

Final Project Test Report

Elizabeth R. Larson

CMIS 141 6382

March 8<sup>th</sup>, 2021

### Purpose

The purpose of the Final Project is to create a Java program that acts as an employee information management system. The program displays a menu with six options. The first option allows the user to enter employee information (name, employee ID number, and annual salary) for multiple people. The second option allows the user to enter one new employee along with their information. The third option displays all the employees along with their information. The fourth option searches for an employee based on the employee ID number the user enter and displays the employee's information. The fifth option allows the enter to search for employees with a certain salary range and then displays their information. The sixth and last option exits the program.

There will be test cases to test the functions outlined below:

1. Ensure the program displays the program title, the menu, and prompt for the user to enter a menu option. If the user enters an invalid option, ensure it displays an error message and repeats the menu and prompt.
2. If the user enters menu option 1, ensure the program prompts the user to enter the number of employees they'd like to input in the system. If the user enters an invalid number, ensure it displays an error message and repeats the prompt.
3. If the user enters menu option 1 and enters a valid number of employees, ensure the program prompts the user for the correct number of employee names, ids, and annual salaries and then displays the menu again.
4. If the user enters menu option 1 and enters an invalid employee id, ensure the program displays an error message and repeats the prompt.

5. If the user enters menu option 1 and enters a duplicate employee id, ensure the program displays an error message and repeats the prompt.
6. If the user enters menu option 2, ensure the program prompts the user for employee name, id, and annual salary, displays a confirmation of the user information, and then displays the menu again.
7. If the user enters menu option 3 and there were no employees added, ensure the program displays a message saying there are no employees and then displays the menu again.
8. If the user enters employees via menu options 1 and 2, ensure the program lists all employees once the user then enters menu option 3.
9. If the user enters menu option 4 and there were no employees added, ensure the program displays a message saying there are no employees and then displays the menu again.
10. If the user enters menu option 4 after they have added employees and they enter an invalid ID number, ensure the program displays an error message and repeats the prompt.
11. If the user enters menu option 4 after they have added employees and they enter an ID number that does not exist, ensure the program displays a message and displays the menu again.
12. If the user enters menu option 4 after they have added employees and they enter a valid ID number, ensure the program displays the correct employee's information and displays the menu again.
13. If the user enters menu option 5 and there were no employees added, ensure the program displays a message saying there are no employees and then displays the menu again.

14. If the user enters menu option 5 after they have added employees and they enter an invalid salary range, ensure the program displays a message and displays the prompt again.
15. If the user enters menu option 5 after they have added employees and they enter a valid salary range with no results, ensure the program displays a message and displays the menu again.
16. If the user enters menu option 5 after they have added employees and they enter a valid salary range with results, ensure the program displays the employee(s)' information and displays the menu again.
17. If the user enters menu option 6, ensure a good-bye message is displayed.

Below you will see the Test Suite.

## Final Project Test Report

Test Case	Input	Expected Output	Actual Output	Result
1	menuOption = 7	Employee Data Management System ----- 1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6): 7  *Please select a valid menu option (1-6)*  1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6):	Employee Data Management System ----- 1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6): 7  *Please select a valid menu option (1-6)*  1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6):	Pass
2	menuOption = 1 numOfEmployees= -1	Employee Data Management System ----- 1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6): 1  How many employees would you like to input into the system?: -1  *Please enter a valid number of employees (More than 0 and less than 101)*	Employee Data Management System ----- 1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program  Please enter a menu option (1-6): 1  How many employees would you like to input into the system?: -1  *Please enter a valid number of employees (More than 0 and less than 101)*	Pass
3	menuOption = 1 numOfEmployees = 2	Employee Data Management System ----- 1. Load Initial Employees' Data	Employee Data Management System ----- 1. Load Initial Employees' Data	Pass

	<pre>employeeName = John Smith EmployeeID = 12345 employeeSalary = 40000.00 employeeName = Jane Doe EmployeeID= 23456 employeeSalary = 85000.00</pre>	<p>2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 40000.00</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 85000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p>	<p>2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 40000.00</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 85000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p>	
4	<pre>menuOption = 1 numOfEmployees = 1 employeeName = John Smith EmployeeID = 1</pre>	<p>Employee Data Management System</p> <p>-----</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p>	<p>Employee Data Management System</p> <p>-----</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p>	Pass

