

CRUD GUI JAVA SQL & MYSQL

# STRUKTUR DATABASE SQL

Nama Database : biodataDB

Table: tbl\_bio

	Column Name	Data Type	Allow Nulls
8	id_biodata	int	
	nama_lengkap	varchar(50)	$\overline{\mathbf{v}}$
	jenis_kelamin	char(1)	$\overline{\checkmark}$
•	agama	varchar(20)	$\overline{\mathbf{v}}$
	hobi	varchar(50)	lacksquare
	email	varchar(50)	$\overline{\checkmark}$
	no_telp	varchar(15)	$\overline{\checkmark}$
	alamat	text	$\checkmark$
	created_date	datetime	$\checkmark$
	updated_date	datetime	$\overline{\mathbf{v}}$
	is_deleted	char(1)	

# STRUKTUR DATABASE MYSQL

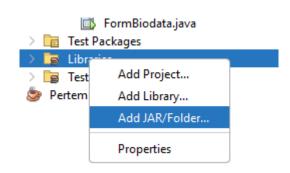
Nama Database : biodataDB

Table: tbl\_bio

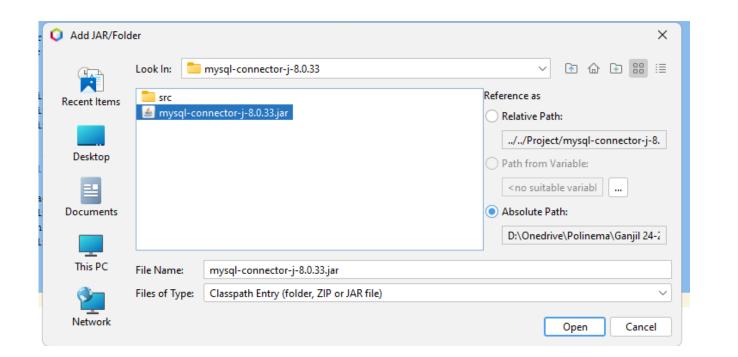
#	Nama	Jenis	Penyortiran	Atribut	Tak Ternilai	Bawaan	Komentar	Ekstra
1	id_biodata 🔑	int(10)			Tidak	Tidak ada		AUTO_INCREMENT
2	nama_lengkap	varchar(50)	utf8mb4_general_ci		Ya	NULL		
3	jenis_kelamin	char(1)	utf8mb4_general_ci		Ya	NULL		
4	agama	varchar(20)	utf8mb4_general_ci		Ya	NULL		
5	hobi	varchar(50)	utf8mb4_general_ci		Ya	NULL		
6	email	varchar(50)	utf8mb4_general_ci		Ya	NULL		
7	no_telp	varchar(15)	utf8mb4_general_ci		Ya	NULL		
8	alamat	text	utf8mb4_general_ci		Ya	NULL		
9	created_date	datetime			Ya	NULL		
10	updated_date	datetime			Ya	NULL		
11	is_deleted	char(1)	utf8mb4_general_ci		Tidak	1		
7 8 9	no_telp  alamat  created_date  updated_date	varchar(15) text datetime datetime	utf8mb4_general_ci utf8mb4_general_ci		Ya Ya Ya Ya	NULL NULL NULL		

### PENAMBAHAN JDK DI PROJECT

1. Klik kanan pada folder "Libraries", pilih add jar/folder



- 2. Kemudian pilih file .jar dari mysql atau sql server, klik open
  - Mysql: mysql-connector-j-8.0.33.jar
  - SQL: sqljdbc 12.8



## KONEKSI SQL "CLASSKONEKSI"

```
1 import java.sql.Connection;
 2 import java.sql.DriverManager;
 3 import java.sql.SQLException;
 5 public class ClassKoneksi {
       private static final String URL = "jdbc:sqlserver://localhost:1433;databaseName=cobaDB;encrypt=true;trustServerCertificate=true;";
       private static final String USERNAME = "sa";
       private static final String PASSWORD = "xxxxxxxxxx";
10
       public static Connection getConnection() {
           Connection conn = null;
11
12
           try {
13
               conn = DriverManager.getConnection(URL, USERNAME, PASSWORD);
               System.out.println("Koneksi ke database berhasil!");
14
           } catch (SQLException e) {
15
               System.out.println("Koneksi gagal: " + e.getMessage());
16
17
18
           return conn;
19
20 }
```

