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Programming In Java
ASSIGNMENT 3

Code:

$ Student.java

```
// Assignment 3 - Student Management System

/* Student.java contains the class student and uses getMethod and setMethod to
extract and set specific values for the variables
*  StudentDemo.java works on these functions by having operations like:
*  Add students, Display, Search (by prn, by name, by position), Update/Edit
and Delete. */

//Code by Aadith Sukumar (https://www.github.com/aadi1011)
// AIML A1 | 21070126003

package getMethod;

public class Student {
    private int prn;
    private String name;
    private String DOB;
    private int marks;
    Student(int p, String nm, String db, int m) {
        prn = p;
        name = nm;
        DOB = db;
        marks = m;
    }
    public int getPrn() {
        return prn;
    }
    public void setPrn(int p) {
        prn = p;
    }

    public String getName() {
        return name;
    }
    public void setName(String n) {
        name = n;
```

```
    }

    public String getDOB() {
        return DOB;
    }
    public void setDOB(String d) {
        DOB = d;
    }

    public int getMarks() {
        return marks;
    }
    public void setMarks(int m) {
        marks = m;
    }
}
```

$ StudentDemo.java

```
// Assignment 3 - Student Management System

/* Java program to 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 by Aadith Sukumar (https://www.github.com/aadi1011)
// AIML A1 | 21070126003

package getMethod;
import java.util.Scanner;

public class StudentDemo {
    private Student[] students;
    private int count;
    Scanner sc = new Scanner(System.in);


    public StudentDemo() {
        students = new Student[100];
        count = 0;
    }

    public void addStudent()
    {
        System.out.println("Add Students");
        System.out.println("---------------");
```

```
        System.out.print("Enter number of students to add: ");
        int n = sc.nextInt();

        for(int i=0;i<n;i++)
        {
            System.out.println("Student " + (i+1));
            System.out.println("====================\n");

            System.out.print("Enter PRN: ");
            int prn = sc.nextInt();

            System.out.print("Enter Name: ");
            String name = sc.next();

            System.out.print("Enter DOB (dd-mm-yy): ");
            String DOB = sc.next();

            System.out.print("Enter marks: ");
            int marks = sc.nextInt();

            students[count] = new Student(prn, name, DOB, marks);
            count++;
        }
    }

    public void displayAllStudent()
    {
        if (count == 0)
        {
            System.out.println("No students added yet.");
            return;
        }

        else
        {
            System.out.println("Display All Students");
            System.out.println("---------------");
            for(int i=0;i<count;i++)
            {
                System.out.println("Student " + (i+1));
                System.out.println("PRN: "+students[i].getPrn());
                System.out.println("Name: "+students[i].getName());
                System.out.println("DOB: "+students[i].getDOB());
                System.out.println("Marks: "+students[i].getMarks());
                System.out.println("====================\n");
            }
        }
```

```
}

public void searchByPRN()
{
    System.out.print("Enter PRN: ");
    int prn = sc.nextInt();
    for(int i=0;i<count;i++)
    {
        if(students[i].getPrn() == prn)
        {
            System.out.println("Student " + (i+1));
            System.out.println("PRN: "+students[i].getPrn());
            System.out.println("Name: "+students[i].getName());
            System.out.println("DOB: "+students[i].getDOB());
            System.out.println("Marks: "+students[i].getMarks());
            System.out.println("====================\n");
        }
    }
}

public void searchByName()
{
    System.out.print("Enter Name: ");
    String name = sc.next();
    for(int i=0;i<count;i++)
    {
        if(students[i].getName().equals(name))
        {
            System.out.println("Student " + (i+1));
            System.out.println("PRN: "+students[i].getPrn());
            System.out.println("Name: "+students[i].getName());
            System.out.println("DOB: "+students[i].getDOB());
            System.out.println("Marks: "+students[i].getMarks());
            System.out.println("====================\n");
        }
    }
}

public void searchByIndex()
{
    System.out.print("Enter Index: ");
    int pos = sc.nextInt();
    System.out.println("Student " + (pos));
    System.out.println("PRN: "+students[pos-1].getPrn());
    System.out.println("Name: "+students[pos-1].getName());
