Java Assignment 3

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Student.java

```
/*
This is the student class that implements all getter, setter
methods to deal with each student object.
*/

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

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

    public String getPRN() {
        return prn;
    }

    public String getName() {
        return name;
    }

    public String getDOB() {
        return dob;
    }

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

```
    }

    public void setPRN(String prn) {
        this.prn = prn;
    }

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

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

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

    @Override
    public String toString() {
        return "PRN: " + prn + "\n" +
                "Name: " + name + "\n" +
                "Date of Birth: " + dob + "\n" +
                "Marks: " + marks;
    }
}
```

Main.java

```
import java.util.*;

/*
For this assignment we had to implement the following

Create a student class with the capacity to store
information like prn, name, DoB, marks etc.
Create an array of objects of Student class and perform
operations like:
a. Add students,
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b. Display,
c. Search (by prn, by name, by position),
d. Update/Edit
e. Delete.
*/
public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int choice, count = 0;
        Student[] students = new Student[10];

        do {
            System.out.println("\nMenu:");
            System.out.println("1. Add Student");
            System.out.println("2. Display Students");
            System.out.println("3. Search by PRN");
            System.out.println("4. Search by Name");
            System.out.println("5. Search by Position");
            System.out.println("6. Update/Edit");
            System.out.println("7. Delete");
            System.out.println("8. Exit");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();

