# <u>Assignment 9 – Database Programming using JDBC</u>

### Validation:

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. No.	Date	Title	Page No.	Teacher's Sign / Remarks
1.	10/03/2022	A1: DDL Commands	910	Lene
2.	17/03/2022	AZ: DML Commands	8(10)	Poff 5/2
3.	07/04/2022	A3: Toirs and Subgre	ries 9/10	Profe
4.	21/04/2022	A4: Views	(10)	Ryl 2
-	23/64/2022	LABTEST : A1,2,3	18/18/25	Ď.
5.	28/04/2022	As: PL/SQL	10/10 28/4	
6.	12/05/2022	A6: PLISQL	19/10 12/5/	12
7.	26/05/2022	A7: Triggers	9/10 261	- /
8.	26/05/2022	A8: Exception band	leing wow ?	
9.	69/06/2022	A9: Application Development to	10/20 2	

# Schema diagram:

Emp\_Payroll:

eid	ename	dob	sex	desg	basic	da	hra	pf	mc	gross	tot_deduc	net_pay
-----	-------	-----	-----	------	-------	----	-----	----	----	-------	-----------	---------

#### **Script file:**

```
SQL> @z:/a9conn.sql;
SQL> REM Assignment 9
SQL>
SQL> REM -----
> REM *** ASSIGNMENT QUESTIONS ***
SQL> REM -----
SQL> REM To calculate the net pay of an employee, develop a PL/SQL procedure/function that
accepts only the eid and basic and calculates as per the following:
SQL> REM Dearness Allowance [DA] = 60%
SQL> REM House Rent Allowance [HRA]=11%
SQL> REM Provident Fund [PF] = 4%
SQL> REM Mediclaim [MC] = 3%
SQL> REM Gross = Basic + DA + HRA
SQL> REM Total Deduction = PF + MC
SQL> REM Net Pay = Gross – Total Deduction
SQL> REM Call the procedure/function from the application by passing appropriate parameter(s)
and update the corresponding record.
SQL>
SQL> drop table emp_payroll;
Table dropped.
SQL>
SQL> create table emp_payroll(
 2
        eid number(5) constraint e_pk primary key,
 3
        ename varchar2(20),
 4
        dob date,
 5
        sex varchar2(10),
 6
         desg varchar2(30),
 7
        basic number,
 8
        da number,
 9
        hra number,
10
        pf number,
11
        mc number,
12
         gross number,
13
        tot_deduc number,
14
         net_pay number
15
         );
Table created.
SQL>
SQL> desc emp_payroll;
Name
                         Null? Type
EID
                        NOT NULL NUMBER(5)
```

```
ENAME
                               VARCHAR2(20)
DOB
                             DATE
SEX
                             VARCHAR2(10)
                              VARCHAR2(30)
DESG
BASIC
                              NUMBER
DA
                             NUMBER
HRA
                             NUMBER
PF
                            NUMBER
MC
                             NUMBER
GROSS
                               NUMBER
TOT_DEDUC
                                  NUMBER
NET_PAY
                                NUMBER
SQL>
SQL> select * from emp_payroll;
no rows selected
SQL>
SQL> create or replace procedure calcpay
 2 (eidip in emp_payroll.eid%type) as
 3
        b emp_payroll.basic%type;
 4
        daip emp_payroll.da%type;
 5
        hraip emp_payroll.hra%type;
 6
        pfip emp_payroll.pf%type;
        mcip emp_payroll.mc%type;
 7
 8
        grossip emp_payroll.gross%type;
 9
        totded emp_payroll.tot_deduc%type;
10
        netpay emp_payroll.net_pay%type;
11 begin
12
        select basic into b from emp_payroll where eid = eidip;
13
        update emp payroll set da = 0.6*b, hra = 0.11*b, pf = 0.04*b, mc = 0.03*b where eid =
eidip;
14
        select da, hra, pf, mc into daip, hraip, pfip, mcip from emp_payroll where eid = eidip;
15
        totded:= pfip+mcip;
16
        grossip:=b+daip+hraip;
17
        netpay:=grossip-totded;
18
        update emp_payroll set tot_deduc = totded, gross = grossip, net_pay = netpay where eid
= eidip;
19 end;
20 /
Procedure created.
SQL>
SQL>
SQL>
```

