LAPORAN PRAKTIKUM PEMROGRAMAN BERORIENTASI OBJEK

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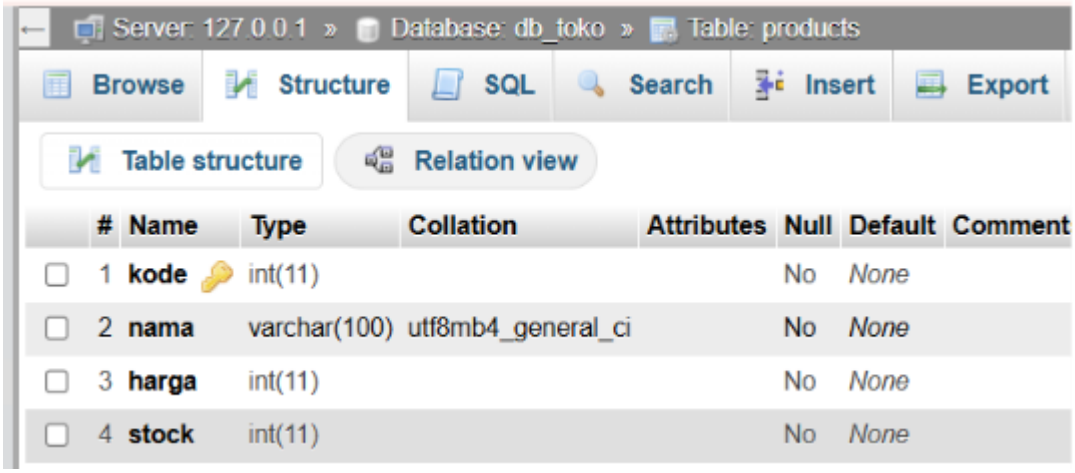
PROGRAM STUDI TEKNIK INFORMATIKA
FAKULTAS SAINS DAN TEKNOLOGI
UNIVERSITAS ISLAM BALITAR

