LAB INDEX

NAME: Vivek Kumar
UID: 21BCS8129
SECTION: WM-20BCS-616/A

SUBJECTNAME: Project Based Learning in Java Lab
SUBJECTCODE: 20CSP-314

Sr. No	Program	Date	Evaluation				Sign
			LW (12)	VV (10)	FW (8)	Total (30)	
1	Create an application to save the employee information using arrays.	09-08-2022					
2	Design and implement a simple inventory control system for a small video rentalstore.	23-08-2022					
3	Create a application to calculate interest for FDs, RDs based on certain conditions using inheritance.	02-09-2022					
4	Create a program to show the usage of Sets of Collection interface.	27-09-2022					
5	Create a program to set view of Keys from Java Hashtable.	27-09-2022					
6	Write a Program to perform the basic operations like insert, delete, display and search in list. List contains String object items where these operations are to be performed.	04-10-2022					
7	Create a menu based Java application with the following options.1.Add an Employee2.Display All3.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.	14-10-2022					
8	Create a palindrome creator application for making a longest possible palindrome out of given input string.						
9	Create a Servlet/ application with a facility to print any message on web browser.						
10	Create JSP application for addition, multiplication and division.						

CHANDIGARH UNIVERSITY

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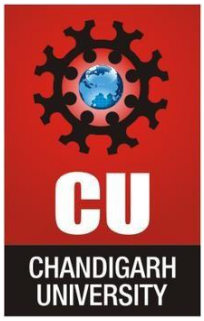
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING



Submitted By: Vivek Kumar(21BCS8129)	**Submitted To:** Neeru Sharma(E12950)
Subject Name	Project Based Learning in Java Lab
Subject Code	20CSP-321
Branch	Computer Science and Engineering
Semester	5th

Experiment - 7

Student Name: Vivek Kumar **UID: 21BCS8129**
Branch: BE-CSE(LEET) **Section/Group:20BCS-WM-616/A**
Semester: 5th **Date of Performance: 14/10/2022**
Subject Name: Project Based Learning in Java Lab **Subject Code: 20CSP-321**

1. Aim/Overview of the practical:

Create a menu-based Java application with the following options.1. Add an Employee2.Display All3.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. Task to be done/ Which logistics used:

Write the program to create an application to perform a File manipulation.

3. Software Requirements (For programming-based labs):

- JDK-8 or any
- Eclipse-IDE for Java

4. Steps for experiment/practical/Code:

```
package unit2;

import java.io.File;
import java.io.FileInputStream;
import java.io.FileOutputStream;
import java.io.IOException;
import java.io.ObjectInputStream;
import java.io.ObjectOutputStream;
import java.io.Serializable;
import java.util.ArrayList;
import java.util.Scanner;

@SuppressWarnings("serial")
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;
    this.name = name;
    this.salary = salary;
    this.contact_no = contact_no;
    this.email_id = email_id;
  }

  public String toString() {
    return (
      "Employee Details :\n" +
      " ID: " +
      this.id +
      " Name: " +
      this.name +
      " Salary: " +
      this.salary +
      " Contact No: " +
      this.contact_no +
      " Email-id: " +
      this.email_id
    );
  }
}

public class WorkSheet7 {

  static void display(ArrayList<Employee> al) {
    System.out.println("\n----------Employee List----------\n");
    System.out.println(
      String.format(
        "%-10s%-15s%-10s%-20s%-10s",
        "ID",
        "Name",
        "salary",
        "contact-no",
        "Email-Id"
      )
    );
    for (Employee e : al) {
      System.out.println(
        String.format(
          "%-10s%-15s%-10s%-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(
          "R:\\VnjVibhash\\Assignments\\CU-Assignments\\5th
Sem\\Java\\JavaLab\\src\\EmployeeDataList.txt"
        );
      if (f.exists()) {
        fis = new FileInputStream(f);
        ois = new ObjectInputStream(fis);
        al = (ArrayList<Employee>) ois.readObject();
      }
    } catch (Exception exp) {
      System.out.println(exp);
    }
    do {
      System.out.println(
        "\n*********Welcome to the Employee Management System**********\n"
      );
      System.out.println(
        "1). Add Employee to the DataBase\n" +
        "2). Search for Employee\n" +
        "3). Edit Employee details\n" +
        "4). Delete Employee Details\n" +
```

```
  "5). Display all Employees working in this company\n" +
  "6). EXIT\n"
);
System.out.println("Enter your choice : ");
int ch = sc.nextInt();

switch (ch) {
  case 1:
    System.out.println("\nEnter the following details to ADD list:\n");
    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-ID :");
    email_id = sc.next();
    al.add(new Employee(id, name, salary, contact_no, email_id));
    display(al);
    break;
  case 2:
    System.out.println("Enter the Employee ID to search :");
    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 Details are not available, Please enter a valid ID!!"
      );
    }
    break;
  case 3:
    System.out.println("\nEnter the Employee ID to EDIT the details");
    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-ID\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. :");
    e.contact_no = sc.nextLong();
    System.out.println(e + "\n");
    break;
  case 5:
    System.out.println("Enter new Employee Email-ID :");
    e.email_id = sc.next();
    System.out.println(e + "\n");
    break;
  case 6:
    j++;
    break;
  default:
    System.out.println(
      "\nEnter a correct choice from the List :"
    );
    break;
```