#### **Connectivity - Script file (Java):**

```
package idbc;
/*@author 1057*/
import javax.swing.*;
import java.sql.*;
import java.sql.Statement;
import java.util.logging.Level;
import java.util.logging.Logger;
public class JDBC extends javax.swing.JFrame {
   * Creates new form JDBC
   */
  Connection con;
  Statement st;
  PreparedStatement ps;
  ResultSet rs;
  public JDBC() {
    initComponents();
       Class.forName("oracle.jdbc.OracleDriver");
       JOptionPane.showMessageDialog(this,"Driver Loaded!");
       try {
         con =
DriverManager.getConnection("jdbc:oracle:thin:@10.6.4.33:1521:orcl","1057","1057");
         JOptionPane.showMessageDialog(this,"Connected to Oracle database!");
       catch (SQLException ex) {
         Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
         JOptionPane.showMessageDialog(this,ex.getMessage());
       }
     }
    catch(ClassNotFoundException ex){
       Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
       JOptionPane.showMessageDialog(this,ex.getMessage());
     }
  }
  @SuppressWarnings("unchecked")
  // <editor-fold defaultstate="collapsed" desc="Generated Code">
  private void initComponents() {
    ¡Label1 = new javax.swing.JLabel();
    jTextField2 = new javax.swing.JTextField();
    jButton1 = new javax.swing.JButton();
```

```
jLabel2 = new javax.swing.JLabel();
jLabel3 = new javax.swing.JLabel();
jLabel4 = new javax.swing.JLabel();
jLabel5 = new javax.swing.JLabel();
jLabel6 = new javax.swing.JLabel();
jLabel7 = new javax.swing.JLabel();
empid = new javax.swing.JTextField();
name = new javax.swing.JTextField();
dob = new javax.swing.JTextField();
sex = new javax.swing.JTextField();
sal = new javax.swing.JTextField();
update = new javax.swing.JButton();
insert = new javax.swing.JButton();
delete = new javax.swing.JButton();
search = new javax.swing.JButton();
clear = new javax.swing.JButton();
exit = new javax.swing.JButton();
jLabel8 = new javax.swing.JLabel();
desg = new javax.swing.JTextField();
calc_pay = new javax.swing.JButton();
jLabel9 = new javax.swing.JLabel();
netpay = new javax.swing.JTextField();
¡Label1.setText("¡Label1");
jTextField2.setText("jTextField1");
jButton1.setText("jButton1");
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
jLabel2.setText("Employee ID: ");
jLabel3.setText("EMPLOYEE DATABASE");
¡Label4.setText("Name: ");
jLabel5.setText("Date of birth: ");
jLabel5.setToolTipText("");
jLabel6.setText("Sex: ");
jLabel7.setText("Basic salary: ");
empid.setCursor(new java.awt.Cursor(java.awt.Cursor.TEXT_CURSOR));
empid.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    empidActionPerformed(evt);
});
```

```
name.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    nameActionPerformed(evt);
  }
});
dob.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    dobActionPerformed(evt);
  }
});
sex.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
     sexActionPerformed(evt);
});
sal.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    salActionPerformed(evt);
  }
});
update.setText("Update");
update.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    updateActionPerformed(evt);
});
insert.setText("Insert");
insert.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    insertActionPerformed(evt);
});
delete.setText("Delete");
delete.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
     deleteActionPerformed(evt);
  }
});
search.setText("Search");
search.addActionListener(new java.awt.event.ActionListener() {
  public void actionPerformed(java.awt.event.ActionEvent evt) {
    searchActionPerformed(evt);
```

```
}
    });
    clear.setText("Clear");
    clear.addActionListener(new java.awt.event.ActionListener() {
       public void actionPerformed(java.awt.event.ActionEvent evt) {
         clearActionPerformed(evt);
     });
    exit.setText("Exit");
    exit.addActionListener(new java.awt.event.ActionListener() {
       public void actionPerformed(java.awt.event.ActionEvent evt) {
         exitActionPerformed(evt);
       }
    });
    jLabel8.setText("Designation: ");
    desg.addActionListener(new java.awt.event.ActionListener() {
       public void actionPerformed(java.awt.event.ActionEvent evt) {
         desgActionPerformed(evt);
       }
    });
    calc_pay.setText("Calculate Net Pay");
    calc_pay.addActionListener(new java.awt.event.ActionListener() {
       public void actionPerformed(java.awt.event.ActionEvent evt) {
         calc_payActionPerformed(evt);
    });
    ¡Label9.setText("Net pay: ");
    netpay.addActionListener(new java.awt.event.ActionListener() {
       public void actionPerformed(java.awt.event.ActionEvent evt) {
         netpayActionPerformed(evt);
    });
    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
       layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
       .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
         .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
         .addComponent(jLabel3)
         .addGap(140, 140, 140))
       .addGroup(layout.createSequentialGroup()
```

```
.addGap(96, 96, 96)
         .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
           .addComponent(jLabel4)
           .addComponent(jLabel2)
           .addComponent(jLabel5)
           .addComponent(jLabel6)
           .addComponent(jLabel7)
           .addComponent(jLabel8))
         .addGap(80, 80, 80)
         .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
           .addComponent(sex)
           .addComponent(sal)
           .addComponent(empid, javax.swing.GroupLayout.PREFERRED_SIZE, 122,
javax.swing.GroupLayout.PREFERRED_SIZE)
           .addComponent(name)
           .addComponent(dob)
           .addComponent(desg))
         .addGap(45, 45, 45))
       .addGroup(layout.createSequentialGroup()
         .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
           .addGroup(layout.createSequentialGroup()
             .addGap(48, 48, 48)
             .addComponent(insert)
             .addGap(18, 18, 18)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                  .addComponent(update)
                  .addGap(26, 26, 26)
                  .addComponent(delete)
                  .addGap(28, 28, 28)
                  .addComponent(search))
                .addGroup(layout.createSequentialGroup()
                  .addGap(10, 10, 10)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(calc_pay, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addGroup(layout.createSequentialGroup()
                      .addComponent(clear)
                      .addGap(18, 18, 18)
                      .addComponent(exit)))))
           .addGroup(layout.createSequentialGroup()
             .addGap(111, 111, 111)
             .addComponent(jLabel9)
             .addGap(18, 18, 18)
             .addComponent(netpay, javax.swing.GroupLayout.PREFERRED_SIZE, 109,
javax.swing.GroupLayout.PREFERRED_SIZE)))
         .addContainerGap(javax.swing.GroupLayout.DEFAULT SIZE, Short.MAX VALUE))
    );
```