### KONEKSI MYSQL "CLASSKONEKSI"

```
1 import java.sql.Connection;
 2 import java.sql.DriverManager;
 3 import java.sql.SQLException;
 5 public class ClassKoneksi {
       private static final String URL = "jdbc:mysql://localhost:3306/biodatadb";
       private static final String USERNAME = "root";
       private static final String PASSWORD = "";
 8
10
       public static Connection getConnection() {
           Connection conn = null;
11
12
           try {
               conn = DriverManager.getConnection(URL, USERNAME, PASSWORD);
13
14
               System.out.println("Koneksi ke database berhasil!");
           } catch (SQLException e) {
15
               System.out.println("Koneksi gagal: " + e.getMessage());
16
17
18
           return conn;
19
20 }
```

### CLASS BIODATA - UNTUK MENYIMPAN VARIABLE FORM KE QUERY

```
. . .
 1 public class Biodata {
       private int id_biodata;
       private String nama_lengkap;
       private String jenis_kelamin;
       private String agama;
       private String hobi;
       private String email;
       private String no_telp;
       private String alamat;
       public void setId_biodata(int id_biodata) {
           this.id_biodata = id_biodata;
       public int getId_biodata() {
           return id_biodata;
       public String getNama_lengkap() {
           return nama_lengkap;
       public void setNama_lengkap(String nama_lengkap) {
           this.nama_lengkap = nama_lengkap;
       public String getJenis_kelamin() {
           return jenis_kelamin;
       public void setJenis_kelamin(String jenis_kelamin) {
           this.jenis_kelamin = jenis_kelamin;
       public String getAgama() {
           return agama;
       public void setAgama(String agama) {
           this.agama = agama;
```

```
public String getHobi() {
           return hobi;
       public void setHobi(String hobi) {
           this.hobi = hobi;
       public String getEmail() {
           return email:
       public void setEmail(String email) {
           this.email = email;
       public String getNo_telp() {
           return no telp;
       public void setNo_telp(String no_telp) {
           this.no_telp = no_telp;
       public String getAlamat() {
           return alamat;
       public void setAlamat(String alamat) {
           this.alamat = alamat;
74 }
```

### CLASS DATA ACCES OBJECT (DAO) — SQL (1)

```
1 public class BiodataDAO {
        private final Connection conn;
        private final String curr_time;
        public BiodataDAO() {
            conn = ClassKoneksi.getConnection();
            LocalDateTime currentDateTime = LocalDateTime.now(); // Mendapatkan waktu saat ini
            // Konversi LocalDateTime ke Timestamp
            Timestamp timestamp = Timestamp.valueOf(currentDateTime);
            this.curr_time = new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").format(timestamp);
        public String insert(Biodata bd) throws SQLException{
            try (conn) {
               String sql = "INSERT INTO [biodataDB].[dbo].[tbl_bio]\n" +
                                        ([nama_lengkap]\n" +
                                        ,[jenis_kelamin]\n" +
                                        ,[agama]\n" +
                                        .[hobil\n" +
                                        ,[no_telp]\n" +
                                        ,[created_date])\n" +
                                  VALUES\n" +
                                        ('"+bd.getNama_lengkap()+"'\n" +
                                         '"+bd.getJenis_kelamin()+"'\n" +
                                          '"+bd.getAgama()+"'\n" +
                                         '"+bd.getHobi()+"'\n" +
                                         '"+bd.getEmail()+"'\n" +
                                         '"+bd.getNo_telp()+"'\n" +
                                         '"+bd.getAlamat()+"'\n" +
                                        ,'"+this.curr_time+"')";
               PreparedStatement stmt = conn.prepareStatement(sql);
                System.out.println(sql);
                int rowsInserted = stmt.executeUpdate();
                if (rowsInserted > 0) {
                    return "Data "+bd.getNama_lengkap()+" berhasil ditambahkan!":
                }else{
                    return "Data "+bd.getNama_lengkap()+" gagal ditambahkan!";
```

