

Homework #5
CSC 452
Zehong Zhuang

JDBC

Connecting to ACADPRD0 database...

Connected to database ACADPRD0...
Building new dates table...

Alter Date datatype in Dates table...

Inserting rows in User table...

Display Dates table...

S1:	P1	:J1	:2018-01-05	00:00:00.0	:	2019-01-25	00:00:00.0
S1:	P1	:J4	:2018-02-01	00:00:00.0	:	2018-02-04	00:00:00.0
S1:	P3	:J1	:2018-12-15	00:00:00.0	:	2019-01-18	00:00:00.0
S1:	P3	:J2	:2017-11-02	00:00:00.0	:	2017-11-18	00:00:00.0
S1:	P3	:J3	:2017-08-05	00:00:00.0	:	2017-09-01	00:00:00.0
S2:	P3	:J4	:2017-08-05	00:00:00.0	:	2017-08-09	00:00:00.0
S2:	P3	:J5	:2017-07-03	00:00:00.0	:	2017-07-29	00:00:00.0
S2:	P3	:J6	:2017-09-03	00:00:00.0	:	2017-09-10	00:00:00.0
S2:	P3	:J7	:2018-02-05	00:00:00.0	:	2018-02-15	00:00:00.0
S3:	P5	:J6	:2018-01-06	00:00:00.0	:	2018-01-14	00:00:00.0
S3:	P3	:J2	:2018-03-05	00:00:00.0	:	2018-03-15	00:00:00.0
S3:	P4	:J1	:2018-02-27	00:00:00.0	:	2018-03-06	00:00:00.0
S3:	P6	:J2	:2017-06-15	00:00:00.0	:	2017-06-27	00:00:00.0
S4:	P6	:J3	:2017-06-17	00:00:00.0	:	2017-06-30	00:00:00.0
S4:	P2	:J6	:2017-05-02	00:00:00.0	:	2017-06-02	00:00:00.0
S4:	P5	:J5	:2017-05-05	00:00:00.0	:	2017-05-10	00:00:00.0
S4:	P5	:J2	:2017-09-05	00:00:00.0	:	2017-10-01	00:00:00.0
S5:	P7	:J4	:2017-10-02	00:00:00.0	:	2017-10-23	00:00:00.0
S5:	P1	:J5	:2017-11-05	00:00:00.0	:	2017-11-17	00:00:00.0
S5:	P3	:J7	:2017-12-12	00:00:00.0	:	2018-01-04	00:00:00.0
S5:	P4	:J4	:2017-12-22	00:00:00.0	:	2018-01-16	00:00:00.0
S5:	P5	:J4	:2018-05-07	00:00:00.0	:	2018-06-01	00:00:00.0
S5:	P6	:J4	:2018-04-23	00:00:00.0	:	2018-05-02	00:00:00.0
S5:	P2	:J4	:2018-04-20	00:00:00.0	:	2018-05-02	00:00:00.0

Display SHIPMENTS TABLE...

