

**Problem:** - To create an Employee database using class and object.

**Code: -**

```
/*Name: ANISH MORE
Registration number: 2241013365
Section: 2241037
Branch: CSE
Name of the program : To create an Employee database using class and object.
*/
package AnishMore_2241013365;
import java.util.Scanner;
class Employee
{
    String name;
    int empId;
    double salary;
    Date hireDate;
    String jobPosition;
    String contactNumber;
    Address address;

    public String getName()
    {
        return name;
    }

    public void setName(String name)
    {
        this.name = name;
    }

    public int getEmpId()
    {
        return empId;
    }

    public void setEmpId(int empId)
    {
        this.empId = empId;
    }

    public double getSalary()
    {
        return salary;
    }

    public void setSalary(double salary)
```

```

    {
        this.salary = salary;
    }

    public String getJobPosition()
    {
        return jobPosition;
    }

    public void setJobPosition(String jobPosition)
    {
        this.jobPosition = jobPosition;
    }

    public String getContactNumber()
    {
        return contactNumber;
    }

    public void setContactNumber(String contactNumber)
    {
        this.contactNumber = contactNumber;
    }

    public String getHireDate()
    {
        return hireDate.day+"/"+hireDate.month+"/"+hireDate.year;
    }

    public void setHireDate(int day,int month,int year)
    {
        this.hireDate=new Date(day,month,year);
    }

    public String getAddress()
    {
        return
address.city+" "+address.state+" "+address.country+" "+address.pincod
    }

    public void setAddress(String city, String state, String country, int
pincod
    {
        this.address =new Address(city,state,country,pincod);
    }

    Employee()
    {
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter your Name: ");
    }

```

```

        setName(sc.nextLine());
        System.out.print("Enter your employee id: ");
        setEmpId(sc.nextInt());
        System.out.print("Enter your salary: ");
        setSalary(sc.nextDouble());
        System.out.print("Enter your hire date in the form day month year: ");
        setHireDate(sc.nextInt(),sc.nextInt(),sc.nextInt());
        System.out.print("Enter your job position: ");
        sc.nextLine();
        setJobPosition(sc.nextLine());
        System.out.print("Enter your contact number: ");
        setContactNumber(sc.nextLine());
        System.out.println("Enter your address (city state country pincode):
");
        setAddress(sc.nextLine(),sc.nextLine(),sc.nextLine(),sc.nextInt());
    }

```

```

    void display()
    {
        System.out.println(getName()+"\t\t"+getEmpId()+"\t\t"+getSalary()+"\t"
+getHireDate()+"\t"+getJobPosition()+"\t\t"+getContactNumber()+"\t\t"+getAddre
ss());
    }
}

```

```

class Date{
    int day;
    int month;
    int year;

    public Date(int day,int month,int year)
    {
        this.day=day;
        this.month=month;
        this.year=year;
    }
}

```

```

class Address
{
    String city,state,country;
    int pincode;
    public Address(String city, String state, String country, int pincode) {
        this.city = city;
        this.state = state;
        this.country = country;
        this.pincode = pincode;
    }
}

```

```

package AnishMore_2241013365;
import java.util.Scanner;
import AnishMore_2241013365.Date;
public class Test
{
    public static void main(String[] args)
    {
        //To get details of the Employee
        Scanner sc=new Scanner(System.in);
        System.out.print("Enter number of employees:");
        int n=sc.nextInt();
        Employee e[]=new Employee[n];
        for(int i=0;i<n;i++)
        {
            System.out.println("Enter Employee "+(i+1)+" Detail");
            e[i]=new Employee();
        }

        //To arrange the employee details in descending order by salary
        arrangeEmployeeBySalary(e);

        //To display the details of employees whose jobPosition is manager
        System.out.println("Enter the job position for which you want to
display the details of Employee");
        sc.nextLine();
        String jp=sc.nextLine();
        System.out.println("Details of employees whose jobPosition is"+jp);
        getEmployeesByJobPosition(e,jp);

        //To display the details of employees whose hireDate is between 01-04-
2022 to 31-03-2023
        System.out.println("Enter your hire date range between which you want
to get details in the form day month year: ");
        System.out.print("Enter starting of range:");
        Date d1=new Date(sc.nextInt(),sc.nextInt(),sc.nextInt());
        System.out.print("Enter ending of range:");
        Date d2=new Date(sc.nextInt(),sc.nextInt(),sc.nextInt());
        System.out.println("Details of employees whose hireDate is
between"+d1.day+"/"+d1.month+"/"+d1.year+" to
"+d2.day+"/"+d2.month+"/"+d2.year);
        getEmployeesByHireDate(e, d1, d2);

        //To find the number of foreign employees
        int no_Of_Foreign_Employee=foreignEmployeeCount(e);
        System.out.println("Number of foreign employees:
"+no_Of_Foreign_Employee);
    }
}

