JAVA ASSIGNMENT

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AIML A1

QUESTION:-

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
/*
    Name: Anvesha Raikwar
    PRN: 21070126017
    Batch: AIML - A1
*/

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");
            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();
```

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

6 usages
class student {
    3 usages
    private int prn;
    3 usages
```

```java
        private String name;
        3 usages
        private String dob;
        3 usages
        private int marks;

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

        4 usages
        public int getPrn() {
            return prn;
        }

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

        3 usages
        public String getName() {
            return name;
        }

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

```java
        public String getDob() {
            return dob;
        }

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

        1 usage
        public int getMarks() {
            return marks;
        }

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

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


        4 usages
        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");
        }
```

```java
      1 usage
115   public void add_student() {
116       Scanner sc = new Scanner(System.in);
117       System.out.println("Enter the number of students to be added: ");
118       int n = sc.nextInt();
119
120       for (int i = 0; i < n; i++) {
121           System.out.println("Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks");
122           String details = sc.next();
123
124           String[] details_array = details.split( regex: ",");
125           int prn = Integer.parseInt(details_array[0]);
126
127           String name = details_array[1];
128
129           String dob_string = details_array[2];
130
131           int marks = Integer.parseInt(details_array[3]);
132
133           student new_student = new student(prn, name, dob_string, marks);
134           student_list.add(new_student);
135       }
136   }
137
      1 usage
138   public void display() {
139       for (int i = 0; i < student_list.size(); i++) {
140           print_student(i);
141       }
142   }
143
      1 usage
```

```java
144   public void search(){
145
146       System.out.println("Select the search criteria: ");
147       System.out.println("1. PRN");
148       System.out.println("2. Name");
149       System.out.println("3. Position");
150
151       Scanner sc = new Scanner(System.in);
152       int choice = sc.nextInt();
153
154       switch(choice){
155           case 1:
156               // //Using contains method
157               // System.out.println("Enter the PRN to be searched: ");
158               // int temp_prn = sc.nextInt();
159               // if(student_list.contains(temp_prn)){
160               // int found = student_list.indexOf(temp_prn);
161               // print_student(found);
162               // }
163               // else{
164               //     System.out.println("PRN not found");
165               // }
166
167               //OR
168
169               System.out.println("Enter the PRN to be searched: ");
170               int prn = sc.nextInt();
171               for (int i = 0; i < student_list.size(); i++) {
172                   if (student_list.get(i).getPrn() == prn) {
173                       print_student(i);
174                   }
175               }
```

```java
                    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
                    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");
            }

        }
    }

    1 usage
    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();
```

```java
        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();

                String[] details_array = details.split( regex: ",");
                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);
            }
        }
    }