S1:	P1	:J1	:2018-01-05	00:00:00.0	:2019-01-25	00:00:00.0
S1:	P1	:J4	:2018-02-01	00:00:00.0	:2018-02-04	00:00:00.0
S1:	P3	:J1	:2018-12-15	00:00:00.0	:2019-01-18	00:00:00.0
S1:	P3	:J2	:2017-11-02	00:00:00.0	:2017-11-18	00:00:00.0
S1:	P3	:J3	:2017-08-05	00:00:00.0	:2017-09-01	00:00:00.0
S2:	P3	:J4	:2017-08-05	00:00:00.0	:2017-08-09	00:00:00.0
S2:	P3	:J5	:2017-07-03	00:00:00.0	:2017-07-29	00:00:00.0
S2:	P3	:J6	:2017-09-03	00:00:00.0	:2017-09-10	00:00:00.0
S2:	P3	:J7	:2018-02-05	00:00:00.0	:2018-02-15	00:00:00.0
S3:	P5	:J6	:2018-01-06	00:00:00.0	:2018-01-14	00:00:00.0
S3:	P3	:J2	:2018-03-05	00:00:00.0	:2018-03-15	00:00:00.0
S3:	P4	:J1	:2018-02-27	00:00:00.0	:2018-03-06	00:00:00.0
S3:	P6	:J2	:2017-06-15	00:00:00.0	:2017-06-27	00:00:00.0
S4:	P6	:J3	:2017-06-17	00:00:00.0	:2017-06-30	00:00:00.0
S4:	P2	:J6	:2017-05-02	00:00:00.0	:2017-06-02	00:00:00.0
S4:	P5	:J5	:2017-05-05	00:00:00.0	:2017-05-10	00:00:00.0
S4:	P5	:J2	:2017-09-05	00:00:00.0	:2017-10-01	00:00:00.0
S5:	P7	:J4	:2017-10-02	00:00:00.0	:2017-10-23	00:00:00.0
S5:	P1	:J5	:2017-11-05	00:00:00.0	:2017-11-17	00:00:00.0
S5:	P3	:J7	:2017-12-12	00:00:00.0	:2018-01-04	00:00:00.0
S5:	P4	:J4	:2017-12-22	00:00:00.0	:2018-01-16	00:00:00.0
S5:	P5	:J4	:2018-05-07	00:00:00.0	:2018-06-01	00:00:00.0
S5:	P6	:J4	:2018-04-23	00:00:00.0	:2018-05-02	00:00:00.0
S5:	P2	:J4	:2018-04-20	00:00:00.0	:2018-05-02	00:00:00.0

```

1 import java.sql.*;
2
3 public class Assignment5 {
4
5     public static void main( String[] args ) {
6
7         String tableName = "dates";
8         String tableName2="shipments";
9
10        Connection conn = null;
11        Statement stmt = null;
12
13        /*****
14         * determine if the JDBC driver exists and load it...
15         *****/
16
17        /*****
18         * establish a connection to the database...
19         *****/
20        try {
21            System.out.print( "Connecting to ACADPRD0 database...\n\n" );
22            //String url = dataSource + dbName;
23
24            conn = DriverManager.getConnection("jdbc:oracle:thin:@acadoradbprd01.dpu.depaul.edu:1521:ACADPRD0", "ZZHUANG", "cdm1379457");
25
26
27
28            /*conn = dbms.equals("localAccess") ? DriverManager.getConnection(url)
29             : DriverManager.getConnection(url, userName, password );*/
30            System.out.println( "Connected to database ACADPRD0..." );
31
32            /*****
33             * create an object by which we will pass SQL stmts to the database...
34             *****/
35            stmt = conn.createStatement();
36        }
37        catch (SQLException se) {
38            System.out.println(se);
39            System.exit(1);
40        }
41        try {
42            String dropString = "DROP TABLE " + tableName;
43            stmt.executeUpdate(dropString);
44        }
45        catch (SQLException se) { /*do nothing*/ } // table doesn't exist
46
47        try {

```

```

47 try {
48     /*****
49     * finally, display all the rows in the database...
50     *****/
51     System.out.print( "Building new " + tableName + " table...\n\n" );
52     String createString =
53         "CREATE TABLE " + tableName +
54         " (SupplierNo VARCHAR(2)," +
55         "  PartNo VARCHAR(2)," +
56         "  ProjectNo VARCHAR(2)," +
57         "  shipDate DATE," +
58         "  arriveDate DATE)";
59     stmt.executeUpdate(createString);
60
61     System.out.print( "Alter Date datatype in Dates table...\n\n" );
62     String alterString = "alter session set nls_date_format='MM/DD/YY'";
63     stmt.executeUpdate(alterString);
64
65     System.out.print( "Inserting rows in User table...\n\n" );
66     String insertString =
67         "INSERT INTO " + tableName + " VALUES ('S1','P1','J1','1/5/18','1/25/19')";
68     stmt.executeUpdate(insertString);
69
70     insertString =
71         "INSERT INTO " + tableName + " VALUES ('S1','P1','J4','2/1/18','2/4/18')";
72     stmt.executeUpdate(insertString);
73
74     insertString =
75         "INSERT INTO " + tableName + " VALUES ('S1','P3','J1','12/15/18','1/18/19')";
76     stmt.executeUpdate(insertString);
77
78     insertString =
79         "INSERT INTO " + tableName + " VALUES ('S1','P3','J2','11/2/17','11/18/17')";
80     stmt.executeUpdate(insertString);
81
82     insertString =
83         "INSERT INTO " + tableName + " VALUES ('S1','P3','J3','8/5/17','9/1/17')";
84     stmt.executeUpdate(insertString);
85
86     insertString =
87         "INSERT INTO " + tableName + " VALUES ('S2','P3','J4','8/5/17','8/9/17')";
88     stmt.executeUpdate(insertString);
89
90     insertString =
91         "INSERT INTO " + tableName + " VALUES ('S2','P3','J5','7/3/17','7/29/17')";
92     stmt.executeUpdate(insertString);

