

## Frame

Attributes:

JFrame frame;

Constructor

public Frame : new JFrame(Panel panel)  
*initialize all necessary JFrame method calls  
to construct a visible window on start-up  
from within the constructor.*  
*Must include frame.add(panel)*

Imports:

javax.swing.JFrame;

## Panel extends JPanel

Attributes:

JLabel clockFace;

TimeData timeData;

String timeText;

Font font = new Font() – *construct your  
chosen font for the clock face.*

Constructor

public Panel()

*initialize a new JLabel and a new TimeData  
object within the constructor.*

*You will need to add the clockFace object  
to the panel, and you will need to construct  
an action event inside the TimeData object.  
Then, call timeData.start()*

Imports:

javax.swing.JPanel;

javax.swing.JLabel;

java.awt.Color ;

java.awt.Font ;

java.awt.event.ActionEvent;

java.awt.event.ActionListener;

javax.swing.SwingConstants;

TimeData constructor details :

```
timeData = new TimeData(1000, new  
ActionListener() {  
    @Override  
    public void actionPerformed(ActionEvent e)  
    {clockFace.setText(timeData.startTime(timeText));  
    }  
});
```

## TimeData extends Timer

Constructor

public TimeData(int delay, ActionListener listener)

public String startTime(String timeStorage) : set  
the timeStorage parameter to a new  
Date().toString() method call, and then return  
timeStorage.

Imports:

javax.swing.Timer;

java.awt.event.ActionListener;

java.util.Date;