            switch (choice) {
                case 1:
                    System.out.print("Enter PRN: ");
                    String prn = sc.next();
                    System.out.print("Enter Name: ");
                    String name = sc.next();
                    System.out.print("Enter Date of Birth
(dd/mm/yyyy): ");
                    String dob = sc.next();
                    System.out.print("Enter Marks: ");
                    int marks = sc.nextInt();
                    students[count] = new Student(prn, name,
dob, marks);
                    count++;
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                    break;
                case 2:
                    for (int i = 0; i < count; i++) {
                        System.out.println("Student " + (i +
1) + ":");
                        System.out.println(students[i]);
                    }
                    break;
                case 3:
                    System.out.print("Enter PRN to search:
");
                    String prnSearch = sc.next();
                    for (int i = 0; i < count; i++) {
                        if
(students[i].getPRN().equals(prnSearch)) {
                            System.out.println("Student
found at position " + (i + 1) + ":");
                            System.out.println(students[i]);
                            break;
                        }
                    }
                    break;
                case 4:
                    System.out.print("Enter Name to search:
");
                    String nameSearch = sc.next();
                    for (int i = 0; i < count; i++) {
                        if
(students[i].getName().equals(nameSearch)) {
                            System.out.println("Student
found at position " + (i + 1) + ":");
                            System.out.println(students[i]);
                            break;
                        }
                    }
                    break;
                case 5:
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                    System.out.print("Enter position to
search: ");
                    int position = sc.nextInt();
                    if (position >= 1 && position <= count)
{
                        System.out.println("Student at
position " + position + ":");
