

# Basics for creating a smartform

## HTML

HTML stands for **Hyper Text Markup Language** and is the standard markup language for creating websites. In combination with other languages like **Cascading Style Sheets (CSS)** and **JavaScript** HTML is the basis of web-development. Therefore HTML is used to determine the structure of websites. HTML is therefore not a programming but a markup language and is thus easy to learn. In the following some useful HTML elements for smartform building are presented. A detailed documentation as well as various tutorials can be found under [W3Schools](#).

## CSS

CSS or Cascading Style Sheets are used to affect the **design or presentation** of websites created with HTML. CSS is designed to separate structure and presentation of a website. Normally the styles are defined in separate .css files. The user experience besides the functionality heavily influenced by an appealing design. The visual editing with CSS is an important part of the smartform design. A detailed documentation as well as various tutorials can be found under [W3Schools](#).

## JavaScript

JavaScript is a client-side programming language, which is executed in the browser. While HTML and CSS represent the website's static content, **user interaction** can be reacted to with JavaScript. Furthermore functionalities like calculation or auto-completes can be implemented. A detailed documentation as well as various tutorials can be found under [W3Schools](#).

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## Planning

Before implementing a smartform, its structure, design and functionalities should be planned carefully. Smartforms provide a process with necessary information. A good starting point for planning is which information is needed at which point in the process sequence. These are functional requirements.

When the functional requirements are clear, they have to be implemented in a user-friendly design. It should be noted which users have to work with the smartform. An appealing user interface really makes working with the smartform easier. However, the functionalities should always come before the aesthetics.

When planning a smartform using a paper prototype or mockups can be useful. Drafts can be discussed with end users and can also be modified. For creating a mockup or a prototype there are many different helpful tools like [Balsamiq Mockup](#) or [Sketch](#).

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## Using Frameworks

To make web development more comfortable, various HTML, CSS and JavaScript frameworks have been developed. We regularly use [Bootstrap](#) when developing smartforms. **Bootstrap** offers predefined CSS classes, that enable the development of an appealing and responsive smartform design. How Bootstrap is integrated into the form is shown in our detailed [smartform-example](#). Besides **Bootstrap** libraries like [Polymer](#) gain in popularity.



Besides Bootstrap and Polymer the Javascript library [jQuery](#) is an important component of smartform development. The extensive API offers various functions, like to catch user input.

For very complex smartform with complicated calculations or requests the framework AngularJS, developed by Google, is very useful.

Of course it is possible to integrate own frameworks either via the HTML code of the smartform or via



the custom.js file (explained in the [smartform-example](#)).

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## An Appropriate Editor

A Smartform can be create in a simple text editor. However editors, that specify in programming, have a lot of advantages, like line indentation, code highlighting or autocompletes.

Popular editors are e.g. [Notepad++](#), [Brackets](#) and [Sublime Text](#).



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## Create a form

For creating a form an opening `<form>` and a closing `</form>` - tag are required. These two tags mark the beginning and the end of the document. The content to be displayed is located between these two tags.

```
<form>
</form>
```

## Class and name for the form

A form needs a class and a name. Those are defined within the opening `<form>` - tags.

```
<form class="classname" name="formname">
</form>
```

## Make form visible for all TIM users

With the attribute `security="all"` any TIM-User is authorized to view this form.

```
<form class="classname" name="formname" security="all">
</form>
```

## Integrate Javascript

The Javascript file corresponding to HTML is located in the JBoss in the register:

```
.....server\default\deploy\loom.ear\loom-portal.war\custom\
```

In the folder, which belongs to the required client, is a file with the name `custom.js`. This is a Javascript file, which is automatically integrated into the HTML form and thus is usable for the smartform. If functions are necessary for the form Javascript, those can be phrased in the file.

The attribute `initMethod=""` specifies which JavaScript function runs by loading the smartform.

```
<form class="classname" name="formname" security="all" initMethod="FUNCTION
WHICH RUNS BY LOADING THE SMARTFORM">
</form>
```

The attribute `validationMethod=""` specifies which JavaScript function runs before saving the smartform. A useful application would be for example a required field check.

```
<form class="classname" name="formname" security="all"
validationMethod="FUNCTION WHICH IS DONE BEFORE SAVING">
</form>
```

The `validationMethod` must reply either `"true"` or `"false"`. With `"true"` it is stored, with `"false"` it is not stored. Here is an illustrative example:

```
gadget.functions.initValidation=function(){
    if(INSERT CONDITION){
        // do something
        alert("data were stored!");
    }
    return true;
}
else{
    // do something
    alert("Storing not possible!");
    return false;
}
}
```

## Create table

Column 1	Column 2	Column 3
Column 1	Column 2	Column 3
Column 1	Column 2	Column 3

The opening **table** tag indicates the beginning of a table. Within the subsequent **colgroup** the width for each column is specified. In this case, a table with 3 columns, 100 pixel of width each, shall be created.

