Experiment 1.1

Student Name: ROSH **UID: 22BAI..**
Branch: CSE **Section:**
Semester: 6th **DOP:**
Subject: Java **Subject Code:22CSH-359**

Aim: Create an application to save employee information using arrays.

Objective: To develop a functional application that effectively utilizes arrays to store, manage, and retrieve employee information, enabling efficient data organization and manipulation within the application.

Algorithm:

Step 1: Initialize the Program

- Start the program.
- Define an array of structures to store employee information.
- Each structure will include fields such as Employee ID, Name, Age, and Department.

Step 2: Define Functions

1. **Add Employee Information**:
   - Prompt the user to enter details for an employee (ID, Name, Age, Department).
   - Store the entered details in the next available position in the array.
   - Check for array overflow (i.e., maximum number of employees).
2. **Display All Employee Information**:
   - Iterate through the array and print all stored employee details.
   - Handle cases where no employees are stored.
3. **Search for an Employee**:
   - Prompt the user to enter the Employee ID.
   - Search the array for a matching ID.
   - Display the employee's details if found, otherwise print a message indicating the ID is not found.
4. **Exit Application**:
   - Provide an option to exit the program.

Step 3: Display Menu

- Display a menu with options to:
  1. Add Employee
  2. View All Employees
  3. Search for an Employee
  4. Exit

Step 4: Handle User Input

- Use a loop to repeatedly display the menu and prompt the user for a choice.
- Call the appropriate function based on the user's selection.
- Ensure input validation for numeric values and string lengths.

Step 5: Terminate Program

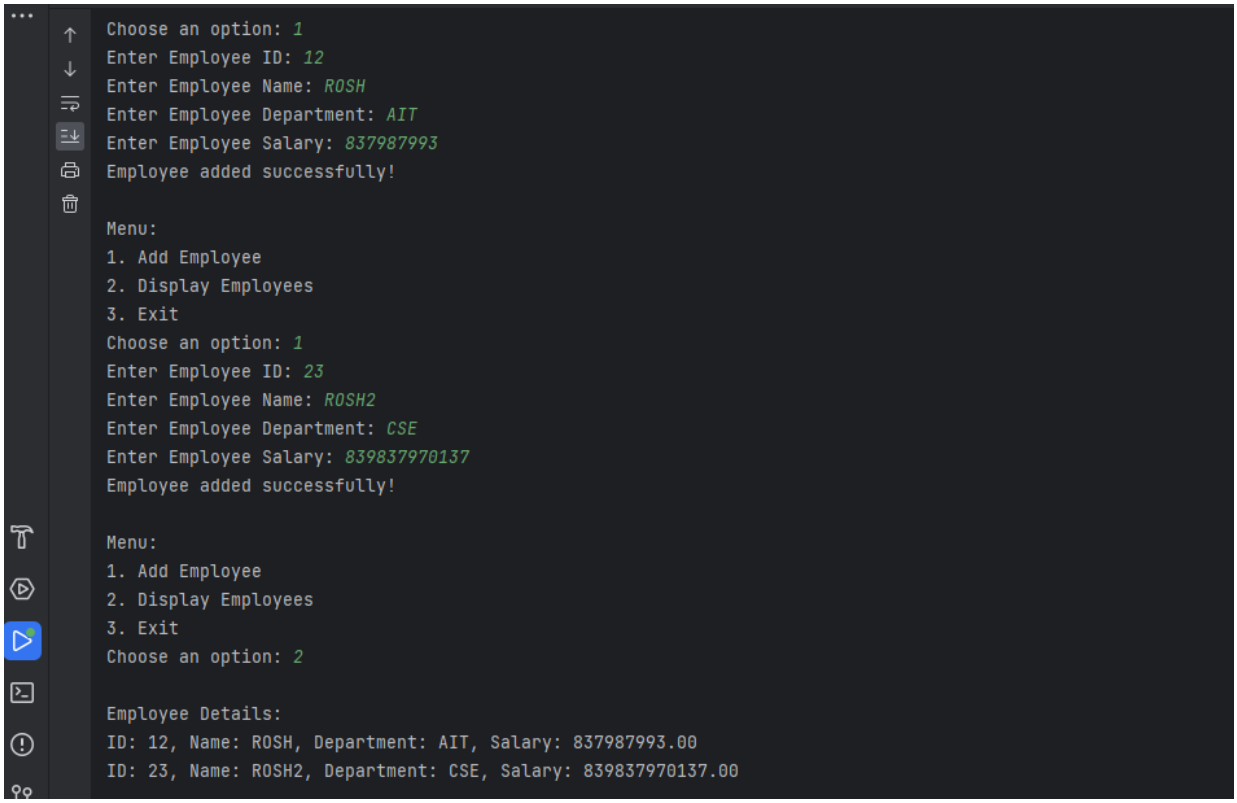
- Exit the loop when the user selects the Exit option.

Code:

```
import java.util.Scanner;

class Employee {
    int id;
    String name;
    String department;
    double salary;

    Employee(int id, String name, String department, double salary) {
        this.id = id;
        this.name = name;
        this.department = department;
        this.salary = salary;
    }

    void displayEmployee() {
        System.out.printf("ID: %d, Name: %s, Department: %s, Salary: %.2f\n", id, name,
department, salary);
    }
}

public class EmployeeManagement {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the number of employees: ");
        int n = scanner.nextInt();
        scanner.nextLine(); // consume newline

        Employee[] employees = new Employee[n];
        int count = 0;

        while (true) {
            System.out.println("\nMenu:");
            System.out.println("1. Add Employee");
            System.out.println("2. Display Employees");
            System.out.println("3. Exit");
            System.out.print("Choose an option: ");
            int choice = scanner.nextInt();
            scanner.nextLine(); // consume newline

            switch (choice) {
                case 1:
```

```
                if (count < n) {
                    System.out.print("Enter Employee ID: ");
                    int id = scanner.nextInt();
                    scanner.nextLine(); // consume newline

                    System.out.print("Enter Employee Name: ");
                    String name = scanner.nextLine();

                    System.out.print("Enter Employee Department: ");
                    String department = scanner.nextLine();

                    System.out.print("Enter Employee Salary: ");
                    double salary = scanner.nextDouble();

                    employees[count] = new Employee(id, name, department, salary);
                    count++;
                    System.out.println("Employee added successfully!");
                } else {
                    System.out.println("Employee array is full!");
                }
                break;

            case 2:
                if (count == 0) {
                    System.out.println("No employees to display.");
                } else {
                    System.out.println("\nEmployee Details:");
                    for (int i = 0; i < count; i++) {
                        employees[i].displayEmployee();
                    }
                }
                break;

            case 3:
                System.out.println("Exiting program. Goodbye!");
                scanner.close();
                return;

            default:
                System.out.println("Invalid choice. Please try again.");
        }
    }
}
```

Output:



Learning Outcomes:

1. Demonstrate: Apply key concepts to real-world scenarios to showcase understanding.
2. Analyze: Critically evaluate information, identify patterns, and draw meaningful conclusions.
3. Create: Develop original work, including presentations, reports, or projects, to exhibit comprehension and skills.
4. Communicate: Convey ideas and findings effectively through oral and written communication.
5. Collaborate: Contribute to group projects and exhibit strong teamwork capabilities in a collaborative environment.