                        System.out.println(students[position
- 1]);
                    } else {
                        System.out.println("Invalid
position.");
                    }
                    break;
                case 6:
                    System.out.print("Enter position to
update: ");
                    int updatePosition = sc.nextInt();
                    if (updatePosition >= 1 &&
updatePosition <= count) {
                        System.out.println("Current
details:");
                        System.out.println(students[updatePo
sition - 1]);
                        System.out.print("Enter new PRN: ");
                        String newPRN = sc.next();
                        System.out.print("Enter new Name:
");
                        String newName = sc.next();
                        System.out.print("Enter new Date of
Birth (dd/mm/yyyy): ");
                        String newDOB = sc.next();
                        System.out.print("Enter new Marks:
");
                        int newMarks = sc.nextInt();
                        students[updatePosition - 1] = new
Student(newPRN, newName, newDOB, newMarks);
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                        System.out.println("Student details
updated.");
                    } else {
                        System.out.println("Invalid
position.");
                    }
                    break;
                case 7:
                    System.out.print("Enter position to
delete: ");
                    int deletePosition = sc.nextInt();
                    if (deletePosition >= 1 &&
deletePosition <= count) {
                        for (int i = deletePosition - 1; i <
count - 1; i++) {
                            students[i] = students[i + 1];
                        }
                        count--;
                        System.out.println("Student
deleted.");
                    } else {
                        System.out.println("Invalid
position.");
                    }
                    break;
                case 8:
                    System.out.println("Exiting...");
                    break;
                default:
                    System.out.println("Invalid choice.");
            }
        } while (choice != 8);
        sc.close();
    }
}
```
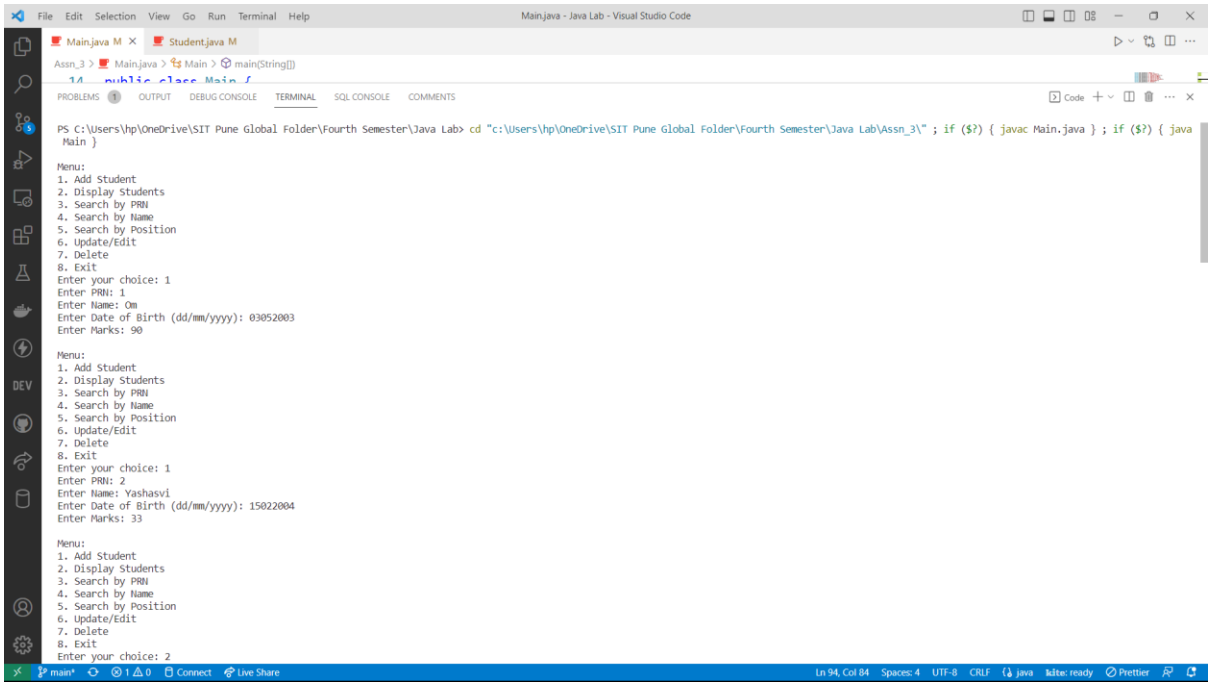
