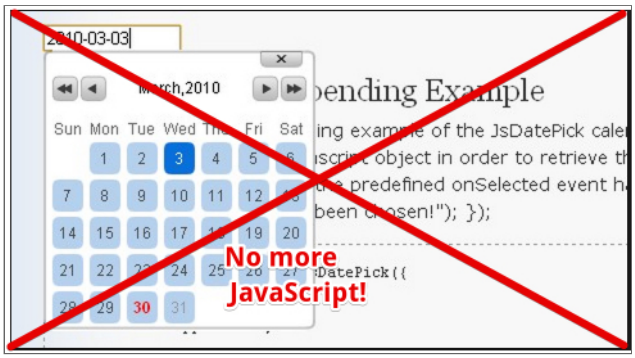
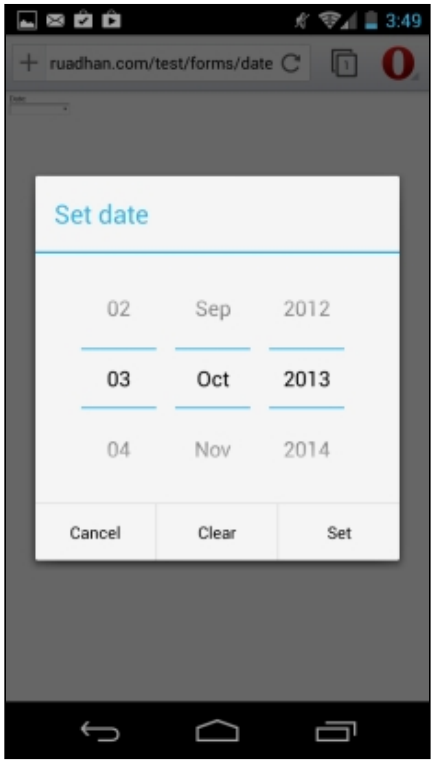
The `<input type="date">` and its variants (`datetime`, `datetime-local`, `time`, `month`, `week`)

INTRODUCTION

For years, date and time pickers in HTML forms made the Web developers heavily use JavaScript based widgets. HTML5 brings enhancements by providing a special control to handle this specific kind of data natively. **All mobile browsers support `<input type="time">` and `<input type="date">` today,** while support on desktop computers is not as good yet.



You will find below a few screenshots of the HTML5 date picker on several mobile devices. You will note that the native date pickers of the operating systems are used:

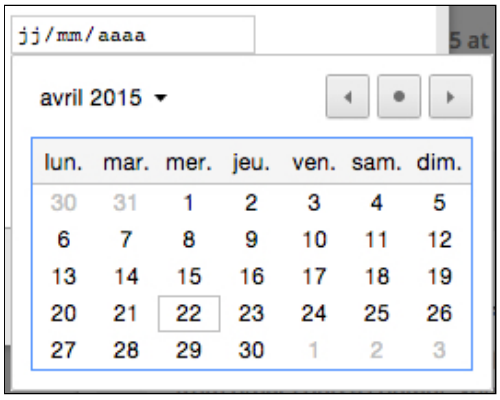


The problem is different on a desktop. While it's great to have native support for a date picker, Web developers sometimes would prefer a 100% control over the *look and feel* of the date picket widget. For this purpose, the solution is certainly with the new Web Components (a way to make custom reusable widgets in HTML/CSS/JS), that will be detailed in the HTML5 Part-2 course.

In this course, we will focus on native implementations. Desktop support is not 100% as of now (see the "current support" section below), so it's better to try with Opera or Chrome the following examples.

Why don't you try it yourself? Just click on this input field: mm/dd/yyyy

With Google Chrome desktop, it shows this date picker widget:



On non supported browsers, it defaults to an `<input type="text">` input field.