#### Script Code : BiodataDAO.png

```
public List<ArrayList> readBiodata() throws SQLException {
           String sql = "SELECT * FROM [biodataDB].[dbo].[tbl_bio] WHERE tbl_bio.is_deleted = '1'";
           List<ArrayList> list = new ArrayList<>():
           try (Statement stmt = conn.createStatement();
                ResultSet rs = stmt.executeQuery(sql)) {
                while (rs.next()) {
                   ArrayList bio = new ArrayList();
60
                   bio.add(rs.getInt("id_biodata")); //0
                   bio.add(rs.getString("nama_lengkap")); //1
                   bio.add(rs.getString("jenis_kelamin"));//2
64
                   bio.add(rs.getString("agama"));//3
                   bio.add(rs.getString("hobi"));//4
                   bio.add(rs.getString("email"));//5
                   bio.add(rs.getString("no_telp")); //6
                   bio.add(rs.getString("alamat")); //7
                   bio.add(rs.getString("created_date"));//8
                   bio.add(rs.getString("updated_date")); //9
                   list.add( bio);
           return list;
       public String updateBiodata(Biodata bd) throws SQLException {
           try(conn){
               String sql = "UPDATE [biodataDB].[dbo].[tbl_bio]\n" +
                                   SET [nama_lengkap] = '"+bd.getNama_lengkap()+"'\n" +
                                       ,[jenis kelamin] = '"+bd.getJenis kelamin()+"'\n" +
                                       ,[agama] = '"+bd.getAgama()+"'\n" +
                                       ,[hobi] = '"+bd.getHobi()+"'\n" +
                                       ,[email] = '"+bd.getEmail()+"'\n" +
                                       ,[no_telp] = '"+bd.getNo_telp()+"'\n" +
                                       ,[alamat] = '"+bd.getAlamat()+"'\n" +
                                       ,[updated_date] = '"+this.curr_time+"'\n" +
                                " WHERE [id_biodata] = "+bd.getId_biodata();
               PreparedStatement stmt = conn.prepareStatement(sql);
                int rowsUpdated = stmt.executeUpdate();
                if (rowsUpdated > 0) {
                   return "Data "+bd.getNama_lengkap()+" berhasil diubah!";
100
                    return "Data "+bd.getNama_lengkap()+" gagal diubah!";
104
```

# CLASS DATA ACCES OBJECT (DAO) — SQL (2)

```
105
106
        public String deleteBiodata(int id) throws SQLException {
107
            try(conn){
                String sql = "UPDATE [biodataDB].[dbo].[tbl_bio]\n" +
108
109
                                    SET [is deleted] = '0'\n" +
                                " WHERE [id_biodata] = "+id;
110
111
112
113
                PreparedStatement stmt = conn.prepareStatement(sql);
114
115
                // Eksekusi query
                int rowsUpdated = stmt.executeUpdate();
116
117
                if (rowsUpdated > 0) {
                    return "Data berhasil dihapus!";
118
119
                }else{
                    return "Data gagal diubah!";
120
121
122
123
124
125 }
```