```

```
94 insertString =
95     "INSERT INTO " + tableName + " VALUES ('S2','P3','J6','9/3/17','9/10/17')";
96 stmt.executeUpdate(insertString);
97
98 insertString =
99     "INSERT INTO " + tableName + " VALUES ('S2','P3','J7','2/5/18','2/15/18')";
100 stmt.executeUpdate(insertString);
101
102 insertString =
103     "INSERT INTO " + tableName + " VALUES ('S3','P5','J6','1/6/18','1/14/18')";
104 stmt.executeUpdate(insertString);
105
106 insertString =
107     "INSERT INTO " + tableName + " VALUES ('S3','P3','J2','3/5/18','3/15/18')";
108 stmt.executeUpdate(insertString);
109
110 insertString =
111     "INSERT INTO " + tableName + " VALUES ('S3','P4','J1','2/27/18','3/6/18')";
112 stmt.executeUpdate(insertString);
113
114 insertString =
115     "INSERT INTO " + tableName + " VALUES ('S3','P6','J2','6/15/17','6/27/17')";
116 stmt.executeUpdate(insertString);
117
118 insertString =
119     "INSERT INTO " + tableName + " VALUES ('S4','P6','J3','6/17/17','6/30/17')";
120 stmt.executeUpdate(insertString);
121
122 insertString =
123     "INSERT INTO " + tableName + " VALUES ('S4','P2','J6','5/2/17','6/2/17')";
124 stmt.executeUpdate(insertString);
125
126 insertString =
127     "INSERT INTO " + tableName + " VALUES ('S4','P5','J5','5/5/17','5/10/17')";
128 stmt.executeUpdate(insertString);
129
130 insertString =
131     "INSERT INTO " + tableName + " VALUES ('S4','P5','J2','9/5/17','10/1/17')";
132 stmt.executeUpdate(insertString);
133
134 insertString =
135     "INSERT INTO " + tableName + " VALUES ('S5','P7','J4','10/2/17','10/23/17')";
136 stmt.executeUpdate(insertString);
137
138 insertString =
139     "INSERT INTO " + tableName + " VALUES ('S5','P1','J5','11/5/17','11/17/17')";
140 stmt.executeUpdate(insertString);
```

```

142 insertString =
143     "INSERT INTO " + tableName + " VALUES ('S5','P3','J7','12/12/17','1/4/18')";
144 stmt.executeUpdate(insertString);
145
146 insertString =
147     "INSERT INTO " + tableName + " VALUES ('S5','P4','J4','12/22/17','1/16/18')";
148 stmt.executeUpdate(insertString);
149
150 insertString =
151     "INSERT INTO " + tableName + " VALUES ('S5','P5','J4','5/7/18','6/1/18')";
152 stmt.executeUpdate(insertString);
153
154 insertString =
155     "INSERT INTO " + tableName + " VALUES ('S5','P6','J4','4/23/18','5/2/18')";
156 stmt.executeUpdate(insertString);
157
158 insertString =
159     "INSERT INTO " + tableName + " VALUES ('S5','P2','J4','4/20/18','5/2/18')";
160 stmt.executeUpdate(insertString);
161
162 System.out.print( "Display Dates table...\n\n");
163 ResultSet rset = stmt.executeQuery( " SELECT * FROM " + tableName );
164 while( rset.next() )
165     System.out.println( rset.getString("SupplierNo") + ": " +
166         rset.getString("PartNo")+" :"+rset.getString("ProjectNo")+" :"+rset.getString("shipdate")+" :"+rset.getString("arrivedate")
167
168 String addString = " Alter TABLE " + tableName2 + " add (shipdate DATE, arriveDate DATE) ";
169 stmt.executeUpdate(addString);
170
171 String mergeString = " Merge INTO " + tableName2 +
172     " USING " + tableName+
173     " ON (shipments.supplierno=dates.supplierno AND shipments.partno=dates.partno AND shipments.projectno=dates.projectno) "
174     + " WHEN MATCHED THEN "
175     + " UPDATE SET shipments.shipdate=dates.shipdate, shipments.arrivedate=dates.arrivedate ";
176 stmt.executeUpdate(mergeString);
177
178 alterString = "Alter table SHIPMENTS DROP column quantity";
179 stmt.executeUpdate(alterString);
180
181
182 System.out.print( "Display SHIPMENTS TABLE...\n\n");
183 rset = stmt.executeQuery ( "SELECT * FROM "+ tableName2);
184 while( rset.next() )
185     System.out.println( rset.getString("SupplierNo") + ": " +
186         rset.getString("PartNo")+" :"+rset.getString("ProjectNo")+" :"+rset.getString("shipdate")+" :"+rset.getString("arrivedate")
187
188
189
190
191
192
193
194
195
196 } // end main
197
198
199 } // end class

