Creating an interactive Rating component for Mobile Web Templates

This article explains how to create and use an interactive Rating component for Mobile Web Templates.

Introduction

Mobile Web Templates for High-End devices offer a range of **interactive and non-interactive components** that can be easily integrated in a mobile Web page or a Web Runtime widget. These components include a **static Rating, that enables the display of a 0- to 5-star rating**.

This article will show how to build a similar component, but with **fully interactive behavior**, so allowing users to freely express a rating, and **compatible with both touch-based and non-touch devices**.

Graceful degradation

In order to support also **browsers without JavaScript support**, a plain-HTML version of the component must be implemented. This guarantees that **the Rating component will work on all mobile browsers**, regardless of their scripting capabilities.

Designing the component

Let's start from the static Rating component offered by Mobile Web Templates.

The interactive component has to be **usable on both touch and non-touch devices**. This means that the touchable area must be **big enough to let the component be used with thumbs**, but must also **fit on displays of non-touch devices**, typically smaller than the one of touch ones.

Also, being the component interactive, it has to be able to **receive focus**. So, it is necessary to design **two states for the component**: with and without enabled focus.

These considerations done, a possible layout for the component is the following one:

The plain-HTML version

On browsers without JavaScript support, an alternative, plain-HTML version must be used. In this case, since the Rating component allows users to choose in a range of 6 values (from 0 to 5), the most intuitive HTML element to use is a **SELECT input field**. The following picture shows how the plain-HTML version of the component appears on a S60 3rd edition device:

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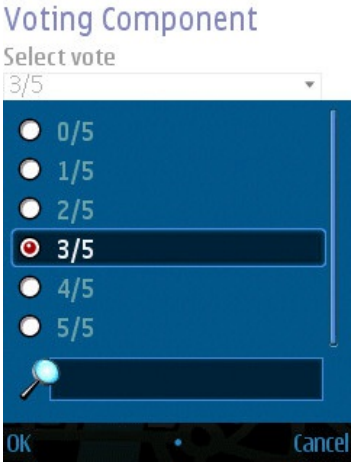

Coding the component

The following sections show the coding process of the interactive Rating element.

The plain-HTML version

Let's start from the **"scaled-down" version of the component**, that will be implemented with an HTML SELECT element. This means that, in the Web page HTML code, a code similar to the following one must be inserted:

```
<label for="vote">Select vote</label>
<select name="vote" id="vote">
 <option value="0">0/5</option>
 <option value="1">1/5</option>
 <option value="2">2/5</option>
 <option value="3">3/5</option>
 <option value="4">4/5</option>
 <option value="5">5/5</option>
</select>
```

Starting from this SELECT element, the fully interactive component will be built.

Rating constructor

The component's constructor needs **2 arguments** to properly initialize the Rating component:

- **the DOM element**, defined above, representing the plain-HTML version
- **a starting value** to initialize the component

So, it is possible to define the following constructor:

```
function Rating(_id, _defaultValue)
{
 this.id = _id;
 this.ratingInput = document.getElementById(_id);
 this.value = (_defaultValue ? _defaultValue : 0);

 (this.ratingInput) ? this.init() : false;
}
```

The DOM structure

The dynamic component will have **2 main elements**:

- **the stars image**, showing a graphic representation of the current vote
- **a text element**, showing the textual representation of the current vote.

So, it is possible to define the following DOM structure for the component:

```
<!-- the root element -->
<ul class="voting">

 <!-- the actual component element -->
 <li class="voting-item voting-stars-5">

  <!-- an A element to support focus on 3rd edition devices -->
  <a href="#">
   <span></span>
  </a>
 </li>

 <!-- element showing the current rating value -->
 <li class="voting-value">
  5/5
 </li>

</ul>
```


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CSS and images

The component is styled using the same approach used for the static Rating component. So, there will be **a single image used as background** of the rating element, that will be different for the focused and unfocused states:

UNFOCUSED BACKGROUND IMAGE

FOCUSED BACKGROUND IMAGE

and **separate CSS class for each different rating**, that will appropriately position the background image:

```
ul.voting li.voting-stars-0 {
 background-position: center 0px;
}
ul.voting li.voting-stars-1 {
 background-position: center -50px;
}
ul.voting li.voting-stars-2 {
 background-position: center -100px;
}
ul.voting li.voting-stars-3 {
 background-position: center -150px;
}
ul.voting li.voting-stars-4 {
 background-position: center -200px;
}
ul.voting li.voting-stars-5 {
 background-position: center -250px;
}
```

The following section shows how this DOM structure will be dynamically built by the Rating component.