### CLASS DATA ACCES OBJECT (DAO) — MYSQL (1)

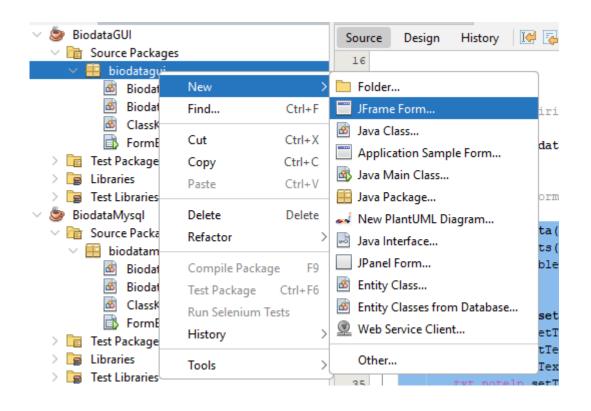
```
. .
  1 import java.sql.*;
  2 import java.util.ArrayList;
  3 import java.util.List;
  4 import java.sql.Timestamp:
  5 import java.text.SimpleDateFormat;
  6 import java.time.LocalDateTime;
  8 public class BiodataDAO {
        private final Connection conn;
       private final String curr_time;
        public BiodataDAO() {
            conn = ClassKoneksi.getConnection();
            LocalDateTime currentDateTime = LocalDateTime.now(); // Mendapatkan waktu saat ini
            Timestamp timestamp = Timestamp.valueOf(currentDateTime);
            this.curr_time = new SimpleDateFormat("yyyy-MM-dd hh:mm:ss").format(timestamp);
       public String insert(Biodata bd) throws SQLException{
            try (conn) {
                String sql = "INSERT INTO tbl_bio \n" +
                                       (`nama_lengkap`\n" +
                                        , jenis_kelamin \n" +
                                        , agama \n" +
                                        , hobi \n" +
                                        , no_telp \n" +
                                        , alamat \n" +
                                        , `created_date`)\n" +
                                        ('"+bd.getNama_lengkap()+"'\n" +
                                        ,'"+bd.getJenis kelamin()+"'\n" +
                                        ,'"+bd.getAgama()+"'\n" +
                                        ,'"+bd.getHobi()+"'\n" +
                                        ,'"+bd.getEmail()+"'\n" +
                                        ,'"+bd.getNo_telp()+"'\n" +
 40
                                        , "+bd.getAlamat()+"'\n" +
                                        ,'"+this.curr_time+"')";
               PreparedStatement stmt = conn.prepareStatement(sql);
                System.out.println(sql);
                int rowsInserted = stmt.executeUpdate();
                if (rowsInserted > 0) {
                    return "Data "+bd.getNama_lengkap()+" berhasil ditambahkan!";
                    return "Data "+bd.getNama_lengkap()+" gagal ditambahkan!";
```

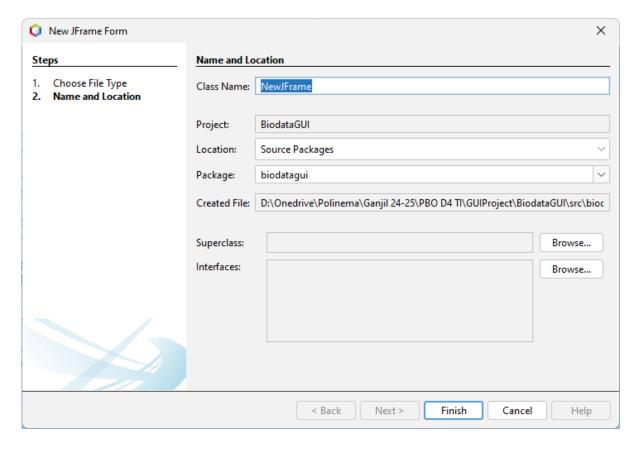
#### <u>BiodataDAOMySql.png - OneDrive</u>

```
public List<ArrayList> readBiodata() throws SQLException {
   String sql = "SELECT * FROM `tbl_bio` WHERE `is_deleted` = '1'";
   List<ArrayList> list = new ArrayList<>();
   try (Statement stmt = conn.createStatement();
        ResultSet rs = stmt.executeQuery(sql)) {
       while (rs.next()) {
           ArrayList bio = new ArrayList();
           bio.add(rs.getInt("id_biodata")); //0
           bio.add(rs.getString("nama_lengkap")); //1
           bio.add(rs.getString("jenis_kelamin"));//2
           bio.add(rs.getString("agama"));//3
           bio.add(rs.getString("hobi"));//4
           bio.add(rs.getString("email"));//5
           bio.add(rs.getString("no_telp")); //6
           bio.add(rs.getString("alamat")); //7
           bio.add(rs.getString("created_date"));//8
           bio.add(rs.getString("updated_date")); //9
           list.add( bio);
   return list;
public String updateBiodata(Biodata bd) throws SQLException {
   try(conn){
       String sql = "UPDATE tbl_bio \n" +
                           SET `nama_lengkap` = '"+bd.getNama_lengkap()+"'\n" +
                               ,`jenis_kelamin` = '"+bd.getJenis_kelamin()+"'\n" +
                              ,`agama` = '"+bd.getAgama()+"'\n" +
                              , hobi = '"+bd.getHobi()+"'\n" +
                              , `email` = '"+bd.getEmail()+"'\n" +
                              ,`no_telp` = '"+bd.getNo_telp()+"'\n" +
                              ,`alamat` = '"+bd.getAlamat()+"'\n" +
                               , updated_date = '"+this.curr_time+"'\n" +
                       " WHERE `id_biodata` = "+bd.getId_biodata();
       PreparedStatement stmt = conn.prepareStatement(sql);
       int rowsUpdated = stmt.executeUpdate();
       if (rowsUpdated > 0) {
            return "Data "+bd.getNama_lengkap()+" berhasil diubah!";
            return "Data "+bd.getNama_lengkap()+" gagal diubah!";
```

