1. **Write a servlet application for registration page to store the given details by the user in the database. Use the following query in MySQL for creating the table to store the data.create table registration (name varchar (20), password varchar (10), email varchar (20), mobile bigint,gender varchar (6), country varchar (10));**

- **Connection Interface**

```
package com.jdbc.demo.connection;     //4
Connection interface public interface dBDetails { String
CONSTR =
"jdbc:mysql://localhost:3306/cdac_tvm?useSSL=false";
     String DBDDRIVER = "com.mysql.cj.jdbc.Driver";
                          String USERNAME = "root";
     String PASSWORD = "Rahul@123";
}
```

- **Connection**

```
package com.jdbc.demo.connection;  //  5
connection implementation import java.sql.Connection;      import
java.sql.DriverManager;    import
java.sql.SQLException;

public class DbConnection { public static
     Connection getDbConnection() {

     try {
          Class.forName(dBDetails.DBDDRIVER);

          Connection con=
     DriverManager.getConnection(dBDetails.CONSTR,dBDetails.US
ERNAME,dBDetails.PASSWORD);
          return con;
     }
```

```
     catch(ClassNotFoundException |SQLException exc) {
          exc.printStackTrace(); return null;
          }
     }


}
```

EMPLOYEE POJO CLASS

```
package
com.jdbc.demo.pojo; //1
Employee class public
class Employee { private
int id; private String
ename; private int age;
private int salary; public
Employee() {

     }
     public int getId() {
          return id;
     }
     public void setId(int id) {
          this.id = id;
     }
     public String getEname() {
          return ename;
     }
     public void setEname(String ename) {
          this.ename = ename;
     }
     public int getAge() {
          return age;
     }
     public void setAge(int age) {
          this.age = age;
     }
     public int getSalary() {
          return salary;
     }
     public void setSalary(int salary) {
          this.salary = salary;
     }
     @Override
     public String toString() { return "Employee [id=" + id +
          ", ename=" + ename + ",
age=" + age + ", salary=" + salary + "]";
```

```
     }

}
```

- **Employee DAO CLASS** package

```
com.jdbc.demo.dao; //2 interface
Employeedao import java.util.List;
import com.jdbc.demo.pojo.Employee;

public interface Employeedao {

     //query Operations
     List<Employee> getAllEmployee();
     Employee searchEmployee(int EmpId);
     //curd
     boolean addNewEmployee(Employee Empmloyee);
     boolean  updateEmployee(Employee  Employee);
     boolean deleteEmployee(Employee EmpId);




}
```

- IMPLEMENTATION OF EMPLOYEE DAO CLASSS package com.jdbc.demo.empImp;

```
import java.sql.Connection; import
java.sql.PreparedStatement; import
java.sql.ResultSet; import
java.sql.SQLException; import
java.sql.Statement; import
java.util.ArrayList; //3 implement
employeedao import java.util.List;

import com.jdbc.demo.connection.DbConnection;
import com.jdbc.demo.dao.Employeedao; import
com.jdbc.demo.pojo.Employee; public class
EmployeeDaoImp implements Employeedao{

     @Override
     public List<Employee> getAllEmployee() {
     List<Employee> lst=new ArrayList<>();
     try(Connection con=DbConnection.getDbConnection()){
          PreparedStatement pst=con.prepareStatement("SELECT *
FROM Employee");
```

```
          ResultSet rs=pst.executeQuery();
          while(rs.next()) {
               Employee emp=new Employee();
               emp.setId(rs.getInt("eid"));
               emp.setEname(rs.getString("ename"));
               emp.setAge(rs.getInt("age"));
               emp.setSalary(rs.getInt("salary"));
               lst.add(emp);       }
          return lst;

     }
     catch(NullPointerException |SQLException exc) {
          exc.printStackTrace(); return null;
     }
     }

     @Override
     public Employee searchEmployee(int EmpId) {
          Employee emp=null; try(Connection
    con=DbConnection.getDbConnection()){
         PreparedStatement pst=con.prepareStatement("SELECT *
FROM Employee WHERE eid=?");
         //at the place of first ? value of EmpId
parameter must be there pst.setInt(1,EmpId);
         ResultSet rs=pst.executeQuery();
         if(rs.isBeforeFirst()) { rs.next();
         emp=new Employee();
         emp.setId(rs.getInt("eid"));
         emp.setEname(rs.getString("ename"));
         emp.setAge(rs.getInt("age"));
         emp.setSalary(rs.getInt("salary"));
         return
         emp; }
         return
         emp;
       } catch(SQLException|NullPointerException
     exc)
        {
      exc.printStackTrace();
      return null;
         }
}

     @Override
     public boolean addNewEmployee(Employee Employee) {
     try(Connection con=DbConnection.getDbConnection()){
          PreparedStatement pst=con.prepareStatement("INSERT
INTO Employee(ename,age,salary)VALUES (?,?,?)",
```