    1 usage
    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);
            }
        }
```
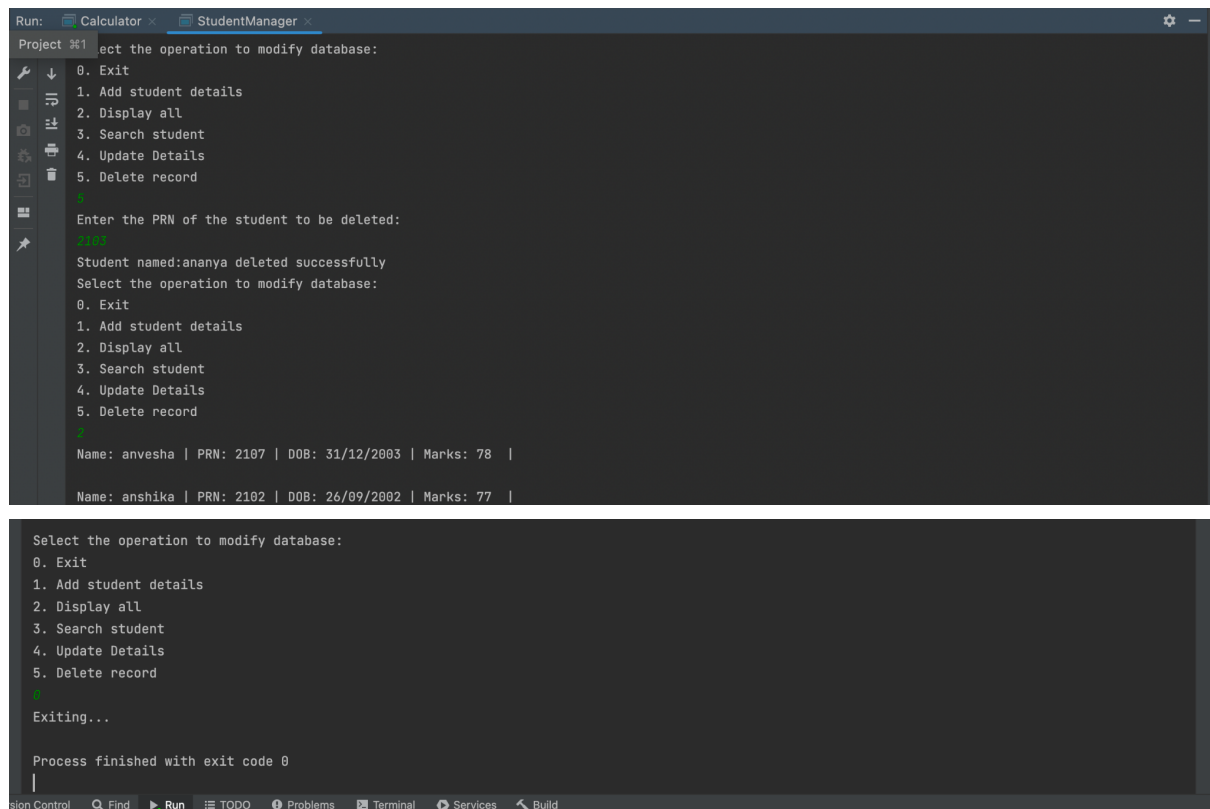
Output:-

```
/Library/Java/JavaVirtualMachines/amazon-corretto-11.jdk/Contents/Home/bin/java -javaagent:/Applications/IntelliJ IDEA CE.app/Contents/lib/idea_rt.jar
Select the operation to modify database:
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
1
Enter the number of students to be added:
3
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
2101,anvesha,31/12/2003,88
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
2102,anshika,26/09/2002,77
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
2103,ananya,20/07/2003,66
Select the operation to modify database:
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
2
Name: anvesha | PRN: 2101 | DOB: 31/12/2003 | Marks: 88  |

Name: anshika | PRN: 2102 | DOB: 26/09/2002 | Marks: 77  |

Name: ananya | PRN: 2103 | DOB: 20/07/2003 | Marks: 66  |
```

```
Select the operation to modify database:
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
3
Enter the Position to be searched:
2
Name: ananya | PRN: 2103 | DOB: 20/07/2003 | Marks: 66  |
```

```
Select the operation to modify database:
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:
2101
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
2107,anvesha,31/12/2003,78
Select the operation to modify database:
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
2
Name: anvesha | PRN: 2107 | DOB: 31/12/2003 | Marks: 78  |

Name: anshika | PRN: 2102 | DOB: 26/09/2002 | Marks: 77  |

Name: ananya | PRN: 2103 | DOB: 20/07/2003 | Marks: 66  |
```

```
Run:    Calculator ×    StudentManager ×                                    ⚙ —
Project ⌘1
        ect the operation to modify database:
        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:
        2103
        Student named:ananya deleted successfully
        Select the operation to modify database:
        0. Exit
        1. Add student details
        2. Display all
        3. Search student
        4. Update Details
        5. Delete record
        2
        Name: anvesha | PRN: 2107 | DOB: 31/12/2003 | Marks: 78  |

        Name: anshika | PRN: 2102 | DOB: 26/09/2002 | Marks: 77  |
```

```
        Select the operation to modify database:
        0. Exit
        1. Add student details
        2. Display all
        3. Search student
        4. Update Details
        5. Delete record
        0
        Exiting...

        Process finished with exit code 0

sion Control   Q Find   ▶ Run   ☰ TODO   ❶ Problems   ⊠ Terminal   ◐ Services   ⚒ Build
```

GITHUB LINK: -

https://github.com/anvesha31/Java_assignments/blob/3f6f2598
8ecec66278781852acc1f11b65b854de/Assignment%203