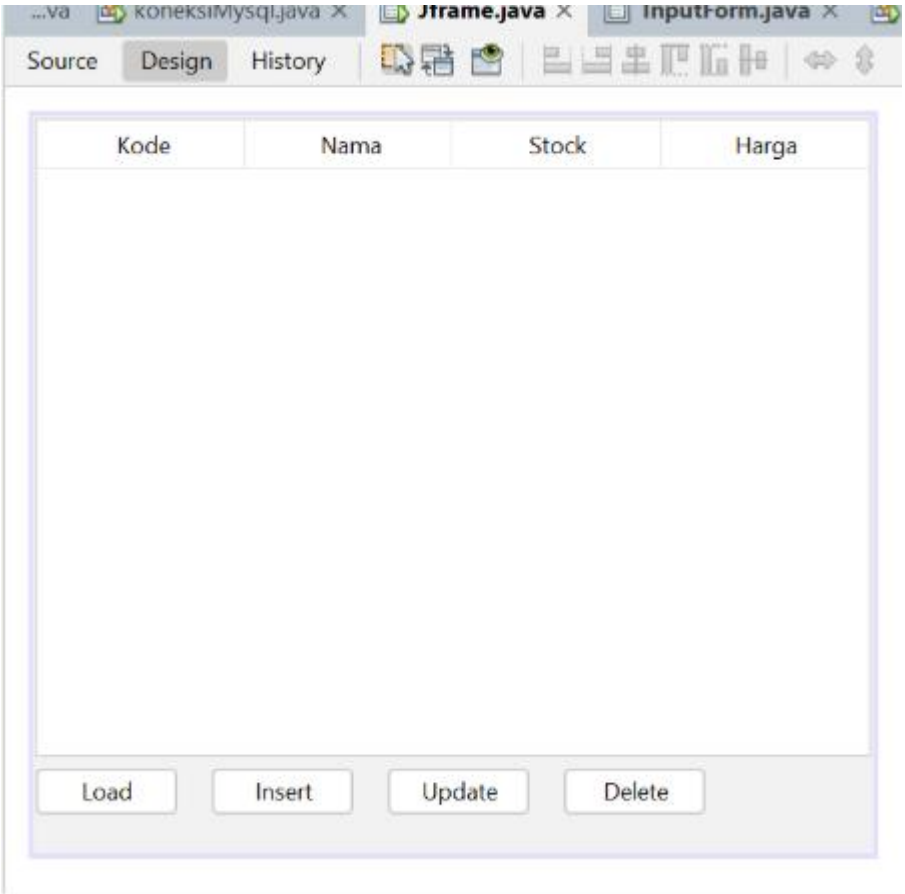
2025

1. Pembuatan Database dengan nama db_toko dan table product

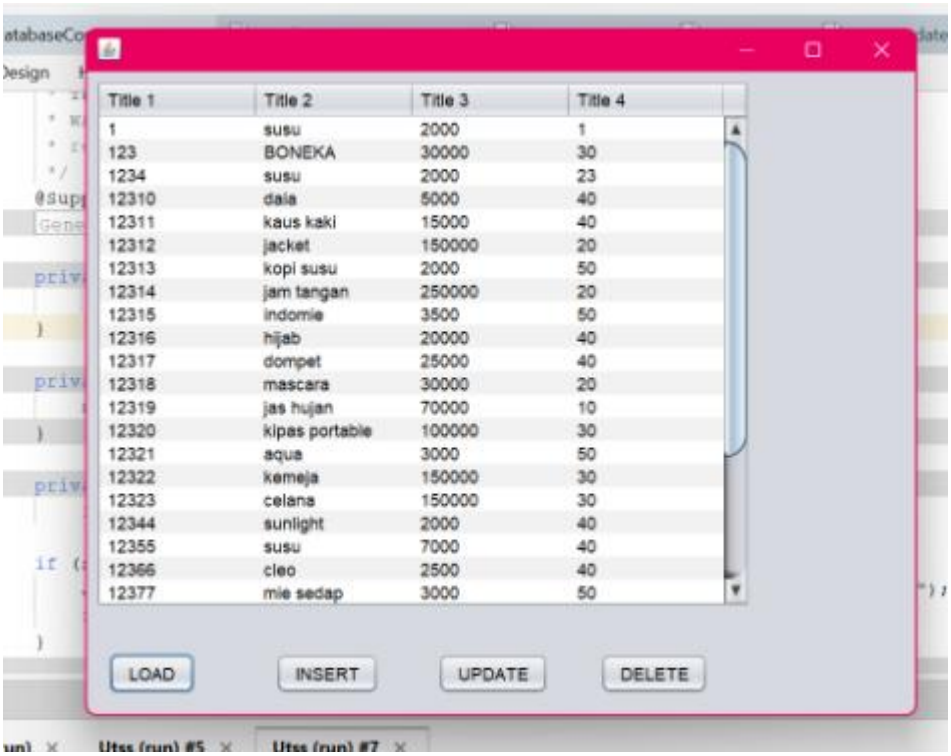


#	Name	Type	Collation	Attributes	Null	Default	Comment
1	kode	int(11)			No	None	
2	nama	varchar(100)	utf8mb4_general_ci		No	None	
3	harga	int(11)			No	None	
4	stock	int(11)			No	None	

