

Person, Student, Family Problem

Create a class called Person. Person should have (instance variables should be private):

```
private String name;  
private int age;
```

2 Constructors:

Default constructor (no parameters)

Constructor which takes 2 parameters for name and age

Methods:

toString

equals

Appropriate set and get methods for setting and accessing the Person data.

Create a class called Student which extends Person.

Student has the private data:

```
private String major;  
private double gpa;
```

Similar to the Person class, add get and set methods.

Add 2 constructors:

default constructor

Constructor which sets all necessary data in the Person and Student class (name, age, major and gpa)

Methods:

toString

equals

Create a Family class with the following:

Constructor:

```
Family (int size_of_family)
```

Family contains an array of Person that is the size of "size_of_family".

Family has a method called:

```
void addPerson(Person p);
```

The addPerson will call equals to make sure that the Person p hasn't already been added. If a duplicate is found, print out a message and continue without adding the duplicate person.

```
void printOutFamily();
```

This routine calls all of the toString methods in the family.

Run your Family with the following main routine: This output should be put into the JH6_worksheet.txt

```
public static void main(String[] args)
{
    Family f = new Family(8);
    Person fred= new Person("Fred Flintstone", 50);
    System.out.println("created " + fred);
    f.addPerson(fred);
    f.addPerson(fred);

    Student fredStudent = new Student("Fred Flintstone", 50, "Math",
3.1);
    System.out.println("created "+ fredStudent);
    f.addPerson(fredStudent);

    Person wilma = new Person("Wilma Flintstone", 48);
    f.addPerson(wilma);

    Student george= new Student("George", 21, "Politics", 3.1);
    System.out.println("created " + george);
    f.addPerson(george);

    george.setName("Georgie");
    f.addPerson(new Student("George", 21, "Politics", 3.1));

    f.addPerson(new Student("John", 18, "Geology", 2.9));
    f.addPerson(new Student("Jane", 21, "Music", 3.2));
    f.addPerson(new Student("Tarzan", 22, "Gymnastics", 4.0));
    f.addPerson(new Student("Jim", 21, "Physics", 2.5));
    f.addPerson(new Person("Robert", 18));
    f.addPerson(new Person("Clemente", 32));

    System.out.println("***** family listing: ");
    f.printOutFamily();
}
```