layout.setVerticalGroup( layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING) .addGroup(layout.createSequentialGroup() .addGap(18, 18, 18) .addComponent(jLabel3) .addGap(22, 22, 22) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(jLabel2) .addComponent(empid, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(jLabel4) .addComponent(name, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(dob, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE) .addComponent(jLabel5)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(jLabel6) .addComponent(sex, javax.swing.GroupLayout.PREFERRED SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(jLabel8) .addComponent(desg, javax.swing.GroupLayout.PREFERRED\_SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE)) .addGap(11, 11, 11) . add Group (layout.create Parallel Group (javax.swing. Group Layout. A lignment. BASELINE).addComponent(sal, javax.swing.GroupLayout.PREFERRED SIZE, javax.swing.GroupLayout.DEFAULT\_SIZE, javax.swing.GroupLayout.PREFERRED\_SIZE) .addComponent(jLabel7)) .addGap(18, 18, 18) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(update) .addComponent(delete) .addComponent(search) .addComponent(insert)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED) .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE) .addComponent(clear) .addComponent(exit)) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED) .addComponent(calc\_pay) .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

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```
.addComponent(netpay, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(jLabel9))
         .addContainerGap(16, Short.MAX_VALUE))
    );
    pack();
  }// </editor-fold>
  private void cleartext(){
    empid.setText("");
    name.setText("");
    dob.setText("");
    sex.setText("");
    desg.setText("");
    sal.setText("");
    netpay.setText("");
    }
  private void empidActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void nameActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void dobActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void sexActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void salActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void deleteActionPerformed(java.awt.event.ActionEvent evt) {
    try{
       String sql = "delete from emp_payroll where eid=?";
       ps = con.prepareStatement(sql);
       ps.setString(1, empid.getText());
       ps.execute();
       JOptionPane.showMessageDialog(this, "Deleted!");
       cleartext();
       }
       catch (SQLException ex) {
       Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
```