2. Pembuatan JFrame yang dilengkapi dengan 4 JButton dan 1 JTable

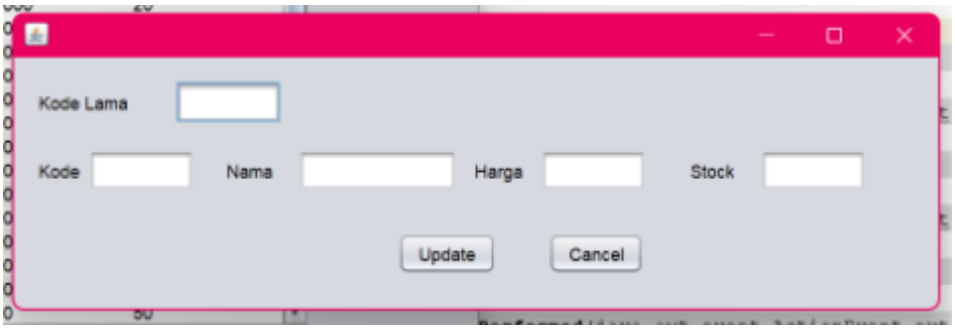


Load: seleksi semua data di tabel produk

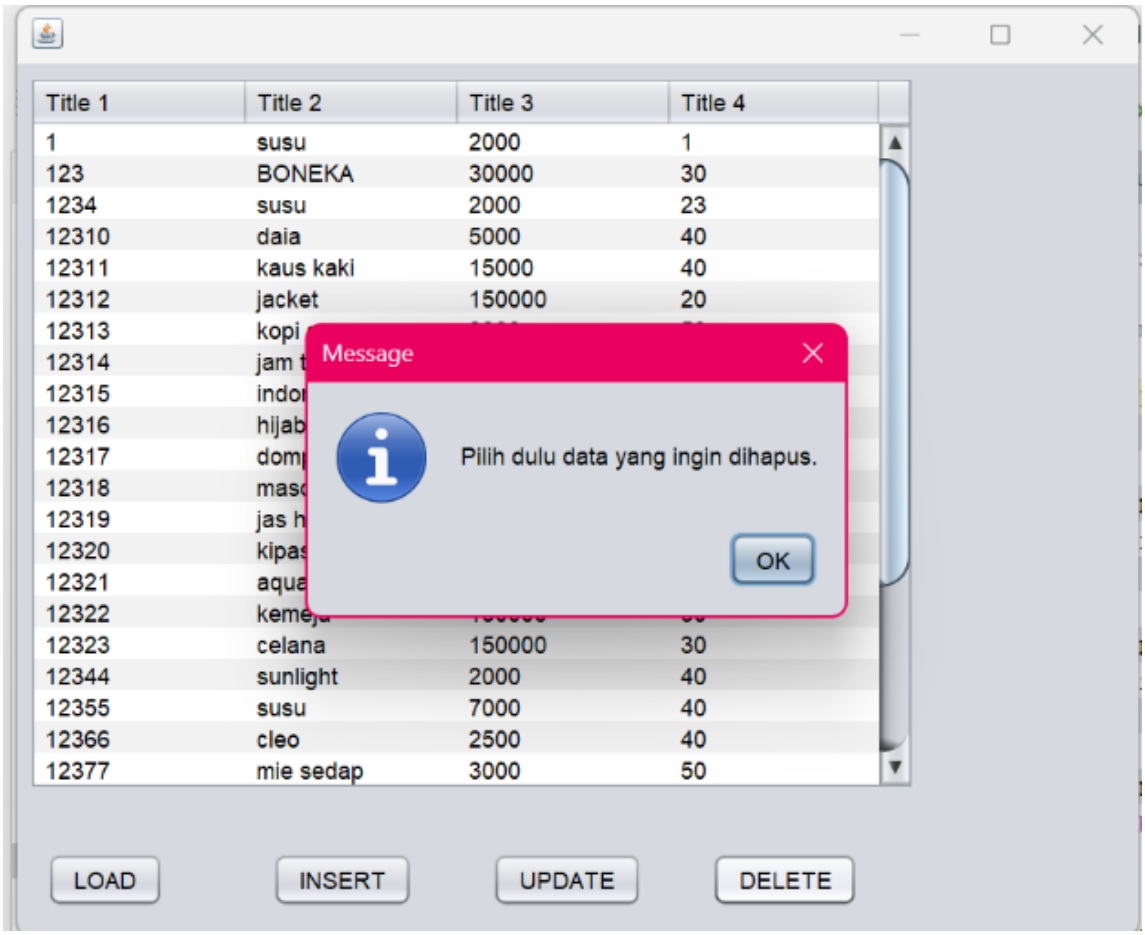


3. Insert: memasukkan satu produk baru

Update: menyeleksi salah satu isi tabel dan melakukan update



Delete: menyeleksi salah satu isi tabel dan melakukan delete



4. Pada project anda harus menerapkan enkapsulasi, Inheritance, try-catch SQLException, GUI Swing

a. enkapsulasi

```
17      @Override
18      public void simpanKeDatabase() {
19          try {
20              Connection conn = DatabaseConnection.getConnection();
21              PreparedStatement stmt = conn.prepareStatement(
22                  "INSERT INTO product (kode, nama, harga, stock) VALUES (?, ?, ?, ?)"
23              );
24              stmt.setInt(1, getKode());
25              stmt.setString(2, getNama());
26              stmt.setInt(3, getHarga());
27              stmt.setInt(4, getStok());
28              stmt.executeUpdate();
29              System.out.println("Produk berhasil disimpan ke database.");
30          } catch (SQLException e) {
31              System.err.println("Gagal menyimpan produk: " + e.getMessage());
