**Advanced Java Programming**

***Exp No. 17 : Mini Project***

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**College Database System**

**:: Source Code ::**

**import** javax.swing.\*;  
**import** javax.swing.border.EmptyBorder;  
**import** java.awt.\*;  
**import** java.awt.event.\*;  
**import** java.time.LocalTime;  
  
**public class** MainApp **extends** JFrame {  
  
 **private** JPanel **contentPane**;  
 **private int loginAttempt** = 0;  
 **private** JTextField **txtSearch**;  
 **private** JLabel **lblStatus**;  
 **private final static** String ***PASSWORD*** = **"$admin"**;  
 **private** JTable **table**;  
 **private** Database **db**;  
 **private** JScrollPane **scrollPane**;  
  
 **public static void** main(String[] args) {  
 EventQueue.*invokeLater*(**new** Runnable() {  
 **public void** run() {  
 **try** {  
 MainApp frame = **new** MainApp();  
 frame.setVisible(**true**);  
 } **catch** (Exception e) {  
 e.printStackTrace();  
 }  
 }  
 });  
 }  
  
 **public** MainApp() {  
 setResizable(**false**);  
 setTitle(**"College Database System"**);  
 setDefaultCloseOperation(JFrame.***EXIT\_ON\_CLOSE***);  
 setBounds(100, 100, 720, 460);  
   
 login();  
   
 **contentPane** = **new** JPanel();  
 **contentPane**.setBackground(**new** Color(255, 255, 255));  
 **contentPane**.setBorder(**new** EmptyBorder(5, 5, 5, 5));  
 setContentPane(**contentPane**);  
 **contentPane**.setLayout(**null**);  
   
 JButton btnNewButton = **new** JButton(**"New button"**);  
 btnNewButton.setBounds(10, 132, 110, 110);  
   
 JButton btnAdd = **new** JButton(**""**);  
 btnAdd.addActionListener(**new** ActionListener() {  
 **public void** actionPerformed(ActionEvent arg0) {  
   
 **int** code = Integer.*parseInt*(JOptionPane.*showInputDialog*(**null**, **"Enter DTE Code"**));  
 String name = JOptionPane.*showInputDialog*(**null**, **"Enter Name"**);  
 String add = JOptionPane.*showInputDialog*(**null**, **"Enter Address"**);  
 String city = JOptionPane.*showInputDialog*(**null**, **"Enter City"**);  
 String about = JOptionPane.*showInputDialog*(**null**, **"Enter About"**);  
   
 **db**.add(code, name, add, city, about);  
 }  
 });  
 btnAdd.setIcon(**new** ImageIcon(**"C:\\Users\\vishal\\workspace\\College Database System\\src\\icon\\appbar.list.add.above.png"**));  
 btnAdd.setToolTipText(**"Add"**);  
 btnAdd.setForeground(**new** Color(255, 255, 255));  
 btnAdd.setBackground(**new** Color(30, 144, 255));  
 btnAdd.setBounds(10, 11, 214, 110);  
 **contentPane**.add(btnAdd);  
   
 JButton btnRemove = **new** JButton(**""**);  
 btnRemove.addActionListener(**new** ActionListener() {  
 **public void** actionPerformed(ActionEvent e) {  
 String code = JOptionPane.*showInputDialog*(**null**, **"Enter DTE Code"**, **"Remove College"**,JOptionPane.***PLAIN\_MESSAGE***);  
 **db**.remove(Integer.*parseInt*(code));  
 }  
 });  
 btnRemove.setToolTipText(**"Remove"**);  
 btnRemove.setIcon(**new** ImageIcon(**"C:\\Users\\vishal\\workspace\\College Database System\\src\\icon\\appbar.list.delete.inline.png"**));  
 btnRemove.setForeground(**new** Color(255, 255, 255));  
 btnRemove.setBackground(**new** Color(30, 144, 255));  
 btnRemove.setBounds(234, 11, 230, 110);  
 **contentPane**.add(btnRemove);  
   
 JButton btnUpdate = **new** JButton(**""**);  
 btnUpdate.addActionListener(**new** ActionListener() {  
 **public void** actionPerformed(ActionEvent e) {  
   
 **int** code = Integer.*parseInt*(JOptionPane.*showInputDialog*(**null**, **"Enter DTE Code of the College to be Update"**));  
 **int** newCode = Integer.*parseInt*(JOptionPane.*showInputDialog*(**null**, **"Enter DTE Code"**));  
 String name = JOptionPane.*showInputDialog*(**null**, **"Enter Name"**);  
 String add = JOptionPane.*showInputDialog*(**null**, **"Enter Address"**);  
 String city = JOptionPane.*showInputDialog*(**null**, **"Enter City"**);  
 String about = JOptionPane.*showInputDialog*(**null**, **"Enter About"**);  
 **db**.update(code, newCode, name, add, city, about);  
 }  
 });  
 btnUpdate.setToolTipText(**"Update"**);  
 btnUpdate.setIcon(**new** ImageIcon(**"C:\\Users\\vishal\\workspace\\College Database System\\src\\icon\\appbar.list.hidden.png"**));  
 btnUpdate.setForeground(**new** Color(255, 255, 255));  
 btnUpdate.setBackground(**new** Color(30, 144, 255));  
 btnUpdate.setBounds(474, 11, 230, 110);  
 **contentPane**.add(btnUpdate);  
   
