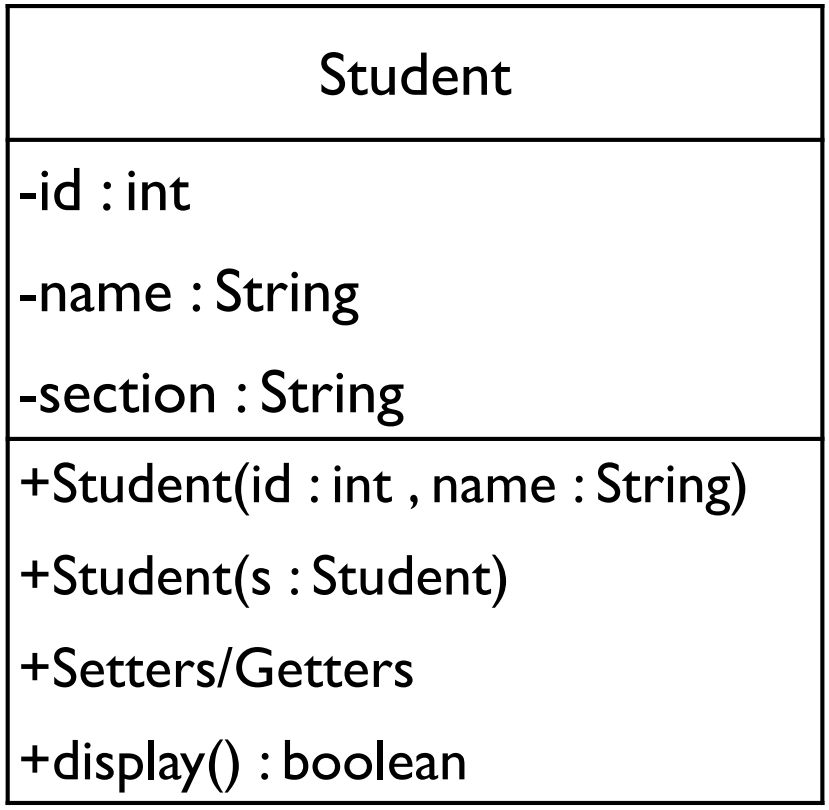
CSC 113
Tutorial 3

Relationship Between Classes 1


Student
-id : int
-name : String
-section : String
+Student(id : int , name : String)
+Student(s : Student)
+Setters/Getters
+display() : boolean

Constructor should assign values to corresponding attributes.

Student
-id : int -name : String -section : String
+Student(id : int , name : String) +Student(s : Student) +Setters/Getters +display() : boolean

```
public class Student {
    private int id;
    private String name;
    private String section;

    public Student(int id,String name, String section)
    {
        this.id = id;
        this.name = name;
        this.section = section;
    }
```

Second constructor should copy values to corresponding attributes.

Student
-id : int -name : String -section : String
+Student(id : int , name : String) +Student(s : Student) +Setters/Getters +display() : boolean

```
public Student(Student s)
    {
        id = s.getId();
        name = s.getName();
        section = s.getSection();
    }
```