    System.out.println("DOB: "+students[pos-1].getDOB());
    System.out.println("Marks: "+students[pos-1].getMarks());
    System.out.println("====================\n");
```

```
    }

    public void UpdateStudent()
    {
        System.out.println("Enter PRN of student to update: ");
        int prn = sc.nextInt();

        for (int i = 0; i < count; i++)
        {
            if (students[i].getPrn() == prn)
            {
                System.out.println("Name: "+students[i].getName());
                System.out.print("Enter new name (or press enter to keep the
old data): ");
                String newName = sc.nextLine();
                if (!newName.isEmpty())
                {
                    students[i].setName(newName);
                }

                System.out.println("DOB: "+students[i].getDOB());
                System.out.println("Enter new DOB (or press enter to keep the
old data): ");
                String newDOB = sc.nextLine();
                if (!newDOB.isEmpty())
                {
                    students[i].setDOB(newDOB);
                }

                System.out.println("Marks: "+students[i].getMarks());
                System.out.println("Enter new Marks (or press enter to keep
the old data): ");
                String newMarks = sc.nextLine();
                if(!newMarks.isEmpty())
                {
                    int marks = Integer.parseInt(newMarks);
                    students[i].setMarks(marks);
                }
            }
        }
    }

    public void deleteStudent() {
        Scanner sc1 = new Scanner(System.in);
        System.out.println("Enter PRN of student to delete: ");
        int prn = sc1.nextInt();
        sc1.close();
        for (int i = 0; i < count; i++)
```

```
    {
        if (students[i].getPrn() == prn)
        {
            for (int j = i; j < count - 1; j++)
            {
                students[j] = students[j + 1];
            }
            count--;
            System.out.println("Student deleted successfully.");
            return;
        }
    }
    System.out.println("Student not found.");
}

public static void main(String[] args)
{
    Scanner sc = new Scanner(System.in);
    StudentDemo studentArray = new StudentDemo();

    //create a menu
    System.out.println("Student Management System");
    System.out.println("=========================");
    System.out.println("1. Add Students");
    System.out.println("2. Display All Students");
    System.out.println("3. Search Students");
    System.out.println("4. Update Students");
    System.out.println("5. Delete Students");
    System.out.println("6. Exit");
    System.out.println("=========================");
    System.out.print("Enter your choice: ");

    int choice = sc.nextInt();
    switch(choice)
    {
        case 1:
            studentArray.addStudent();
            break;

        case 2:
            studentArray.displayAllStudent();
            break;

        case 3:
            System.out.println("Search by:");
            System.out.println("1. PRN");
            System.out.println("2. Name");
            System.out.println("3. Index");
```

```
                System.out.println("4. Exit");
                System.out.print("Enter your choice: ");
                int searchChoice = sc.nextInt();
                switch(searchChoice)
                {
                    case 1:
                        studentArray.searchByPRN();
                        break;

                    case 2:
                        studentArray.searchByName();
                        break;

                    case 3:
                        studentArray.searchByIndex();
                        break;

                    case 4:
                        break;

                    default:
                        System.out.println("Invalid choice.");
                }
                break;

            case 4:
                studentArray.UpdateStudent();
                break;

            case 5:
                studentArray.deleteStudent();
                break;

            case 6:
                break;

            default:
                System.out.println("Invalid choice.");
        }
        sc.close();
    }
}
```

Output:

```
Student Management System
=========================
1. Add Students
2. Display All Students
3. Search Students
4. Update Students
5. Delete Students
6. Exit
=========================
Enter your choice: 1
Add Students
---------------
Enter number of students to add: 1
Student 1
====================

Enter PRN: 003
Enter Name: Aadith
Enter DOB (dd-mm-yy): 10-11-2002
Enter marks: 99
```

GitHub Repo Link:

https://github.com/aadi1011/Basic-Java-Programs/tree/main/Assignment%203