Inheritance

Pemrograman berorientasi obyek yang memungkinkan untuk mendapatkan class baru dari class yang ada.

Contoh:

```
import javax.swing.*;
public class MyFrame extends JFrame(
    public MyFrame(){}
}
```

Encapsulation

Sebuah mekanisme untuk membatasi akses ke beberapa komponen obyek.

Contoh:

```
public class Circle3 {
  private double radius = 1;
  private static int numberOfObjects = 0;
...
}
```

Polymorphism

Kemampuan untuk menciptakan sebuah variabel, fungsi, atau sebuah object yang memiliki lebih dari satu bentuk.

Ada 2 tipe:

- Pure Polymorphism: Overriding
- Trivial Polymorphism: Overloading

```
1 public class PolymorphismDemo {
2   /** Main method */
3   public static void main(String[] args) {
4     // Display circle and rectangle properties
5     displayObject(new Circle4(1, "red", false));
6     displayObject(new Rectangle1(1, 1, "black", true));
7   }
8
9   /** Display geometric object properties */
10  public static void displayObject(GeometricObject1 object) {
11    System.out.println("Created on " + object.getDateCreated() +
12      ". Color is " + object.getColor());
13  }
14 }
```

Contoh Overriding dan Overloading:

```
public class Test {
  public static void main(String[] args) {
    A a = new A();
    a.p(10);
    a.p(10.0);
  }
}

class B {
  public void p(double i) {
    System.out.println(i * 2);
  }
}

class A extends B {
  // This method overrides the method in B
  public void p(double i) {
    System.out.println(i);
  }
}
```

```
public class Test {
  public static void main(String[] args) {
    A a = new A();
    a.p(10);
    a.p(10.0);
  }
}

class B {
  public void p(double i) {
    System.out.println(i * 2);
  }
}

class A extends B {
  // This method overloads the method in B
  public void p(int i) {
    System.out.println(i);
  }
}
```

Database Operation

insert into tableName values (value 1, value 2,...)

Update tableName set column1= newValue1, column2 =newNalue2 , ..., columnN = newValueN where [condition]

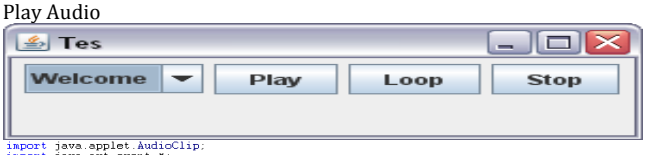
delete from tableName where [condition]

Interface AudioClip

Class metaObject = this.getClass();
URL url = metaObject.getResources("binus.au");
AudioClip audioClip = Applet.newAudioClip(url);

Multimedia

Play Audio




```
import java.applet.AudioClip;
import java.awt.event.*;
import java.awt.*;
import javax.swing.*;

public class LoadAudioAndPlay extends JApplet implements ActionListener
{
      private AudioClip sound1, sound2, currentSound;
      private JButton playJButton, loopJButton, stopJButton;
      private JComboBox soundJComboBox;


      public void init(){
         setLayout( new FlowLayout() );

         String choices[] = { "Welcome", "Hi" };
         soundJComboBox = new JComboBox( choices );

         soundJComboBox.addItemListener(new ItemListener() {
               public void itemStateChanged( ItemEvent e ) {
                  currentSound.stop();
                  currentSound = soundJComboBox.getSelectedIndex() == 0 ? sound1 : sound2;
                  }
               }
         );

         add( soundJComboBox ); // add JComboBox to applet

         // create Play JButton
         playJButton = new JButton( "Play" );
         playJButton.addActionListener( this );
         add( playJButton );

         // create Loop JButton
         loopJButton = new JButton( "Loop" );
         loopJButton.addActionListener( this );
         add( loopJButton );

         // create Stop JButton
         stopJButton = new JButton( "Stop" );
         stopJButton.addActionListener( this );
         add( stopJButton );

          // load sounds and set currentSound
         sound1 = getAudioClip( getDocumentBase(), "welcome.wav" );
         sound2 = getAudioClip( getDocumentBase(), "hi.au" );
         currentSound = sound1;
      }

      public void stop(){
          currentSound.stop();
       }

      public void actionPerformed( ActionEvent actionEvent ){
          if ( actionEvent.getSource() == playJButton )
            currentSound.play();
          else if ( actionEvent.getSource() == loopJButton )
            currentSound.loop();
          else if ( actionEvent.getSource() == stopJButton )
            currentSound.stop();
      }

      public static void main(String [] args){
          JFrame frm = new JFrame("Tes");

          LoadAudioAndPlay lap = new LoadAudioAndPlay();
          frm.add(lap, BorderLayout.CENTER);

          lap.init();

          frm.setSize(300,100);
          frm.setLocationRelativeTo(null);
          frm.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
          frm.setVisible(true);
      }
  }
```