TYPICAL USE OF `<INPUT TYPE="DATE">`

Default use

The default usage is something like:

```
<label for="birthday">Choose birthday party date:</label>
<input type="date" id="birthday">
```

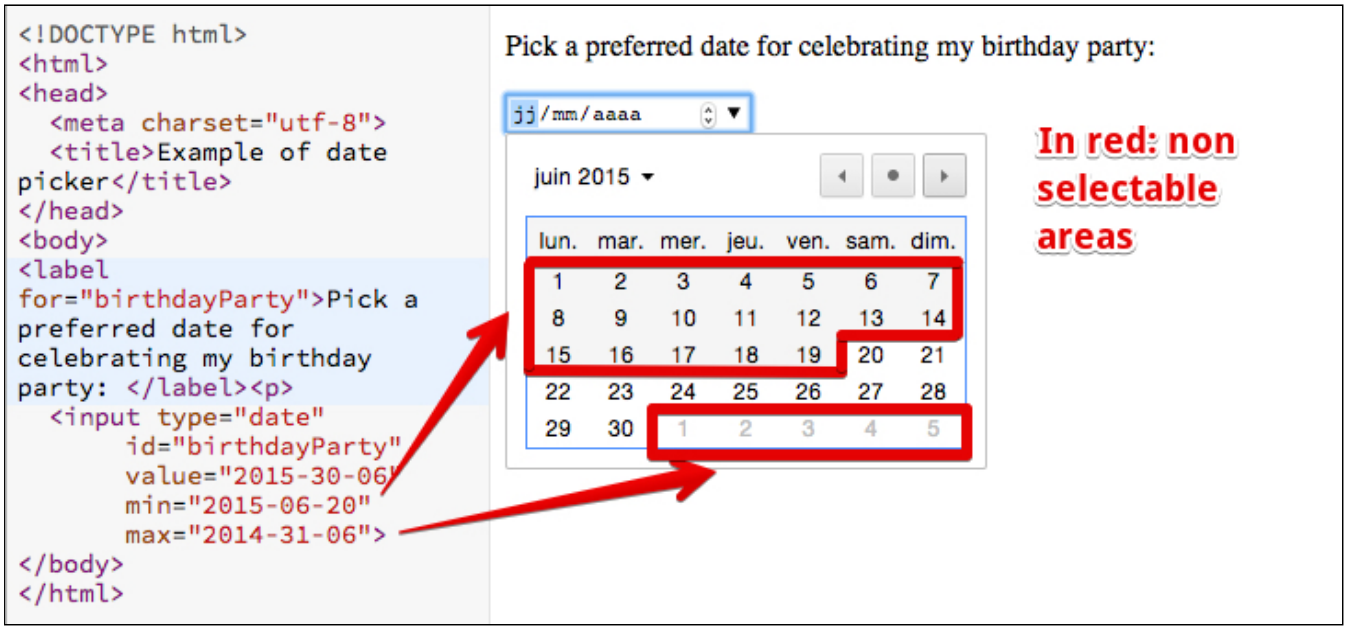
Result: Choose birthday party date: mm/dd/yyyy

Most of the time you will add other attributes to give some restrictions (choose a date in the past, in the future, only on a Saturday, etc.).

Restrict choice to an interval of dates: attributes `min`, `max` and `value`

The `<input type="date">` comes with several useful attributes. In particular the `value`, `min` and `max` ones are used to propose a default date, a min and a max date, or for defining an interval of acceptable values.

Try this example, just click the next input field: 06/30/2015, or try it online on JS Bin if you want to tweak the source code:



Errata: the online example is correct, but the above screenshot shows a year equal to "2014" for the `max` attribute, and that is incorrect.