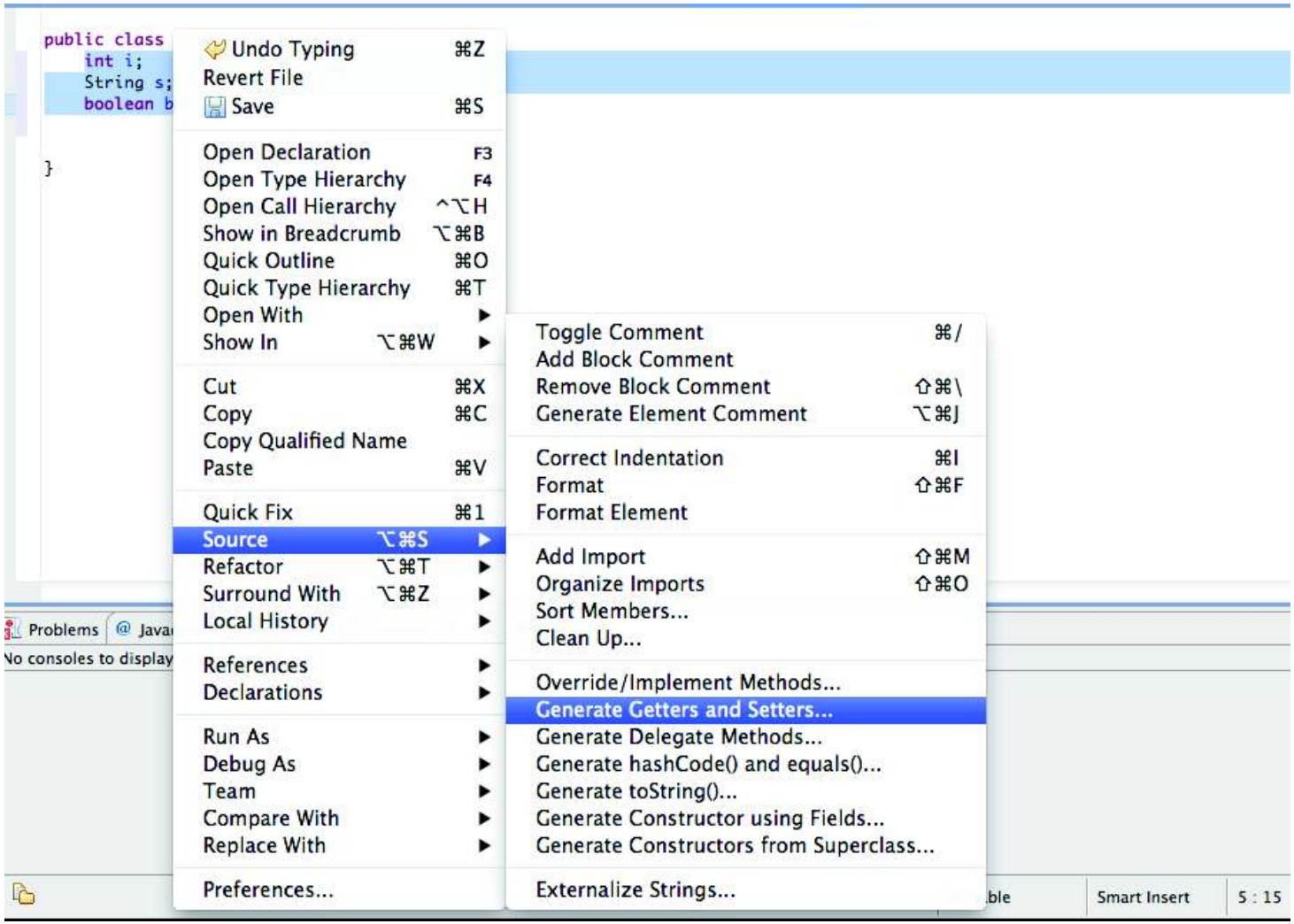
display should print the values.

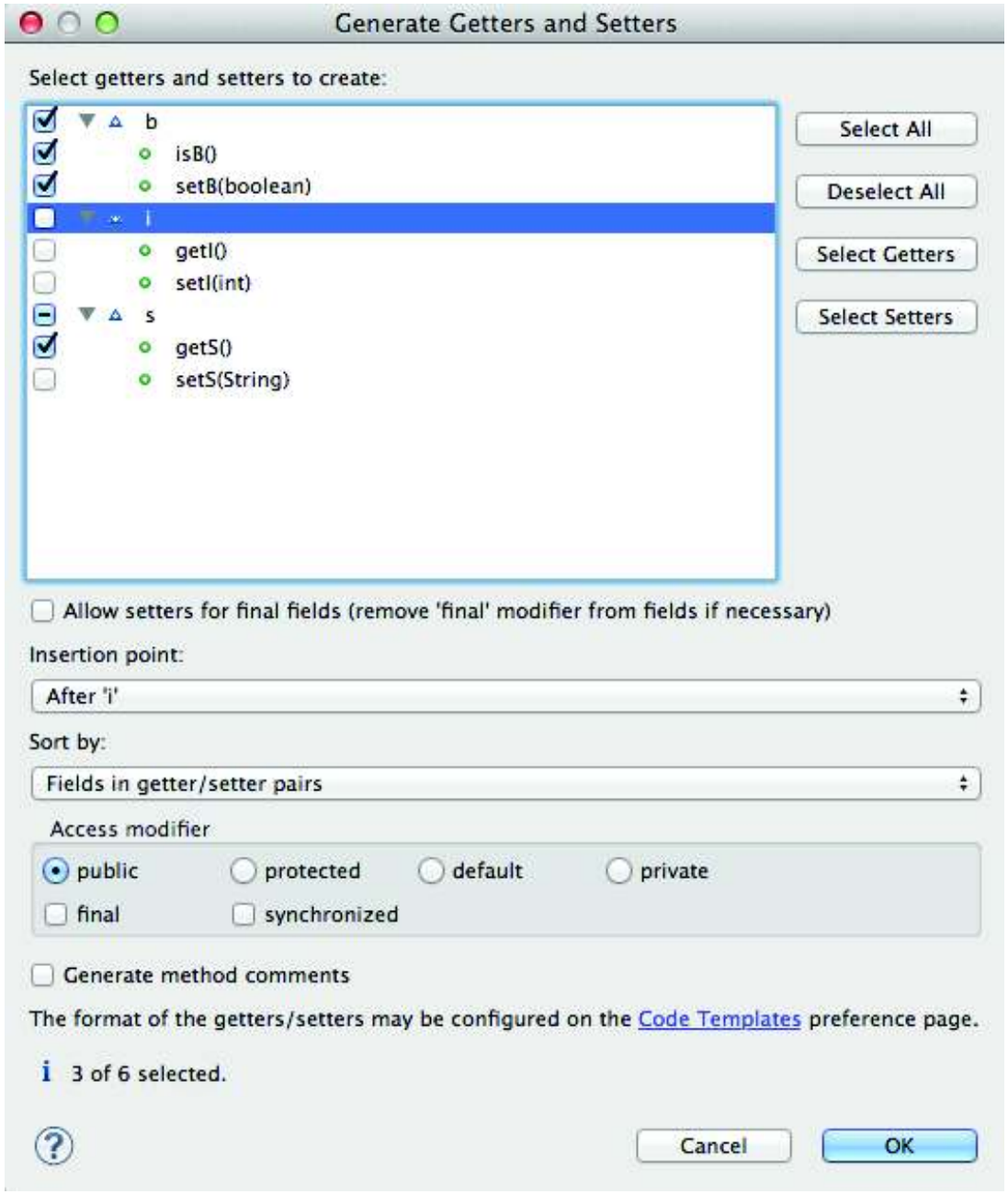
Student
-id : int -name : String -section : String
+Student(id : int , name : String) +Student(s : Student) +Setters/Getters +display() : boolean