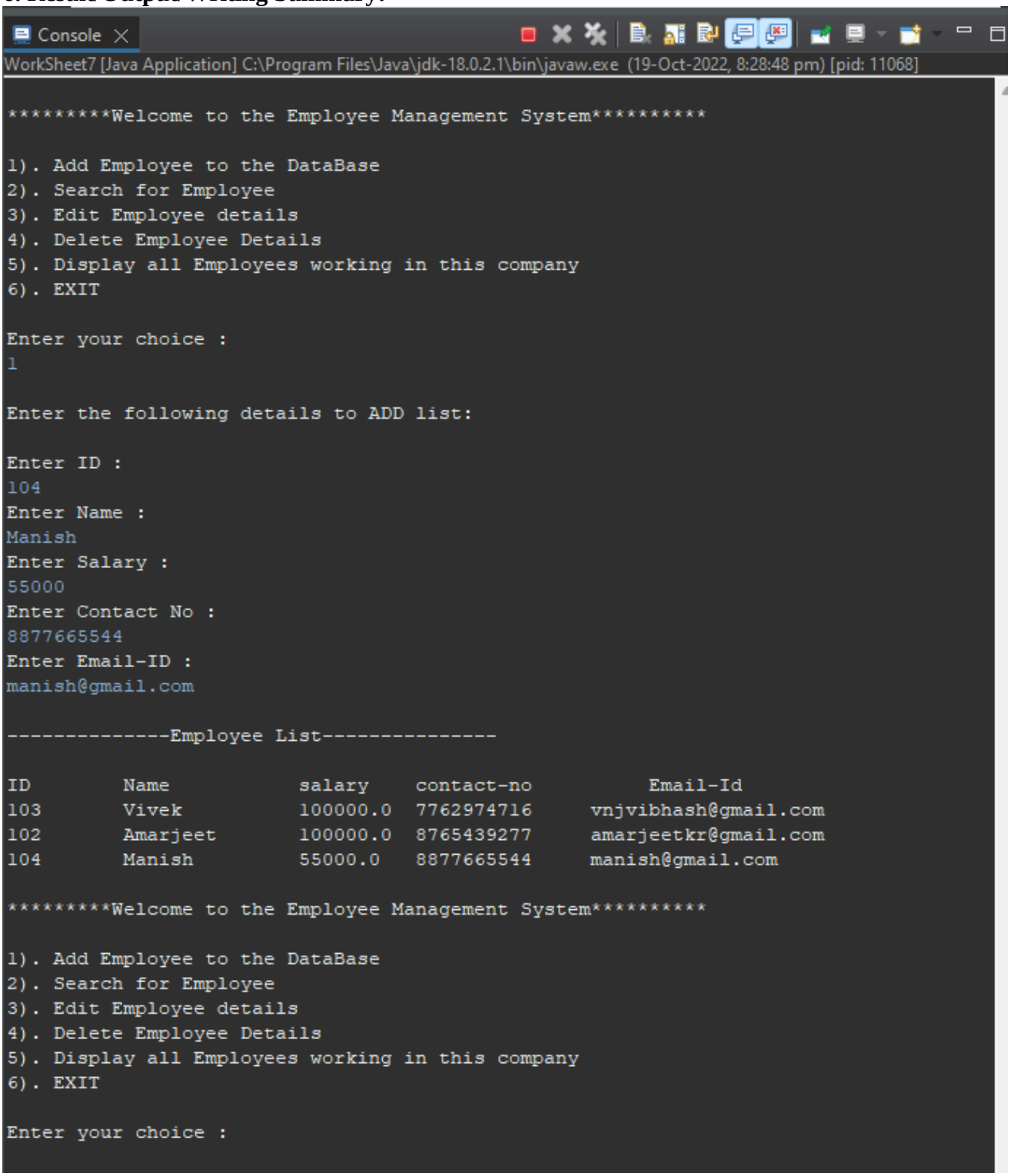
```
        }
      } while (j == 1);
    }
  }
  if (j == 0) {
    System.out.println(
      "\nEmployee Details are not available, Please enter a valid ID!!"
    );
  }

  break;
case 4:
  System.out.println(
    "\nEnter Employee ID to DELETE from the Databse :"
  );
  id = sc.nextInt();
  int k = 0;
  try {
    for (Employee e : al) {
      if (id == e.id) {
        al.remove(e);
        display(al);
        k++;
      }
    }
    if (k == 0) {
      System.out.println(
        "\nEmployee Details are not available, Please enter a valid ID!!"
      );
    }
  } 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();
          } catch (Exception e2) {
            e2.printStackTrace();
          } finally {
            try {
              fis.close();
              ois.close();
              fos.close();
              oos.close();
            } catch (Exception e1) {
              e1.printStackTrace();
            }
          }
          System.out.println(
            "\nYou have chosen EXIT !! Saving Files and closing the tool."
          );
          sc.close();
          System.exit(0);
          break;
        default:
          System.out.println("\nEnter a correct choice from the List :");
          break;
      }
    } while (true);
  }
}
```

