PROJECT TOPIC: DSA (EMPLOYEES)

PURPOSE: This project was performed during academic session 2022-23 for the fulfillment of the requirement for semester-2 Syllabus of the college. This project is an individual work.

DESCRIPTION OF THE CODE:

CLASS ADDRESS:

Class Address contains the instance variables flatno (of type int), apartment (of type string), area (of type string), city (of type string) and pincode (of type int).

It also contains the following methods:

1. public void inputAddress():

This method is used to take input from the user for all the instance variables.

1. void displayAddress():

This method is used to display all the values of instance variables.

CLASS DATE:

Class Date is extended by class Address.

It contains the instance variables date (of type int), month (of type int) and year (of type int).

It also contains the following methods:

1. void inputDate():

This method is used to take input from the user for all the instance variables.

1. void displayDate():

This method is used to display all the values of instance variables.

CLASS EMPLOYEE:

Class Employee is extended by class Date. Thus, it inherits properties from class Address and class Date.

It contains the instance variables name (of type string), empID (of type int), salary (of type double), hireDate (of type Date), jobPosition (of type string), contactNumber (of type string), address (of type Address).

It also constructor which is used to initialize the following variables- name, empID, salary, hireDate, jobPosition and contactNumber.

It also contains a method void displayInfo() which is used to print all the information of an employee. It prints all the instance variables.

CLASS TEST:

Class Test contains the following methods:

1. public static void arrangeEmployeeBySalary (Employee e[ ]):

In this method, we sort the array of Employee elements in ascending order of their salary using for-loops and if-condition. We then use another for-loop to print the details of employees using the sorted array in reverse order. This gives us a table of employees in decreasing order of their salaries.

1. public static void getEmployeesByJobPosition (Employee e[ ], String jp):

This method uses a for-loop to iterate through the array of Employee elements and searches for the value jp in the jobPosition field. It then prints the details of employees whose job position is jp.

1. public static void getEmployeesByHireDate (Employee e[ ], Date d1, Date d2):

This method uses for-loop and if-else-conditions to check if each employee’s date of joining falls in the range Date d1 to d2. It then prints the details of employees whose hireDate is in the given range.

1. public static int foreignEmployeeCount (Employee e[ ]):

This method uses a for-loop to iterate through the array of Employee elements and obtains their contact numbers. It then creates a string array with the first two characters of contact numbers. Then a for-loop is used to check and count if a contact number is foreign or Indian. The number of foreign contact numbers indicates the foreign employees. The count of foreign employees is returned.

1. public static void getEmployeesBySalary (Employee e[ ], double s1, double s2):

This method uses a for-loop to traverse through the array of Employee elements and checks if the salary field falls in the range s1 to s2. It then prints the details of the employees whose salary falls in the given range.

1. public static void main (String [ ] args):

Array emp of Employee type with is created for 500 employees. A for-loop is used to take input database of the employees.

Two Dates objects d1 and d2 are created and given input.

Now, the above-mentioned methods of class Test [(i) to (v)] are called one after one in the following way-

1. arrangeEmployeeBySalary (emp)
2. getEmployeesByJobPosition (emp,”manager”)
3. getEmployeesByHireDate (emp, d1, d2)
4. System.out.println(“Number of foreign employees: ”+foreignEmployeeCount(emp))
5. getEmployeesBySalary (emp, 150000, 300000)

OUTPUT OF THE CODE:

For simplicity, the number of employees has been reduced from 500 to 5.

