```java
import java.util.Locale;
import java.util.Random;
import java.util.Scanner;

public class student {
	Scanner input = new Scanner(System.in).useLocale(Locale.US);
	Random r=new Random();
	private int id;
	private String name;
	private double gpa;

	//cons
	public student() {
		id=0;
		name="NA";
		gpa=0.0;
	}
		public student(int id, String name, double gpa) {
			this.id = id;
			this.name = name;
			this.gpa = gpa;
		}



	//getters setters
	public int getId() {
		return id;
	}
	public void setId(int id) {

		this.id = id;

	}
	public String getName() {
		return name;
	}
```

```
	public void setName(String name) {
		this.name = name;
	}
	public double getGpa() {
		return gpa;
	}
	public void setGpa(double gpa) {
		this.gpa = gpa;
	}
	public void read() {
		System.out.println("----------------------------------
||#ENTER THE YOUR INFORMATION#||----------------------------------
--------------------------------------------------------------------------------
----------------------------------------");

		System.out.println("PLEASE ENTER ID: ");
		this.id=input.nextInt();
		System.out.println("ENTER GPA: ");
		this.gpa=input.nextDouble();
		setGpa(gpa);
		System.out.println("ENTER GPA: ");
		this.name=input.next();
		System.out.println("----------------------------------------------
--------------------------------------------------------------------------------
----------------------------------------------------------------");

	System.out.println("==================================
==================================================
==============================");
		input.close();
	}
	public void print() {
		System.out.println("----------------------------------||#THE
STUDENT INFORMATION#||----------------------------------------------
--------------------------------------------------------------------------------
-------------------------");
		System.out.println("THE STUDENT NAME IS "+name);
```

```
                System.out.println("THE STUDENT ID IS "+id);
                System.out.println("THE STUDENT GPA IS "+gpa);
                System.out.println("----------------------------------------
--------------------------------------------------------------------------------
-----------------------------------------------------------------");

        System.out.println("==================================
================================================================
================================");
        }
        public String toString() {
                return name+", "+id+", "+", "+gpa;
        }
}
```

```java
import java.util.Locale;
import java.util.Random;
import java.util.Scanner;

public class course {
	Scanner input = new Scanner(System.in).useLocale(Locale.US);
	Random r=new Random();
	private int hrs;
	private String coursename;
	private student st[];
	//no of student
	private int nbs;
	//
	public course() {
		coursename="NA";
		hrs=1;
		st=new student[30];
		nbs=0;
	}
	public course(String coursename,int hrs, int size) {
		this.coursename=coursename;
		this.hrs=hrs;
		st=new student[size];
		nbs=0;
	}
	public int getHrs() {
		return hrs;
	}
	public void setHrs(int hrs) {
		this.hrs = hrs;
	}
	public String getCoursename() {
		return coursename;
	}
	public void setCoursename(String coursename) {
		this.coursename = coursename;
	}
```

```
	public int getNbs() {
		return nbs;
	}
	public student getStudent(int index) {
		if(index>=0&& index <nbs)
		return st[index];
		else
			return null;
	}
	public int searchId(int id) {
		//do not say st.length it cuses run time error
		/*
				for(int i =0;i<st.length ;i++) {
			if(st[i].getId()==id)
				return i;
		}

		 */

		for(int i =0;i<nbs;i++) {
			if(st[i].getId()==id)
				return i;
		}
		//it does not exsist
		return -1;
	}

public int searchName(String name) {
	//do not say == it cuses compile error
	/*
			for(int i =0;i<st.length ;i++) {
		if(st[i].getName()==name)
			return i;
	}

	 */
```

```
        for(int i =0;i<nbs;i++) {
                if(st[i].getName().equalsIgnoreCase(name))
                        return i;
        }
        //it does not exsist
        return -1;
}

public student searchStudent(int id) {
        //do not say st.length it cuses run time error
        /*
                        for(int i =0;i<st.length ;i++) {
                if(st[i].getId()==id)
                        return i;
        }

         */

        for(int i =0;i<nbs;i++) {
                if(st[i].getId()==id)
                        return st[i];
        }
        //it does not exsist
        //return -1;
        return null;
}
public boolean add(student s) {
        if(nbs<st.length) {
        st[nbs]=s;
        nbs++;
        return true;
        }
        else return false;

}
public void printArray() {
        System.out.println("COURSE NAME: "+coursename);
```

```
        System.out.println("COURSE HOURS: "+hrs);
        System.out.println("LIST OF STUDENTS:\n-------------------------
-------------------------------------------------------------------------
-- ");
        for(int i=0;i<nbs;i++) {
                st[i].print();
        }

                System.out.println("-----------------------------------------
-------------------------------------------------------------------------
-------------");
}

public boolean adduni(student s) {
        if(nbs<st.length) {
                int index = searchId(s.getId());
                if(index==-1){//not found go ahed and add this studnet
                        st[nbs]=s;
        nbs++;
        return true;
}
                else
                        return false;
                }
        else return false;

}
public void printArrayToString() {
        System.out.println("COURSE NAME: "+coursename);
        System.out.println("COURSE HOURS: "+hrs);
        System.out.println("LIST OF STUDENTS:\n-------------------------
-------------------------------------------------------------------------
-- ");
        for(int i=0;i<nbs;i++) {
                System.out.println(st[i]);
        }
```

```
                System.out.println("-----------------------------------------
-------------------------------------------------------------------------------
-------------");
}
public boolean delete(int id) {
        int index = searchId(id);
        // id not found
        if(index==-1)
                return false;
        else {
                st[index]=st[nbs-1];
        nbs--;
        return true;
        }
}
                                                                                }
```

```java
import java.util.Locale;
import java.util.Scanner;
import java.util.Random;
public class arr1 {

	public static void main(String[] args) {
		Scanner input = new
Scanner(System.in).useLocale(Locale.US);
		Random r=new Random();
		course c1=new course();
		course c2=new course("CSC111",4,15);
		course c3=new course();

		/*
		//part1
run time error
		System.out.println(c2.getStudent(2));
		student ss=c1.getStudent(2);
		System.out.println(ss.getName());

	*/
		//int a=c1.search(7);
		//ystem.out.println(a);
		c2.adduni(new student(4,"ALI",4));
		c2.adduni(new student(2,"LI",4));
		c2.adduni(new student(2,"AL",4));
		c2.adduni(new student(4,"ALILLL",5));
		c2.adduni(new student());
		c2.printArray();

	System.out.println("==================================
=========================================");
		c2.printArrayToString();

	}

}
```