5. Observations/Discussions/ Complexity Analysis:

Here we have created the File objects, and performed all the operation of file such as insertion, searching, deletion, and finally stored in the File.

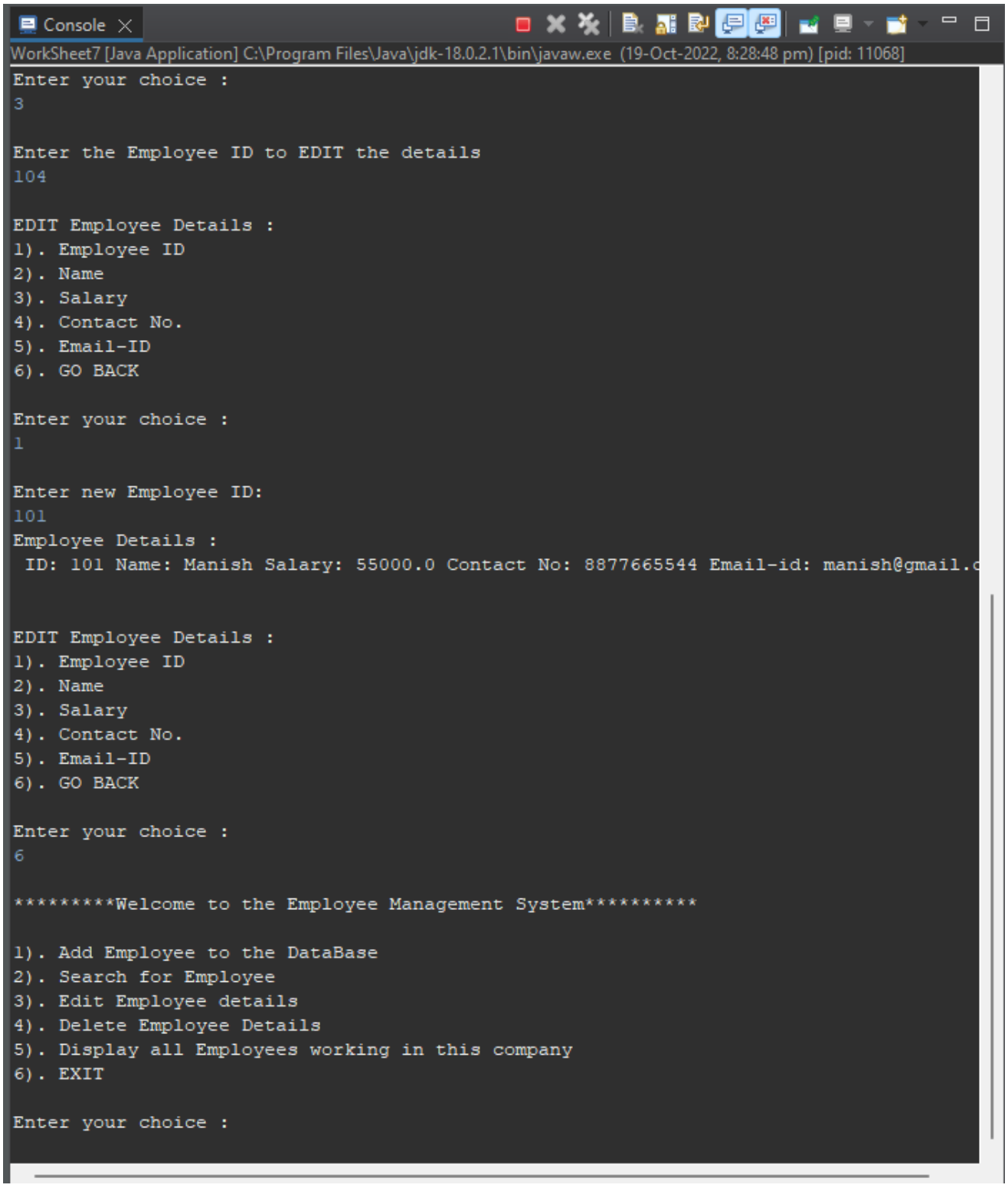
6. Result/Output/Writing Summary:

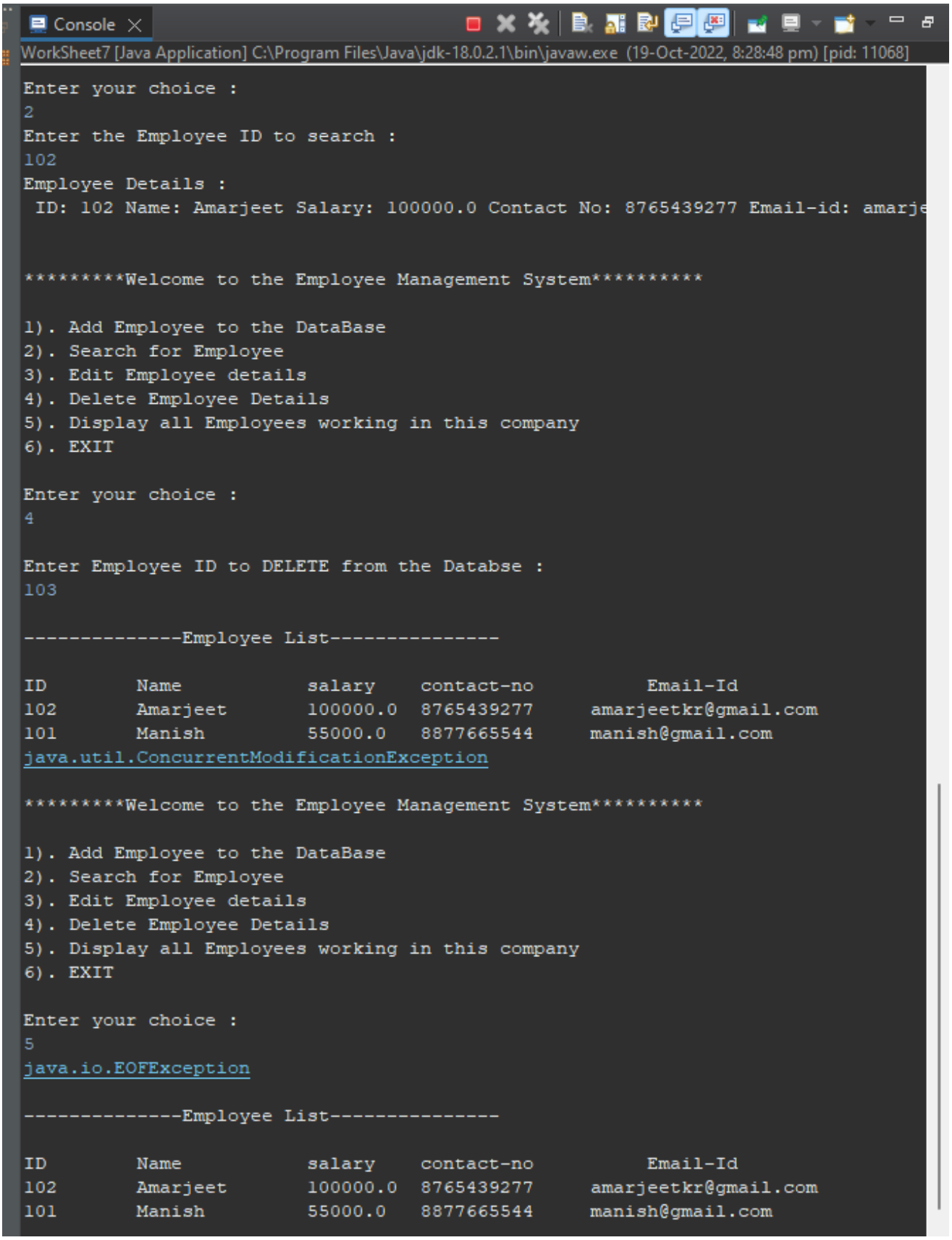


Console

WorkSheet7 [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (19-Oct-2022, 8:28:48 pm) [pid: 11068]

```
*********Welcome to the Employee Management System**********

1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT

Enter your choice :
1

Enter the following details to ADD list:

Enter ID :
104
Enter Name :
Manish
Enter Salary :
55000
Enter Contact No :
8877665544
Enter Email-ID :
manish@gmail.com

--------------Employee List---------------

ID        Name           salary    contact-no          Email-Id
103       Vivek          100000.0  7762974716     vnjvibhash@gmail.com
102       Amarjeet       100000.0  8765439277     amarjeetkr@gmail.com
104       Manish         55000.0   8877665544     manish@gmail.com

*********Welcome to the Employee Management System**********

1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT

Enter your choice :
```


Console
WorkSheet7 [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (19-Oct-2022, 8:28:48 pm) [pid: 11068]
Enter your choice :
3
Enter the Employee ID to EDIT the details
104
EDIT Employee Details :
1). Employee ID
2). Name
3). Salary
4). Contact No.
5). Email-ID
6). GO BACK
Enter your choice :
1
Enter new Employee ID:
101
Employee Details :
ID: 101 Name: Manish Salary: 55000.0 Contact No: 8877665544 Email-id: manish@gmail.c
EDIT Employee Details :
1). Employee ID
2). Name
3). Salary
4). Contact No.
5). Email-ID
6). GO BACK
Enter your choice :
6
**********Welcome to the Employee Management System**********
1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT
Enter your choice :