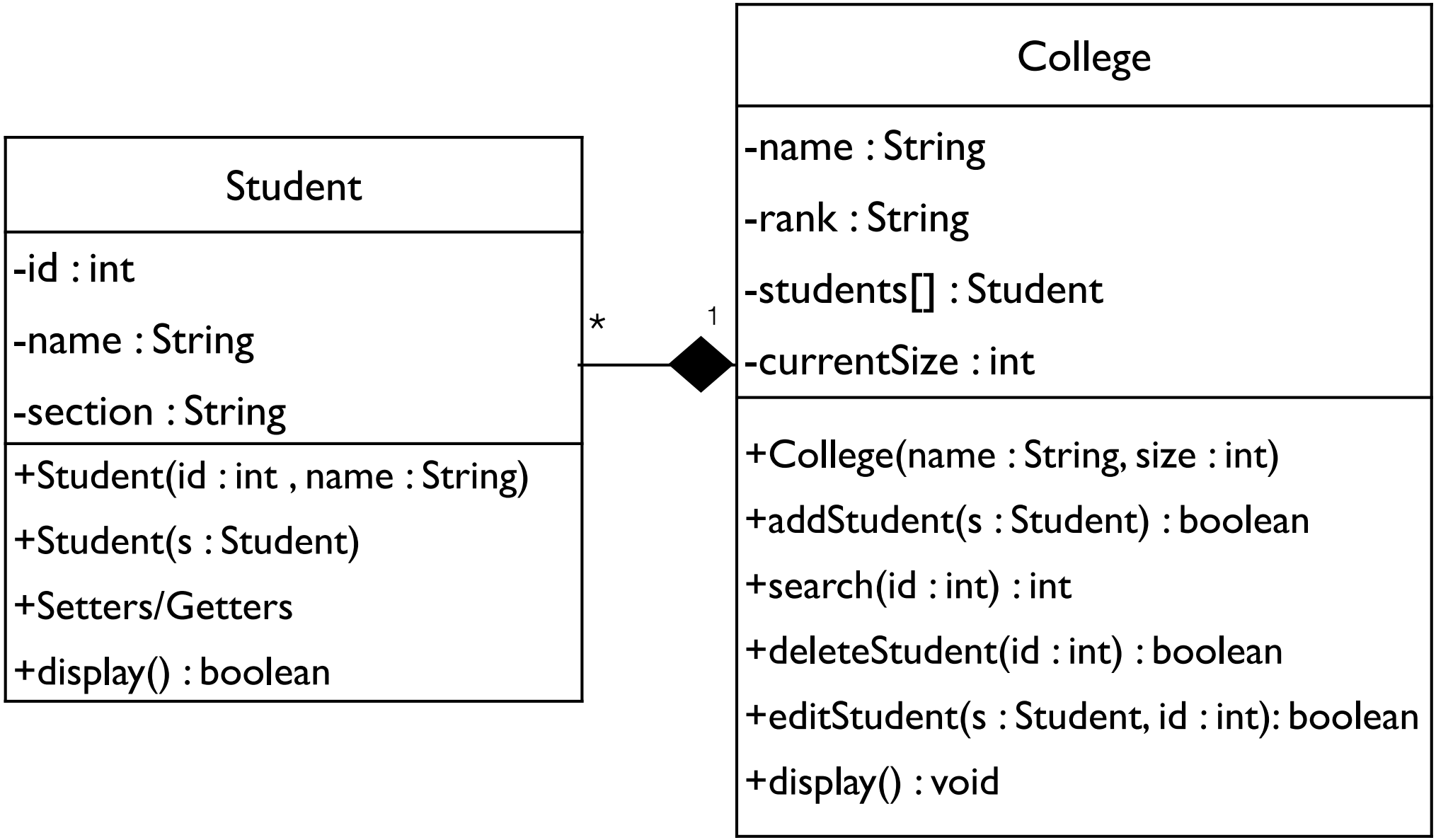
```
public void display()
    {
        System.out.println(id+" \t"+name+" \t"+section);
    }
```