 **txtSearch** = **new** JTextField();  
 **txtSearch**.setToolTipText(**"Enter DTE Code here"**);  
 **txtSearch**.setFont(**new** Font(**"Tahoma"**, Font.***PLAIN***, 16));  
 **txtSearch**.setBounds(140, 132, 324, 45);  
 **contentPane**.add(**txtSearch**);  
 **txtSearch**.setColumns(10);  
 **txtSearch**.requestFocus();  
   
 JButton btnSearch\_1 = **new** JButton(**""**);  
 btnSearch\_1.addActionListener(**new** ActionListener() {  
 **public void** actionPerformed(ActionEvent e) {  
 **int** code = Integer.*parseInt*(**txtSearch**.getText());  
 **db**.showCollege(code);  
 **txtSearch**.setText(**""**);  
 }  
 });  
 btnSearch\_1.setToolTipText(**"Search"**);  
 btnSearch\_1.setIcon(**new** ImageIcon(**"C:\\Users\\vishal\\workspace\\College Database System\\src\\icon\\appbar.magnify.png"**));  
 btnSearch\_1.setForeground(Color.***WHITE***);  
 btnSearch\_1.setBackground(**new** Color(30, 144, 255));  
 btnSearch\_1.setBounds(474, 132, 230, 45);  
 **contentPane**.add(btnSearch\_1);  
   
 **lblStatus** = **new** JLabel(**"Welcome"**);  
 **lblStatus**.setForeground(**new** Color(105, 105, 105));  
 **lblStatus**.setBackground(**new** Color(255, 255, 255));  
 **lblStatus**.setBounds(10, 406, 694, 14);  
 **contentPane**.add(**lblStatus**);  
   
 **scrollPane** = **new** JScrollPane();  
 **scrollPane**.setVerticalScrollBarPolicy(ScrollPaneConstants.***VERTICAL\_SCROLLBAR\_ALWAYS***);  
 **scrollPane**.setBounds(10, 188, 694, 218);  
 **contentPane**.add(**scrollPane**);  
   
 JLabel lblNewLabel = **new** JLabel(**"DTE Code :"**);  
 lblNewLabel.setFont(**new** Font(**"Tahoma"**, Font.***PLAIN***, 20));  
 lblNewLabel.setBounds(10, 128, 120, 49);  
 **contentPane**.add(lblNewLabel);

showStatus(**"Login"**);  
 **db** = **new** Database(**this**);  
 **table** = **new** JTable(**db**.getData(), **db**.getColumn()){  
  
 @Override  
 **public boolean** isCellEditable(**int** row, **int** column) {  
 **return false**;  
 }  
   
 };  
 **scrollPane**.setViewportView(**table**);  
   
 }  
   
 **void** updateTable() {  
   
 **table** = **new** JTable(**db**.getData(), **db**.getColumn()){  
 @Override  
 **public boolean** isCellEditable(**int** row, **int** column) {  
 **return false**;  
 }  
   
 };  
 **scrollPane**.setViewportView(**table**);  
 }  
   
 **private void** login() {  
 **while** (**true**) {  
 String pass = JOptionPane.*showInputDialog*(**this**, **"Enter Password"**, **"Security Login"**,  
 JOptionPane.***PLAIN\_MESSAGE***);  
 **if** (pass.equals(***PASSWORD***) == **false**) {  
 **loginAttempt** += 1;  
 JOptionPane.*showMessageDialog*(**this**, **"Wrong Password, Please try again"**, **"Warning"**,  
 JOptionPane.***ERROR\_MESSAGE***);  
 **if** (**loginAttempt** == 3) {  
 System.*exit*(0);  
 }  
 } **else if** (pass.equals(***PASSWORD***) == **true**) {  
 **return**;  
 }   
 }  
 }  
   
 **void** showStatus(String msg) {  
 **lblStatus**.setText(LocalTime.*now*() + **" : "** + msg);  
 }  
}

**import** java.sql.\*;  
  
**import** javax.swing.JOptionPane;  
  
**public class** Database {  
  
 **private** Connection **con**;  
 **private** MainApp **ap**;  
 **private** PreparedStatement **addStatement**;  
 **private** PreparedStatement **removeStatement**;  
 **private** PreparedStatement **updateStatement**;  
 **private final int COLUMN\_NUMBER** = 5;  
 **private** Statement **s**;  
   
