

OnlineTestSolution.java

```
1 //Marks for Execution: 5M
2
3
4 import java.awt.FlowLayout;
5 import java.awt.event.ActionEvent;
6 import java.awt.event.ActionListener;
7 import java.awt.event.ItemEvent;
8 import java.awt.event.ItemListener;
9 import java.sql.Connection;
10 import java.sql.DriverManager;
11 import java.sql.PreparedStatement;
12 import java.sql.ResultSet;
13 import java.sql.SQLException;
14 import java.sql.Statement;
15 import java.util.logging.Level;
16 import java.util.logging.Logger;
17
18 import javax.swing.JButton;
19 import javax.swing.JComboBox;
20 import javax.swing.JFrame;
21 import javax.swing.JLabel;
22 import javax.swing.JOptionPane;
23 import javax.swing.JPanel;
24 import javax.swing.JTabbedPane;
25 import javax.swing.JTextField;
26
27 class OnlineTestSolution {
28
29     private JFrame mainFrame;
30     private JPanel panel1, panel2;
31     private JTabbedPane tabPane;
32
33     private JLabel lbl_name, lbl_ID, lbl_Name, lbl_ItemName, lbl_Qty, lbl_BillAmt;
34     private JTextField txtField1_Name, txtField2_Name, txtField_Qty, txtField_BillAmt;
35
36     private JComboBox<Integer> txtField_ID;
37     private JComboBox<String> txtField_Item;
38     private JButton savebtn, resetbtn, addbtn, proceedbtn ;
39
40     public static void main(String args[]) {
41         OnlineTestSolution pro = new OnlineTestSolution();
42         pro.displayAppGUI();
43     }
44
45     OnlineTestSolution() {
46
47         /*****
48         *****/
49         * DONOT DELETE/MODIFY THE FOLLOWING CODE
50         * After you run the application for the first time comment the following lines of
51         code
52         * This method should be called only one time when the application is executed for the
53         first time
54
55         *****/
56         **/
57         try {
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OnlineTestSolution.java

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53         createDatabase();
54     } catch (ClassNotFoundException | SQLException e2) {
55         e2.printStackTrace();
56     }
57     /*****
58
59     *****/
60     * UNCOMMENT THE FOLLOWING CODE TO DELETE ALL THE RECORDS FROM ANYONE OR ALL THE
61     TABLES
62     *****/
63     try {
64         deleteAllRecordsFromTable("PURCHASE");
65         deleteAllRecordsFromTable("ITEM");
66         deleteAllRecordsFromTable("CUSTOMER");
67     } catch (ClassNotFoundException e1) {
68         e1.printStackTrace();
69     } catch (SQLException e1) {
70         e1.printStackTrace();
71     }
72     /*****
73     *****/
74     *
75     * DONOT DELETE/MODIFY THE FOLLOWING CODE
76     * After you run the application for the first time comment the following lines of
77     code
78     * This method should be called only one time when the application is executed for the
79     first time
80     *****/
81     try {
82         insertItemInItemTable();
83     } catch (Exception e1) {
84         e1.printStackTrace();
85     }
86     /*****
87     *****/
88
89     * DONOT DELETE/MODIFY THE FOLLOWING CODE
90     * Function calls to initialize all the GUI components and to populate the drop down
91     boxes.
92     * You have to write code for these method. Unimplemented method stubs are provided
93     below:
94     * refer Q. 1 and Q. 6
95     *****/
96     initializeAppGUI(); // function call
97
98     populate_txtField_ID_And_txtField_Item(); //function call
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OnlineTestSolution.java

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94
95      /*****
96      * Q.7 WRITE CODE FOR THE ACTION LISTNER OF THE resetbtn - this should reset the
97      * (0/0.5 M)
98      *****/
99      **/
100      resetbtn.addActionListener(new ActionListener() {
101          public void actionPerformed(ActionEvent ae) {
102              txtField1_Name.setText("");
103          }
104      });
105      /*****
106      * Q.8 WRITE CODE FOR THE ACTION LISTNER OF THE savebtn - this event should
107      * automatically generates
108      * the customer id using the getCustomerID() and inserts the customer id and name into
109      * the CUSTOMER table.
110      * (0/2/4/5 M)
111      *****/
112      **/
113      savebtn.addActionListener(new ActionListener() {
114          public void actionPerformed(ActionEvent ae) {
115              Connection con;
116              PreparedStatement st;
117
118              int customerid;    // used to store the customer id
119              String value1;    //used to store the customer name
120
121              try {
122
123                  con = getConnection();
124                  customerid = getCustomerID(con);
125                  value1 = txtField1_Name.getText();
126
127                  st=con.prepareStatement("insert into CUSTOMER(CID,NAME) values(?,?)");