The **tr** tag is the starting point for a new row within a table, while the **td** tag begins a new column. Within the **td** tag it is exactly defined in which row and column you are and the desired content can be entered here.


```
<table>
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td>column1 row1</td>
    <td>column2 row1</td>
    <td>column3 row1</td>
  </tr>
  <tr>
    <td>column1 row2</td>
    <td>column2 row2</td>
    <td>column3 row2</td>
  </tr>
  <tr>
    <td>column1 row3</td>
```

```

    <td>column2 row3</td>
    <td>column3 row3</td>
  </tr>
</table>

```

## Integrate Image (Logo)

	Column 2	Column 3
Column 1	Column 2	Column 3
Column 1	Column 2	Column 3

To integrate an image the tag **img** is required. The attribute `src=".."` (the path to the desired image is given here) and the attribute `alt=".."` (this is displayed when the image can not be loaded) has to be given to this. In this example the image should be located in the first column. Because the image would be too big, it can be scaled down by the additional attribute **width**. This defines the width of the image in pixel.

```

<table>
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td></td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
</table>

```

## Selection box (Radiobuttons)

<input checked="" type="radio"/> Radiobuttonselection 1		Column3
<input type="radio"/> Radiobuttonselection 2		
<input type="radio"/> Radiobuttonselection 3		
Column1	Column2	Column3
Column1	Column2	Column3

Radiobuttons are selection boxes that are always grouped together. Only one choice can be made from this group. For this the type 'radio' is assigned to the "in-itself-closing" <input> - element. To consolidate multiple radiobuttons to one group, the same 'name'-attribute must be assigned to it. If a radiobutton is already checked when opening the smartform, the attribute 'checked="checked"' must be assigned to it. PLEASE NOTE! This attribute can only have one radiobutton for each radiobutton group. For all <input> - elements the [process variables](#) are set on 'id', only for radiobuttons the process variable is set on the 'name' attribute. The attribute colspan="2" connects a table cell with the following table cell (to the right).

If the selection of a radiobutton is also possible by clicking on the associated label, the label must be enclosed by an opening <label> - and a closing </label> - tag. This is addressed with the attribute 'for=""' via the 'id' of the respective <input>-elements. With a <br /> - element (break) a new line is generated.

```
<table>
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td colspan=2>
      <input type="radio" name="radiobuttongroup" value="1" id="radio_1"
checked="checked" /> <label for="radio_1">Radiobuttonselection
1</label><br/>
      <input type="radio" name="radiobuttongroup" value="2" id="radio_2"/>
<label for="radio_2">Radiobuttonselection 2</label><br/>
      <input type="radio" name="radiobuttongroup" value="3" id="radio_3"/>
<label for="radio_3">Radiobuttonselection 3</label>
    </td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
```

</table>

### Selection box (Checkboxes)

<input checked="" type="checkbox"/> Checkbox 1 <input type="checkbox"/> Checkbox 2 <input checked="" type="checkbox"/> Checkbox 3		Column3
Column1	Column2	Column3
Column1	Column2	Column3

Checkboxes are also selection boxes, but can be clicked individually and independently. Otherwise, the same rules apply as those for <radio> buttons.

```

<table>
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td colspan=2>
      <input type="checkbox" name="check1" id="check1" value="true" /> <label
for="check1">Checkbox 1</label><br/>
      <input type="checkbox" name="check2" id="check2" value="true" /> <label
for="check2">Checkbox 2</label><br/>
      <input type="checkbox" name="check3" id="check3" value="true" /> <label
for="check3">Checkbox 3</label>
    </td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
</table>

```

### Choice box (Selectbox)

One ▾		Column3
One	Column2	Column3
Two	Column2	Column3
Three	Column2	Column3

For creating a selectbox, an opening `<select>` and a closing `</select>` - tag are necessary. To add options for selection to this, any number of **options** can be added between the `<select>` - tags. Every option needs the attribute `'value=""`, whose content can be different to the text between the `<option>` - tags and is not displayed. With the `'value=""` - attribute process variables are set and queried in TIM.

```
<table>
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td colspan=2>
      <select id="Selection" name="Selection">
        <option value="1">One</option>
        <option value="2">Two</option>
        <option value="3">Three</option>
      </select>
    </td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
</table>
```

## Input field



Here is an input		1	Column3
Column1	Column2	Column3	
Longer texts may be entered here.		2	Column3

There are different types of input fields in which free text can be written. For a normal text array, the tag **input** is used in combination with the attribute **type="text"**. This forms a simple text field with one row. (see element 1)

