

```
public class Calculator
{
    private double currentValue = 0;

    public Calculator(double value)
    {
        currentValue = value;
    }

    public void setCurrentValue(double currentValue)
    {
        this.currentValue = currentValue;
    }

    public double getCurrentValue()
    {
        return currentValue;
    }

    public void clear()
    {
        currentValue = 0;
    }

    public void add(double pNumber)
    {
        currentValue = currentValue + pNumber;
    }

    public void subtract(double pNumber)
    {
        currentValue = currentValue - pNumber;
    }

    public void multiplyBy(double pNumber)
    {
        currentValue = currentValue * pNumber;
    }

    public void divideBy(double pNumber)
    {
        currentValue = currentValue / pNumber;
    }

    public void sqr()
    {
        currentValue = Math.pow(currentValue, 2);
    }

    public void sqrt()
    {
        currentValue = Math.sqrt(currentValue);
    }

    public void round()
    {
        currentValue = Math.round(currentValue);
    }

    public void sin()
    {
        currentValue = Math.sin(currentValue);
    }

    public void cos()
    {
        currentValue = Math.cos(currentValue);
    }

    public void tan()
    {
        currentValue = Math.tan(currentValue);
    }

    public void factorial()
    {
        int n = (int) Math.abs(currentValue);
        currentValue = 1;
        for (int i = 1; i <= n; i++)
            currentValue = currentValue * i;
    }
}
```

```

public class MainFrame extends javax.swing.JFrame
{
    /*
     * Version 1: le calcul des fonctions sin, cos, ...
     * utilise la valeur actuelle
     * pour une autre valeur, il faut d'abord cliquer
     * sur ENTER pour devenir la valeur actuelle
     */

    private Calculator calculator = new Calculator(0);

    public MainFrame()
    {
        initComponents();
    }

    public void updateView()
    {
        currentValueTextField.setText(String.valueOf(calculator.getCurrentValue()));
    }
// Skipped: ... initComponents { ... }
    private void addButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_addButtonActionPerformed
        calculator.add(Double.valueOf(currentValueTextField.getText()));
        updateView();
    } //GEN-LAST:event_addButtonActionPerformed

    private void subtractButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_subtractButtonActionPerformed
        calculator.subtract(Double.valueOf(currentValueTextField.getText()));
        updateView();
    } //GEN-LAST:event_subtractButtonActionPerformed

    private void multiplyButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_multiplyButtonActionPerformed
        calculator.multiply(Double.valueOf(currentValueTextField.getText()));
        updateView();
    } //GEN-LAST:event_multiplyButtonActionPerformed

    private void divideButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_divideButtonActionPerformed
        calculator.divide(Double.valueOf(currentValueTextField.getText()));
        updateView();
    } //GEN-LAST:event_divideButtonActionPerformed

    private void cosButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_cosButtonActionPerformed
        calculator.cos();
        updateView();
    } //GEN-LAST:event_cosButtonActionPerformed

    private void sqrButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_sqrButtonActionPerformed
        calculator.sqr();
        updateView();
    } //GEN-LAST:event_sqrButtonActionPerformed

    private void roundButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_roundButtonActionPerformed
        calculator.round();
        updateView();
    } //GEN-LAST:event_roundButtonActionPerformed

    private void sinButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_sinButtonActionPerformed
        calculator.sin();
        updateView();
    } //GEN-LAST:event_sinButtonActionPerformed

    private void tanButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_tanButtonActionPerformed
        calculator.tan();
        updateView();
    } //GEN-LAST:event_tanButtonActionPerformed

    private void factorialButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_factorialButtonActionPerformed
        calculator.factorial();
        updateView();
    } //GEN-LAST:event_factorialButtonActionPerformed

    private void sqrtButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_sqrtButtonActionPerformed
        calculator.sqrt();
        updateView();
    } //GEN-LAST:event_sqrtButtonActionPerformed

    private void enterButtonActionPerformed(java.awt.event.ActionEvent evt) { //GEN-FIRST:event_enterButtonActionPerformed
        calculator.setCurrentValue(Double.valueOf(currentValueTextField.getText()));
    } //GEN-LAST:event_enterButtonActionPerformed

    private void currentValueTextFieldActionPerformed(java.awt.event.ActionEvent evt) //GEN-FIRST:event_currentValueTextFieldActionPerformed
    { //GEN-HEADEREND:event_currentValueTextFieldActionPerformed
        // identique au click sur "Enter"
        calculator.setCurrentValue(Double.valueOf(currentValueTextField.getText()));
    } //GEN-LAST:event_currentValueTextFieldActionPerformed

    /**
     * @param args the command line arguments
     */
    public static void main(String args[])
    {
        java.awt.EventQueue.invokeLater(new Runnable()
        {
            public void run()
            {
                new MainFrame().setVisible(true);
            }
        });
    }
}

```

```
}  
  
// Variables declaration - do not modify//GEN-BEGIN:variables  
private javax.swing.JButton addButton;  
private javax.swing.JButton cosButton;  
private javax.swing.JTextField currentValueTextField;  
private javax.swing.JButton divideButton;  
private javax.swing.JButton enterButton;  
private javax.swing.JButton factorialButton;  
private javax.swing.JButton multiplyButton;  
private javax.swing.JButton roundButton;  
private javax.swing.JButton sinButton;  
private javax.swing.JButton sqrButton;  
private javax.swing.JButton sqrtButton;  
private javax.swing.JButton subtractButton;  
private javax.swing.JButton tanButton;  
// End of variables declaration//GEN-END:variables  
}
```