128                  st.setInt(1, customerid);
129                  st.setString(2, value1);
130                  st.executeUpdate();
131
132                  txtField_ID.addItem(customerid);
133
134                  JOptionPane.showMessageDialog(panel1,"Data is successfully inserted into
135                  database.");
136              } catch(ClassNotFoundException e){
137                  JOptionPane.showMessageDialog(panel1,"Error in submitting data!");
138              } catch (SQLException ex) {
139                  Logger.getLogger(OnlineTestSolution.class.getName()).log(Level.SEVERE,
140                  null, ex);
141              }
142          }
143      })

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OnlineTestSolution.java

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139     });
140
141     /*****
142         * Q.9 WRITE CODE FOR THE ITEM LISTNER OF THE txtField_ID - this event is used to
143         retrieve the customer name
144         * from the CUSTOMER table, when the customer id is chosen from the drop down box. It
145         should then display name
146         * in the txtField2_Name text box.
147         * (0/1/4 M)
148     *****/
149     /**/
150     txtField_ID.addItemListener(new ItemListener() {
151         public void itemStateChanged(ItemEvent ie) {
152
153             Connection con;
154             PreparedStatement st;
155             ResultSet res;
156
157             int value; //used to store the selected customer id
158             try {
159                 con = getConnection();
160                 value=Integer.parseInt(txtField_ID.getSelectedItem().toString());
161
162                 st=con.prepareStatement("select NAME from CUSTOMER where CID=?");
163                 st.setInt(1,value);
164                 res=st.executeQuery();
165                 res.next();
166                 txtField2_Name.setText(res.getString(1));
167             } catch (Exception e) {
168                 e.printStackTrace();
169             }
170         }
171     });
172
173     /*****
174         * Q.10 WRITE CODE FOR THE ACTION LISTNER OF THE addbtn - The record from the ITEM
175         table is retrieved
176         * for the item chosen from the drop down list. If required quantity is available in
177         the ITEM table,
178         * a record is inserted into the PURCHASE table (customer id, item id, quantity,
179         price) and the quantity
180         * field in the ITEM table is updated. Else, an error message is thrown. Then clear
181         all the fields for
182         * adding the next item.
183         * (0/2/4/7/10 M)
184     *****/
185     /**/
186     addbtn.addActionListener(new ActionListener() {
187         public void actionPerformed(ActionEvent ae) {
188             Connection con;

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OnlineTestSolution.java

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182         PreparedStatement st;
183         ResultSet res;
184
185         String value1;    //used to store selected item name
186         Integer value2;   //used to store the quantity
187
188         int iid;          //used to store the item id
189
190         try {
191
192             con = getConnection();
193             value1 = (String) txtField_Item.getSelectedItemAt();
194             value2 = Integer.parseInt(txtField_Qty.getText());
195
196             st = con.prepareStatement("select * from ITEM where NAME=?");
197             st.setString(1, value1);
198             res = st.executeQuery();
199             res.next();
200             iid = res.getInt(1);
201
202             if(value2 <= res.getInt(3)) {
203                 st = con.prepareStatement("update ITEM set QTY=? where IID=?");
204                 st.setInt(1, (res.getInt(3) - value2));
205                 st.setInt(2, iid);
206                 st.executeUpdate();
207
208                 st = con.prepareStatement("insert into PURCHASE(CID,IID,QTY,PRICE)
values(?,?,?,?)");
209                 st.setInt(1,
Integer.parseInt(txtField_ID.getSelectedItemAt().toString()));
210                 st.setInt(2, iid);
211                 st.setInt(3, value2);
212                 st.setFloat(4, res.getFloat(4));
213                 st.executeUpdate();
214
215                 JOptionPane.showMessageDialog(panel2,"Item is successfully added to
cart!");
216
217             } else {
218                 JOptionPane.showMessageDialog(panel2,"Required Quantity Not
Available!");
219             }
220         } catch (Exception e) {
221             e.printStackTrace();
222         }
223         txtField_Qty.setText("");
224         txtField_Item.setSelectedIndex(0);
225     }
226 }
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OnlineTestSolution.java