		<p>How many employees would you like to input into the system?: 1</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 1</p> <p>*Please enter a valid ID*</p> <p>Enter Employee ID (5 digit number):</p>	<p>How many employees would you like to input into the system?: 1</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 1</p> <p>*Please enter a valid ID*</p> <p>Enter Employee ID (5 digit number):</p>	
5	menuOption = 1 numOfEmployees = 2 employeeName = John Smith EmployeeID = 12345 employeeSalary = 40000 employeeName = Jane Doe EmployeeID= 12345	Employee Data Management System ----- <p>1. Load Initial Employees' Data  2. Add New Employee  3. Display All Employees  4. Retrieve Specific Employee Data  5. Retrieve Employees (with salaries based on range)  6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 40000</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>*Duplicate ID. Please enter a different 5 digit number.*</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data  2. Add New Employee  3. Display All Employees  4. Retrieve Specific Employee Data  5. Retrieve Employees (with salaries based on range)  6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 40000</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>*Duplicate ID. Please enter a different 5 digit number.*</p>	Pass
6	menuOption = 2 employeeName = Henry EmployeeID = 10000 employeeSalary = 100456.45	Employee Data Management System ----- <p>1. Load Initial Employees' Data  2. Add New Employee  3. Display All Employees  4. Retrieve Specific Employee Data</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data  2. Add New Employee  3. Display All Employees  4. Retrieve Specific Employee Data</p>	Pass

		<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Henry</p> <p>Enter Employee ID (5 digit number): 10000</p> <p>Enter Employee Yearly Salary: 100456.45</p> <p>NAME: Henry ID: 10000 ANNUAL SALARY: \$100456.45 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p>	<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Henry</p> <p>Enter Employee ID (5 digit number): 10000</p> <p>Enter Employee Yearly Salary: 100456.45</p> <p>NAME: Henry ID: 10000 ANNUAL SALARY: \$100456.45 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p>	
7	menuOption = 3	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 3 *No Employees in the System*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 3 *No Employees in the System*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	Pass

8	<pre>menuOption = 1 numOfEmployees = 1 employeeName = John Doe employeeID = 11111 employeeSalary = 45000.00  menuOption = 2 employeeName = Jane Smith employeeID = 30000 employeeSalary = 111111</pre>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 1</p> <p>Enter Employee Name: John Doe</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 45000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Jane Smith</p> <p>Enter Employee ID (5 digit number): 30000</p> <p>Enter Employee Yearly Salary: 111111</p> <p>NAME: Jane Smith ID: 30000 ANNUAL SALARY: \$111111.00 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee</p>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 1</p> <p>Enter Employee Name: John Doe</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 45000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Jane Smith</p> <p>Enter Employee ID (5 digit number): 30000</p> <p>Enter Employee Yearly Salary: 111111</p> <p>NAME: Jane Smith ID: 30000 ANNUAL SALARY: \$111111.00 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee</p>	Pass

		<p>3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          3          NAME: John Doe          ID: 11111          ANNUAL SALARY:          \$45000.00          NAME: Jane Smith          ID: 30000          ANNUAL SALARY:          \$111111.00</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p>	<p>3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          3          NAME: John Doe          ID: 11111          ANNUAL SALARY:          \$45000.00          NAME: Jane Smith          ID: 30000          ANNUAL SALARY:          \$111111.00</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p>	
9	menuOption = 4	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          4          *No Employees in the System*</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          4          *No Employees in the System*</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	Pass
10	menuOption = 2  employeeName = Jane Doe  employeeID = 11111  employeeSalary = 40000	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data</p> <p>Please enter a menu option (1-6):</p>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data</p> <p>Please enter a menu option (1-6):</p>	Pass

	<pre>menuOption = 4 employeeID = 111111</pre>	<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 40000</p> <p>NAME: Jane Doe ID: 11111 ANNUAL SALARY: \$40000.00 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 111111</p> <p>*Please enter a valid ID*</p> <p>Please enter the employee's 5 digit ID number:</p>	<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p> <p>Enter Employee Name: Jane Doe</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 40000</p> <p>NAME: Jane Doe ID: 11111 ANNUAL SALARY: \$40000.00 *Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 111111</p> <p>*Please enter a valid ID*</p> <p>Please enter the employee's 5 digit ID number:</p>	
11	<pre>menuOption = 2 employeeName = John Smith employeeID = 22222 employeeSalary = 56000</pre> <pre>menuOption = 4 employeeID = 111111</pre>	<p>Employee Data Management System</p> <p>-----</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p>	<p>Employee Data Management System</p> <p>-----</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 2</p>	Pass

