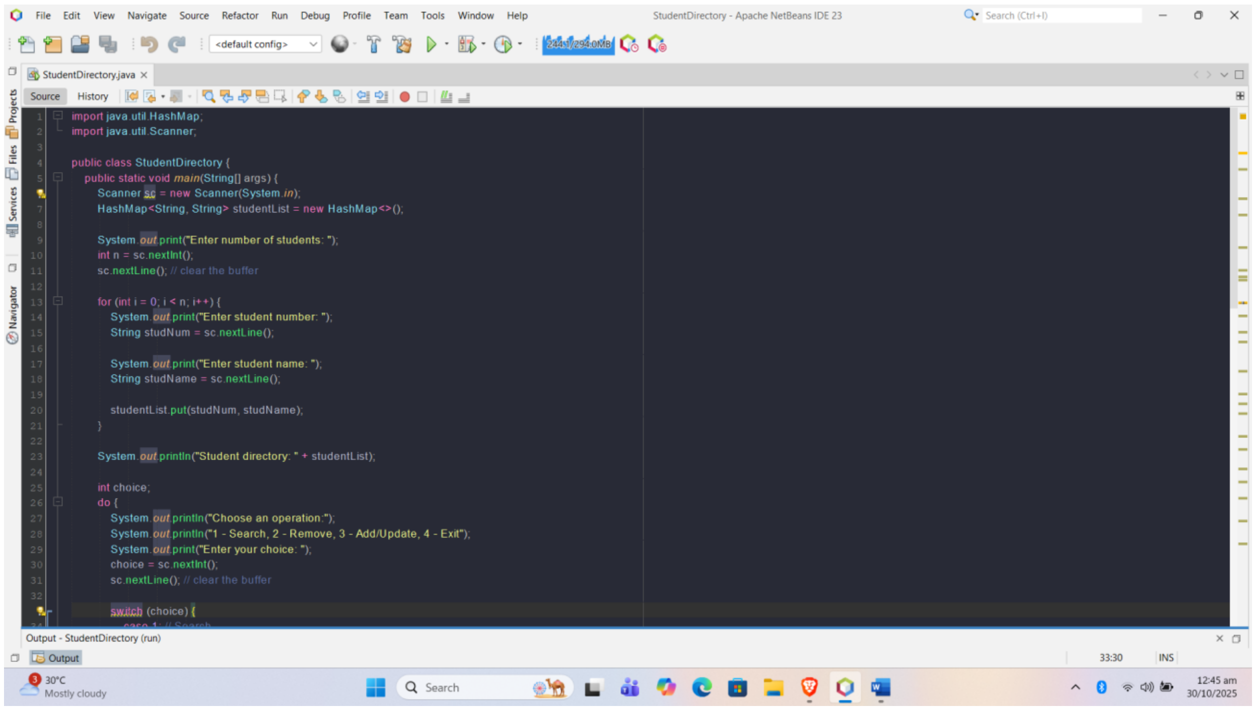
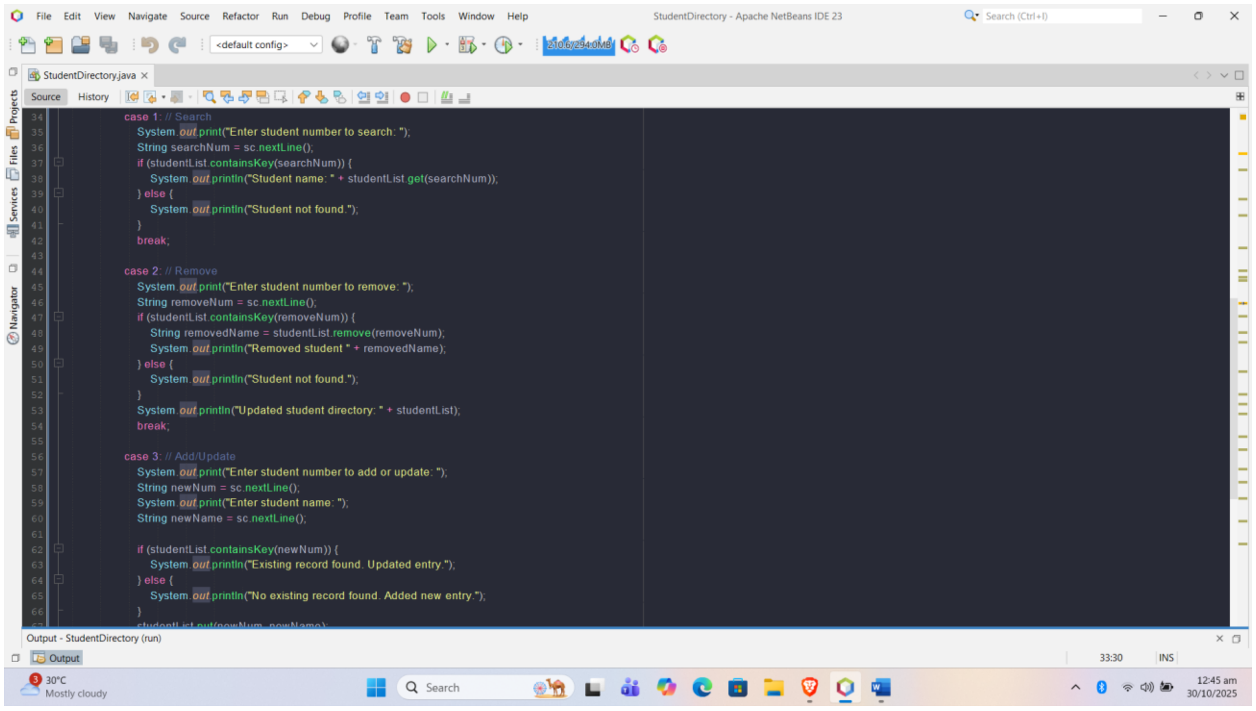
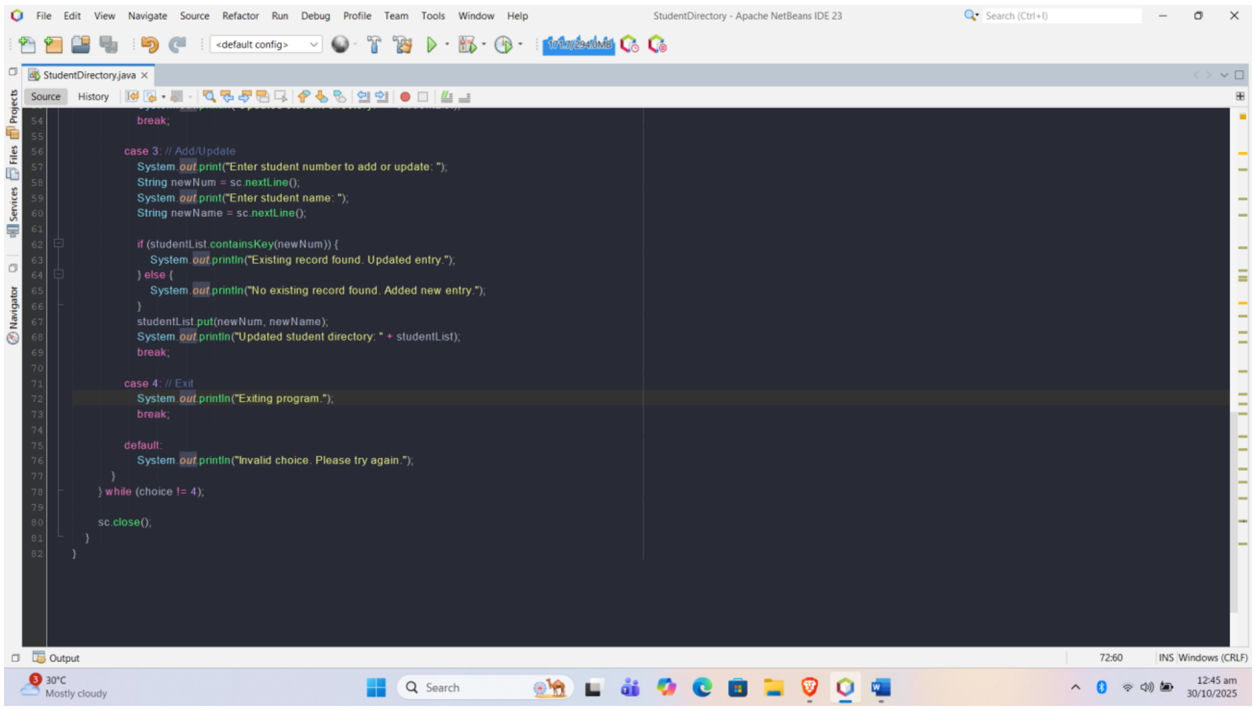
Code;



```java
import java.util.HashMap;
import java.util.Scanner;

public class StudentDirectory {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        HashMap<String, String> studentList = new HashMap<>();

        System.out.print("Enter number of students: ");
        int n = sc.nextInt();
        sc.nextLine(); // clear the buffer

        for (int i = 0; i < n; i++) {
            System.out.print("Enter student number: ");
            String studNum = sc.nextLine();

            System.out.print("Enter student name: ");
            String studName = sc.nextLine();

            studentList.put(studNum, studName);
        }

        System.out.println("Student directory: " + studentList);

        int choice;
        do {
            System.out.println("Choose an operation:");
            System.out.println("1 - Search, 2 - Remove, 3 - Add/Update, 4 - Exit");
            System.out.print("Enter your choice: ");
            choice = sc.nextInt();
            sc.nextLine(); // clear the buffer

            switch (choice) {
```

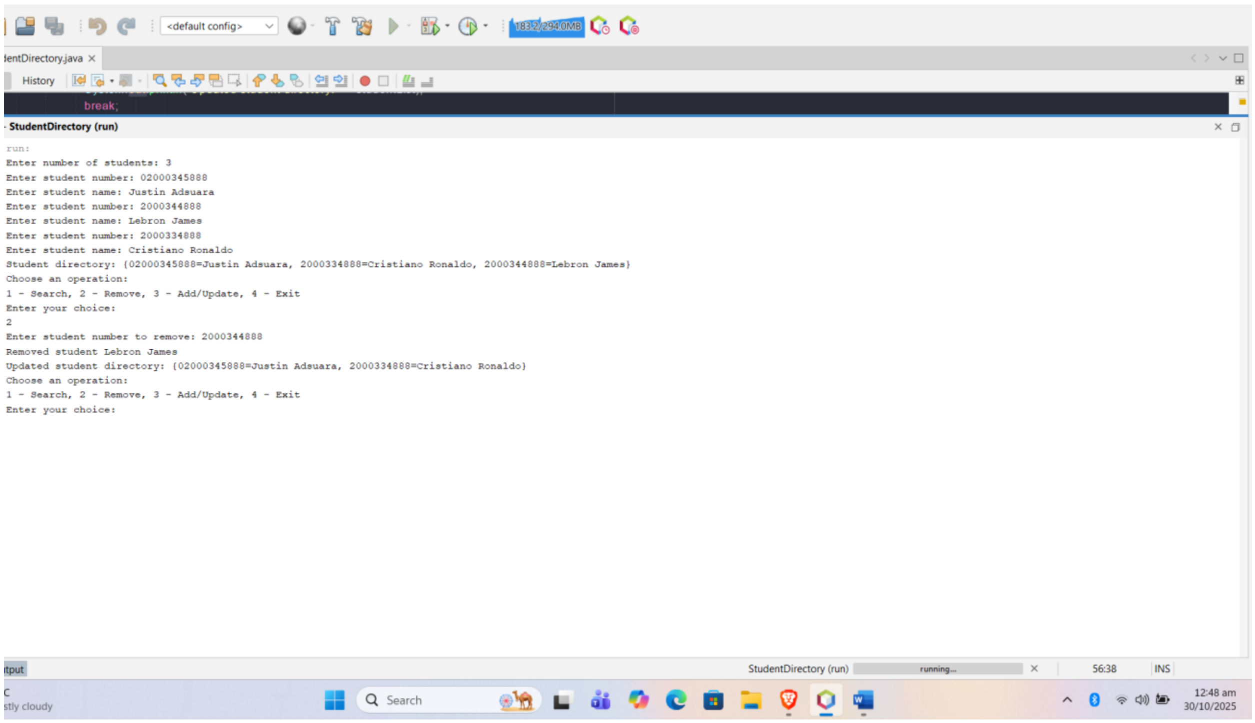


```java
                case 1: // Search
                    System.out.print("Enter student number to search: ");
                    String searchNum = sc.nextLine();
                    if (studentList.containsKey(searchNum)) {
                        System.out.println("Student name: " + studentList.get(searchNum));