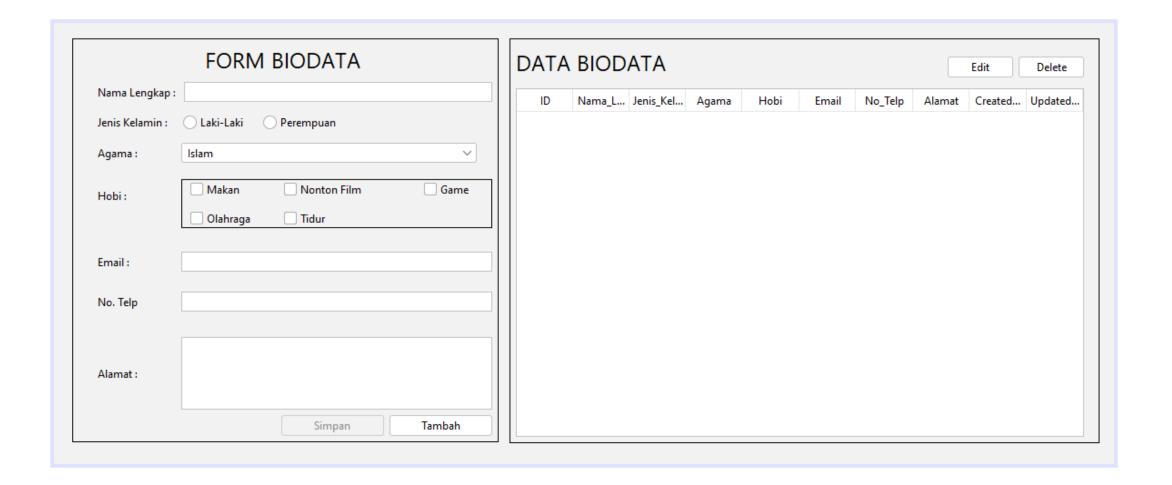
```
112
        public String deleteBiodata(int id) throws SQLException {
113
114
           try(conn){
115
               String sql = "UPDATE tbl_bio\n" +
116
                                   SET is_deleted = '0'\n" +
117
                                " WHERE id_biodata = "+id;
118
119
120
               PreparedStatement stmt = conn.prepareStatement(sql);
121
122
123
                int rowsUpdated = stmt.executeUpdate();
124
                if (rowsUpdated > 0) {
                   return "Data berhasil dihapus!";
125
126
               }else{
127
                    return "Data gagal diubah!";
128
129
130
131
132 }
                                                                                        carbon
```