Component initialization

The component initialization has to perform these steps:

- **build the component's DOM structure**
- add the appropriate **event handlers** to the DOM elements
- initialize the component with the **default value**
- **hide the plain-HTML version** of the component

The following function performs these initialization steps:

```
Rating.prototype.init = function()
{
 //hide the text input
 this.ratingInput.style.display = 'none';

 //create the root <ul> element
 var ul = document.createElement('ul');
 ul.setAttribute('class', 'voting');

 //create the rating <li> element
 this.rating = document.createElement('li');

 //create an inner A element
 var aElement = document.createElement('a');
 aElement.href = "#";

 //create a SPAN for the A element
 this.handle = document.createElement('span');

 //create the rating value element
 this.ratingValue = document.createElement('li');
 this.ratingValue.setAttribute('class', 'voting-value');

 //append elements
 aElement.appendChild(this.handle);
 this.rating.appendChild(aElement);
 ul.appendChild(this.rating);
 ul.appendChild(this.ratingValue);
 this.ratingInput.parentNode.insertBefore(ul, this.ratingInput);

 var self = this;

 // event for key-based navigation
 aElement.onkeydown = function(e)
 {
  self.handleKeyDown(e);
 }
```


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```
 // event for touch devices
 this.rating.onclick = function(e)
 {
  self.handleClicked(e);
 }

 // update the component with the initial value
 this.update();
}
```

Component behavior

It is now necessary to define a function that allows to **update the value of the Rating component**. This function will actually just update the "value" property of the component:

```
Rating.prototype.setValue = function(_value)
{
 this.value = _value;

 this.update();
}
```

Then, it is necessary to define the update() function, that will **perform the UI changes to the component, to reflect its updated value**:

```
Rating.prototype.update = function()
{
 this.ratingInput.value = this.value;

 this.rating.setAttribute('class', 'voting-item voting-stars-' + this.value);

 this.ratingValue.innerHTML = this.value + "/5";
}
```

Handling touch events

Touch-based devices will allow users to interact with the component with thumbs/stylus based interactions. Since precise interactions are not always possible on mobile devices, the touch events will be handled in a "simplified" manner: **each touch on the component increases the rating value by one**, restarting from zero when it reaches the highest value (5).

This behavior is implemented by the following function:

```
Rating.prototype.handleClicked = function(e)
{
 this.setValue((this.value + 1) % 6);
}
```

Handling key-based events

On **non-touch devices with tabbed navigation enabled**, the component has to intercept and respond to key events in the following manner:

- when the **left key** is pressed, the rating value is decreased by one
- when the **right key** is pressed, the rating value is increased by one

The following function implements this behavior:

```
Rating.prototype.handleKeyDown = function(e)
{
 var key = e.keyCode;

 var newValue = this.value;

 if(key == 37 && this.value > 0)
  newValue--;
 else if(key == 39 && this.value < 5)
  newValue++;

 if(newValue != this.value)
  this.setValue(newValue);
}
```

Using the component

The steps required to use the interactive Rating component are the following:

- **define the plain-HTML version** in the mobile Web page HTML code:

```
<select name="vote" id="vote">
 <option value="0">0/5</option>
 <option value="1">1/5</option>
 <option value="2">2/5</option>
 <option value="3">3/5</option>
 <option value="4">4/5</option>
 <option value="5">5/5</option>
</select>
```

- call the **component's constructor**:

```
var myRating = new Rating('vote', 2);
```


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- to **retrieve the component's value**, just access its "value" property, or the value of the HTML SELECT element:

```
// accessing the component's value property
var myValue = myRating.value;
// accessing the SELECT value
var myValue = document.getElementById('vote').value;
```

Screenshots

The following screenshots show the component in action on **S60 5th edition devices**:

and on **S60 3rd edition FP2 devices**:

Downloads

You can download the following resources related to this article:

- The **interactive Rating component source code** (JavaScript, CSS, images): http://www.jappit.com/uploads/wrt/MWTRatingComponent.zip
- A sample **Web Runtime widget** using the Rating component: http://www.jappit.com/uploads/wrt/MWTRating.wgz

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