Experiment 2.4

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Subject Name: Project Based Learning in Java

Subject Code: 20CSP-321

1. Aim:

Create a menu based Java application with the following options.

1. Add an Employee

2. Display All

3. Exit

If option 1 is selected, the application should gather details of the employee like

employee name, employee id, designation and salary and store it in a file.

If option 2 is selected, the application should display all the employee details.

If option 3 is selected the application should exit.

2. Software used: IntelliJ IDEA, JDK

3. Code:

```java
import java.io.*;
import java.util.ArrayList;
import java.util.Scanner;
import java.io.Serializable;

class Employee implements Serializable {

    int id;
    String name;
    float salary;
    long contact_no;
    String email_id;

    public Employee(int id, String name, float salary, long contact_no, String email_id)
    {
        this.id = id;
```

```java
            this.name = name;
            this.salary = salary;
            this.contact_no = contact_no;
            this.email_id = email_id;
    }

    public String toString()
    {
        return "\nEmployee Details :" + "\nID: " + this.id + "\nName: " + this.name + "\nSalary:
" +
                this.salary + "\nContact No: " + this.contact_no + "\nEmail-id: " +
this.email_id;
    }

}


@SuppressWarnings("serial")


public class Unit2Exp4 {
    static void display(ArrayList<Employee> al) {
        System.out.println("\n--Company Employees--\n");
        System.out.println(String.format("%-10s%-15s%-15s%-15s%-10s", "ID", "Name", "salary",
"contact-no", "Email"));
        for (Employee e : al) {
            System.out.println(String.format("%-10s%-15s%-15s%-15s%-10s", e.id, e.name,
e.salary, e.contact_no, e.email_id));
        }
    }

    @SuppressWarnings("unchecked")
    public static void main(String[] args) {
        int id;
        String name;
        float salary;
        long contact_no;
        String email_id;

        Scanner sc = new Scanner(System.in);
        ArrayList<Employee> al = new ArrayList<Employee>();

        File f = null;
        FileInputStream fis = null;
        ObjectInputStream ois = null;
        FileOutputStream fos = null;
        ObjectOutputStream oos = null;
        try {

            f = new File("C:\\Users\\Windows\\IdeaProjects\\EXP\\src\\EmployeeData.txt");
            if (f.exists()) {
                fis = new FileInputStream(f);
                ois = new ObjectInputStream(fis);
                al = (ArrayList<Employee>) ois.readObject();
            }

        } catch (Exception exp) {
            System.out.println(exp);
        }
        System.out.println("\n---Employee Management System---");

        do {
            System.out.println("-MENU-");
            System.out.println("1. Add Employee\n" +
                    "2. Search Employee\n" +
                    "3. Edit Employee\n" +
                    "4. Delete Employee\n" +
                    "5. Display all Employees\n" +
                    "6. EXIT\n");
            System.out.println("Enter your choice : ");
            int ch = sc.nextInt();
```

```java
                switch (ch) {
                    case 1:
                        System.out.println("Enter ID :");
                        id = sc.nextInt();
                        System.out.println("Enter Name :");
                        name = sc.next();
                        System.out.println("Enter Salary :");
                        salary = sc.nextFloat();
                        System.out.println("Enter Contact No. :");
                        contact_no = sc.nextLong();
                        System.out.println("Enter Email :");
                        email_id = sc.next();
                        al.add(new Employee(id, name, salary, contact_no, email_id));
                        display(al);
                        break;

                    case 2:
                        System.out.println("Enter Employee ID :");
                        id = sc.nextInt();
                        int i = 0;
                        for (Employee e : al) {
                            if (id == e.id) {
                                System.out.println(e + "\n");
                                i++;
                            }
                        }
                        if (i == 0) {
                            System.out.println("\nEmployee ID not found!");
                        }
                        break;

                    case 3:
                        System.out.println("\nEnter the Employee ID : ");
                        id = sc.nextInt();
                        int j = 0;
                        for (Employee e : al) {
                            if (id == e.id) {
                                j++;
                                do {
                                    int ch1 = 0;
                                    System.out.println("\nEDIT Employee Details :\n" +
                                            "1. Employee ID\n" +
                                            "2. Name\n" +
                                            "3. Salary\n" +
                                            "4. Contact No.\n" +
                                            "5. Email\n" +
                                            "6. GO BACK\n");
                                    System.out.println("Enter your choice : ");
                                    ch1 = sc.nextInt();
                                    switch (ch1) {
                                        case 1:
                                            System.out.println("\nEnter new Employee ID:");
                                            e.id = sc.nextInt();
                                            System.out.println(e + "\n");
                                            break;

                                        case 2:
                                            System.out.println("Enter new Employee Name:");
                                            e.name = sc.nextLine();
                                            System.out.println(e + "\n");
                                            break;

                                        case 3:
                                            System.out.println("Enter new Employee Salary:");
                                            e.salary = sc.nextFloat();
                                            System.out.println(e + "\n");
                                            break;

                                        case 4:
                                            System.out.println("Enter new Employee Contact No. :");
```

```java
                            e.contact_no = sc.nextLong();
                            System.out.println(e + "\n");
                            break;

                        case 5:
                            System.out.println("Enter new Employee Email :");
                            e.email_id = sc.next();
                            System.out.println(e + "\n");
                            break;

                        case 6:
                            j++;
                            break;

                        default:
                            System.out.println("\nInvalid choice!");
                            break;

                    }
                }
                while (j == 1);
            }
        }
        if (j == 0) {
            System.out.println("\nEmployee ID not found!");
        }

        break;

    case 4:
        System.out.println("\nEnter Employee ID to DELETE :");
        id = sc.nextInt();
        int k = 0;
        try {
            for (Employee e : al) {
                if (id == e.id) {
                    al.remove(e);
                    display(al);
                    k++;
                    System.out.println("Employee details deleted!");
                }
            }
            if (k == 0) {
                System.out.println("\nEmployee ID not found!");
            }
        } catch (Exception ex) {
            System.out.println(ex);
        }
        break;

    case 5:
        try {
            al = (ArrayList<Employee>) ois.readObject();

        } catch (ClassNotFoundException e2) {

            System.out.println(e2);
        } catch (Exception e2) {

            System.out.println(e2);
        }
        display(al);
        break;

    case 6:
        try {
            fos = new FileOutputStream(f);
            oos = new ObjectOutputStream(fos);
            oos.writeObject(al);
        } catch (IOException e1) {
            e1.printStackTrace();
```

```java
            } catch (Exception e2) {
                e2.printStackTrace();
            } finally {
                try {
                    fis.close();
                    ois.close();
                    fos.close();
                    oos.close();
                } catch (Exception e1) {
                    e1.printStackTrace();
                }

            }
            System.out.println("\nSaving file and exiting.");
            sc.close();
            System.exit(0);
            break;

        default:
            System.out.println("\nInvalid choice!");
            break;

        }
    }
    while (true);
  }
}
```