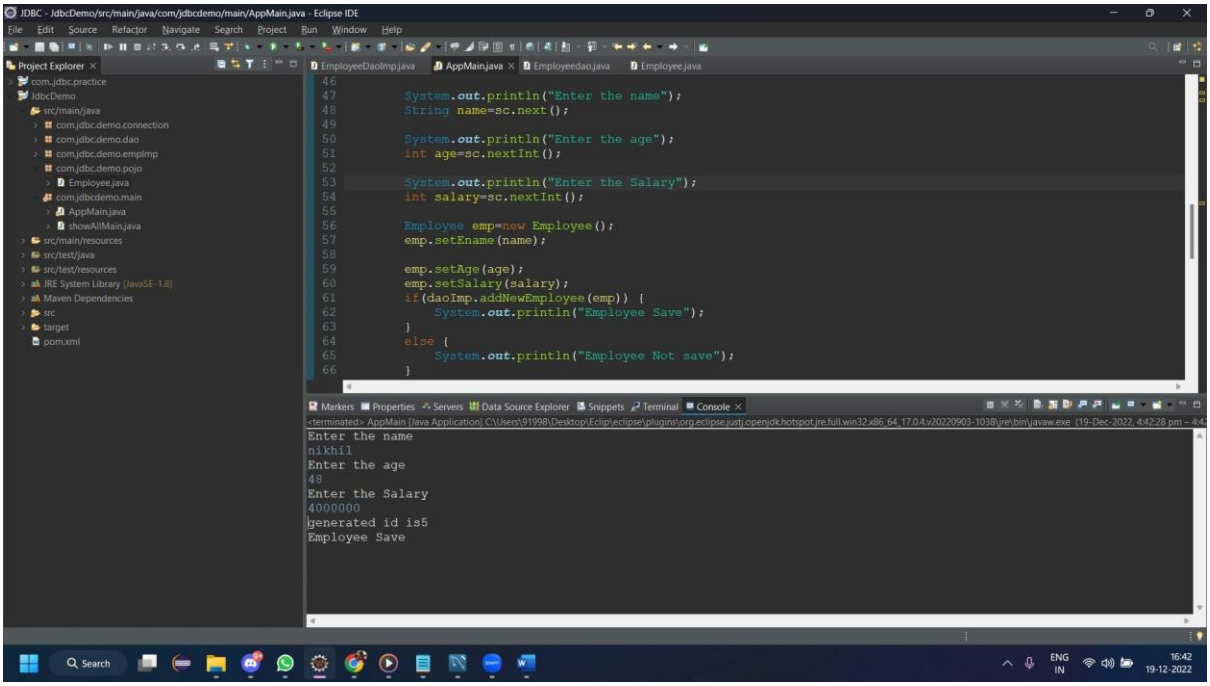
```
                    Statement.RETURN_GENERATED_KEYS);
            pst.setString(1,Employee.getEname());
            pst.setInt(2,Employee.getAge());
            pst.setInt(3, Employee.getSalary()); int
            count=pst.executeUpdate(); ResultSet
            rs=pst.getGeneratedKeys(); rs.next();
            System.out.println("generated id is"+rs.getInt(1));
            if(count>0) { return true;
            } else { return
            false;
            }
      }
      catch(SQLException | NullPointerException
            exc){ exc.printStackTrace(); return
            false;

      }
      }

      @Override
      public boolean updateEmployee(Employee Employee) {
            try(Connection con=DbConnection.getDbConnection()){
                  PreparedStatement
pst=con.prepareStatement("UPDATE Employee SET
ename=?,age=?,salary=?"
                        + " WHERE eid=?");
            pst.setString(1,Employee.getEname())
            ; pst.setInt(2, Employee.getAge());
            pst.setInt(3, Employee.getSalary());
            pst.setInt(4, Employee.getId()); int
            count =pst.executeUpdate();
            if(count>0) { return true;
            } else { return
            false;
            }
            }

            catch(SQLException | NullPointerException
                  exc){ exc.printStackTrace(); return
                  false;

            }
}

      @Override
      public boolean deleteEmployee(Employee EmpId) {
            // TODO Auto-generated method stub return
            false;
      }
```

```
}
```