Setters/Getters

- using eclipse you can generate setters and getters instead of writing the code.




Generate Getters and Setters
Select getters and setters to create:
b
isB()
setB(boolean)
i
getI()
setI(int)
s
getS()
setS(String)
Select All
Deselect All
Select Getters
Select Setters
Allow setters for final fields (remove 'final' modifier from fields if necessary)
Insertion point:
After 'i'
Sort by:
Fields in getter/setter pairs
Access modifier
public
protected
default
private
final
synchronized
Generate method comments
The format of the getters/setters may be configured on the Code Templates preference page.
3 of 6 selected.
Cancel
OK


Student
-id : int
-name : String
-section : String
+Student(id : int , name : String)
+Student(s : Student)
+Setters/Getters
+display() : boolean
*
1
College
-name : String
-rank : String
-students[] : Student
-currentSize : int
+College(name : String, size : int)
+addStudent(s : Student) : boolean
+search(id : int) : int
+deleteStudent(id : int) : boolean
+editStudent(s : Student, id : int): boolean
+display() : void

Constructor should assign values to corresponding attributes.

College
-name : String -rank : String -students[] : Student -currentSize : int
+College(name : String, size : int) +addStudent(s : Student) : boolean +search(id : int) : int +deleteStudent(id : int) : boolean +editStudent(s : Student, id : int): boolean +display() : void

```
public College(String name, String rank,int size)
    {
        this.name = name;
        students = new Student[size];
        this.rank = rank;
    }
```

AddStudent takes a student and copy it to the college.

College
-name : String -rank : String -students[] : Student -currentSize : int
+College(name : String, size : int) +addStudent(s : Student) : boolean +search(id : int) : int +deleteStudent(id : int) : boolean +editStudent(s : Student, id : int): boolean +display() : void

```
public boolean addStudent(Student s)
    {
        if(currentSize < students.length)
        {
            students[currentSize++]=new Student(s);
            return true;
        }
        return false;
    }
```

Search for the given id. return the index if found. otherwise return -1.

```
public int search(int stuId)
    {
        int i;
        for(i=0; i<currentSize; i++)
            if(students[i].getId() == stuId)
                return i;
        return -1;
    }
```

College
-name : String -rank : String -students[] : Student -currentSize : int
+College(name : String, size : int) +addStudent(s : Student) : boolean +search(id : int) : int +deleteStudent(id : int) : boolean +editStudent(s : Student, id : int): boolean +display() : void

Searches for the given id and deletes it and returns true. If not found returns false.

```
public boolean delete(int stuId)
    {
        int i = search(stuId);

        if(i==-1)
            return false;

        students[i] = students[--currentSize];
        students[currentSize] = null;
        return true;

    }
```

College
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Searches for the given id and and replace its name and section with those in s and returns true. If not found returns false.

```
public boolean edit(Student s,
 int stuId)
    {
        int i = search(stuId);

        if(i==-1)
            return false;

        students[i].setSection(s.getSection());
        students[i].setName(s.getName());
        return true;
    }
```