For creating an input field (e.g. for description), an opening `<textarea>` - and a closing `</textarea>` - tag are necessary. This can be resized by the user and multiple rows can be written in. (see element 2)

```

<table id="information" class="anything" border="1">
  <colgroup>
    <col width="100px" />
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr>
    <td colspan=2>
      <input type="text" id="inputField" name="inputField"></input>
    </td>
    <td>column3</td>
  </tr>
  <tr>
    <td>column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
  <tr>
    <td colspan=2>
      <textarea id="textarea" name="textarea"></textarea>
    </td>
    <td>column3</td>
  </tr>
</table>

```

### Formatting in textareas

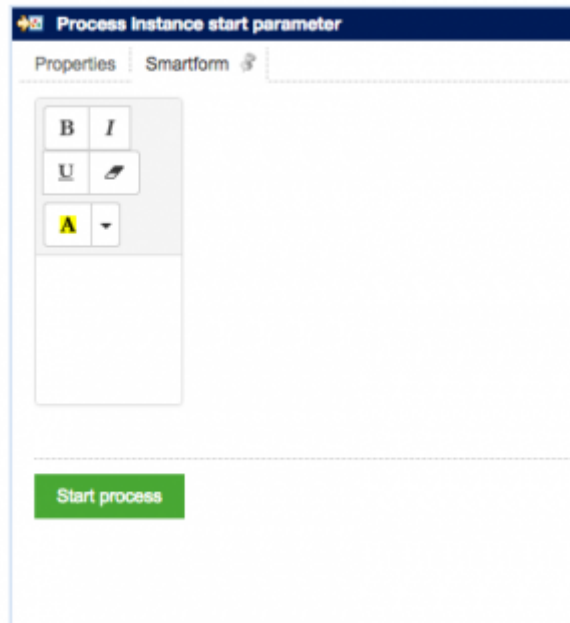
To offer the formatting elements cursive, bold, underlined, blue font and red font in a textarea, the class **richtext** has to be given.

Attention! The variable's name also has to contain richtext and bootstrap has to be loaded (data-bootstrap="true" in `<form>`).

```

<textarea class="richtext" id="richtext_variable_name"></textarea>

```



## Datepicker (Calender)

To create a so-called Datepicker to an input field, only the class **datepicker** must be given to it.

```
<input type="text" id="datepicker_field" name="datepicker_field" class="datepicker"></input>
```

The Javascript library **jQuery**, which is automatically integrated into every smartform, opens now by clicking a field a calender from which a date can be selected, which is then transferred in the input field.



## Add stylesheets (CSS)

		Column3
Column1	Column2	Column3
Column1	Column2	Column3

The stylesheets are defined between an opening `<style>` and a closing `</style>` - tag. The attribute `'type="text/css"'` must be assigned to the opening `<style>` - tag.

In order to address elements that have a class, the class name must be added with a point in front. Within the following braces it can be defined, how the element should be affected. The information about the style affects all elements that have a class with this name.

To address an element with a specific ID, the ID must be added with a hash mark (#) in front. All the elements that have this ID, now focus their style according to the following definition.

If all elements of a specific type should be addressed, only the tag of the element needs to be added. In this case **input**.

In the following example, the first column in the second row and the third column in the third row get the class **background**. The background of these two cells will be colored red as defined in the style area.

Subsequently all **input** elements are set to a width of 200 pixel.

All elements with the ID **firstRow** get a blue background.

Finally, now the frame of the table is set on a width of 0 pixel and disappears.

```
<style type="text/css">
  .background{
    background-color:#FE2E64;
  }
  input{
    width:200px;
  }
  #firstRow{
    background-color:#5882FA;
  }
  #table{
    border-size:0px;
  }
</style>
<table id="table">
  <colgroup>
    <col width="100px"/>
    <col width="100px" />
    <col width="100px" />
  </colgroup>
  <tr id="firstRow">
    <td colspan=2>
      <input type="text" id="inputField" name="inputField"></input>
    </td>
    <td>column3</td>
  </tr>
  <tr>
    <td class="background">column1</td>
    <td>column2</td>
    <td>column3</td>
  </tr>
</table>
```

```
</tr>
<tr>
  <td>column1</td>
  <td>column2</td>
  <td class="background">column3</td>
</tr>
</table>
```

---

## Mandatory field at instance start

If an input field has to be already defined as a mandatory field at the instance start, the attribute "required" with the value "true" is necessary.

```
<input type="text" id="mandatoryField" name="mandatoryField" required="true" />
```

If a Selectbox changes into a mandatory field and the basic option (eg, "Please select ...") should be defined as not a valid value, the attribute default="default" of this option must be included.

```
<select>
  <option default="default">Please select</option>
  <option>Value1</option>
  ...
</select>
```

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