32          }
33      }
34
35      Object gettock() {
36          throw new UnsupportedOperationException("Not supported yet."); // Generated from nb
37      }
38
39      Object getStock() {
40          throw new UnsupportedOperationException("Not supported yet."); // Generated from nb
41      }
42  }
```

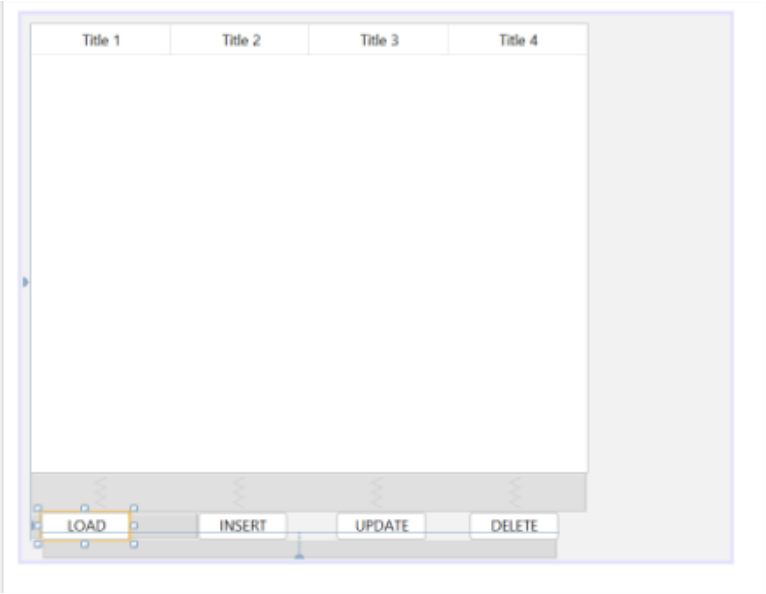
b. Inheritance

```
public class Product extends AbstrackProduk {

    public Product(int kode, String nama, int harga, int stok) {
        super(kode, nama, harga, stok);
    }

    @Override
    public void simpanKeDatabase() {
        try {
            Connection conn = DatabaseConnection.getConnection();
            PreparedStatement stmt = conn.prepareStatement(
                "INSERT INTO product (kode, nama, harga, stock) VALUES (?, ?, ?, ?)"
            );
            stmt.setInt(1, getKode());
            stmt.setString(2, getNama());
            stmt.setInt(3, getHarga());
            stmt.setInt(4, getStok());
            stmt.executeUpdate();
            System.out.println("Produk berhasil disimpan ke database.");
        } catch (SQLException e) {
            System.err.println("Gagal menyimpan produk: " + e.getMessage());
        }
    }
```