College
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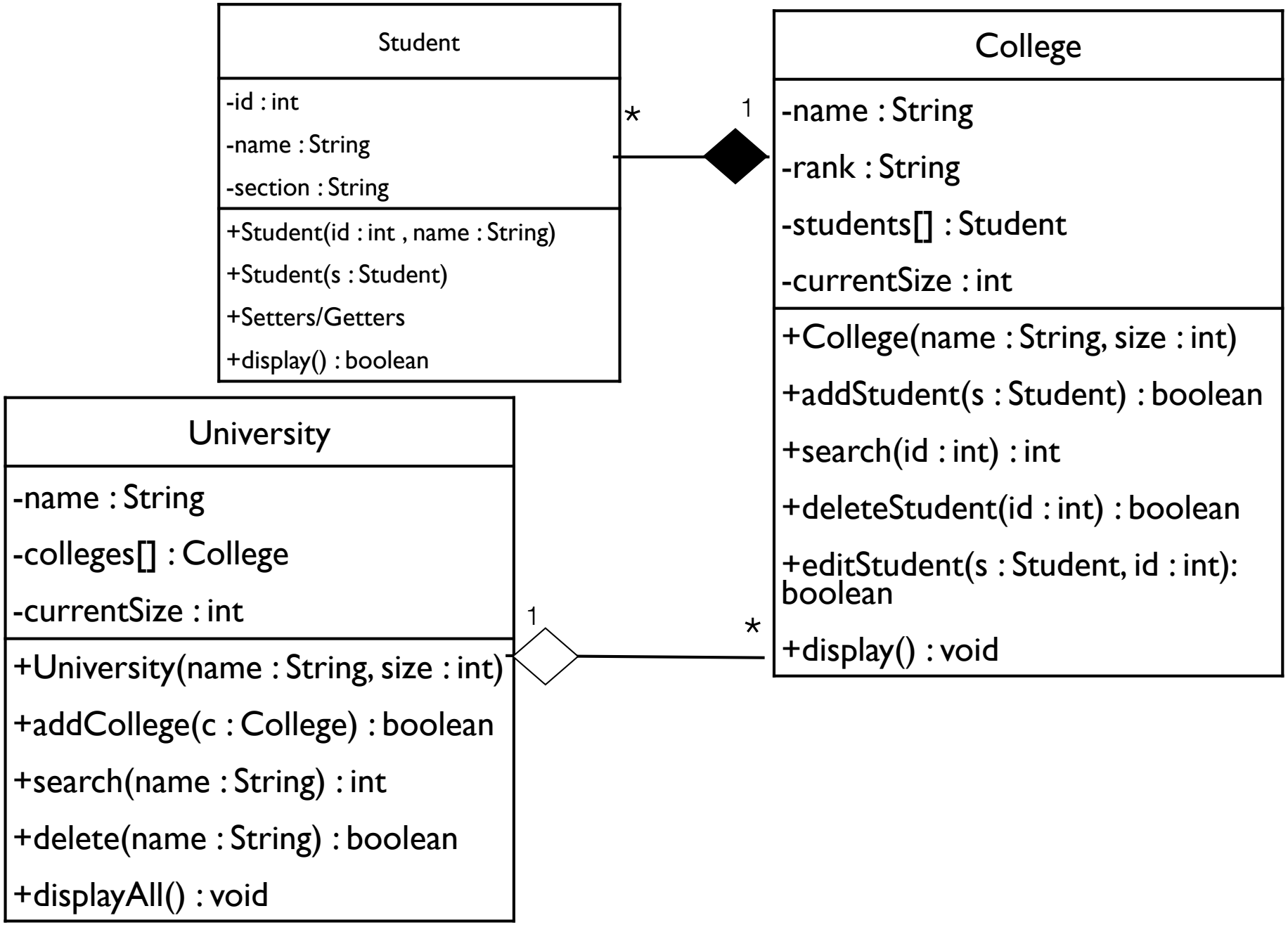
display the name and rank of the college and all students in the college

College
-name : String -rank : String -students[] : Student -currentSize : int
+College(name : String, size : int) +addStudent(s : Student) : boolean +search(id : int) : int +deleteStudent(id : int) : boolean +editStudent(s : Student, id : int): boolean +display() : void

```
public void displayAll()
    {
        int i;


        System.out.println("College: "+ name+" rank: "+rank);
        System.out.println("ID \tName \tSection");
        for(i=0; i<currentSize; i++)
            students[i].display();
    }
```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+addStudent(s : Student) : boolean
+search(id : int) : int
+deleteStudent(id : int) : boolean
+editStudent(s : Student, id : int): boolean
+display() : void
University
-name : String
-colleges[] : College
-currentSize : int
+University(name : String, size : int)
+addCollege(c : College) : boolean
+search(name : String) : int
+delete(name : String) : boolean
+displayAll() : void
*
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1
*