4. Output:

```
---Employee Management System---
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
1
Enter ID :
39
Enter Name :
Anjali
Enter Salary :
9000000
Enter Contact No. :
8769064
Enter Email :
cuteanjali2309@gmail.com

--Company Employees--

ID         Name           salary          contact-no       Email
39         Anjali         9000000.0       8769064          cuteanjali2309@gmail.com
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
1
Enter ID :
85
Enter Name :
Ruchiii
```

```
Enter your choice :
1
Enter ID :
85
Enter Name :
Ruchiii
Enter Salary :
8900000
Enter Contact No. :
98012398
Enter Email :
rajruchika0910@gmail.com

--Company Employees--

ID          Name            salary          contact-no      Email
39          Anjali          9000000.0       8769064         cuteanjali2309@gmail.com
85          Ruchiii         8900000.0       98012398        rajruchika0910@gmail.com
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
68

Invalid choice!
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
1
Enter ID :
```

```
                                                            input
Enter your choice :
1
Enter ID :
68
Enter Name :
Tushar
Enter Salary :
8091000
Enter Contact No. :
678987
Enter Email :
tusharg146@gmail.com

--Company Employees--

ID          Name          salary          contact-no      Email
39          Anjali        9000000.0       8769064         cuteanjali2309@gmail.com
85          Ruchiii       8900000.0       98012398        rajruchika0910@gmail.com
68          Tushar        8091000.0       678987          tusharg146@gmail.com
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
2
Enter Employee ID :
85

Employee Details :
ID: 85
Name: Ruchiii
Salary: 8900000.0
Contact No: 98012398
Email-id: rajruchika0910@gmail.com

-MENU-
1. Add Employee
```

GDB

```
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
2
Enter Employee ID :
86

Employee ID not found!
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
3

Enter the Employee ID :
68

EDIT Employee Details :
1. Employee ID
2. Name
3. Salary
4. Contact No.
5. Email
6. GO BACK

Enter your choice :
1

Enter new Employee ID:
```

db.com/online_java_compiler

input

```
Enter your choice :
1

Enter new Employee ID:

Employee Details :
ID: 68
Name: Tushar
Salary: 8091000.0
Contact No: 678987
Email-id: tusharg146@gmail.com


EDIT Employee Details :
1. Employee ID
2. Name
3. Salary
4. Contact No.
5. Email
6. GO BACK

Enter your choice :
6
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
4

Enter Employee ID to DELETE :
68

--Company Employees--

ID          Name          salary          contact-no          Email
```

```
--Company Employees--

ID          Name            salary          contact-no      Email
39          Anjali          9000000.0       8769064         cuteanjali2309@gmail.com
85          Ruchiii         8900000.0       98012398        rajruchika0910@gmail.com
Employee details deleted!
java.util.ConcurrentModificationException
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
0

Invalid choice!
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
5
java.lang.NullPointerException

--Company Employees--

ID          Name            salary          contact-no      Email
39          Anjali          9000000.0       8769064         cuteanjali2309@gmail.com
85          Ruchiii         8900000.0       98012398        rajruchika0910@gmail.com
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
```

```
input

6. EXIT

Enter your choice :
0

Invalid choice!
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
5
java.lang.NullPointerException

--Company Employees--

ID          Name              salary          contact-no      Email
39          Anjali            9000000.0       8769064         cuteanjali2309@gmail.com
85          Ruchiii           8900000.0       98012398        rajruchika0910@gmail.com
-MENU-
1. Add Employee
2. Search Employee
3. Edit Employee
4. Delete Employee
5. Display all Employees
6. EXIT

Enter your choice :
6
java.lang.NullPointerException
        at Main.main(Main.java:230)

Saving file and exiting.


...Program finished with exit code 0
Press ENTER to exit console.
```

Learning outcomes (What I have learnt):

1. Learnt about different methods provided for the ArrayList.

2. Learnt about File Handling.

3. Learnt about the Serialization.