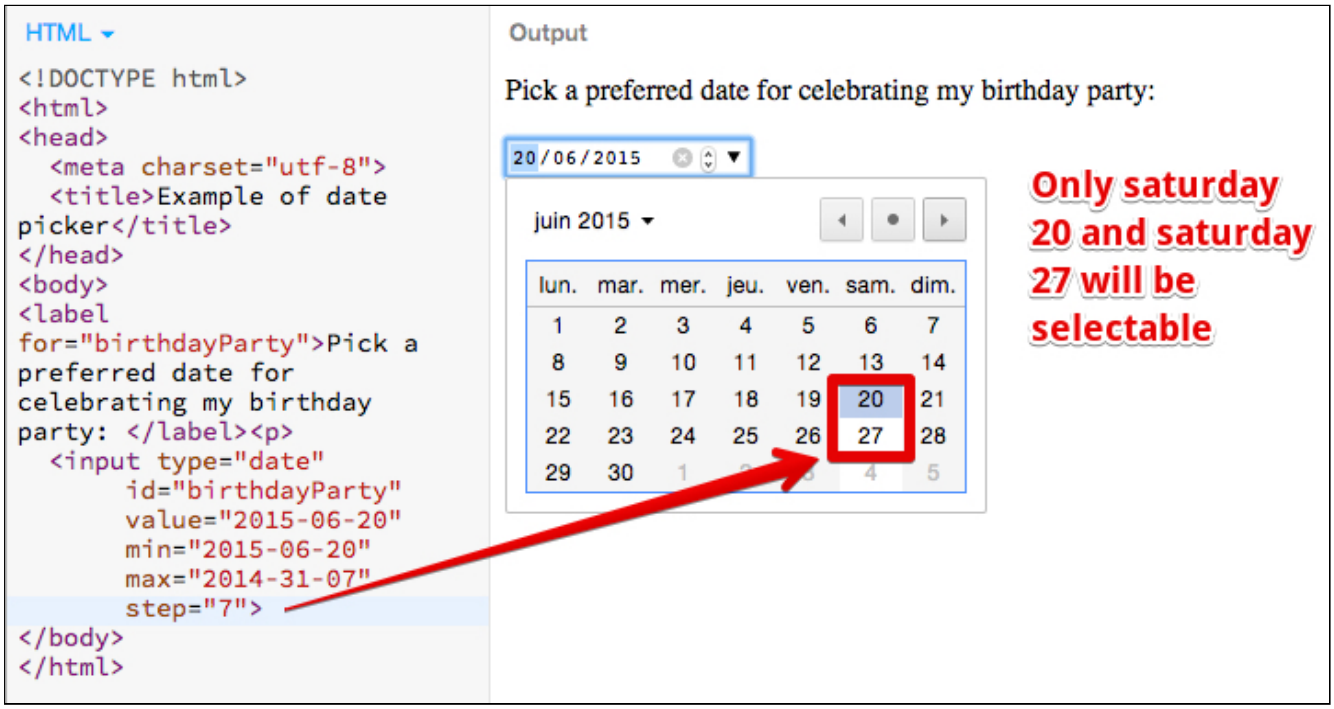
Source code:

```
...
<input type="date"
  id="birthdayParty"
  value="2015-06-20"
  min="2015-06-20"
  max="2015-31-07">
...
```

Choosing one day in a given week, etc. with the`step`: attribute

Using the `value` attribute for setting a date, and using `step=7`for example, will make acceptable only the day of the week that corresponds to the value's day (ex: only Mondays). Using`step=2` will make acceptable only every other day, etc.

Example: we want to celebrate birthday parties only on Saturdays, check this on JS Bin!



Errata: the online example is correct, but the above screenshot shows a year equal to "2014" for the `max` attribute, and that is incorrect.

Extract from source code:

```
<input type="date"
  id="birthdayParty"
  value="2015-06-20"
  min="2015-06-20"
```

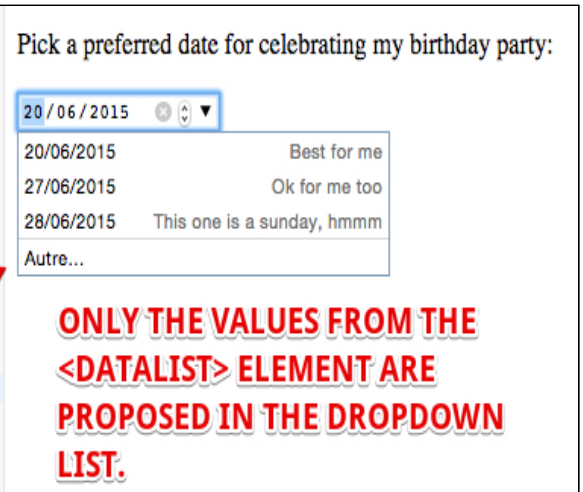
```
        max="2015-31-07"
        step="7">
```

Combining with the `<datalist>` element to restrict the choice of possible values