                    } else {
                        System.out.println("Student not found.");
                    }
                    break;

                case 2: // Remove
                    System.out.print("Enter student number to remove: ");
                    String removeNum = sc.nextLine();
                    if (studentList.containsKey(removeNum)) {
                        String removedName = studentList.remove(removeNum);
                        System.out.println("Removed student " + removedName);
                    } else {
                        System.out.println("Student not found.");
                    }
                    System.out.println("Updated student directory: " + studentList);
                    break;

                case 3: // Add/Update
                    System.out.print("Enter student number to add or update: ");
                    String newNum = sc.nextLine();
                    System.out.print("Enter student name: ");
                    String newName = sc.nextLine();

                    if (studentList.containsKey(newNum)) {
                        System.out.println("Existing record found. Updated entry.");
                    } else {
                        System.out.println("No existing record found. Added new entry.");
                    }
```



```java
                    break;

                case 3: // Add/Update
                    System.out.print("Enter student number to add or update: ");
                    String newNum = sc.nextLine();
                    System.out.print("Enter student name: ");
                    String newName = sc.nextLine();

                    if (studentList.containsKey(newNum)) {
                        System.out.println("Existing record found. Updated entry.");
                    } else {
                        System.out.println("No existing record found. Added new entry.");
                    }
                    studentList.put(newNum, newName);
                    System.out.println("Updated student directory: " + studentList);
                    break;

                case 4: // Exit
                    System.out.println("Exiting program.");
                    break;

                default:
                    System.out.println("Invalid choice. Please try again.");
            }
        } while (choice != 4);

        sc.close();
    }
}
```

Output



```
run:
Enter number of students: 3
Enter student number: 02000345888
Enter student name: Justin Adsuara
Enter student number: 2000344888
Enter student name: Lebron James
Enter student number: 2000334888
Enter student name: Cristiano Ronaldo
Student directory: {02000345888=Justin Adsuara, 2000334888=Cristiano Ronaldo, 2000344888=Lebron James}
Choose an operation:
1 - Search, 2 - Remove, 3 - Add/Update, 4 - Exit
Enter your choice:
2
Enter student number to remove: 2000344888
Removed student Lebron James
Updated student directory: {02000345888=Justin Adsuara, 2000334888=Cristiano Ronaldo}
Choose an operation:
1 - Search, 2 - Remove, 3 - Add/Update, 4 - Exit
Enter your choice:
```