c. try-catch SQLException

```
    @Override
    public void simpanKeDatabase() {
        try {
            Connection conn = DatabaseConnection.getConnection();
            PreparedStatement stmt = conn.prepareStatement(
                "INSERT INTO product (kode, nama, harga, stock) VALUES (?, ?, ?, ?)"
            );
            stmt.setInt(1, getKode());
            stmt.setString(2, getNama());
            stmt.setInt(3, getHarga());
            stmt.setInt(4, getStok());
            stmt.executeUpdate();
            System.out.println("Produk berhasil disimpan ke database.");
        } catch (SQLException e) {
            System.err.println("Gagal menyimpan produk: " + e.getMessage());
        }
    }
```

d. GUI swing



5. Kerjakan codingnya dan tulis laporannya disertai penjelasan coding dan hasil screenshot outputnya.

A.Kelas kasir

```
package UTS;

import java.sql.Connection; import java.sql.PreparedStatement; import
java.sql.SQLException; import javax.swing.JOptionPane; import
javax.swing.table.DefaultTableModel; import java.util.Vector; import
javax.swing.table.DefaultTableModel; import java.sql.Statement; import java.sql.ResultSet;


public class Kasir2 extends javax.swing.JFrame {

public Kasir2() {

   initComponents();

}

private void initComponents() {


   jScrollPane1 = new javax.swing.JScrollPane();

   jTable1 = new javax.swing.JTable();
```

```
LOAD = new javax.swing.JButton();
INSERT = new javax.swing.JButton();
UPDATE = new javax.swing.JButton();
DELETE = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jTable1.setModel(new javax.swing.table.DefaultTableModel(
    new Object [][] {
        {null, null, null, null},
        {null, null, null, null},
        {null, null, null, null},
        {null, null, null, null}
    },
    new String [] {
        "Title 1", "Title 2", "Title 3", "Title 4"
    }
));
jScrollPane1.setViewportView(jTable1);

LOAD.setText("LOAD");
LOAD.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        LOADActionPerformed(evt);
    }
});

INSERT.setText("INSERT");
INSERT.addActionListener(new java.awt.event.ActionListener() {
```

```
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            INSERTActionPerformed(evt);
        }
    });

    UPDATE.setText("UPDATE");
    UPDATE.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            UPDATEActionPerformed(evt);
        }
    });

    DELETE.setText("DELETE");
    DELETE.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            DELETEActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addContainerGap()
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 452,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGroup(layout.createSequentialGroup()
                    .addGap(9, 9, 9)
```

```
                .addComponent(LOAD)
                .addGap(55, 55, 55)
                .addComponent(INSERT)
                .addGap(40, 40, 40)
                .addComponent(UPDATE)
                .addGap(35, 35, 35)
                .addComponent(DELETE)))
            .addContainerGap(114, Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addContainerGap()
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 364,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 31,
Short.MAX_VALUE)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(LOAD)
                .addComponent(INSERT)
                .addComponent(UPDATE)
                .addComponent(DELETE))
            .addGap(15, 15, 15))
    );

    pack();
}// </editor-fold>

private void INSERTActionPerformed(java.awt.event.ActionEvent evt) {
     new FormInput().setVisible(true);
```

```
}

private void UPDATEActionPerformed(java.awt.event.ActionEvent evt) {
   new FormUpdate().setVisible(true);
}

private void DELETEActionPerformed(java.awt.event.ActionEvent evt) {
   int selectedRow = jTable1.getSelectedRow();

if (selectedRow == -1) {
   JOptionPane.showMessageDialog(this, "Pilih dulu data yang ingin dihapus.");
   return;
}

int confirm = JOptionPane.showConfirmDialog(this, "Yakin ingin menghapus data ini?",
"Konfirmasi Hapus", JOptionPane.YES_NO_OPTION);

if (confirm == JOptionPane.YES_OPTION) {
   try {
     int id = Integer.parseInt(jTable1.getValueAt(selectedRow, 0).toString()); // Ambil ID dari
kolom pertama (index 0)
      Connection conn = DatabaseConnection.getConnection();
      String sql = "DELETE FROM product WHERE kode = ?";
      PreparedStatement stmt = conn.prepareStatement(sql);
      stmt.setInt(1, id);
      stmt.executeUpdate();

      // Hapus dari JTable juga
       DefaultTableModel model = (DefaultTableModel) jTable1.getModel();
      model.removeRow(selectedRow);
```

```
        JOptionPane.showMessageDialog(this, "Data berhasil dihapus!");
    } catch (SQLException e) {
        JOptionPane.showMessageDialog(this, "Gagal hapus data: " + e.getMessage());
    }
}
}

private void LOADActionPerformed(java.awt.event.ActionEvent evt) {



try (Connection conn = DatabaseConnection.DatabaseConnection(); Statement stmt =
conn.createStatement(); ResultSet rs = stmt.executeQuery("SELECT * FROM products")) {
        DefaultTableModel model = (DefaultTableModel) jTable1.getModel();
         model.setRowCount(0);
        while (rs.next()) {
            Vector<Object> row = new Vector<>();
            row.add(rs.getInt("kode"));
            row.add(rs.getString("nama"));
            row.add(rs.getInt("harga"));
            row.add(rs.getInt("stock"));
            model.addRow(row);
        }

    } catch (SQLException ex) {
        JOptionPane.showMessageDialog(this, "Error saat memuat data: " + ex.getMessage(),
"Database Error", JOptionPane.ERROR_MESSAGE);
        ex.printStackTrace();
    }
}
```

```
/**
 * @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) ">
   /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
   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(Kasir2.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
   } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Kasir2.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
   } catch (IllegalAccessException ex) {
```

```
java.util.logging.Logger.getLogger(Kasir2.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
   } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Kasir2.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 Kasir2().setVisible(true);
      }
   });
}

// Variables declaration - do not modify
private javax.swing.JButton DELETE;
private javax.swing.JButton INSERT;
private javax.swing.JButton LOAD;
private javax.swing.JButton UPDATE;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JTable jTable1;
// End of variables declaration

}
```

