1. Write a Servlet application for fetching the entire data from the database and showing it as tablein response webpage.Use the following query in MySQL for creating a table which contains employee details.create table employee(empid varchar(10), empname varchar(20), age integer, salary integer);

- **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 = "Devesh@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;
```

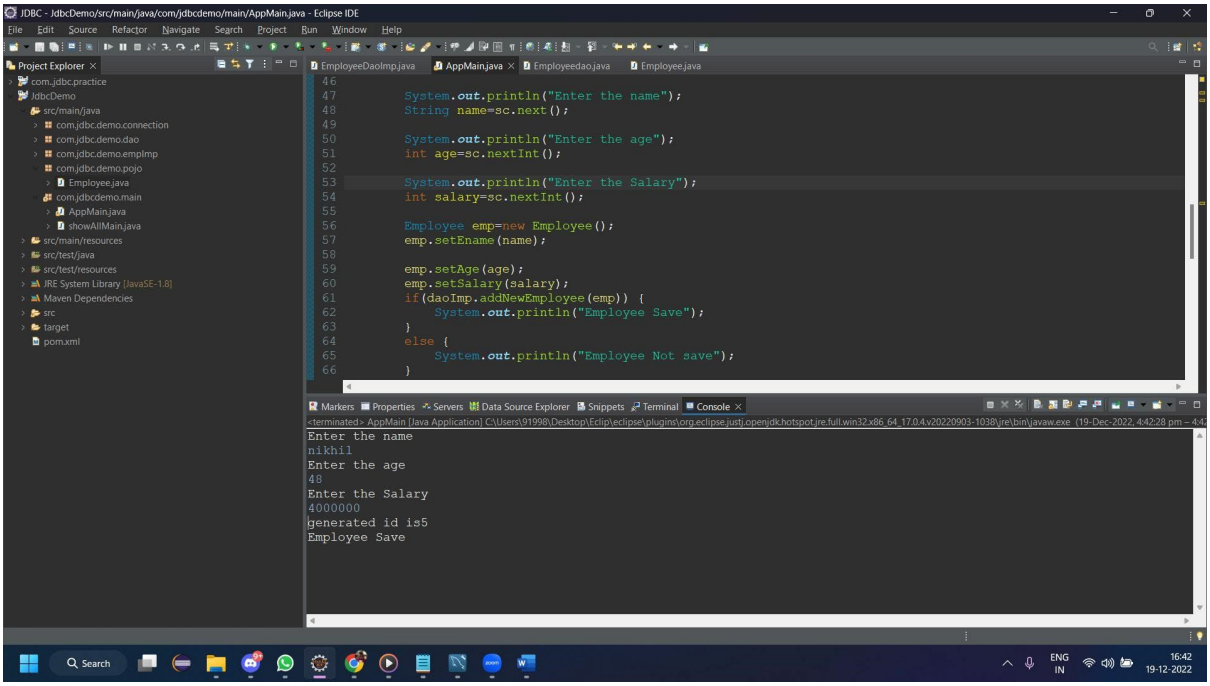
```
     }
     catch(NullPointerException |SQLException exc) {
          exc.printStackTrace(); return null;
     }
     }

     @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;
```

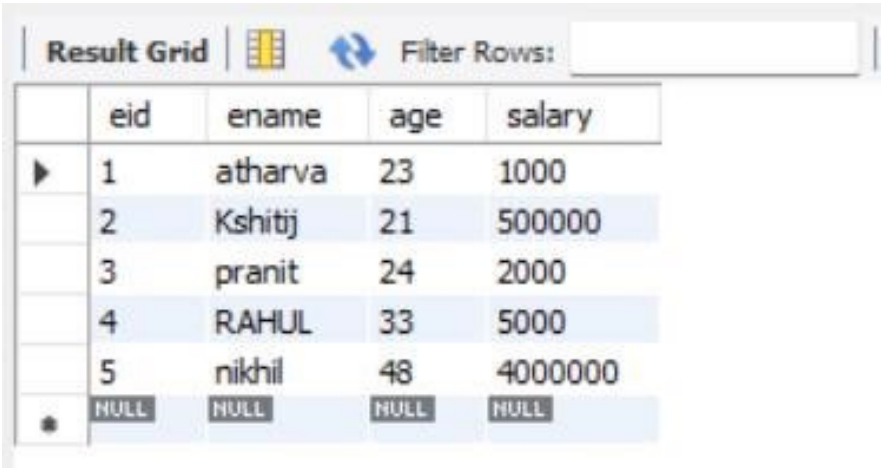
```
            }
        }
        catch(SQLException | NullPointerException
            exc){ exc.printStackTrace(); return
            false;