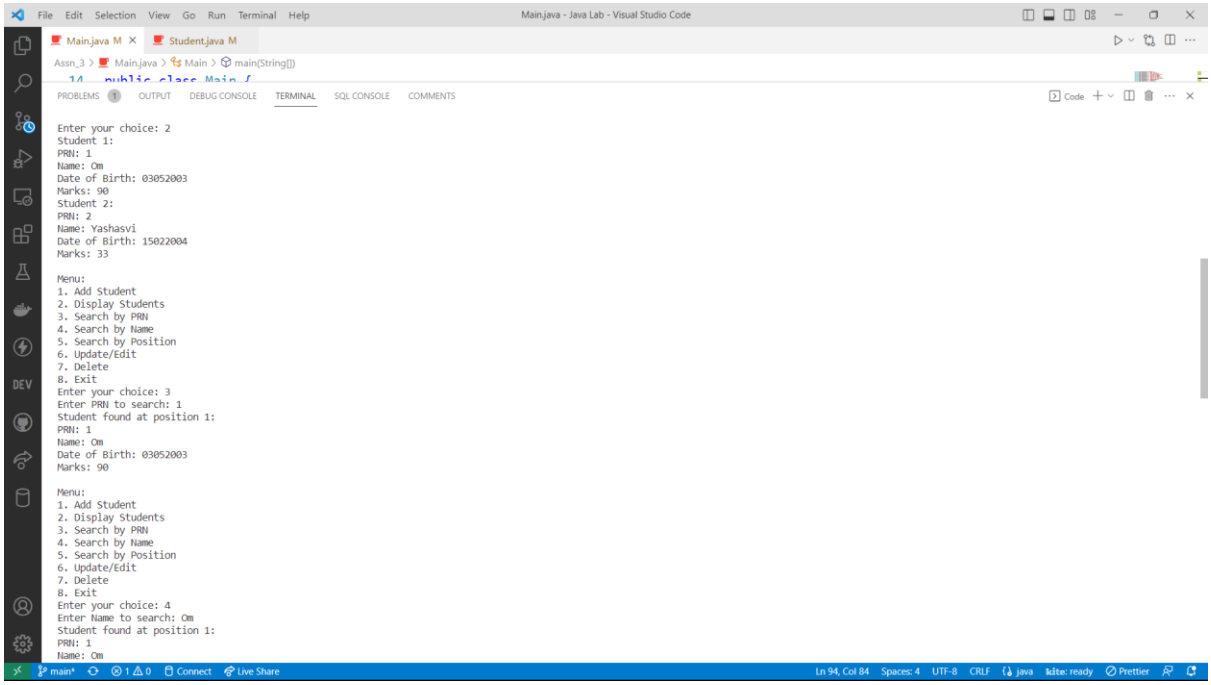
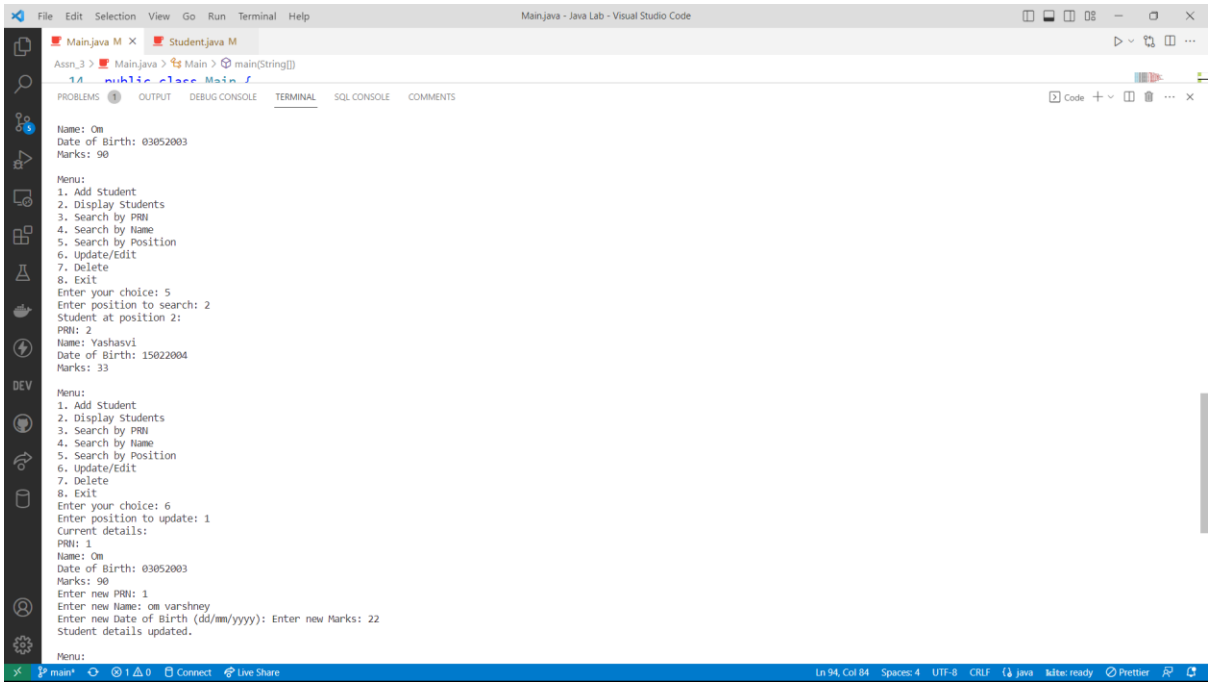
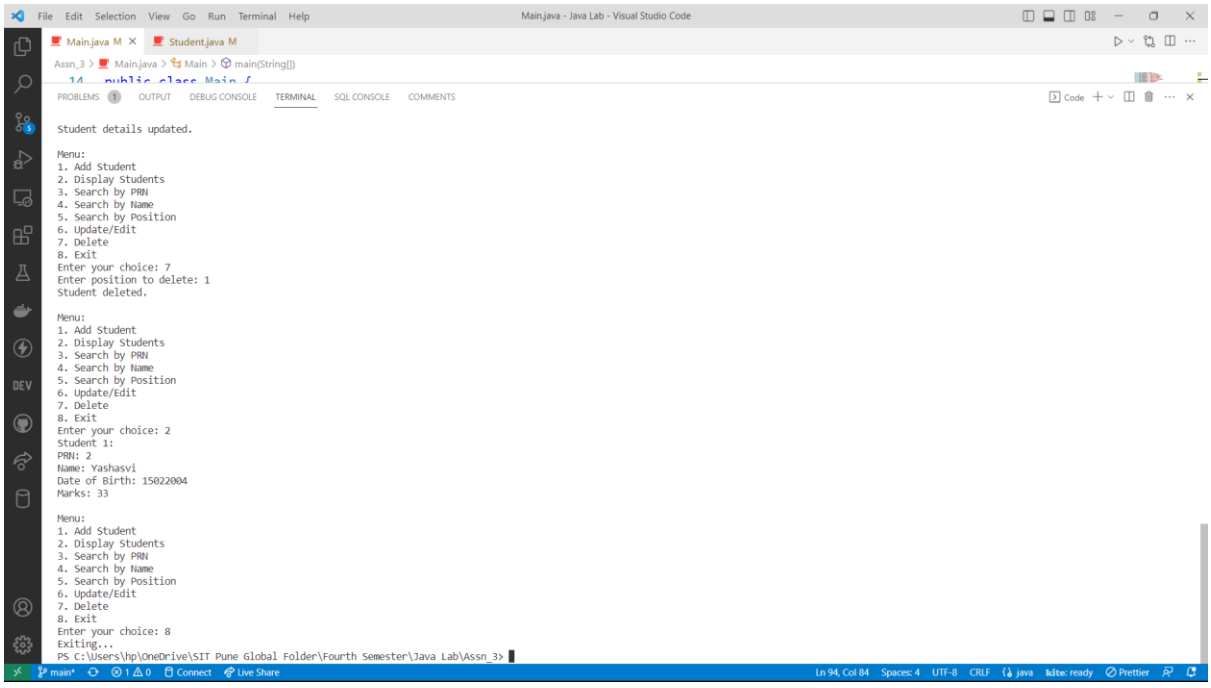

Outputs


File Edit Selection View Go Run Terminal Help
Main.java - Java Lab - Visual Studio Code
Main.java M
Student.java M
Assn_3 > Main.java > Main > main(String[])
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE COMMENTS
PS C:\Users\hp\OneDrive\SIT Pune Global Folder\Fourth Semester\Java Lab> cd "c:\Users\hp\OneDrive\SIT Pune Global Folder\Fourth Semester\Java Lab\Assn_3\" ; if ($?) { javac Main.java } ; if ($?) { java Main }
Menu:
1. Add Student
2. Display Students
3. Search by PRN
4. Search by Name
5. Search by Position
6. Update/Edit
7. Delete
8. Exit
Enter your choice: 1
Enter PRN: 1
Enter Name: Om
Enter Date of Birth (dd/mm/yyyy): 03052003
Enter Marks: 90
Menu:
1. Add Student
2. Display Students
3. Search by PRN
4. Search by Name
5. Search by Position
6. Update/Edit
7. Delete
8. Exit
Enter your choice: 1
Enter PRN: 2
Enter Name: Yashasvi
Enter Date of Birth (dd/mm/yyyy): 15022004
Enter Marks: 33
Menu:
1. Add Student
2. Display Students
3. Search by PRN
4. Search by Name
5. Search by Position
6. Update/Edit
7. Delete
8. Exit
Enter your choice: 2
main* 1 0 Connect Live Share
Ln 94, Col 84 Spaces: 4 UTF-8 CRLF java Kite: ready Prettier


File Edit Selection View Go Run Terminal Help
Main.java - Java Lab - Visual Studio Code
Main.java M
Student.java M
Assn_3 > Main.java > Main > main(String[])
PROBLEMS 1 OUTPUT DEBUG CONSOLE TERMINAL SQL CONSOLE COMMENTS
Enter your choice: 2
Student 1:
PRN: 1
Name: Om
Date of Birth: 03052003
Marks: 90
Student 2:
PRN: 2
Name: Yashasvi
Date of Birth: 15022004
Marks: 33
Menu:
1. Add Student
2. Display Students
3. Search by PRN
4. Search by Name
5. Search by Position
6. Update/Edit
7. Delete
8. Exit
Enter your choice: 3
Enter PRN to search: 1
Student found at position 1:
PRN: 1
Name: Om
Date of Birth: 03052003
Marks: 90
Menu:
1. Add Student
2. Display Students
3. Search by PRN
4. Search by Name
5. Search by Position
6. Update/Edit
7. Delete
8. Exit
Enter your choice: 4
Enter Name to search: Om
Student found at position 1:
PRN: 1
Name: Om
main* 1 0 Connect Live Share
Ln 94, Col 84 Spaces: 4 UTF-8 CRLF java Kite: ready Prettier





GitHub Repository Link

https://github.com/om-varshney/Java-Lab/tree/main/Assn_3