ANALISA:

Kode di kelas Kasir2 merupakan antarmuka pengguna berbasis Swing untuk mengelola data produk dari database, dengan empat tombol utama: LOAD untuk mengambil dan menampilkan seluruh baris tabel "products" ke dalam JTable, INSERT dan UPDATE yang memunculkan form terpisah untuk menambah atau memodifikasi data, serta DELETE yang menghapus baris terpilih baik dari database (melalui JDBC dan PreparedStatement) maupun dari tampilan tabel secara real time. Setiap tombol dihubungkan dengan ActionListener yang mengeksekusi kueri SQL (SELECT, INSERT, UPDATE, DELETE) melalui koneksi yang diperoleh dari kelas DatabaseConnection, lalu memperbarui model DefaultTableModel untuk menjaga konsistensi data di GUI.

B.FORM UPDATE

```
/*
• Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
• Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this template
/ package UTS; import java.sql.Connection; import java.sql.PreparedStatement; import java.sql.SQLException; import javax.swing.JOptionPane; /* *
• @author ASUS
*/ public class FormUpdate extends javax.swing.JFrame {
/**
 * Creates new form FormUpdate
 */
public FormUpdate() {
   initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
```

```
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    TfKodeBaru = new javax.swing.JTextField();
    tfNama = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    tfHarga = new javax.swing.JTextField();
    jLabel4 = new javax.swing.JLabel();
    tfStock = new javax.swing.JTextField();
    jButton1 = new javax.swing.JButton();
    jButton2 = new javax.swing.JButton();
    jLabel5 = new javax.swing.JLabel();
    TfKodeLama = new javax.swing.JTextField();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel1.setText("Kode");

    jLabel2.setText("Nama");

    TfKodeBaru.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            TfKodeBaruActionPerformed(evt);
        }
```

```
});

jLabel3.setText("Harga");

jLabel4.setText("Stock");

jButton1.setText("Update");
jButton1.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      jButton1ActionPerformed(evt);
   }
});

jButton2.setText("Cancel");
jButton2.addActionListener(new java.awt.event.ActionListener() {
   public void actionPerformed(java.awt.event.ActionEvent evt) {
      jButton2ActionPerformed(evt);
   }
});

jLabel5.setText("Kode Lama");

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
   layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
   .addGroup(layout.createSequentialGroup()
      .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
         .addGroup(layout.createSequentialGroup()
```

```
                .addGap(260, 260, 260)
                .addComponent(jButton1)
                .addGap(35, 35, 35)
                .addComponent(jButton2))
            .addGroup(layout.createSequentialGroup()
                .addGap(17, 17, 17)
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel5)
                        .addGap(32, 32, 32)
                        .addComponent(TfKodeLama, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel1)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(TfKodeBaru, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(22, 22, 22)
                        .addComponent(jLabel2)
                        .addGap(18, 18, 18)
                        .addComponent(tfNama, javax.swing.GroupLayout.PREFERRED_SIZE, 107,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel3)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(tfHarga, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(30, 30, 30)
                        .addComponent(jLabel4)
```

```
                .addGap(18, 18, 18)
                .addComponent(tfStock, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)))))
        .addContainerGap(50, Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(16, 16, 16)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel5)
                .addComponent(TfKodeLama, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel1)
                .addComponent(jLabel2)
                .addComponent(TfKodeBaru, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(tfNama, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jLabel3)
                .addComponent(tfHarga, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jLabel4)
                .addComponent(tfStock, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 28,
Short.MAX_VALUE)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jButton1)
                .addComponent(jButton2))
```

```
            .addGap(24, 24, 24))
        );

        pack();
    }// </editor-fold>

    private void TfKodeBaruActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        this.dispose();
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
    int kodeBaru = Integer.parseInt(TfKodeBaru.getText());
    int kodeLama = Integer.parseInt(TfKodeLama.getText());
    String nama = tfNama.getText();
    int harga = Integer.parseInt(tfHarga.getText());
    int stok = Integer.parseInt(tfStock.getText());

    try { Connection conn = DatabaseConnection.getConnection(); // pastikan class koneksi sudah
    sesuai String sql = "UPDATE products SET kode = ?, nama = ?, harga = ?, stock = ? WHERE kode
    = ?"; PreparedStatement stmt = conn.prepareStatement(sql); stmt.setInt(1, kodeBaru);
    stmt.setString(2, nama); stmt.setInt(3, harga); stmt.setInt(4, stok); stmt.setInt(5, kodeLama);
    int rowsUpdated = stmt.executeUpdate();
    if (rowsUpdated > 0)
    {
        JOptionPane.showMessageDialog(this, "Data berhasil diupdate.");
        this.dispose();
```

```
} else {
   JOptionPane.showMessageDialog(this, "Data gagal diupdate. Kode lama tidak ditemukan.");
}

stmt.close();
conn.close();

} catch (NumberFormatException e) { JOptionPane.showMessageDialog(this, "Harga dan Stock harus berupa angka."); } catch (SQLException e) { JOptionPane.showMessageDialog(this, "Kesalahan database: " + e.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) ">
   /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
    * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
   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(FormUpdate.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(FormUpdate.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(FormUpdate.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(FormUpdate.class.getName()).log(java.util.logging.Level.SE
VERE, null, ex);
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new FormUpdate().setVisible(true);
        }
    });
}

// Variables declaration - do not modify
private javax.swing.JTextField TfKodeBaru;
private javax.swing.JTextField TfKodeLama;
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
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.JTextField tfHarga;

private javax.swing.JTextField tfNama;

private javax.swing.JTextField tfStock;

// End of variables declaration

}

ANALISA

Kelas FormUpdate merupakan antarmuka berbasis Swing yang menampilkan form untuk memperbarui data produk di tabel "products" melalui JDBC, menampilkan bidang input untuk kode lama, kode baru, nama, harga, dan stok, lalu memproses klik tombol Update dengan membaca dan memvalidasi input (mengonversi harga dan stok ke integer), membangun PreparedStatement untuk menjalankan perintah SQL