Main class

```
package com.jdbcdemo.main;

import java.util.List;
import java.util.Scanner;

import com.jdbc.demo.dao.Employeedao;
import
com.jdbc.demo.empImp.EmployeeDaoImp;
import com.jdbc.demo.pojo.Employee; public
class AppMain {

     public static void main(String[] args) {



          //ADD NEW ROW
          EmployeeDaoImp daoImp=new EmployeeDaoImp();
          Scanner sc=new Scanner(System.in);

          System.out.println("Enter the name");
          String name=sc.next();

          System.out.println("Enter the age");
          int age=sc.nextInt();

          System.out.println("Enter the Salary");
          int salary=sc.nextInt();

          Employee emp=new Employee();
          emp.setEname(name);

          emp.setAge(age);
          emp.setSalary(salary);
          if(daoImp.addNewEmployee(emp)) {
               System.out.println("Employee Save");
          }
          else
          {
               System.out.println("Employee Not save");
          }
```

```
        }

}
```



Result Grid | Filter Rows:

eid	ename	age	salary
1	atharva	23	1000
2	Kshitij	21	500000
3	pranit	24	2000
4	RAHUL	33	5000
5	nikhil	48	4000000
NULL	NULL	NULL	NULL

13

Result Grid | Filter Rows: | Edit

eid	ename	age	salary
1	atharva	23	1000
2	Kshitij	21	500000
3	pranit	24	2000
4	RAHUL	33	5000
NULL	NULL	NULL	NULL

c) Selecting rows using parameter in the Where clause (select * from emp where age>?)

- **Connection Interface**

```
package com.jdbc.demo.connection;      //4
Connection interface public interface dBDetails { String
CONSTR =
"jdbc:mysql://localhost:3306/cdac_tvm?useSSL=false";
     String DBDDRIVER = "com.mysql.cj.jdbc.Driver";
     String USERNAME = "root";
     String PASSWORD = "patil123";
}
```

- **Connection**

```
package com.jdbc.demo.connection;   //   5
connection implementation import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.SQLException;

public class DbConnection { public static
     Connection getDbConnection() {

     try {
          Class.forName(dBDetails.DBDDRIVER);

          Connection con=
     DriverManager.getConnection(dBDetails.CONSTR,dBDetails.US
ERNAME,dBDetails.PASSWORD);
          return con;
     }
```

```
     catch(ClassNotFoundException |SQLException exc) {
     exc.printStackTrace(); return null;
          }
     }


}
```

EMPLOYEE POJO CLASS

```
package
com.jdbc.demo.pojo; //1
Employee class public
class Employee { private
int id; private String
ename; private int age;
private int salary; public
Employee() {

     }
     public int getId() {
          return id;
     }
     public void setId(int id) {
          this.id = id;
     }
     public String getEname() {
          return ename;
     }
     public void setEname(String ename) {
          this.ename = ename;
     }
     public int getAge() {
          return age;
     }
     public void setAge(int age) {
          this.age = age;
     }
     public int getSalary() {
          return salary;
     }
     public void setSalary(int salary) {
          this.salary = salary;
     }
     @Override
     public String toString() { return "Employee [id=" + id +
          ", ename=" + ename + ",
age=" + age + ", salary=" + salary + "]";
```

```
    }

}
```

- **Employee DAO CLASS** package

```
com.jdbc.demo.dao; //2 interface
Employeedao import java.util.List;
import com.jdbc.demo.pojo.Employee;
public interface Employeedao {

    //query Operations
    List<Employee> getAllEmployee();
    Employee searchEmployee(int EmpId);
    //curd
    boolean addNewEmployee(Employee Empmloyee);
    boolean  updateEmployee(Employee  Employee);
    boolean deleteEmployee(Employee EmpId);



}
```