```
JOptionPane.showMessageDialog(this,ex.getMessage());
}
private void insertActionPerformed(java.awt.event.ActionEvent evt) {
  try {
    ps = con.prepareStatement(sql);
    ps.setString(1, empid.getText());
    ps.setString(2, name.getText());
    ps.setString(3, dob.getText());
    ps.setString(4, sex.getText());
    ps.setString(5, desg.getText());
    ps.setString(6, sal.getText());
    ps.execute();
    JOptionPane.showMessageDialog(this,"Inserted!");
    cleartext();
    catch (SQLException ex) {
    Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
    JOptionPane.showMessageDialog(this,ex.getMessage());
}
private void clearActionPerformed(java.awt.event.ActionEvent evt) {
  cleartext();
private void updateActionPerformed(java.awt.event.ActionEvent evt) {
  try{
    String sql = "update emp_payroll set ename=?,dob=?,sex=?,desg=?,basic=? where eid=?";
    ps = con.prepareStatement(sql);
    ps.setString(6, empid.getText());
    ps.setString(1, name.getText());
    ps.setString(2, dob.getText());
    ps.setString(3, sex.getText());
    ps.setString(4, desg.getText());
    ps.setString(5, sal.getText());
    ps.execute();
    JOptionPane.showMessageDialog(this, "Updated!");
    cleartext();
    catch (SQLException ex) {
    Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
    JOptionPane.showMessageDialog(this,ex.getMessage());
    }
}
private void exitActionPerformed(java.awt.event.ActionEvent evt) {
  System.exit(0);
```

```
}
  private void searchActionPerformed(java.awt.event.ActionEvent evt) {
    try {
       String sql = "select * from emp_payroll where eid = ""+empid.getText()+""";
con.createStatement(ResultSet.TYPE_SCROLL_SENSITIVE,ResultSet.CONCUR_UPDATABLE)
      rs = st.executeQuery(sql);
      if(rs.next()){
       empid.setText(rs.getString(1));
      name.setText(rs.getString(2));
      dob.setText(rs.getString(3));
      sex.setText(rs.getString(4));
      desg.setText(rs.getString(5));
      sal.setText(rs.getString(6));
      JOptionPane.showMessageDialog(this, "Record Found!");
       }
      else
      JOptionPane.showMessageDialog(this, "Record Not Found!");
      catch (SQLException ex) {
      Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
      JOptionPane.showMessageDialog(this, ex.getMessage());
       }
  }
  private void desgActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  }
  private void netpayActionPerformed(java.awt.event.ActionEvent evt) {
    // TODO add your handling code here:
  private void calc payActionPerformed(java.awt.event.ActionEvent evt) {
      // TODO add your handling code here:
      CallableStatement stmt = con.prepareCall("{call calcpay(?)}");
      stmt.setString(1, empid.getText());
      stmt.execute();
       String sql = "select net pay from emp_payroll where eid = ""+empid.getText()+"";
      st =
con.createStatement(ResultSet.TYPE SCROLL SENSITIVE,ResultSet.CONCUR UPDATABLE)
      rs = st.executeQuery(sql);
      if(rs.next()){
         netpay.setText(rs.getString(1));
         JOptionPane.showMessageDialog(this, "Net pay calculated!");
       }
```

```
}
    catch (SQLException ex) {
       Logger.getLogger(JDBC.class.getName()).log(Level.SEVERE, null, ex);
       JOptionPane.showMessageDialog(this, ex.getMessage());
     }
  }
  /**
   * @param args the command line arguments
  public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    try {
       for (javax.swing.UIManager.LookAndFeelInfo info:
javax.swing.UIManager.getInstalledLookAndFeels()) {
         if ("Nimbus".equals(info.getName())) {
            javax.swing.UIManager.setLookAndFeel(info.getClassName());
            break:
         }
     } catch (ClassNotFoundException ex) {
java.util.logging.Logger.getLogger(JDBC.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
     } catch (InstantiationException ex) {
java.util.logging.Logger.getLogger(JDBC.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
     } catch (IllegalAccessException ex) {
java.util.logging.Logger.getLogger(JDBC.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
     } catch (javax.swing.UnsupportedLookAndFeelException ex) {
java.util.logging.Logger.getLogger(JDBC.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
    }
    //</editor-fold>
    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
       public void run() {
         new JDBC().setVisible(true);
    });
```

```
// Variables declaration - do not modify
private javax.swing.JButton calc_pay;
private javax.swing.JButton clear;
private javax.swing.JButton delete;
private javax.swing.JTextField desg;
private javax.swing.JTextField dob;
private javax.swing.JTextField empid;
private javax.swing.JButton exit;
private javax.swing.JButton insert;
private javax.swing.JButton jButton1;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JLabel jLabel9;
private javax.swing.JTextField jTextField2;
private javax.swing.JTextField name;
private javax.swing.JTextField netpay;
private javax.swing.JTextField sal;
private javax.swing.JButton search;
private javax.swing.JTextField sex;
private javax.swing.JButton update;
// End of variables declaration
```

//END OF JAVA FILE

}

### **Output:**