 Database(MainApp ap) {  
 **try** {  
 **this**.**ap** = ap;  
   
 Class.*forName*(**"org.sqlite.JDBC"**);  
   
 **con** = DriverManager.*getConnection*(**"jdbc:sqlite:college\_db.db"**);  
 ap.showStatus(**"Database Connected !!"**);  
   
 **addStatement** = **con**.prepareStatement(**"insert into college\_data values(?,?,?,?,?)"**);  
 **removeStatement** = **con**.prepareStatement(**"delete from college\_data where dte\_code = ?"**);  
 **updateStatement** = **con**.prepareStatement(**"update college\_data set dte\_code = ?, name = ?, address = ?, city = ?, about = ? "** + **"where dte\_code = ?"**);  
   
 } **catch** (Exception e) {  
 e.printStackTrace();  
 ap.showStatus(e.getMessage());  
 }  
 }  
   
 String[][] getData() {  
   
 String data[][] = **new** String[100][**COLUMN\_NUMBER**];  
   
 **try** {  
 **s** = **con**.createStatement();  
 ResultSet res = **s**.executeQuery(**"select \* from college\_data"**);  
 **int** c = 0;  
 **while**(res.next()) {  
 **for**(**int** r = 0; r < **COLUMN\_NUMBER**; r++) {  
 **switch**(r) {  
 **case** 0:  
 data[c][r] = res.getInt(**"dte\_code"**)+**""**;  
 **break**;  
 **case** 1:  
 data[c][r] = res.getString(**"name"**);  
 **break**;  
 **case** 2:  
 data[c][r] = res.getString(**"address"**);  
 **break**;  
 **case** 3:  
 data[c][r] = res.getString(**"city"**);  
 **break**;  
 **case** 4:  
 data[c][r] = res.getString(**"about"**);  
 **break**;  
 }  
 }  
 c++;  
 }  
   
 } **catch** (SQLException e) {  
 e.printStackTrace();  
 **ap**.showStatus(e.getMessage());  
 }  
   
 **return** data;  
 }  
   
 String[] getColumn() {  
   
 **return new** String[] {**"DTE Code"**, **"Name"**, **"Address"**, **"City"**,**"About"**};  
 }  
   
 **void** add(**int** code, String name, String address, String city, String about) {  
 **try** {  
 **addStatement**.setInt(1, code);  
 **addStatement**.setString(2, name);  
 **addStatement**.setString(3, address);  
 **addStatement**.setString(4, city);  
 **addStatement**.setString(5, about);  
 **addStatement**.executeUpdate();  
 **ap**.showStatus(**"New college inserted"**);  
 **ap**.updateTable();  
   
 } **catch** (SQLException e) {  
 e.printStackTrace();  
 **ap**.showStatus(e.getMessage());  
 }  
 }  
   
 **void** update(**int** code, **int** newCode, String name, String address, String city, String about) {  
 **try** {  
 **updateStatement**.setInt(6, code);  
 **updateStatement**.setInt(1, newCode);  
 **updateStatement**.setString(2, name);  
 **updateStatement**.setString(3, address);  
 **updateStatement**.setString(4, city);  
 **updateStatement**.setString(5, about);  
 **updateStatement**.executeUpdate();  
 **ap**.updateTable();  
   
 } **catch** (SQLException e) {  
 e.printStackTrace();  
 **ap**.showStatus(e.getMessage());  
 }  
 }  
   
 **void** remove(**int** code) {  
 **try** {  
   
 **removeStatement**.setInt(1, code);  
 **removeStatement**.executeUpdate();  
 **ap**.showStatus(**"1 College removed"**);  
 **ap**.updateTable();  
   
 } **catch** (SQLException e) {  
   
 e.printStackTrace();  
 **ap**.showStatus(e.getMessage());  
 }  
 }  
   
 **void** showCollege(**int** code) {  
   
 **try** {  
 Statement s = **con**.createStatement();  
 ResultSet r = s.executeQuery(**"select \* from college\_data where dte\_code = "** + code);  
 **while**(r.next()) {  
 **int** dteCode = r.getInt(**"dte\_code"**);  
 String name = r.getString(**"name"**);  
 String address = r.getString(**"address"**);  
 String city = r.getString(**"city"**);  
 String msg = **"DTE Code : "** + dteCode + **"\nName : "** + name + **"\nAddress : "** + address + **"\nCity : "** + city;  
 JOptionPane.*showMessageDialog*(**null**, msg, name, JOptionPane.***INFORMATION\_MESSAGE***);  
 }  
 } **catch** (SQLException e) {  
 e.printStackTrace();  
 JOptionPane.*showMessageDialog*(**null**, e.getMessage());  
 }  
 }  
}

**:: Output ::**