- **IMPLEMENTATION OF EMPLOYEE DAO CLASSS** package com.jdbc.demo.empImp;

```
import java.sql.Connection; import
java.sql.PreparedStatement; import
java.sql.ResultSet; import
java.sql.SQLException; import
java.sql.Statement; import
java.util.ArrayList; //3 implement
employeedao import java.util.List;

import com.jdbc.demo.connection.DbConnection;
import com.jdbc.demo.dao.Employeedao; import
com.jdbc.demo.pojo.Employee; public class
EmployeeDaoImp implements Employeedao{

    @Override
    public List<Employee> getAllEmployee() {
    List<Employee> lst=new ArrayList<>();
    try(Connection con=DbConnection.getDbConnection()){
        PreparedStatement pst=con.prepareStatement("SELECT *
FROM Employee");
        ResultSet rs=pst.executeQuery();
```

```
          while(rs.next()) {
               Employee emp=new Employee();
               emp.setId(rs.getInt("eid"));
               emp.setEname(rs.getString("ename"));
               emp.setAge(rs.getInt("age"));
               emp.setSalary(rs.getInt("salary"));
               lst.add(emp);       }
          return lst;

     }
     catch(NullPointerException |SQLException exc) {
          exc.printStackTrace(); return null;
     }
     }

     @Override
     public Employee searchEmployee(int EmpId) {
          Employee emp=null; try(Connection
    con=DbConnection.getDbConnection()){
         PreparedStatement pst=con.prepareStatement("SELECT *
FROM Employee WHERE eid=?");
         //at the place of first ? value of EmpId
parameter must be there pst.setInt(1,EmpId);
         ResultSet rs=pst.executeQuery();

         if(rs.isBeforeFirst()) { rs.next();
         emp=new Employee();
         emp.setId(rs.getInt("eid"));
         emp.setEname(rs.getString("ename"));
         emp.setAge(rs.getInt("age"));
         emp.setSalary(rs.getInt("salary"));
         return
         emp; }
         return
         emp;
       } catch(SQLException|NullPointerException
     exc)
        {
      exc.printStackTrace();
      return null;
         }
}

     @Override
     public boolean addNewEmployee(Employee Employee) {
     try(Connection con=DbConnection.getDbConnection()){
          PreparedStatement pst=con.prepareStatement("INSERT
INTO Employee(ename,age,salary)VALUES (?,?,?)",
```

```
                    Statement.RETURN_GENERATED_KEYS);
                    pst.setString(1,Employee.getEname())
                    ; pst.setInt(2,Employee.getAge());
                    pst.setInt(3, Employee.getSalary());
                    int count=pst.executeUpdate();
                    ResultSet rs=pst.getGeneratedKeys();
                    rs.next();
          System.out.println("generated id
          is"+rs.getInt(1)); if(count>0) { return true;
          } else { return
          false;
          }
     }
     catch(SQLException | NullPointerException exc){
          exc.printStackTrace(); return false;

     }
     }

     @Override
     public boolean updateEmployee(Employee Employee) {
          try(Connection con=DbConnection.getDbConnection()){
               PreparedStatement
pst=con.prepareStatement("UPDATE Employee SET
ename=?,age=?,salary=?"
                         + " WHERE eid=?");
          pst.setString(1,Employee.getEname())
          ; pst.setInt(2, Employee.getAge());
          pst.setInt(3, Employee.getSalary());
          pst.setInt(4, Employee.getId()); int
          count =pst.executeUpdate();
          if(count>0) { return true;
          } else { return
          false;
          }
          }

          catch(SQLException | NullPointerException
               exc){ exc.printStackTrace(); return
               false;

          }
}

     @Override
     public boolean deleteEmployee(Employee EmpId) {
          // TODO Auto-generated method stub
          return false;
     }
```

```
@Override public List<Employee> PrintSelectStmt(int
     Age) { List<Employee> lst=new ArrayList<>();
          try(Connection con=DbConnection.getDbConnection()){
               PreparedStatement
pst=con.prepareStatement("SELECT * FROM Employee WHERE
          age>?"); pst.setInt(1,Age);
               ResultSet rs=pst.executeQuery();
               while(rs.next()) {
                    Employee emp=new Employee();
                     emp.setId(rs.getInt("eid"));
                     emp.setEname(rs.getString("ename"));
                     emp.setAge(rs.getInt("age"));
                     emp.setSalary(rs.getInt("salary"));
                     lst.add(emp);



//                  lst.add(new Employee(rs.getInt(1),
rs.getString(2), rs.getInt(3),rs.getInt(4)));
               } return
               lst;

          }
          catch(NullPointerException |SQLException exc) {
               exc.printStackTrace(); return null;


          }
          }
```