	<p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 22222</p> <p>Enter Employee Yearly Salary: 56000</p> <p>NAME: John Smith ID: 22222 ANNUAL SALARY: \$56000.00</p> <p>*Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 11111</p> <p>*Employee ID number does not exist*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>Enter Employee Name: John Smith</p> <p>Enter Employee ID (5 digit number): 22222</p> <p>Enter Employee Yearly Salary: 56000</p> <p>NAME: John Smith ID: 22222 ANNUAL SALARY: \$56000.00</p> <p>*Employee Added*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 11111</p> <p>*Employee ID number does not exist*</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>		
12	menuOption = 1 numOfEmployees = 2 employeeName = Bob employeeID = 11111 employeeSalary = 60000 employeeName = Sarah employeeID = 22222	Employee Data Management System ----- <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p>	Pass

	<pre>employeeSalary = 45454.45 menuOption = 4 employeeID = 22222</pre>	<p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: Bob</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 60000</p> <p>Enter Employee Name: Sarah</p> <p>Enter Employee ID (5 digit number): 22222</p> <p>Enter Employee Yearly Salary: 45454.45</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 22222</p> <p>NAME: Sarah ID: 22222 ANNUAL SALARY: \$45454.45</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: Bob</p> <p>Enter Employee ID (5 digit number): 11111</p> <p>Enter Employee Yearly Salary: 60000</p> <p>Enter Employee Name: Sarah</p> <p>Enter Employee ID (5 digit number): 22222</p> <p>Enter Employee Yearly Salary: 45454.45</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 4</p> <p>Please enter the employee's 5 digit ID number: 22222</p> <p>NAME: Sarah ID: 22222 ANNUAL SALARY: \$45454.45</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	
13	menuOption = 5	Employee Data Management System -----	Employee Data Management System -----	

		<p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):      5      *No Employees in the System*</p> <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):      5      *No Employees in the System*</p> <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	
14	menuOption = 2 employeeName = Henry Bob employeeID = 12345 employeeSalary = 12345  menuOption = 5 lowestSalary = 100000 highestSalary = 0	Employee Data Management System ----- <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):      2</p> <p>Enter Employee Name:      Henry Bob</p> <p>Enter Employee ID (5 digit number):      12345</p> <p>Enter Employee Yearly Salary:      12345</p> <p>NAME: Henry Bob      ID: 12345      ANNUAL SALARY:      \$12345.00      *Employee Added*</p> <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data      5. Retrieve Employees (with salaries based on range)      6. Exit Program</p> <p>Please enter a menu option (1-6):      2</p> <p>Enter Employee Name:      Henry Bob</p> <p>Enter Employee ID (5 digit number):      12345</p> <p>Enter Employee Yearly Salary:      12345</p> <p>NAME: Henry Bob      ID: 12345      ANNUAL SALARY:      \$12345.00      *Employee Added*</p> <p>1. Load Initial Employees' Data      2. Add New Employee      3. Display All Employees      4. Retrieve Specific Employee Data</p>	Pass

		<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 5</p> <p>Please enter the lowest salary: 100000</p> <p>Please enter the highest salary: 0</p> <p>*Please ensure the lowest salary entered is lower than the highest salary*</p> <p>Please enter the lowest salary:</p>	<p>5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 5</p> <p>Please enter the lowest salary: 100000</p> <p>Please enter the highest salary: 0</p> <p>*Please ensure the lowest salary entered is lower than the highest salary*</p> <p>Please enter the lowest salary:</p>	
15	menuOption = 1 numOfEmployees = 2 employeeName = Henry Bob employeeID = 12345 employeeSalary = 20000 employeeName = Jone employeeID = 23456 employeeSalary = 30000	Employee Data Management System ----- <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: Henry Bob</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 20000</p> <p>Enter Employee Name: Jone</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 30000</p> <p>1. Load Initial Employees' Data</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 1</p> <p>How many employees would you like to input into the system?: 2</p> <p>Enter Employee Name: Henry Bob</p> <p>Enter Employee ID (5 digit number): 12345</p> <p>Enter Employee Yearly Salary: 20000</p> <p>Enter Employee Name: Jone</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 30000</p> <p>1. Load Initial Employees' Data</p>	Pass