```

```
SET SERVEROUTPUT ON;
```

```
CREATE OR REPLACE PROCEDURE query1 (ship out sys_refcursor)
```

```
IS
```

```
BEGIN
```

```
    open ship for SELECT partno, round(avg(arrivedate-shipdate),0)
```

```
    FROM shipments
```

```
    GROUP By partno;
```

```
END;
```

```
variable result refcursor;
```

```
exec QUERY1(:result);
```

```
print result;
```

```
SET SERVEROUTPUT ON;
```

```
CREATE OR REPLACE PROCEDURE query1 (ship out sys_refcursor)
IS
BEGIN
    open ship for SELECT partno, round(avg(arrivedate-shipdate),0)
    FROM shipments
    GROUP By partno;
END;

variable result refcursor;
exec QUERY1(:result);
print result;
```

Script Output x

Task completed in 0.249 seconds

Procedure QUERY1 compiled

Errors: check compiler log

Procedure QUERY1 compiled

PL/SQL procedure successfully completed.

PA ROUND(AVG(ARRIVEDATE-SHIPDATE),0)

P4	16
P7	21
P1	133
P2	22
P3	17
P6	11
P5	16

7 rows selected.


```

CREATE OR REPLACE PROCEDURE query2 (project out sys_refcursor)
IS
BEGIN
    open project FOR SELECT Projectno, partno FROM dates where to_char(arrivedate, 'YY')=17;
END;

variable result2 refcursor;
exec query2 (:result2);
print result2;

```

Script Output x

Task completed in 0.198 seconds

7 rows selected.

Procedure QUERY2 compiled

PL/SQL procedure successfully completed.

```

PR PA
-- --
J2 P3
J3 P3
J4 P3
J5 P3
J6 P3
J2 P6
J3 P6
J6 P2
J5 P5
J2 P5
J4 P7

PR PA
-- --
J5 P1

```

15 rows selected.

PL/SQL Codes

```
SET SERVEROUTPUT ON;
```

```
CREATE OR REPLACE PROCEDURE query1 (ship out sys_refcursor)
```

```
IS
```

```
BEGIN
```

```
    open ship for SELECT partno, round(avg(arrivedate-shipdate),0)
```

```
    FROM shipments
```

```
    GROUP By partno;
```

```
END;
```

```
variable result refcursor;
```

```
exec QUERY1(:result);
```

```
print result;
```

```
CREATE OR REPLACE PROCEDURE query2 (project out sys_refcursor)
```

```
IS
```

```
BEGIN
```

```
    open project FOR SELECT Projectno, partno FROM dates where to_char(arrivedate,  
'YY')=17;
```

```
END;
```

```
variable result2 refcursor;
```

```
exec query2 (:result2);
```

```
print result2;
```

Java

```
import java.sql.*;
```

```

import java.io.*;

public class Assignment5 {

    public static void main( String[] args ) {

        String tableName = "dates";
        String tableName2="shipments";

        Connection conn = null;
        Statement stmt = null;

        /*****
        * determine if the JDBC driver exists and load it..
        *****/

        /*****
        * establish a connection to the database...
        *****/

        try {
            System.out.print( "Connecting to ACADPRD0 database...\n\n" );
            //String url = dataSource + dbName;

            conn =
            DriverManager.getConnection("jdbc:oracle:thin:@acadoradbprd01.dpu.depaul.edu:1521:
            ACADPRD0", "ZZHUANG", "cdm1379457");

            /*conn = dbms.equals("localAccess") ? DriverManager.getConnection(url)
            : DriverManager.getConnection(url, userName, password );*/
            System.out.println( "Connected to database ACADPRD0..." );

            /*****
            * create an object by which we will pass SQL stmts to the database...
            *****/

            stmt = conn.createStatement();
        }
        catch (SQLException se) {
            System.out.println(se);
            System.exit(1);
        }

        try {
            String dropString = "DROP TABLE " + tableName;
            stmt.executeUpdate(dropString);
        }
        catch (SQLException se) { /*do nothing*/ } // table doesn't exist
    }
}

