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Batch- AIML A2

Java Lab Assignment 3

Github Link : https://github.com/Harsh-Ratna/Java-Programs/tree/main/java%20programming%20lab%203

Code –

Class Student :

```
import java.util.ArrayList;


public class Student {
    private int prn;
    private String name;

    private String dob;
    private double marks;

    public Student(int prn, String name, String dob, double marks) {
        this.prn = prn;
        this.name = name;
        this.dob = dob;
        this.marks = marks;
    }

    public int getPrn() {
        return prn;
    }

    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 double getMarks() {
        return marks;
    }

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

Class Student_Functions :

```
import java.util.Scanner;
import java.util.ArrayList;
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();
        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);
        }
        }
        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 -> {
                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);
                        }
                }
        }
        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);
                        }
                }
        }
        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);
                        }
```

```
                }
            }
            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();
        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);
        }
        }
        }
        }
```

Class Main:

```
import java.util.*;
public class Main {
    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();
                    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;
            }
        }
    }
}
```

Output :

```
C:\Users\HP\.jdks\openjdk-19.0.1\bin\java.exe "-javaagent:D:\IntelliJ IDEA 2022.3.1\lib\idea_rt.jar=57659
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:
2
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
32,harsh,07/08/2002,65
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
03,bhavya,04/02/2002,54
```

```
 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: harsh | PRN: 32 | DOB: 07/08/2002 | Marks: 65.0 |

 Name: bhavya | PRN: 3 | DOB: 04/02/2002 | Marks: 54.0 |
```

```
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
1
Enter the PRN to be searched:
32
Name: harsh | PRN: 32 | DOB: 07/08/2002 | Marks: 65.0 |
```