		<p>2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          5</p> <p>Please enter the lowest salary:          45000</p> <p>Please enter the highest salary:          80000</p> <p>*No salaries are within that range*</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          5</p> <p>Please enter the lowest salary:          45000</p> <p>Please enter the highest salary:          80000</p> <p>*No salaries are within that range*</p> <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	
16	menuOption = 1 numOfEmployees = 2 employeeName = Henry Bob employeeID = 12345 employeeSalary = 20000 employeeName = Jone employeeID = 23456 employeeSalary = 30000	Employee Data Management System ----- <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          1</p> <p>How many employees would you like to input into the system?:          2</p> <p>Enter Employee Name:          Henry Bob</p> <p>Enter Employee ID (5 digit number):          12345</p> <p>Enter Employee Yearly Salary:          20000</p> <p>Enter Employee Name:</p>	Employee Data Management System ----- <p>1. Load Initial Employees' Data          2. Add New Employee          3. Display All Employees          4. Retrieve Specific Employee Data          5. Retrieve Employees (with salaries based on range)          6. Exit Program</p> <p>Please enter a menu option (1-6):          1</p> <p>How many employees would you like to input into the system?:          2</p> <p>Enter Employee Name:          Henry Bob</p> <p>Enter Employee ID (5 digit number):          12345</p> <p>Enter Employee Yearly Salary:          20000</p> <p>Enter Employee Name:</p>	Pass

		<p>Jone</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 30000</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 5</p> <p>Please enter the lowest salary: 25000</p> <p>Please enter the highest salary: 40000</p> <p>NAME: Jone ID: 23456 ANNUAL SALARY: \$30000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	<p>Jone</p> <p>Enter Employee ID (5 digit number): 23456</p> <p>Enter Employee Yearly Salary: 30000</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 5</p> <p>Please enter the lowest salary: 25000</p> <p>Please enter the highest salary: 40000</p> <p>NAME: Jone ID: 23456 ANNUAL SALARY: \$30000.00</p> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6):</p>	
17	menuOption = 6	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 6</p> <p>Thank you for using the Employee Data Management System</p> <p>Good-bye!</p>	<p>Employee Data Management System</p> <hr/> <p>1. Load Initial Employees' Data 2. Add New Employee 3. Display All Employees 4. Retrieve Specific Employee Data 5. Retrieve Employees (with salaries based on range) 6. Exit Program</p> <p>Please enter a menu option (1-6): 6</p> <p>Thank you for using the Employee Data Management System</p> <p>Good-bye!</p>	Pass

**Test Case 1 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
7

*Please select a valid menu option (1-6)*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
```

**Test Case 2 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
-1

*Please enter a valid number of employees (More than 0 and less than 101)*
```

**Test Case 3 Screen Capture:**

```
EmployeeDataManagement [java:application],/Users/rl2/p2/poc/org.testng.junit,os=Mac OS X Version 10.11.6
```

```
Employee Data Management System
```

---

```
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program
```

```
Please enter a menu option (1-6):
1
```

```
How many employees would you like to input into the system?:
2
```

```
Enter Employee Name:
John Smith
```

```
Enter Employee ID (5 digit number):
12345
```

```
Enter Employee Yearly Salary:
40000.00
```

```
Enter Employee Name:
Jane Doe
```

```
Enter Employee ID (5 digit number):
23456
```

```
Enter Employee Yearly Salary:
85000.00
```

```
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program
```

```
Please enter a menu option (1-6):
```

**Test Case 4 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
1

Enter Employee Name:
John Smith

Enter Employee ID (5 digit number):
1

*Please enter a valid ID*

Enter Employee ID (5 digit number):
|
```

**Test Case 5 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
2

Enter Employee Name:
John Smith

Enter Employee ID (5 digit number):
12345

Enter Employee Yearly Salary:
40000

Enter Employee Name:
Jane Doe

Enter Employee ID (5 digit number):
12345

*Duplicate ID. Please enter a different 5 digit number.*
```