mengikat parameter yang sesuai, dan mengeksekusi executeUpdate() untuk mengubah data di database—jika pembaruan berhasil, form menutup sambil menampilkan dialog sukses, sedangkan jika gagal (kode lama tidak ditemukan) atau terjadi kesalahan (format angka atau SQL), dialog peringatan atau error akan muncul—tombol Cancel hanya menutup form tanpa aksi lebih lanjut, dan aplikasi memanfaatkan DatabaseConnection.getConnection() untuk memperoleh koneksi database serta Look and Feel "Nimbus" untuk tampilan

C.Form input

package UTS;

import UTS.DatabaseConnection; import java.sql.Connection; import java.sql.PreparedStatement; import java.sql.SQLException; import javax.swing.JOptionPane;

/*

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```
*/
/** *
•                       @author ASUS
*/ public class FormInput extends javax.swing.JFrame {
/**
 * Creates new form FormInput
 */
public FormInput() {
   initComponents();
}

/**
 * This method is called from within the constructor to initialize the form.
 * WARNING: Do NOT modify this code. The content of this method is always
 * regenerated by the Form Editor.
 */
@SuppressWarnings("unchecked")
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

   jPanel1 = new javax.swing.JPanel();
   jLabel1 = new javax.swing.JLabel();
   jLabel2 = new javax.swing.JLabel();
   jLabel3 = new javax.swing.JLabel();
   jLabel4 = new javax.swing.JLabel();
   txtKode = new javax.swing.JTextField();
   txtNama = new javax.swing.JTextField();
   txtHarga = new javax.swing.JTextField();
   txtStock = new javax.swing.JTextField();
```

```
jButton1 = new javax.swing.JButton();
jButton2 = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("kode");

jLabel2.setText("Nama");

jLabel3.setText("Harga");

jLabel4.setText("Stock");

txtKode.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        txtKodeActionPerformed(evt);
    }
});

txtNama.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        txtNamaActionPerformed(evt);
    }
});

jButton1.setText("Tambah");
jButton1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        jButton1ActionPerformed(evt);
```

```
        }
    });

    jButton2.setText("Cancel");
    jButton2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton2ActionPerformed(evt);
        }
    });

    javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
    jPanel1.setLayout(jPanel1Layout);
    jPanel1Layout.setHorizontalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(27, 27, 27)
            .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 40,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(txtKode, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(jLabel2)
            .addGap(5, 5, 5)
            .addComponent(txtNama, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jLabel3)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(txtHarga, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
            .addGap(11, 11, 11)
            .addComponent(jLabel4)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(txtStock, javax.swing.GroupLayout.PREFERRED_SIZE, 71,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(90, Short.MAX_VALUE))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addComponent(jButton1)
            .addGap(18, 18, 18)
            .addComponent(jButton2)
            .addGap(110, 110, 110))
    );
    jPanel1Layout.setVerticalGroup(
        jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(53, 53, 53)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
                .addComponent(jLabel1)
                .addComponent(jLabel2)
                .addComponent(jLabel3)
                .addComponent(jLabel4)
                .addComponent(txtKode, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(txtNama, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(txtHarga, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
            .addComponent(txtStock, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE
)
            .addComponent(jButton2)
            .addComponent(jButton1))
        .addContainerGap(16, Short.MAX_VALUE))
   );

   javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
   getContentPane().setLayout(layout);
   layout.setHorizontalGroup(
      layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
      .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
   );
   layout.setVerticalGroup(
      layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
      .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
   );

   pack();
}// </editor-fold>

private void txtKodeActionPerformed(java.awt.event.ActionEvent evt) {
   // TODO add your handling code here:
}
```

```
private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {


try (Connection conn = DatabaseConnection.DatabaseConnection()) { String sql = "INSERT
INTO products (kode, nama, harga, stock) VALUES (?, ?, ?, ?)"; try (PreparedStatement pstmt =
conn.prepareStatement(sql)) { int kode = Integer.parseInt(txtKode.getText()); String nama =
txtNama.getText(); int harga = Integer.parseInt(txtHarga.getText()); int stock =
Integer.parseInt(txtStock.getText());

         pstmt.setInt(1, kode);

          pstmt.setString(2, nama);

          pstmt.setInt(3, harga);

          pstmt.setInt(4, stock);


          int rowsAffected = pstmt.executeUpdate();

          if (rowsAffected > 0) {

             JOptionPane.showMessageDialog(this, "Data berhasil ditambahkan!", "Sukses",
JOptionPane.INFORMATION_MESSAGE);

            this.dispose();

          } else {

             JOptionPane.showMessageDialog(this, "Gagal menambahkan data.", "Error",
JOptionPane.ERROR_MESSAGE);

          }

       }

   } catch (SQLException | NumberFormatException ex) {

      JOptionPane.showMessageDialog(this, "Error: " + ex.getMessage(), "Input Error",
JOptionPane.ERROR_MESSAGE);

      ex.printStackTrace();

   }


}


private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {

  this.dispose();
```

```
}

private void txtNamaActionPerformed(java.awt.event.ActionEvent evt) {
   // TODO add your handling code here:
}

/**
 * @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) ">
   /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
   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(FormInput.class.getName()).log(java.util.logging.Level.SEV
ERE, null, ex);
   } catch (InstantiationException ex) {
```

```
java.util.logging.Logger.getLogger(FormInput.class.getName()).log(java.util.logging.Level.SEV
ERE, null, ex);
   } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(FormInput.class.getName()).log(java.util.logging.Level.SEV
ERE, null, ex);
   } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(FormInput.class.getName()).log(java.util.logging.Level.SEV
ERE, null, ex);
   }
   //</editor-fold>

   /* Create and display the form */
   java.awt.EventQueue.invokeLater(new Runnable() {
      public void run() {
         new FormInput().setVisible(true);
      }
   });
}

// Variables declaration - do not modify
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JPanel jPanel1;
private javax.swing.JTextField txtHarga;
```