```

```

try {
/*****
* finally, display all the rows in the database...
*****/

System.out.print( "Building new " + tableName + " table...\n\n" );
String createString =
    "CREATE TABLE " + tableName +
    " (SupplierNo VARCHAR(2)," +
    " PartNo VARCHAR(2)," +
    " ProjectNo VARCHAR(2)," +
    " shipDate DATE," +
    " arriveDate DATE)";
stmt.executeUpdate(createString);

System.out.print( "Alter Date datatype in Dates table...\n\n");
String alterString = "alter session set nls_date_format='MM/DD/YY'";
stmt.executeUpdate(alterString);

System.out.print( "Inserting rows in User table...\n\n");
String insertString =
    "INSERT INTO " + tableName + " VALUES
('S1','P1','J1','1/5/18','1/25/19)";
stmt.executeUpdate(insertString);

insertString =
    "INSERT INTO " + tableName + " VALUES
('S1','P1','J4','2/1/18','2/4/18)";
stmt.executeUpdate(insertString);

insertString =
    "INSERT INTO " + tableName + " VALUES
('S1','P3','J1','12/15/18','1/18/19)";
stmt.executeUpdate(insertString);

insertString =
    "INSERT INTO " + tableName + " VALUES
('S1','P3','J2','11/2/17','11/18/17)";
stmt.executeUpdate(insertString);

insertString =
    "INSERT INTO " + tableName + " VALUES
('S1','P3','J3','8/5/17','9/1/17)";
stmt.executeUpdate(insertString);

insertString =

```

"INSERT INTO " + tableName + " VALUES
('S2','P3','J4','8/5/17','8/9/17')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S2','P3','J5','7/3/17','7/29/17')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S2','P3','J6','9/3/17','9/10/17')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S2','P3','J7','2/5/18','2/15/18')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S3','P5','J6','1/6/18','1/14/18')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S3','P3','J2','3/5/18','3/15/18')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S3','P4','J1','2/27/18','3/6/18')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S3','P6','J2','6/15/17','6/27/17')";
 stmt.executeUpdate(insertString);

 insertString =
 "INSERT INTO " + tableName + " VALUES
('S4','P6','J3','6/17/17','6/30/17')";
 stmt.executeUpdate(insertString);

 insertString =

"INSERT INTO " + tableName + " VALUES
('S4','P2','J6','5/2/17','6/2/17')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S4','P5','J5','5/5/17','5/10/17')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S4','P5','J2','9/5/17','10/1/17')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P7','J4','10/2/17','10/23/17')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P1','J5','11/5/17','11/17/17')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P3','J7','12/12/17','1/4/18')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P4','J4','12/22/17','1/16/18')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P5','J4','5/7/18','6/1/18')";
stmt.executeUpdate(insertString);

insertString =
"INSERT INTO " + tableName + " VALUES
('S5','P6','J4','4/23/18','5/2/18')";
stmt.executeUpdate(insertString);

insertString =

```

        "INSERT INTO " + tableName + " VALUES
('S5','P2','J4','4/20/18','5/2/18')";
        stmt.executeUpdate(insertString);

        System.out.print( "Display Dates table...\n\n");
        ResultSet rset = stmt.executeQuery( " SELECT * FROM " + tableName );
        while( rset.next() )
            System.out.println( rset.getString("SupplierNo") + ": " +

rset.getString("PartNo")+" :"+rset.getString("ProjectNo")+" :"+rset.getString("shipdate
")+ " :"+rset.getString("arrivedate"));

        String addString = " Alter TABLE " + tableName2 + " add (shipdate DATE,
arriveDate DATE) ";
        stmt.executeUpdate(addString);

        String mergeString = " Merge INTO " + tableName2 +
            " USING " + tableName+
            " ON (shipments.suppliernum=dates.suppliernum AND
shipments.partnum=dates.partnum AND shipments.projectnum=dates.projectnum) "
            + " WHEN MATCHED THEN "
            + " UPDATE SET shipments.shipdate=dates.shipdate,
shipments.arrivedate=dates.arrivedate ";
        stmt.executeUpdate(mergeString);

        alterString = "Alter table SHIPMENTS DROP column quantity";
        stmt.executeUpdate(alterString);

        System.out.print( "Display SHIPMENTS TABLE...\n\n");
        rset = stmt.executeQuery ("SELECT * FROM " + tableName2);
        while( rset.next() )
            System.out.println( rset.getString("SupplierNo") + ": " +

rset.getString("PartNo")+" :"+rset.getString("ProjectNo")+" :"+rset.getString("shipdate
")+ " :"+rset.getString("arrivedate"));

        rset.close();
        stmt.close();
        conn.close();
    }
    catch (SQLException se) {
        System.out.println( "SQL ERROR: " + se );
    }
} // end main

```

} // end class