Main

```
package com.jdbcdemo.main;

import java.util.List;
import java.util.Scanner;
import
com.jdbc.demo.dao.Employeed
ao; import
com.jdbc.demo.empImp.Employ
eeDaoImp; import
```

```
com.jdbc.demo.pojo.Employee
; public class AppMain {
public static void
main(String[] args) {



          //Select Query For age
     Scanner sc=new Scanner(System.in);
     EmployeeDaoImp daoImp=new EmployeeDaoImp();
     System.out.println("Enter the age: ");
          int age=sc.nextInt();

          List
          <Employee>lst=daoImp.PrintSelectStmt(age);


          if(lst.size() > 0) {
               System.out.println("AGE OF employe greater
then : "+age);
               lst.forEach(System.out::println)
               ;

          }
          else
               System.out.println("no employee found");

          }
     }
```

3.Create a stored procedure 'empproc' in the database from MySQL command prompt
Using the command: create procedure empproc(In eid int , out ename varchar(15)) begin
select name into ename from emp where id =eid;
end

```
1  CREATE DEFINER=`root`@`localhost` PROCEDURE `empproc`(in id int,out name varchar(15))
2  BEGIN
3  select ename into name from employee where eid =id;
4  END
```

```
call empproc(2,@name);
select @name;
```

esult Grid | Filter Rows: | Export: | Wrap Cell Content:

@name
Kshitij

Write a java application which calls the above procedure

Interface of DbConnection

```
package com.jdbc.demo.connection;
//4 Connection interface public
interface dBDetails { String
CONSTR =
"jdbc:mysql://localhost:3306/cdac_tvm?useSSL=false";
     String DBDDRIVER = "com.mysql.cj.jdbc.Driver";
     String USERNAME = "root";
     String PASSWORD = "patil123";
}
//allowPublicKeyRetrieval=true&
```

Implement Employee DbConnection

```
package com.jdbc.demo.connection; //
5 connection implementation import
java.sql.Connection; import
java.sql.DriverManager;
import java.sql.SQLException;

public class DbConnection { public static
     Connection getDbConnection() {

     try {
          Class.forName(dBDetails.DBDDRIVER);

          Connection con=
     DriverManager.getConnection(dBDetails.CONSTR,dBDetails.US
ERNAME,dBDetails.PASSWORD);
          return con;
     }
     catch(ClassNotFoundException |SQLException exc)
          { exc.printStackTrace(); return null;
          }
     }


}
```

- **Interface class of Employeedao**

```
package    com.jdbc.demo.dao;    //2
interface     Employeedao     import
java.util.List;               import
com.jdbc.demo.pojo.Employee; public
interface Employeedao {

     String callProcedure(int Empid);



}
```

- **Implementing of employeedao** package

```
 com.jdbc.demo.empImp; import
 java.sql.CallableStatement; import
 java.sql.Connection; import
 java.sql.PreparedStatement; import
 java.sql.ResultSet; import
 java.sql.SQLException; import
 java.sql.Statement; import java.sql.Types;
 import java.util.ArrayList; //3 implement
 employeedao
import java.util.List;

import com.jdbc.demo.connection.DbConnection;
import com.jdbc.demo.dao.Employeedao; import
com.jdbc.demo.pojo.Employee; import
com.mysql.cj.jdbc.CallableStatement.CallableStatementParamInfo;

public class EmployeeDaoImp implements Employeedao{


     @Override
     public String callProcedure(int Empid) { try(Connection
          con=DbConnection.getDbConnection()){
               CallableStatement cs=con.prepareCall("{call
empproc(?,?)}");
               cs.setInt(1,Empid);

          cs.registerOutParameter(2, Types.CHAR);
               cs.execute();
               String result = cs.getString(2);

               return result;
```

```
            }
            catch(NullPointerException|SQLException
                 exc){ exc.printStackTrace(); return
                 null;
            }
      }





}
```

Main

```
package com.jdbcdemo.main;

import java.util.List;
import java.util.Scanner;

import com.jdbc.demo.dao.Employeedao;

import

com.jdbc.demo.empImp.EmployeeDaoImp;

import com.jdbc.demo.pojo.Employee; public

class AppMain { public static void

main(String[] args) //Call procedure

            EmployeeDaoImp daoImp=new EmployeeDaoImp();
            Scanner sc=new Scanner(System.in);
            System.out.println("Enter the eId: ");
            int id=sc.nextInt();

            String name=daoImp.callProcedure(id);
      System.out.println(name);
            }

      }
```

Markers Properties Servers Data Source Explorer Snippets Terminal Console

<terminated> AppMain [Java Application] C:\Users\91998\Desktop\Eclip\eclipse\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.4.v20220903-1038\jre\bin\javaw.exe (20-Dec-2022, 1

```
Enter the eId:
2
Kshitij
```