### MEMBUAT FILE GUI JAVA





## **DESAIN GUI**



### MENAMBAHKAN FUNGSI RESET DAN READ DATA DI DATABASE

```
public FormBiodata() {
           initComponents();
           loadDataToTable();
        private void reset(){
           txt_alamat.setText("");
           txt_email.setText("");
           txt_nama.setText("");
           txt_notelp.setText("");
           cmb_agama.setSelectedIndex(0);
           rb_jk_laki.setSelected(false);
           rb_jk_perempuan.setSelected(false);
           btn_tambah.setEnabled(true);
           btn_simpan.setEnabled(false);
           jLabelForm.setText("FORM BIODATA");
           for (java.awt.Component comp : jPanelHobi.getComponents()) {
               if (comp instanceof JCheckBox checkbox) { // Cek apakah komponen adalah JCheckBox
                   if (checkbox.isSelected()) { // Cek apakah checkbox dipilih
                      checkbox.setSelected(false);
       private void loadDataToTable() {
           try {
              BiodataDAO dao = new BiodataDAO();
               // inisiasi variable untuk menampung data dari database
              List<ArrayList> biodataList = dao.readBiodata();
              DefaultTableModel model = (DefaultTableModel) jTableBio.getModel();
               model.setRowCount(0); // Hapus semua baris
               for (ArrayList biodata : biodataList) {
                   String jk = biodata.get(2).equals("P") ? "Perempuan" : "Laki-Laki";
                   Object[] row = {
                       biodata.get(0), biodata.get(1),jk,
                       biodata.get(3), biodata.get(4),
                      biodata.get(5), biodata.get(6),
                      biodata.get(7), biodata.get(8),
                      biodata.get(9)
                   model.addRow(row);
           } catch (SQLException e) {
               JOptionPane.showMessageDialog(this, "Gagal memuat data: " + e.getMessage());
```

### MENAMBAHKAN FUNGSI BUTTON TAMBAH

```
1 private void btn_tambahActionPerformed(java.awt.event.ActionEvent evt) {
           try {
               // ArrayList untuk menampung hobi yang dipilih
               ArrayList<String> hobiArr = new ArrayList<>();
               // Iterasi semua komponen di dalam panel
               for (java.awt.Component comp : jPanelHobi.getComponents()) {
                   if (comp instanceof JCheckBox checkbox) { // Cek apakah komponen adalah JCheckBox
                       if (checkbox.isSelected()) { // Cek apakah checkbox dipilih
                           hobiArr.add(checkbox.getText()); // Tambahkan teks checkbox ke array
10
11
12
13
               // join text delimiter ","
               String hobi = String.join(",", hobiArr);
14
15
               // set variable
17
               Biodata bd = new Biodata();
               bd.setNama_lengkap(txt_nama.getText());
               bd.setJenis_kelamin(rb_jk_laki.isSelected() ? "L" : "P");
19
20
               bd.setAgama(cmb_agama.getSelectedItem().toString());
21
               bd.setAlamat(txt_alamat.getText());
22
               bd.setEmail(txt_email.getText());
               bd.setHobi(hobi);
23
24
               bd.setNo_telp(txt_notelp.getText());
25
               BiodataDAO dao = new BiodataDAO();
27
               String ins = dao.insert(bd);
29
               JOptionPane.showMessageDialog(rootPane, ins, "Success", HEIGHT);
30
               loadDataToTable();
32
               reset();
33
           } catch (SQLException ex) {
              Logger.getLogger(FormBiodata.class.getName()).log(Level.SEVERE, null, ex);
```