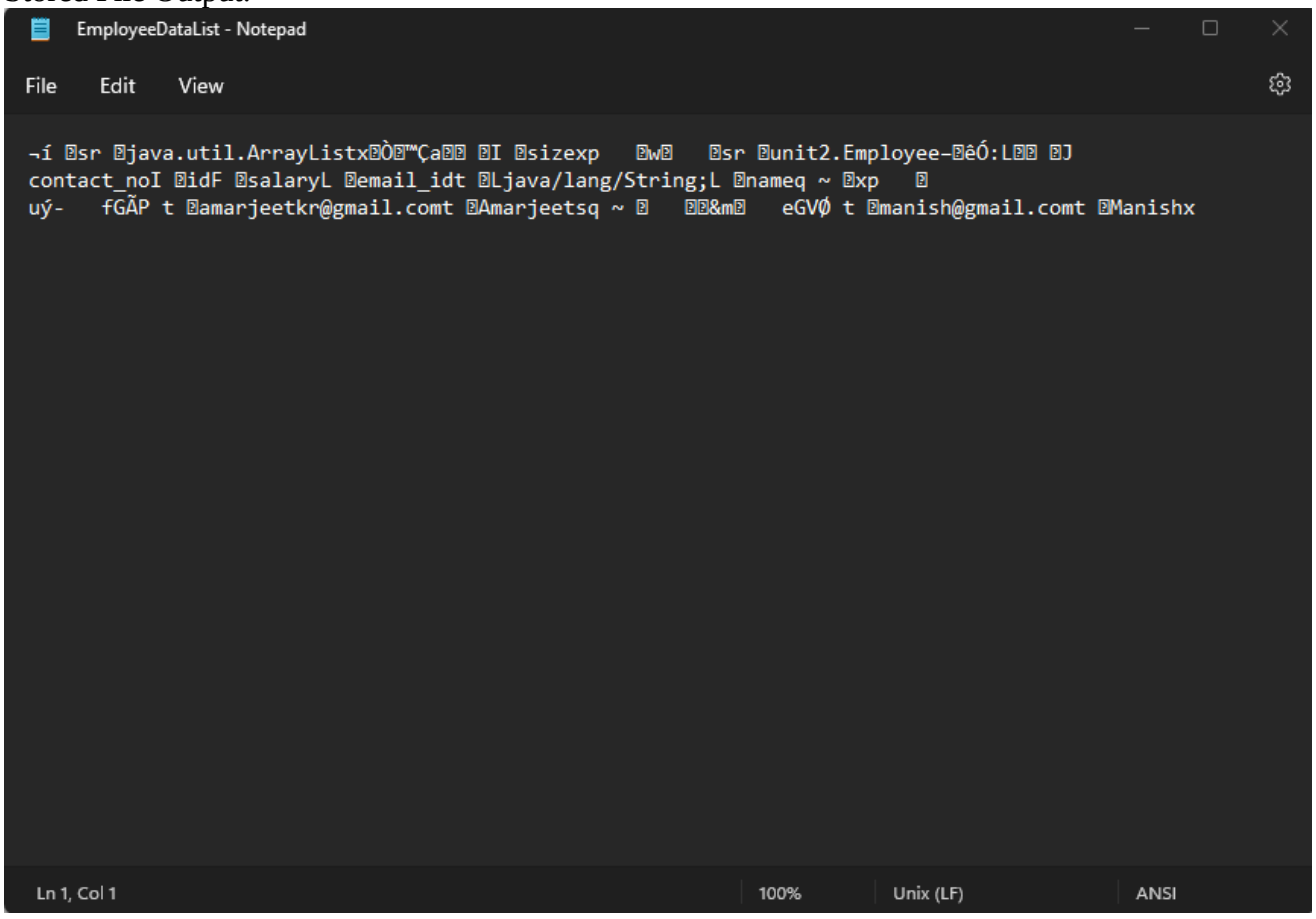
Console

WorkSheet7 [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe (19-Oct-2022, 8:28:48 pm) [pid: 11068]

```
Enter your choice :
2
Enter the Employee ID to search :
102
Employee Details :
 ID: 102 Name: Amarjeet Salary: 100000.0 Contact No: 8765439277 Email-id: amarje


*********Welcome to the Employee Management System**********

1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT

Enter your choice :
4

Enter Employee ID to DELETE from the Databse :
103

--------------Employee List---------------

ID        Name           salary    contact-no          Email-Id
102       Amarjeet       100000.0  8765439277      amarjeetkr@gmail.com
101       Manish         55000.0   8877665544      manish@gmail.com
java.util.ConcurrentModificationException

*********Welcome to the Employee Management System**********

1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT

Enter your choice :
5
java.io.EOFException

--------------Employee List---------------

ID        Name           salary    contact-no          Email-Id
102       Amarjeet       100000.0  8765439277      amarjeetkr@gmail.com
101       Manish         55000.0   8877665544      manish@gmail.com
```

```
**********Welcome to the Employee Management System**********

1). Add Employee to the DataBase
2). Search for Employee
3). Edit Employee details
4). Delete Employee Details
5). Display all Employees working in this company
6). EXIT

Enter your choice :
6

You have chosen EXIT !! Saving Files and closing the tool.
```

Stored File Output:



Learning outcomes (What I have learnt):

1. Learnt while loop.
2. File manipulation concept understood.
3. Created file and performed all operation of file.
4. Learnt the concept of switch concept.
5. Learnt concept of inbuilt function in file such as FileOutputStream & FileInputStream.

Evaluation Grid (To be created per the faculty's SOP and Assessment guidelines):

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Worksheet completion including writing learning objectives/Outcomes. (To be submitted at the end of the day).		
2.	Post-Lab Quiz Result.		
3.	Student Engagement in Simulation/Demonstration/Performance and Controls/Pre-Lab Questions.		
	Signature of Faculty (with Date):	Total Marks Obtained:	