**Object Oriented Programming**

**Final Lab Project**

**Md Muhasin Ali**

**Id:221-15-4739**

**Section:V**

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| --- |
| Student |
| - name: String  - rollNumber: int  - course: String  - bloodgroup: String  - fathername: String  - mothername: String |
| + getName(): String  + getRollNumber(): int  + getCourse(): String  + getBloodgroup(): String  + getFathername(): String  + getMothername(): String |

|  |
| --- |
| StudentDatabase |
| - students: List<Student> |
| + StudentDatabase()  + addStudent(student: Student): void  + displayStudents(): void  + searchStudent(rollNumber: int): void |

|  |
| --- |
| StudentInformation |
|  |
| + main(args: String[]): void |

import java.util.ArrayList;

import java.util.List;

import java.util.Scanner;

class Student {

private String name;

private int rollNumber;

private String course;

private String bloodgroup;

private String fathername;

private String mothername;

public Student(String name, int rollNumber, String course, String bloodgroup, String fathername, String mothername) {

this.name = name;

this.rollNumber = rollNumber;

this.course = course;

this.bloodgroup = bloodgroup;

this.fathername = fathername;

this.mothername = mothername;

}

public String getName() {

return name;

}

public int getRollNumber() {

return rollNumber;

}

public String getCourse() {

return course;

}

public String getBloodgroup() {

return bloodgroup;

}

public String getFathername() {

return fathername;

}

public String getMothername() {

return mothername;

}

}

class StudentDatabase {

private List<Student> students;

public StudentDatabase() {

students = new ArrayList<>();

}

public void addStudent(Student student) {

students.add(student);

System.out.println("Student added successfully.");

}

public void displayStudents() {

if (students.isEmpty()) {

System.out.println("No student records found.");

return;

}

System.out.println("Student Records:");

for (Student student : students) {

System.out.println("Name: " + student.getName());

System.out.println("Roll Number: " + student.getRollNumber());

System.out.println("Course: " + student.getCourse());

System.out.println("Blood group: " + student.getBloodgroup());

System.out.println("Father's Name: " + student.getFathername());

System.out.println("Mother's Name: " + student.getMothername());

System.out.println("--------------------");

}

}

public void searchStudent(int rollNumber) {

for (Student student : students) {

if (student.getRollNumber() == rollNumber) {

System.out.println("Name: " + student.getName());

System.out.println("Roll Number: " + student.getRollNumber());

System.out.println("Course: " + student.getCourse());

System.out.println("Blood group: " + student.getBloodgroup());

System.out.println("Father's Name: " + student.getFathername());

System.out.println("Mother's Name: " + student.getMothername());

return;

}

}

System.out.println("Student with roll number " + rollNumber + " not found.");

}

}

public class StudentInformation {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

StudentDatabase database = new StudentDatabase();

while (true) {

System.out.println("\*\*\*\*\*\*\*\*\*");

System.out.println("\*\* Student \*\*");

System.out.println("\*\* Information \*\*");

System.out.println("\*\* System \*\*");

System.out.println("\*\*\*\*\*\*\*\*\*");

System.out.println("1. Add Student");

System.out.println("2. Display Students");

System.out.println("3. Search Student");

System.out.println("4. Exit");

System.out.println("Enter your choice: ");

int choice = scanner.nextInt();

scanner.nextLine();

switch (choice) {

case 1:

System.out.println("Enter Student Name: ");

String name = scanner.nextLine();

System.out.println("Enter Roll Number: ");

int rollNumber = scanner.nextInt();

scanner.nextLine();

System.out.println("Enter Course: ");

String course = scanner.nextLine();

System.out.println("Enter Blood Group: ");

String bloodgroup = scanner.nextLine();

System.out.println("Enter Father's Name: ");

String fathername = scanner.nextLine();

System.out.println("Enter Mother's Name: ");

String mothername = scanner.nextLine();

Student student = new Student(name, rollNumber, course, bloodgroup, fathername, mothername);

database.addStudent(student);

break;

case 2:

database.displayStudents();

break;

case 3:

System.out.println("Enter roll number to search: ");

int searchRollNumber = scanner.nextInt();

scanner.nextLine();

database.searchStudent(searchRollNumber);

break;

case 4:

System.out.println("Exiting...");

System.exit(0);

default:

System.out.println("Invalid choice. Please try again.");

}

}

}

}