```

231     * by a customer.
232     * (0/1/3/6 M)
233
234     ****
235     */
236     proceedbtn.addActionListener(new ActionListener() {
237         public void actionPerformed(ActionEvent ae) {
238             Connection con;
239             PreparedStatement st;
240             ResultSet res;
241
242             int value;           //used to store customer id
243             float bill = 0;      //used to store the bill amount
244
245             try {
246                 con = getConnection();
247                 value = Integer.parseInt(txtField_ID.getSelectedItem().toString());
248
249                 st = con.prepareStatement("select * from PURCHASE where CID=?");
250                 st.setInt(1, value);
251                 res = st.executeQuery();
252
253                 while (res.next()) {
254                     bill = bill + (res.getInt(3) * res.getFloat(4));
255                 }
256                 txtxField_BillAmt.setText(bill+"");
257
258             } catch (Exception e) {
259                 e.printStackTrace();
260             }
261         }
262     });
263 } // end of constructor
264
265 /*****
266  * Q.6 WRITE CODE FOR THIS METHOD TO POPULATE txtField_ID and txtField_Item from the
267  * CUSTOMER and
268  * ITEM tables.
269  * (0/2/3 M)
270  ****
271  */
272 public void populate_txtField_ID_And_txtField_Item() {
273     Connection con;
274     Statement statement1, statement2;
275     ResultSet rs1, rs2;
276     String query1, query2;
277
278     try {
279         con = getConnection();
280         statement1 = con.createStatement();
281         statement2 = con.createStatement();
282         query1 = "SELECT * FROM CUSTOMER";

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OnlineTestSolution.java

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282         query2 = "SELECT * FROM ITEM";
283         rs1 = statement1.executeQuery(query1);
284         rs2 = statement2.executeQuery(query2);
285
286         while (rs1.next()) { txtField_ID.addItem(rs1.getInt(1)); }
287         while (rs2.next()) { txtField_Item.addItem(rs2.getString(2)); }
288
289
290     } catch (ClassNotFoundException | SQLException e) {
291         e.printStackTrace();
292     }
293 }
294
295 /**
296  * Q.1 WRITE CODE FOR THIS METHOD TO INITIALIZE APP GUI
297  * 0.5 M for each statement
298  */
299 public void initializeAppGUI(){
300
301     mainFrame = new JFrame("Online purchase");
302     panel1 = new JPanel(new FlowLayout()); //Any layout can be used
303     panel2 = new JPanel(new FlowLayout()); //Any layout can be used
304     tabPane = new JTabbedPane();
305
306     lbl_name = new JLabel("Customer Name:");
307     txtField1_Name = new JTextField(12);
308
309     savebtn = new JButton("Add");
310     resetbtn = new JButton("Reset");
311
312     panel1.add(lbl_name);
313     panel1.add(txtField1_Name);
314     panel1.add(savebtn);
315     panel1.add(resetbtn);
316
317     lbl_ID = new JLabel("Customer ID:");
318     txtField_ID = new JComboBox<Integer>();
319     txtField_ID.addItem(null);
320
321     lbl_Name = new JLabel("Customer Name:");
322     txtField2_Name = new JTextField(13);
323
324     lbl_ItemName = new JLabel("Item Name:");
325     txtField_Item = new JComboBox<String>();
326     txtField_Item.addItem("Choose the Item");
327
328     lbl_Qty = new JLabel("Quantity:");
329     txtField_Qty = new JTextField(13);
330
331     lbl_BillAmt = new JLabel("Bill Amount:");
332     txtField_BillAmt = new JTextField(13);
333
334     panel2.add(lbl_ID);
335     panel2.add(txtField_ID);