private javax.swing.JTextField txtKode;

private javax.swing.JTextField txtNama;

private javax.swing.JTextField txtStock;

// End of variables declaration

}

ANALISA

Kelas FormInput adalah antarmuka berbasis Swing yang menampilkan bidang teks untuk memasukkan kode, nama, harga, dan stock produk serta dua tombol: Tambah dan Cancel. Saat tombol Tambah diklik, method jButton1ActionPerformed membaca nilai dari txtKode, txtNama, txtHarga, dan txtStock (mengonversi yang diperlukan ke int), membuka koneksi database melalui DatabaseConnection.DatabaseConnection(), membangun PreparedStatement untuk perintah

mengikat parameter kode, nama, harga, dan stock, lalu mengeksekusi executeUpdate(); jika rowsAffected > 0, dialog sukses ditampilkan dan form ditutup, sedangkan jika gagal, dialog error muncul. Semua pengecualian SQLException dan NumberFormatException ditangani dengan JOptionPane untuk menampilkan pesan kesalahan, dan tombol Cancel hanya memanggil dispose() tanpa melakukan perubahan ke database. Form diatur menggunakan Look and Feel "Nimbus" dan dijalankan di Event Dispatch Thread melalui EventQueue.invokeLater()

D.Data base Connection

/*

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***/**

package UTS;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

```
public class DatabaseConnection {

    private static final String URL = "jdbc:mysql://localhost:3306/db_toko";
    private static final String USER = "root"; // Ganti dengan username MySQL Anda
    private static final String PASSWORD = ""; // Ganti dengan password MySQL Anda
    private static Connection connection = null;

    // Metode untuk mendapatkan koneksi
    public static Connection DatabaseConnection() throws SQLException {
        if (connection == null || connection.isClosed()) {
            try {
                // Load driver
                Class.forName("com.mysql.cj.jdbc.Driver");
                // Buat koneksi
                connection = DriverManager.getConnection(URL, USER, PASSWORD);
                System.out.println("Koneksi ke database berhasil!");
            } catch (ClassNotFoundException e) {
                System.err.println("JDBC Driver tidak ditemukan. Pastikan file JAR sudah
ditambahkan ke classpath.");
                e.printStackTrace();
            }
        }
        return connection;
    }

    // Metode untuk menutup koneksi
    public static void closeConnection() {
        if (connection != null) {
            try {
```

```
            connection.close();
            System.out.println("Koneksi database ditutup.");
        } catch (SQLException e) {
            e.printStackTrace();
        }
    }
  }

  static Connection getConnection() {
    try {
     Class.forName("com.mysql.cj.jdbc.Driver"); // Pastikan driver sudah ada
     return DriverManager.getConnection("jdbc:mysql://localhost:3306/db_toko",
"username", "password");
  } catch (Exception e) {
     e.printStackTrace();
     return null;
  }
  }

}
```

ANALISA

Kelas DatabaseConnection menyediakan dua cara mengelola koneksi ke MySQL: metode statis DatabaseConnection() yang memuat driver com.mysql.cj.jdbc.Driver, membuat koneksi tunggal (singleton) ke database db_toko, dan mencetak status berhasil atau error, serta metode closeConnection() untuk menutup koneksi dengan aman; ada juga getConnection() alternatif yang memuat driver dan mengembalikan koneksi baru menggunakan kredensial hard-coded. Sedangkan kelas Product mewarisi abstraksi produk dari AbstrackProduk—meneruskan kode, nama, harga, dan stok melalui konstruktor—dan mengimplementasikan simpanKeDatabase() dengan mengambil koneksi dari DatabaseConnection.getConnection()

E.Products

```
/*
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*/
package UTS;

import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.SQLException;

public class Product extends AbstrackProduk {

   public Product(int kode, String nama, int harga, int stok) {
      super(kode, nama, harga, stok);
   }

   @Override
   public void simpanKeDatabase() {
      try {
         Connection conn = DatabaseConnection.getConnection();
         PreparedStatement stmt = conn.prepareStatement(
            "INSERT INTO product (kode, nama, harga, stock) VALUES (?, ?, ?, ?)"
         );
         stmt.setInt(1, getKode());
         stmt.setString(2, getNama());
         stmt.setInt(3, getHarga());
         stmt.setInt(4, getStok());
         stmt.executeUpdate();
```

```
        System.out.println("Produk berhasil disimpan ke database.");
    } catch (SQLException e) {
        System.err.println("Gagal menyimpan produk: " + e.getMessage());
    }
  }

  Object gettock() {
    throw new UnsupportedOperationException("Not supported yet."); // Generated from
nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody
  }

  Object getStock() {
    throw new UnsupportedOperationException("Not supported yet."); // Generated from
nbfs://nbhost/SystemFileSystem/Templates/Classes/Code/GeneratedMethodBody
  }
}
```

ANALISA:

Kelas Product mewarisi AbstrackProduk dan menyediakan implementasi metode simpanKeDatabase() dengan cara mendapatkan koneksi via DatabaseConnection.getConnection(), membuat PreparedStatement untuk SQL