

# Internet Web pages, HTML and Java Swing

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# HTML

- Internet Web pages format
- Example: `html_sample_01.html`

```
<!DOCTYPE html>
```

```
<html>
```

← This is the HTML tag. Every HTML page has one

```
<body>
```

```
<h1>My First Heading</h1>
```

← This is a heading

```
<p>My first paragraph.</p>
```

← This is a paragraph

```
<span style="background-color:red; color:blue" >NOW?</span>
```

```
</body>
```

```
</html>
```



# HTML

- Example: html\_sample\_02.html

```
<!DOCTYPE html>
<html>
  <body>
    <h1 id="header_id_1">this is h1</h1>
    <h1 id="header_id_2">this is h2</h1>
  </body>
</html>
```

You can identify tags



# HTML

- HTML is a language for describing web pages.
- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- HTML is a **markup** language
- A markup language is a set of markup **tags**
- The tags **describe** document content
- HTML documents contain HTML **tags** and plain **text**
- HTML documents are also called **web pages**

# HTML

- HTML markup tags are usually called HTML tags
- HTML tags are keywords (tag names) surrounded by **angle brackets** like `<html>`
- HTML tags normally **come in pairs** like `<b>` and `</b>`
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The end tag is written like the start tag, with a **forward slash** before the tag name
- Start and end tags are also called **opening tags** and **closing tags**

`<tagname>content</tagname>`

`<p>This is a paragraph.</p>`

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# HTML by Examples

- [http://www.w3schools.com/html/html\\_examples.asp](http://www.w3schools.com/html/html_examples.asp)
- HTML links:
  - `<a href="http://www.w3schools.com">This is a link</a>`
  - It appears as: [This is a link](#)
- HTML images:
  - ``
  - It appears as:



# HTML Tables

```
<table border="1">  
  <tr>  
    <td>100</td>  
    <td>200</td>  
    <td>300</td>  
  </tr>  
  <tr>  
    <td>400</td>  
    <td>500</td>  
    <td>600</td>  
  </tr>  
</table>
```

100	200	300
400	500	600

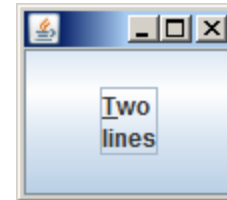


# Java Swing with HTML

- You can put HTML code in SWING components:

```
import javax.swing.*;  
import java.awt.*;
```

```
public class HTMLDemo extends JFrame{  
    public HTMLDemo(){  
        setSize(100,100);  
        JButton b1 =  
            new JButton("<html><b><u>T</u>wo</b><br>lines</html>");  
        setLayout(new BorderLayout());  
        add(b1);  
    }  
    public static void main(String[] srgs){  
        HTMLDemo h = new HTMLDemo();  
        h.setVisible(true);  
    }  
}
```



# Java Swing with HTML



...

```
b1 = new JButton("<html><center><b><u>D</u>isable</b><br>"  
                + "<font color=#ffffdd>middle button</font>",  
                leftButtonIcon);
```

```
Font font = b1.getFont().deriveFont(Font.PLAIN);  
b1.setFont(font);
```

```
b2 = new JButton("middle button", middleButtonIcon);  
b2.setFont(font);  
b2.setForeground(new Color(0xffffdd));
```

```
b3 = new JButton("<html><center><b><u>E</u>nable</b><br>"  
                + "<font color=#ffffdd>middle button</font>",  
                rightButtonIcon);
```

```
b3.setFont(font);
```

...