        }
        }

        @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

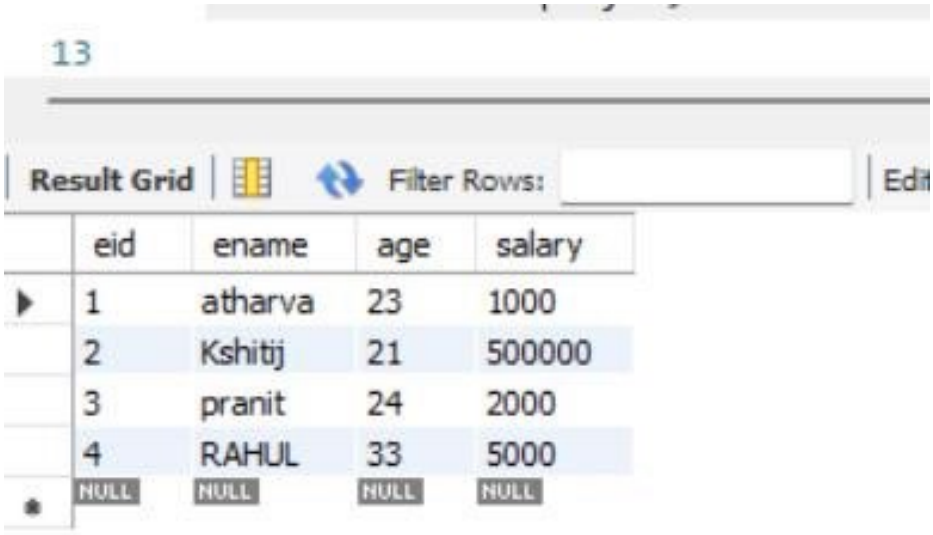
```
package com.jdbcdemo.main;
```

```
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");
          }




          }

     }
```





	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



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;
     }
```

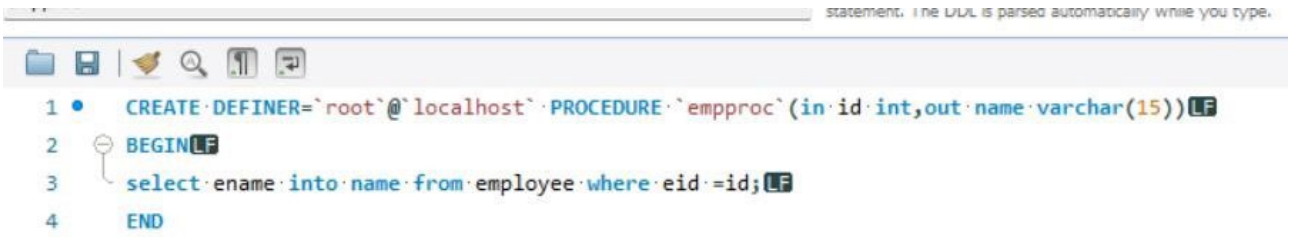
```
@Override public List<Employee> PrintSelectStmt(int
     Age) { List<Employee> lst=new ArrayList<>();
          try(Connection con=DbConnection.getDbConnection()){
               PreparedStatement
pst=con.prepareStatement("SELECT * FROM Employee WHERE
          age>?"); pst.setInt(1,Age);
               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

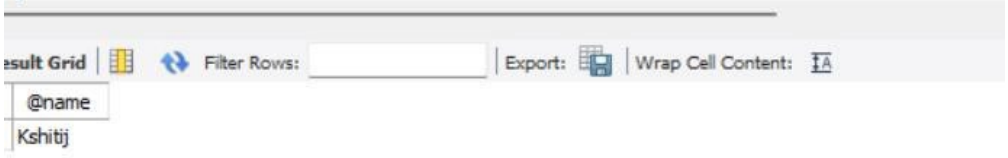
```
package com.jdbcdemo.main;

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



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



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,
Enter the eId:
2
Kshitij