```

```

        //To display the details of employees whose salary is in a range
        150000 INR to 300000 INR
        System.out.println("Enter the range of salary between which you want
to display the details of Employee");
        double s1=sc.nextDouble();
        double s2=sc.nextDouble();
        System.out.println("Details of employees whose salary is in a range
"+s1+" INR to "+s2+" INR");
        getEmployeesBySalary(e,s1,s2);
    }

```

```

public static void arrangeEmployeeBySalary(Employee e[])
{
    int i,j;
    for(i=0;i<e.length;i++)
    {
        for(j=0;j<e.length-1;j++)
        {
            if(e[j].salary<e[j+1].salary)
            {
                Employee obj=e[j];
                e[j]=e[j+1];
                e[j+1]=obj;
            }
        }
    }
}

```

```

public static void getEmployeesByJobPosition(Employee e[], String jp)
{
    System.out.println("Name\t\tEmployee_Id\t\tSalary\t\tHire Date\tJob
Position\tContact Number\t\tAddress");
    for(int i=0;i<e.length;i++)
    {
        if(e[i].jobPosition.equals(jp))
        {
            e[i].display();
        }
    }
}

```

```

public static void getEmployeesByHireDate(Employee e[], Date d1, Date d2)
{
    System.out.println("Name\t\tEmployee_Id\t\tSalary\t\tHire Date\tJob
Position\tContact Number\t\tAddress");
    for(int i=0;i<e.length;i++)

```

```

        {
            if((e[i].hireDate.year==d2.year&&e[i].hireDate.month<=d2.month&&e[
i].hireDate.day<=d2.day)|| (e[i].hireDate.year==d1.year&&e[i].hireDate.month>=d
1.month&&e[i].hireDate.day>=d1.day))
                e[i].display();
        }
    }
}

```

```

public static int foreignEmployeeCount(Employee e[])
{
    int count=0;
    for(int i=0;i<e.length;i++)
    {
        if(!e[i].contactNumber.startsWith("+91"))
        {
            count++;
        }
    }
    return count;
}

```

```

public static void getEmployeesBySalary(Employee e[], double s1, double
s2)
{
    System.out.println("Name\t\tEmployee_Id\t\tSalary\t\tHire Date\tJob
Position\tContact Number\t\tAddress");
    for(int i=0;i<e.length;i++)
    {
        if(e[i].salary>=s1&&e[i].salary<=s2)
            e[i].display();
    }
}
}

```

### **Description: -**

There are four classes: -

- A. Test
- B. Employee
- C. Date
- D. Address

1) **Test class** contains following methods: -

- a) `public static void main(String[] args)`
- b) `public static void arrangeEmployeeBySalary(Employee e[])`
- c) `public static void getEmployeesByJobPosition(Employee e[], String jp)`
- d) `public static void getEmployeesByHireDate(Employee e[], Date d1, Date d2)`
- e) `public static int foreignEmployeeCount(Employee e[])`
- f) `public static void getEmployeesBySalary(Employee e[], double s1, double s2)`

- **`public static void main(String[] args)`**

In main method, a scanner class object is created to get the details of the employees from the user using the constructor of the Employee class and each detail of the employee is stored in an array of objects `e []`. After that `arrangeEmployeeBySalary (Employee e [])` is called to arrange the employee details in descending order by salary. After this function is executed `getEmployeesByJobPosition (Employee e [], String jp)` is called to display the details of the Employee whose job position is manager. After this function is executed then `public static void getEmployeesByHireDate (Employee e [], Date d1, Date d2)` is called to Display the details of employees whose hire date is between 01-04-2022 to 31-03-2023. After this `public static int foreignEmployeeCount (Employee e [])` is called to Find the number of foreign employees and display it. After that `public static void getEmployeesBySalary (Employee e [], double s1, double s2)` is called to Display the details of employees whose salary is in a range 150000 INR to 300000 INR.

- **`public static void arrangeEmployeeBySalary(Employee e[])`**

This method is used to arrange the details of the employees in descending order by their salary. In this method, bubble sort algorithm is used to do the sorting process.

- **`public static void getEmployeesByJobPosition(Employee e[], String jp)`**

This method is used to get the details of the employee by their job position. In this method for loop is used to access each employee job position and compares its value with the required job position using the `equals()` method. To display the details `display()` method of employee class is called.

- **`public static void getEmployeesByHireDate(Employee e[], Date d1, Date d2)`**

This method is used to display the details of the employee whose hire date is in between the specified range. This method uses for loop to get each employee hire date and if

statement is used to check whether that date is in the given range or not. If the hire date is in the given range then display() method of employee class is called to display the details.