**Test Case 6 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
2

Enter Employee Name:
Henry

Enter Employee ID (5 digit number):
10000

Enter Employee Yearly Salary:
100456.45

NAME: Henry
ID: 10000
ANNUAL SALARY: $100456.45
*Employee Added*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
|
```

**Test Case 7 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
3
*No Employees in the System*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
|
```

**Test Case 8 Screen Captures:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
1

Enter Employee Name:
John Doe

Enter Employee ID (5 digit number):
11111

Enter Employee Yearly Salary:
45000.00

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
2

Enter Employee Name:
Jane Smith

Enter Employee ID (5 digit number):
30000

Enter Employee Yearly Salary:
111111

NAME: Jane Smith
      ID: 30000
      ANNUAL SALARY: $111111.00
      *Employee Added*
```

```
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
3

NAME: John Doe
      ID: 11111
      ANNUAL SALARY: $45000.00
NAME: Jane Smith
      ID: 30000
      ANNUAL SALARY: $111111.00

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
```

**Test Case 9 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
4
        *No Employees in the System*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
|
```

**Test Case 10 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
2

Enter Employee Name:
Jane Doe

Enter Employee ID (5 digit number):
11111

Enter Employee Yearly Salary:
40000

NAME: Jane Doe
      ID: 11111
      ANNUAL SALARY: $40000.00
      *Employee Added*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
4

Please enter the employee's 5 digit ID number:
111111

      *Please enter a valid ID*

Please enter the employee's 5 digit ID number:
|
```

**Test Case 11 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
2

Enter Employee Name:
John Smith

Enter Employee ID (5 digit number):
22222

Enter Employee Yearly Salary:
56000

NAME: John Smith
      ID: 22222
      ANNUAL SALARY: $56000.00
      *Employee Added*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
4

Please enter the employee's 5 digit ID number:
11111

      *Employee ID number does not exist*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
|
```

**Test Case 12 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
2

Enter Employee Name:
Bob

Enter Employee ID (5 digit number):
11111

Enter Employee Yearly Salary:
60000

Enter Employee Name:
Sarah

Enter Employee ID (5 digit number):
22222

Enter Employee Yearly Salary:
45454.45

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
4

Please enter the employee's 5 digit ID number:
22222

NAME: Sarah
ID: 22222
ANNUAL SALARY: $45454.45

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
```

**Test Case 13 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
5
*No Employees in the System*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
|
```

**Test Case 14 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
2

Enter Employee Name:
Henry Bob

Enter Employee ID (5 digit number):
12345

Enter Employee Yearly Salary:
12345

NAME: Henry Bob
ID: 12345
ANNUAL SALARY: $12345.00
*Employee Added*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
5

Please enter the lowest salary:
100000

Please enter the highest salary:
0

*Please ensure the lowest salary entered is lower than the highest salary*

Please enter the lowest salary:
|
```

**Test Case 15 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
2

Enter Employee Name:
Henry Bob

Enter Employee ID (5 digit number):
12345

Enter Employee Yearly Salary:
20000

Enter Employee Name:
Jone

Enter Employee ID (5 digit number):
23456
|
Enter Employee Yearly Salary:
30000

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
5

Please enter the lowest salary:
45000

Please enter the highest salary:
80000

        *No salaries are within that range*

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
```

**Test Case 16 Screen Captures:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
1

How many employees would you like to input into the system?:
2

Enter Employee Name:
Henry Bob

Enter Employee ID (5 digit number):
12345

Enter Employee Yearly Salary:
20000

Enter Employee Name:
Jone

Enter Employee ID (5 digit number):
23456

Enter Employee Yearly Salary:
30000

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
5
```

```
Please enter the lowest salary:
25000

Please enter the highest salary:
40000

NAME: Jone
      ID: 23456
      ANNUAL SALARY: $30000.00

1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
```

**Test Case 17 Screen Capture:**

```
Employee Data Management System
-----
1. Load Initial Employees' Data
2. Add New Employee
3. Display All Employees
4. Retrieve Specific Employee Data
5. Retrieve Employees (with salaries based on range)
6. Exit Program

Please enter a menu option (1-6):
6

Thank you for using the Employee Data Management System
Good-bye!
```

## Results

This program displays all of the prompts and outputs successfully. It performs as expected and is a successful way to implement the lessons learned throughout the course of CMIS 141 since it covers if statements, loops, arrays, methods, objects, and classes.