## MENAMBAHKAN FUNGSI BUTTON EDIT

```
1 private void jButtonEditActionPerformed(java.awt.event.ActionEvent evt) {
           int i = jTableBio.getSelectedRow();
           TableModel mdl = jTableBio.getModel();
           jLabelForm.setText("Edit Data ID : "+mdl.getValueAt(i, 0).toString());
           txt_nama.setText(mdl.getValueAt(i, 1).toString());
10
           if(mdl.getValueAt(i, 2).toString().equals("Perempuan")){
11
               rb_jk_perempuan.setSelected(true);
12
           }else{
13
               rb_jk_laki.setSelected(true);
15
           cmb_agama.setSelectedItem(mdl.getValueAt(i, 3).toString());
17
           String[] hobi = mdl.getValueAt(i, 4).toString().split("\\,");
           for (String hobil : hobi) {
               for (java.awt.Component comp : jPanelHobi.getComponents()) {
21
                   if (comp instanceof JCheckBox checkbox) {
23
                       // Cek apakah komponen adalah JCheckBox
24
                       if (checkbox.getText().equals(hobi1)) {
                           checkbox.setSelected(true);
29
30
           txt_email.setText(mdl.getValueAt(i, 5).toString());
           txt_notelp.setText(mdl.getValueAt(i, 6).toString());
           txt_alamat.setText(mdl.getValueAt(i, 7).toString());
           btn_tambah.setEnabled(false);
           btn_simpan.setEnabled(true);
```



### MENAMBAHKAN FUNGSI BUTTON SIMPAN

```
1 private void btn_simpanActionPerformed(java.awt.event.ActionEvent evt) {
           try {
               int i = jTableBio.getSelectedRow();
               TableModel mdl = jTableBio.getModel();
               // ArrayList untuk menampung hobi yang dipilih
               ArrayList<String> hobiArr = new ArrayList<>();
               // Iterasi semua komponen di dalam panel
               for (java.awt.Component comp : jPanelHobi.getComponents()) {
                   if (comp instanceof JCheckBox checkbox) { // Cek apakah komponen adalah JCheckBox
12
                       if (checkbox.isSelected()) { // Cek apakah checkbox dipilih
13
                           hobiArr.add(checkbox.getText()); // Tambahkan teks checkbox ke array
               String hobi = String.join(",", hobiArr);
               // set variable
               Biodata bd = new Biodata();
               bd.setId_biodata((int) (mdl.getValueAt(i, 0)));
               bd.setNama_lengkap(txt_nama.getText());
               bd.setJenis_kelamin(rb_jk_laki.isSelected() ? "L" : "P");
               bd.setAgama(cmb_agama.getSelectedItem().toString());
               bd.setAlamat(txt_alamat.getText());
               bd.setEmail(txt_email.getText());
               bd.setHobi(hobi);
               bd.setNo_telp(txt_notelp.getText());
               BiodataDAO dao = new BiodataDAO();
               String upd =dao.updateBiodata(bd);
               JOptionPane.showMessageDialog(rootPane, upd, "Success", HEIGHT);
               reset();
               loadDataToTable();
           } catch (SQLException ex) {
               Logger.getLogger(FormBiodata.class.getName()).log(Level.SEVERE, null, ex);
                                                                                                        carbon
```

### MENAMBAHKAN FUNGSI BUTTON DELETE

```
private void jButtonDeleteActionPerformed(java.awt.event.ActionEvent evt) {
           int response = JOptionPane.showConfirmDialog(null,
                    "Anda yakin menghapus data ini?",
                    "Konfirmasi Hapus Data",
                    JOptionPane.OK_CANCEL_OPTION);
  6
           int i = jTableBio.getSelectedRow();
           TableModel mdl = jTableBio.getModel();
 10
 11
           if (response == JOptionPane.OK_OPTION) {
 12
                try {
 13
                    BiodataDAO dao = new BiodataDAO();
14
                    String del = dao.deleteBiodata((int) mdl.getValueAt(i, 0));
15
16
                    JOptionPane.showMessageDialog(rootPane, del, "Success", HEIGHT);
17
                    loadDataToTable();
                } catch (SQLException ex) {
18
                    Logger.getLogger(FormBiodata.class.getName()).log(Level.SEVERE, null, ex);
19
20
21
22
```

# FULL CODE: LINK