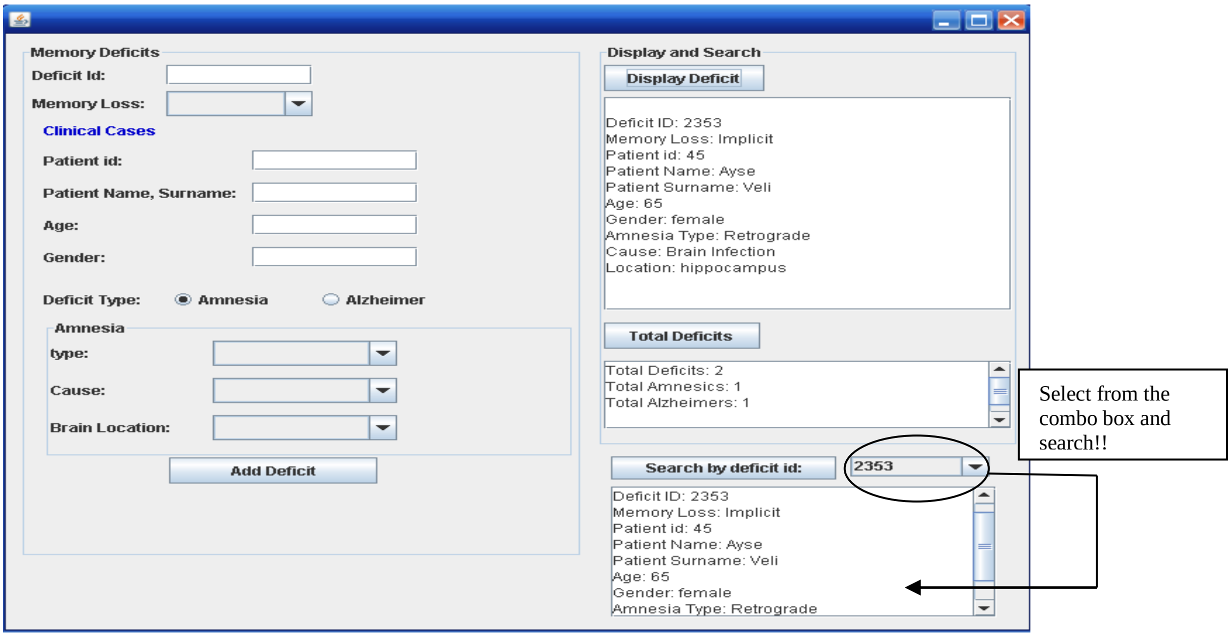
```
Total Deficits: 2
Total Amnesics: 1
Total Alzheimers: 1
```

Frame -8

Frame-9-10:

Search by deficit id button: The users can search both memory deficit types by using the deficit ids. Your search process will be done by InfoClass's static method of searchMemory() which requires a string id as a parameter.

- When the user selects an id from the combo box and presses the "Search by deficit id" button, the information about **that** deficit, should appear in the text area.



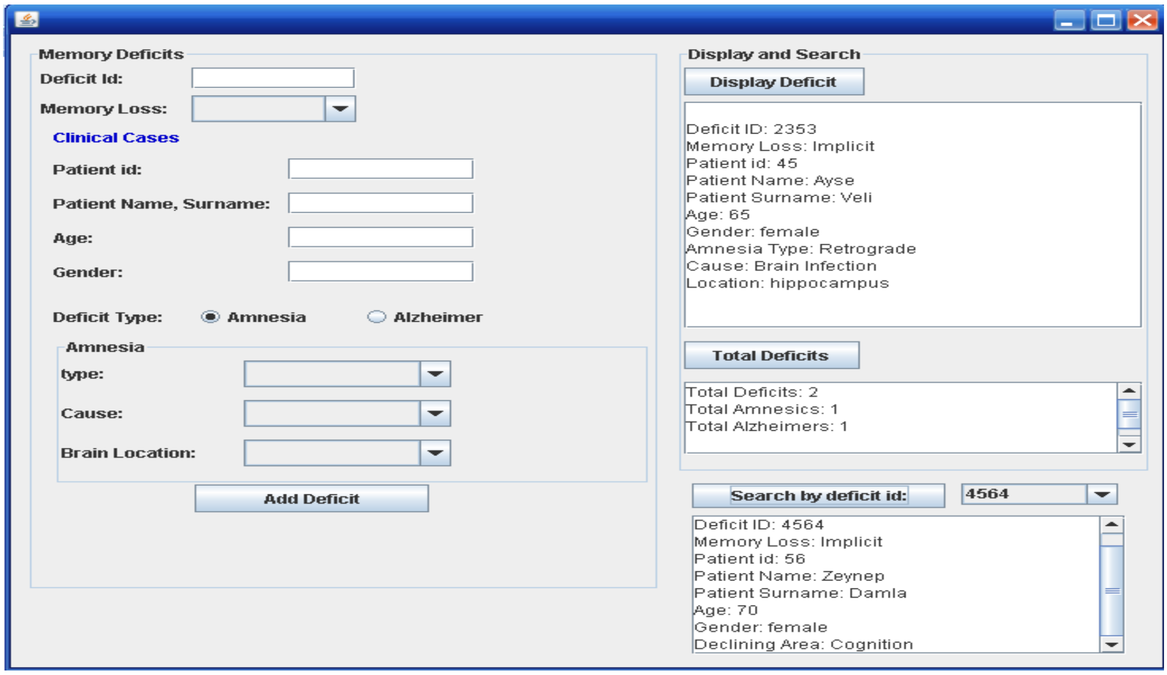
Deficit ID: 2353
Memory Loss: Implicit
Patient id: 45
Patient Name: Ayse
Patient Surname: Veli
Age: 65
Gender: female
Amnesia Type: Retrograde
Cause: Brain Infection
Location: hippocampus

Total Deficits: 2
Total Amnesics: 1
Total Alzheimers: 1

Deficit ID: 2353
Memory Loss: Implicit
Patient id: 45
Patient Name: Ayse
Patient Surname: Veli
Age: 65
Gender: female
Amnesia Type: Retrograde

Select from the combo box and search!!

Frame -9



Deficit ID: 2353
Memory Loss: Implicit
Patient id: 45
Patient Name: Ayse
Patient Surname: Veli
Age: 65
Gender: female
Amnesia Type: Retrograde
Cause: Brain Infection
Location: hippocampus

Total Deficits: 2
Total Amnesics: 1
Total Alzheimers: 1

Deficit ID: 4564
Memory Loss: Implicit
Patient id: 56
Patient Name: Zeynep
Patient Surname: Damla
Age: 70
Gender: female
Declining Area: Cognition

Frame -10