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OnlineTestSolution.java

```

336     panel2.add(lbl_Name);
337     panel2.add(txtField2_Name);
338     panel2.add(lbl_ItemName);
339     panel2.add(txtField_Item);
340     panel2.add(lbl_Qty);
341     panel2.add(txtField_Qty);
342     panel2.add(lbl_BillAmt);
343     panel2.add(txtField_BillAmt);
344
345     addbtn = new JButton(" Add Item ");
346     proceedbtn = new JButton(" Check out ");
347
348     panel2.add(addbtn);
349     panel2.add(proceedbtn);
350 }
351
352 /**
353  * Q.2 WRITE CODE FOR THIS METHOD TO DISPLAY APP GUI
354  * (0/2 M)
355  */
356 void displayAppGUI() {
357     mainFrame.getContentPane().add(tabPane);
358     tabPane.addTab("New Customer",panel1);
359     tabPane.addTab("Existing Customer",panel2);
360     mainFrame.setSize(400,200);
361     mainFrame.setVisible(true);
362     mainFrame.setResizable(true);
363 }
364
365 /**
366  * Q.3 WRITE CODE FOR THIS METHOD TO GET DATABASE CONNECTION
367  * (0/1 M)
368  */
369 public Connection getConnection() throws ClassNotFoundException, SQLException {
370     Class.forName("org.apache.derby.jdbc.EmbeddedDriver");
371     Connection con =
372     DriverManager.getConnection("jdbc:derby:cust;create=true;user=app;password=app");
373     return con;
374 }
375
376 /**
377  * Q.4 WRITE CODE FOR THIS METHOD TO CREATE CUSTOMER, ITEM, AND PURCHASE TABLES
378  * TABLE : CUSTOMER, ATTRIBUTES - CID (int), NAME (var char) (Customer id and customer
379  name)
380  * TABLE: ITEM, ATTRIBUTES - IID (int), NAME (var char), QTY (int), PRICE (float) (Item
381  id, item name, quantity and price)
382  * TABLE: PURCHASE, ATTRIBUTES - CID (int), IID (int), QTY (int), PRICE (float) (Customer
383  id, item id, quantity, and price)
384  * (0/1/2/3 M)
385  */

```


OnlineTestSolution.java

```

*****
**/
382     public void createDatabase() throws ClassNotFoundException, SQLException {
383
384         Connection con = getConnection();
385         Statement stmt = con.createStatement();
386
387         String createCustomer = "create table CUSTOMER(CID INTEGER PRIMARY KEY, NAME
VARCHAR(20))";
388         stmt.executeUpdate(createCustomer);
389
390         String createItem = "create table ITEM(IID INTEGER PRIMARY KEY, NAME VARCHAR(20),
QTY INTEGER, PRICE FLOAT)";
391         stmt.executeUpdate(createItem);
392
393         String createPurchase = "create table PURCHASE(CID INTEGER, IID INTEGER, QTY
INTEGER, PRICE FLOAT)";
394         stmt.executeUpdate(createPurchase);
395
396     }
397
398     /*****
*****
399     * Q.5 WRITE CODE FOR THIS METHOD TO INSERT FEW ITEMS IN THE ITEM TABLE
400     * (Any three items can be inserted)
401     * (0/1.5 M)
402
*****
**/
403     public void insertItemInItemTable() {
404
405         String query;
406         Connection con;
407         Statement stmt;
408
409         try {
410
411             con = getConnection();
412             stmt = con.createStatement();
413             query = "INSERT INTO ITEM VALUES (1, 'Mobile', 10, 9999)";
414             stmt.executeUpdate(query);
415             query = "INSERT INTO ITEM VALUES (2, 'Chocolates', 5, 10.50)";
416             stmt.executeUpdate(query);
417             query = "INSERT INTO ITEM VALUES (3, 'Notebooks', 15, 33)";
418             stmt.executeUpdate(query);
419
420         } catch (ClassNotFoundException | SQLException e) {
421             e.printStackTrace();
422         }
423     }
424
425     /*****
*****
426     *
METHODS
427
*****

```

OnlineTestSolution.java

```
*****/  
428     public int getCustomerID(Connection con) {  
429  
430         int value = 0;  
431         ResultSet rs;  
432         Statement stmt;  
433  
434         try {  
435             stmt = con.createStatement();  
436             rs = stmt.executeQuery("Select Max(CID) from CUSTOMER");  
437             rs.next();  
438             if(rs.getInt(1) == 0) value = 100;  
439             else value = rs.getInt(1) + 1;  
440         } catch (SQLException e) {  
441             e.printStackTrace();  
442         }  
443  
444         return value;  
445     }  
446  
447     public void deleteAllRecordsFromTable(String tableName) throws ClassNotFoundException,  
448     SQLException {  
449         String query;  
449         Connection con = getConnection();  
450         Statement stmt = con.createStatement();  
451         query = "DELETE FROM " + tableName;  
452         stmt.executeUpdate(query);  
453     }  
454 }  
455
```