- **public static int foreignEmployeeCount(Employee e[])**

This method is used to return the number of foreign employees present in the company. Employees contact number is used to count the number of foreign employees. We have used startsWith() method to check whether the contact number starts with "+91" or not. If number does not start with it, then variable count value is increased by 1.

- **public static void getEmployeesBySalary(Employee e[], double s1, double s2)**

This method is used to display the details of the employees whose salary lies within the given range. A loop is used to access each employee salary and if statement is used to check whether the employees salary is in the given range or not. If its in the given range then employee details is shown using the display method the employee class.

2)**Employee class** contains following methods and instance variables: -

- a) String name
- b) int empId
- c) double salary
- d) Date hireDate
- e) String jobPosition
- f) String contactNumber
- g) Address address
- h) void display()

We have created getter and setter methods for each instance variable we have used in employee class.

- **String name**

It is used to store the name of employees.

- **int empId**

It is used to store the employee id of the employees

- **double salary**

It is used to store the salary of the employees

- **Date hireDate**

It is use to store the date on which the employyes where hired using the Date class.

- **String jobPosition**

It is used to store the position of the employees in the company.



- **String contactNumber**

It is used to store the employees contact number.

- **Address address**

It is used to store the employees Address using the address class

- **void display()**

This method is used to display the details of the employee.

A constructor of employee class is also created to initialize the instance variables using Scanner class.

3)**Date class** contains following instance variables: -

- a) int day
- b) int month
- c) int year

This class contains a parameterized constructor to initialize the instance variables.

4) **Address class** contains following instance variables: -

- a) String city
- b) String state
- c) String country
- d) int pincode;

This class contains a parameterized constructor to initialize the instance variables.

### **Output:-**

```
Enter number of employees:3
Enter Employee 1 Detail
Enter your Name: Anish More
Enter your employee id: 101
Enter your salary: 250000
Enter your hire date in the form day month year: 31 3 2022
Enter your job position: Manager
Enter your contact number: +919876543210
Enter your address (city state country pincode):
Jharsuguda
Odisha
India
768201
Enter Employee 2 Detail
Enter your Name: Himanshu Kumar Pradhan
Enter your employee id: 102
Enter your salary: 200000
Enter your hire date in the form day month year: 2 5 2022
```

Enter your job position: Designer  
Enter your contact number: +619876543210  
Enter your address (city state country pincode):  
Redcliffe City  
Queensland  
Australia  
4020

Enter Employee 3 Detail

Enter your Name: Shayan Shekhar Paul  
Enter your employee id: 103  
Enter your salary: 270000  
Enter your hire date in the form day month year: 1 2 2023  
Enter your job position: Manager  
Enter your contact number: +919876543210  
Enter your address (city state country pincode):  
Bhubaneshwar  
Odisha  
India  
750017

Enter the job position for which you want to display the details of Employee  
Manager

Details of employees whose jobPosition is Manager

Name	Employee_Id	Salary	Hire Date	Job
Position	Contact Number	Address		
Shayan Shekhar				
Paul	103	270000.0	1/2/2023	Manager
76543210	Bhubaneshwar	Odisha India	750017	+9198
Anish				
More	101	250000.0	31/3/2022	Manager
+919876543210	Jharsuguda	Odisha India	768201	

Enter your hire date range between which you want to get details in the form  
day month year:

Enter starting of range:1 4 2022

Enter ending of range:31 3 2022

Details of employees whose hireDate is between1/4/2022 to 31/3/2022

Name	Employee_Id	Salary	Hire Date	Job
Position	Contact Number	Address		
Anish				
More	101	250000.0	31/3/2022	Manager
+919876543210	Jharsuguda	Odisha India	768201	
Himanshu Kumar				
Pradhan	102	200000.0	2/5/2022	Designer
76543210	Redcliffe City	Queensland Australia	4020	+6198

Number of foreign employees: 1

Enter the range of salary between which you want to display the details of  
Employee

150000 300000

Details of employees whose salary is in a range 150000.0 INR to 300000.0 INR

Name	Employee_Id	Salary	Hire Date	Job
Position	Contact Number	Address		
Shayan Shekhar				
Paul	103	270000.0	1/2/2023	Manager
76543210	Bhubaneshwar	Odisha	India	750017
Anish				
More	101	250000.0	31/3/2022	Manager
+919876543210	Jharsuguda	Odisha	India	768201
Himanshu Kumar				
Pradhan	102	200000.0	2/5/2022	Designer
76543210	Redcliffe City	Queensland	Australia	4020