PIJ Lab Assignment 3

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Batch: AIML A3

Write a menu-driven Java Program to study the concepts of classes, array of objects/arraylist, instance members, constructors in java. Assignment description: Create a Student class describing attributes of a student like prn, name, DoB, marks etc. Create an array of objects of Student class and perform operations like: Add students, Display, Search (by prn, by name, by position), Update/Edit and Delete.

CODE:

```java
import java.util.*;


public class StudentManager {
public static void main(String[] args)
  {
    student_functions student_functions_object = new student_functions();


    // menu for add, display, search, update, delete
while(true){
      System.out.println("Select the operation to modify database: ");
      System.out.println("0. Exit");
      System.out.println("1. Add student details");
      System.out.println("2. Display all");
```

```java
        System.out.println("3. Search student");

        System.out.println("4. Update Details");

        System.out.println("5. Delete record");


        Scanner sc = new Scanner(System.in);
int choice = sc.nextInt();


        switch(choice){
case 0:

        System.out.println("Exiting...");

break;          case 1:

        student_functions_object.add_student();

break;          case 2:

        student_functions_object.display();

break;          case 3:

        student_functions_object.search();

        break;

case 4:

        student_functions_object.update();

break;          case 5:

student_functions_object.delete();

break;          default:

        System.out.println("Invalid choice");

        }
```

```java
        if(choice==0){
break;
        }


    }
  }
}


class student {
private int prn;
private String name;
private String dob;
private int marks;


    public student(int prn, String name, String dob, int marks) {
this.prn = prn;      this.name = name;      this.dob = dob;
this.marks = marks;

    }


    public int getPrn() {
return prn;
    }
```

```java
    public void setPrn(int prn) {
this.prn = prn;
    }


    public String getName() {
return name;
    }


    public void setName(String name) {
this.name = name;
    }


    public String getDob() {
return dob;
    }


    public void setDob(String dob) {
this.dob = dob;

    }


    public int getMarks() {
return marks;
    }
```

```java
    public void setMarks(int marks) {
this.marks = marks;

    }
}


class student_functions {
    ArrayList<student> student_list = new ArrayList<student>();



    public void print_student(int i)
    {
        System.out.print("Name: " + student_list.get(i).getName()+" | ");
        System.out.print("PRN: " + student_list.get(i).getPrn()+" | ");
        System.out.print("DOB: "+ student_list.get(i).getDob()+" | ");
        System.out.print("Marks: " +student_list.get(i).getMarks()+"   |
\n\n");
    }

    public void add_student() {
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter the number of students to be added:
");
        int n = sc.nextInt();
```

```java
    for (int i = 0; i < n; i++) {

        System.out.println("Enter the details of the student in the
following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks");

        String details = sc.next();


        String[] details_array = details.split(",");
int prn = Integer.parseInt(details_array[0]);


        String name = details_array[1];


        String dob_string = details_array[2];


        int marks = Integer.parseInt(details_array[3]);


        student new_student = new student(prn, name, dob_string,
marks);
        student_list.add(new_student);
    }
  }


  public void display() {
    for (int i = 0; i < student_list.size(); i++) {
print_student(i);
```

```java
        }
    }

    public void search(){

        System.out.println("Select the search criteria: ");
        System.out.println("1. PRN");
        System.out.println("2. Name");
        System.out.println("3. Position");

        Scanner sc = new Scanner(System.in);
int choice = sc.nextInt();

        switch(choice){
case 1:
            // //Using contains method
            // System.out.println("Enter the PRN to be searched: ");
            // int temp_prn = sc.nextInt();
            // if(student_list.contains(temp_prn)){
            // int found = student_list.indexOf(temp_prn);
            // print_student(found);
            // }
            // else{
            //    System.out.println("PRN not found");
```

```java
        //  }

        //OR

        System.out.println("Enter the PRN to be searched: ");
int prn = sc.nextInt();
        for (int i = 0; i < student_list.size(); i++) {
if (student_list.get(i).getPrn() == prn) {
print_student(i);
            }
        }

        break;
case 2:
        System.out.println("Enter the Name to be searched: ");
String name = sc.next();
        for (int i = 0; i < student_list.size(); i++) {
if (student_list.get(i).getName() == name) {
print_student(i);
            }
        }
break;        case 3:
//position
```

```java
            System.out.println("Enter the Position to be searched: ");
int position = sc.nextInt();
            for (int i = 0; i < student_list.size(); i++) {
if (i == position) {                print_student(i);
            }
}
break;
default:
            System.out.println("Invalid choice");
    }


    }


    public void update(){
        System.out.println("Enter the PRN of the student to be updated:
");
        Scanner sc = new Scanner(System.in);
int prn = sc.nextInt();


        for (int i = 0; i < student_list.size(); i++) {
        if (student_list.get(i).getPrn() == prn) {
            System.out.println("Enter the details of the student in the
following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks");
            String details = sc.next();
```

```java
        String[] details_array = details.split(",");
int prn_new = Integer.parseInt(details_array[0]);

        String name_new = details_array[1];

        String dob_string_new = details_array[2];

        int marks_new = Integer.parseInt(details_array[3]);

        student new_student = new student(prn_new, name_new,
dob_string_new, marks_new);
        student_list.set(i, new_student);
        }
      }
    }

  public void delete(){
    System.out.println("Enter the PRN of the student to be deleted:
");
    Scanner sc = new Scanner(System.in);
    int prn = sc.nextInt();
```

```
        for (int i = 0; i < student_list.size(); i++) {

if (student_list.get(i).getPrn() == prn) {

            System.out.println("Student named:"+
student_list.get(i).getName() + " deleted successfully");
student_list.remove(i);

        }

    }

  }


}
```

OUTPUT:

```
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
15
4
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
12,Akhil,22/02/2002,90
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
13,Arjun,23/08/2001,60
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
14,Jatin,24/08/2003,85
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
15,Kartik,25/06/2001,86
```

```
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
2
Name: Akhil | PRN: 12 | DOB: 22/02/2002 | Marks: 90  |


Name: Arjun | PRN: 13 | DOB: 23/08/2001 | Marks: 60  |


Name: Jatin | PRN: 14 | DOB: 24/08/2003 | Marks: 85  |


Name: Kartik | PRN: 15 | DOB: 25/06/2001 | Marks: 86  |
```

```
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
3
Select the search criteria:
1. PRN
2. Name
3. Position
1
Enter the PRN to be searched:
13
Name: Arjun | PRN: 13 | DOB: 23/08/2001 | Marks: 60  |
```

```
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record

4
Enter the PRN of the student to be updated:
14
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
16,Ram,12/12/2003,63
```

```
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
5
Enter the PRN of the student to be deleted:
12
Student named:Akhil deleted successfully
```

https://github.com/DK2653/Student_Data_Array_of_Objects.git