



Assignment_3

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// Batch: AIIML - A1

// Problem: Create a Student class describing attributes of a student like prn, name, DoB, marks etc. Create an array of objects of St
// Solution: Using private variables in a student class and using a student_functions class to perform operations on the student class

import java.util.*;

public class As_3_constructor_array_list {
    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");
            }
        }
    }
}

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;
    }

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

    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();

        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:
                //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.getPrn().indexOf(temp_prn);
                // print_student(found);
                // }
                // else{
                //     System.out.println("PRN not found");
            }
        }
    }
}

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        // }

        //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
        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), M
            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);
        }
    }
}
}
}

```

Sample input data:

18,Apoorv,22/04/2004,98

13,aniket,23/03/2007,78

11,amitesh,22/07/2006,69

Output:

```
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
18,Apoorv,22/04/2004,98
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
13,aniket,23/03/2007,78
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
11,amitesh,22/07/2006,69
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: Apoorv | PRN: 18 | DOB: 22/04/2004 | Marks: 98 |
Name: aniket | PRN: 13 | DOB: 23/03/2007 | Marks: 78 |
Name: amitesh | PRN: 11 | DOB: 22/07/2006 | Marks: 69 |

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:
18
Name: Apoorv | PRN: 18 | DOB: 22/04/2004 | Marks: 98 |

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

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4
Enter the PRN of the student to be updated:
11
Enter the details of the student in the following format: PRN, Name, Date of Birth (dd/mm/yyyy), Marks
11,amitesh,22/07/2006,78
Name: amitesh | PRN: 11 | DOB: 22/07/2006 | Marks: 78 |

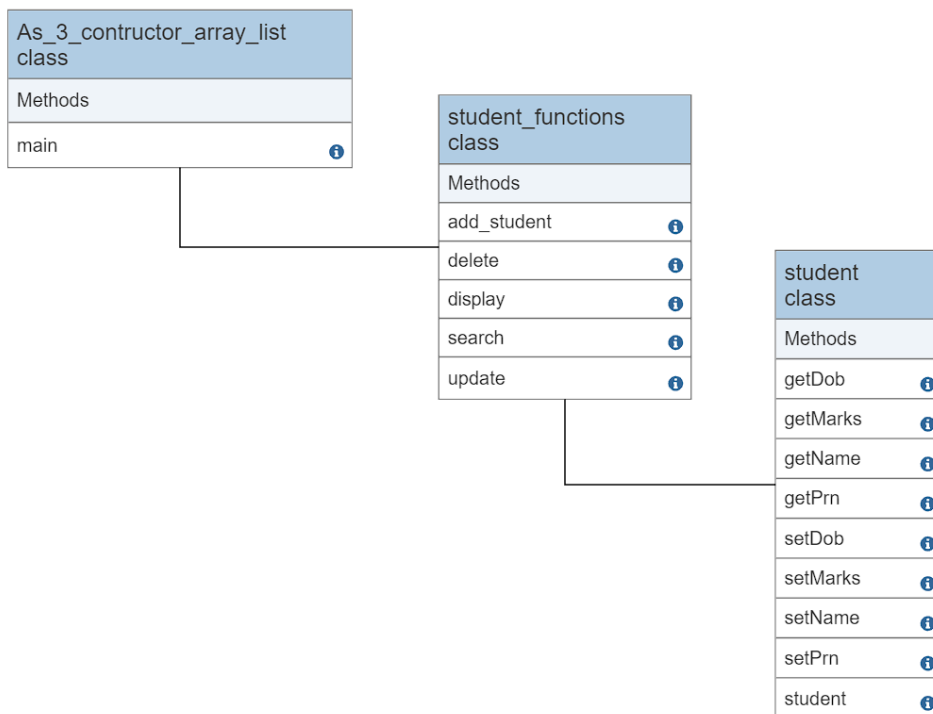
Select the operation to modify database:
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
5
Enter the PRN of the student to be deleted:
11
Student named:amitesh deleted successfully
Select the operation to modify database:
0. Exit
1. Add student details
2. Display all
3. Search student
4. Update Details
5. Delete record
2
Name: Apoorv | PRN: 18 | DOB: 22/04/2004 | Marks: 98 |

Name: aniket | PRN: 13 | DOB: 23/03/2007 | Marks: 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
0
Exiting...

```

Class Diagram:



GitHub:

SIT_java_assignment_codes/Assignment_3 at main · erApoorvGupta/SIT_java_assignment_codes
SEM4 assignments of JAVA. Contribute to erApoorvGupta/SIT_java_assignment_codes development by creating an account on GitHub.

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SEM4 assignments of JAVA

https://github.com/erApoorvGupta/SIT_java_assignment_codes/tree/main/Assignment_3

1 Contributor

0 Issues

0 Stars

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https://github.com/erApoorvGupta/SIT_java_assignment_codes/tree/main/Assignment_3