<http://docs.oracle.com/javase/tutorial/uiswing/components/html.html>

# HTML editing in Java

- **HTMLDocument** allows you to navigate and edit a HTML document.
- Load a file into a HTMLDocument object by:
  - parsing the file,
  - load the String into a editorPane,
  - then set the text of the pannel:

```
myEditorPane.setText(htmlText);
```

- get the HTMLDocument from the pannel:

```
doc = (HTMLDocument) test.myEditorPane.getDocument();
```

- get HTML elements:

```
headerElement = doc.getElement("header_id_1");
```

- set new HTML

```
htmlInnerString = "<span style= \"color:red\">this is h1</span>";
```

- set the new HTML code in SWING:

```
doc.setInnerHTML(headerElement, htmlInnerString);
```

# HTML editing in Java - Example

```
import java.awt.*;
import java.awt.event.*;
import java.io.*;
import java.util.logging.*;
import javax.swing.*;
import javax.swing.text.*;
import javax.swing.text.html.*;

public class HTMLtest extends JFrame {
    private HTMLDocument doc;
    private JPanel northPanel = new JPanel();
    private JEditorPane myEditorPane = new JEditorPane();
    private JScrollPane jsp = new JScrollPane(myEditorPane);
    private JPanel southPanel = new JPanel();
    private JButton red =
new JButton("<html><body><span style=\"background-color:red\">RED</span></body></html>");
    private JButton blue =
new JButton("<html><body><span style=\"background-color:blue\">BLUE</span></body></html>");
    private JButton headerButton1 = new JButton("Select Header 1");
    private JButton headerButton2 = new JButton("Select Header 2");
    // noChange = 0, red = 1, blue = 2
    private int color = 0;
    // HTML header tag 1 or 2
    private int header = 1;
```

```

public static void main(String[] args) {
    // create JFrame and buttons
    HTMLtest test = new HTMLtest();
    test.setVisible(true);
    // load HTML file
    String htmlText = "";
    try {
        FileReader fr = new FileReader("./example.html");
        BufferedReader reader = new BufferedReader(fr);
        String currentLine = reader.readLine();
        while (currentLine != null) {
            htmlText += currentLine + "\n";
            currentLine = reader.readLine();
        }
    } catch (IOException e) {
        e.printStackTrace();
    }
    // view HTML in the Swing UI
    test.myEditorPane.setText(htmlText);
    test.doc = (HTMLDocument) test.myEditorPane.getDocument();
}

```

```

public HTMLtest() {
    super("HTML test");
    myEditorPane.setEditable(false);
    myEditorPane.setContentType("text/html");
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    setSize(1024, 320);
    layoutGUI();
}

public void layoutGUI() {
    northPanel.add(red);
    northPanel.add(blue);

    southPanel.add(headerButton1);
    southPanel.add(headerButton2);

    this.add(northPanel, BorderLayout.NORTH);
    this.add(jsp, BorderLayout.CENTER);
    this.add(southPanel, BorderLayout.SOUTH);

    red.addActionListener(new ActionListener() {
        @Override
        public void actionPerformed(ActionEvent e) {
            color = 1;
            changeColor();
        }
    });
}

```

```
blue.addActionListener(new ActionListener() {
    @Override
    public void actionPerformed(ActionEvent e) {
        color = 2;
        changeColor();
    }
});
headerButton1.addActionListener(new ActionListener() {
    @Override
    public void actionPerformed(ActionEvent e) {
        header = 1;
    }
});
headerButton2.addActionListener(new ActionListener() {
    @Override
    public void actionPerformed(ActionEvent e) {
        header = 2;
    }
});
}
```

```

private void changeColor() {
    Element headerElement;
    // get HTML tags from HTML file
    if (header == 1)
        headerElement = doc.getElementById("header_id_1");
    else
        headerElement = doc.getElementById("header_id_2");
    String htmlInnerString = "";
    switch (color) {
    case 1: // red = 1
        htmlInnerString = "<span style= \"color:red\">this is h"+header+"</span>";
        break;
    case 2: // blue = 2
        htmlInnerString = "<span style= \"color:blue\">this is h"+header+"</span>";
        break;
    }
    // add span TAG to HTMLDocument object
    try {
        doc.setInnerHTML(headerElement, htmlInnerString);
    } catch (BadLocationException | IOException ex) {
        Logger.getLogger(HTMLtest.class.getName()).log(Level.SEVERE, null, ex);
    }
}
}
}

```