Online example at JS Bin

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Example of date picker</title>
</head>
<body>
<label for="birthdayParty">Pick a preferred date for celebrating
my birthday party: </label><p>
  <input type="date"
       id="birthdayParty"
       list="birthdayPartyPossibleDates"
         value="2015-06-20">

  <datalist id="birthdayPartyPossibleDates">
    <option label="Best for me">2015-06-20</option>
<option label="Ok for me too  ">2015-06-27</option>
<option label="This one is a sunday, hmmm">2015-06-28</option>
  </datalist>
</body>
</html>
```



Extract from source code:

```
    <input type="date"
      id="birthdayParty"
      list="birthdayPartyPossibleDates"
      value="2015-06-20">
    <datalist id="birthdayPartyPossibleDates">
       <option label="Best for me">2015-06-20</option>
       <option label="Ok for me too ">2015-06-27</option>
       <option label="This one is a sunday, hmmm">2015-06-28</option>
    </datalist>
```

The `list` attribute of the input element must match the `id`attribute if the datalist element. You cannot use the `min`, `max`, or `step` attributes with a `list` attribute.

RESPONDING TO DATE CHANGES, TRYING DATE/TIME AND OTHER

VARIANTS

Listening to the input event

Here is an interactive example at JS Bin where you can change the type of the date/time chooser. It also shows how to listen to the input event when a date/time is chosen.

Source code:

```
<!DOCTYPE html>
<html>
<body>
Test of the new date input field. So far, works only in Chrome and Opera browsers.
<p>
Choose a date/time : <input type="date" id="date"/><p>
<p>
You picked: <span id="pickedDate"></span>
 </p>
After you tried the first example, change the value of the "type" attribute to:
<ul>
<li>datetime</li>
<li>datetime-local</li>
<li>time</li>
<li>week</li>
<li>month</li>
</ul>
And see the result.
<script>
 var field = document.querySelector("#date");
 var result = document.querySelector("#pickedDate");
field.oninput = function(evt) {
  var date = this.value;
  pickedDate.innerHTML = "<b>"+date+"</b>";
}
 </script>
</body>
</html>
```

Lines 20-26 show how we can detect a date change using JavaScript.

Checking if the chosen date is in the past or in the future using the `valueAsDate` property

The object returned to the input event handler has a useful property named `valueAsDate`. This is a JavaScript date object that can be compared to other JavaScript date objects, in particular to the date of the day we can get with `var date = new Date();`

The following example at JS Bin shows how to detect if a date is in the past or in the future:

```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title>Example of date picker</title>
</head>
<body>
<label for="birthDate">Enter your birth date: </label><p>
  <input type="date" id="birthDate" >
  <p>
  You picked: <span id="pickedDate"></span><p>
  <span id="pastFuture"></span>
  </p>
 <script>
  var field = document.querySelector("#birthDate");
  var result = document.querySelector("#pickedDate");
   var pastFuture = document.querySelector("#pastFuture");

  field.oninput = function(evt) {
    var date = this.value;
    pickedDate.innerHTML = "<b>"+date+"</b>";

    if(this.valueAsDate <= new Date()) {
      pastFuture.style.color = 'green';
      pastFuture.innerHTML = "<b>Date in the past, ok!</b>"
    } else {
      pastFuture.style.color = 'red';
      pastFuture.innerHTML = "<b>Date in the future, you're not even born!
</b>"
    }
  }
  </script>
</body>
</html>
```

Enter your birth date:

17/04/2015

You picked: **2015-04-17**

Date in the past, ok!

While if we enter a date in the future:

Enter your birth date:

24/04/2015

You picked: **2015-04-24**

Date in the future, you're not even born!

Extract from source code:

```
<body>
<label for="birthDate">Enter your birth date: </label><p>
 <input type="date" id="birthDate" >
 <p>
You picked: <span id="pickedDate"></span><p>
 <span id="pastFuture"></span>
 </p>
 <script>
 var field = document.querySelector("#birthDate");
 var result = document.querySelector("#pickedDate");
 var pastFuture =document.querySelector("#pastFuture");
field.oninput = function(evt) {
  var date = this.value;
  pickedDate.innerHTML = "<b>"+date+"</b>";
  if(date.valueAsDate <= new Date()) {
      pastFuture.style.color = 'green';
      pastFuture.innerHTML = "<b>Date in the past, ok!</b>"
  } else {
      pastFuture.style.color = 'red';
       pastFuture.innerHTML = "<b>Date in the future, you're not even born!</b>"
  }
 }
 </script>
</body>
```

Lines 17-23 show how we can compare the date picked in the calendar widget with the date of the day. Note that we can compare to any date using JavaScript. Checking that the chosen date is before 2000 would be like that:

```
if(this.valueAsDate <= new Date(2000,1,1)) {
...
}
```

HTML 5.1: `<INPUT TYPE="DATETIME">`, "WEEK", "MONTH", "DATETIME-LOCAL", ETC.

The HTML5 specification indicates that we can use `<input type="date">` and `<input type="time">` while for some years (before the specification became a frozen standard in October 2014), other variants were also present, such as`type=datetime`, `datetime-`

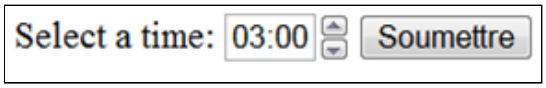
`local`, `month` and `week`.

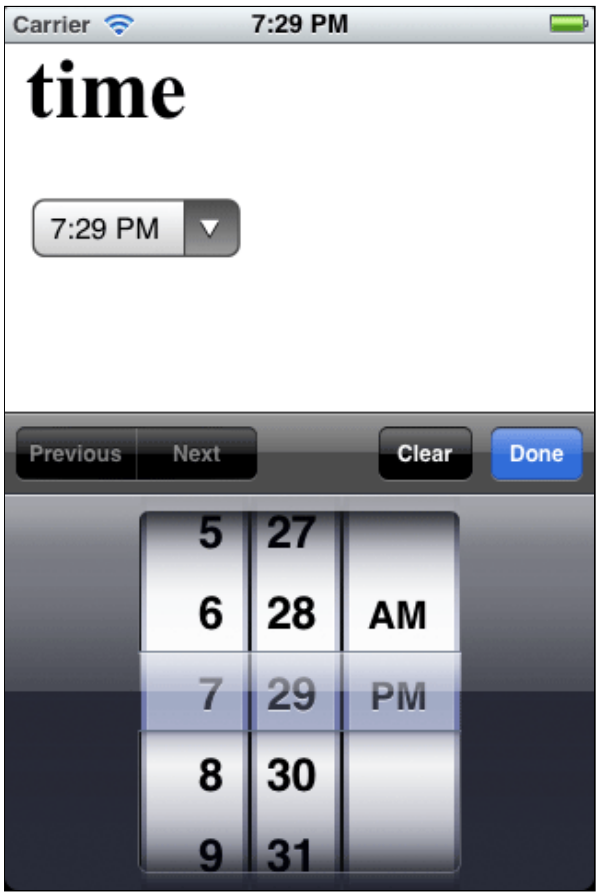
The reason why these variants have been moved to the HTML 5.1 specification (still work in progress) is that only Chrome and Opera implemented them so far.

Here is an interactive example at JS Bin where you can change the type of the date chooser and try all the different possible values for the type attribute of date pickers.

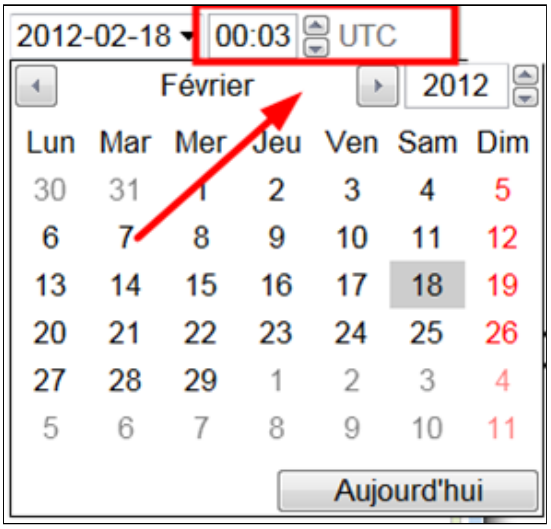
Some screenshots from Opera desktops and Safari IOS:

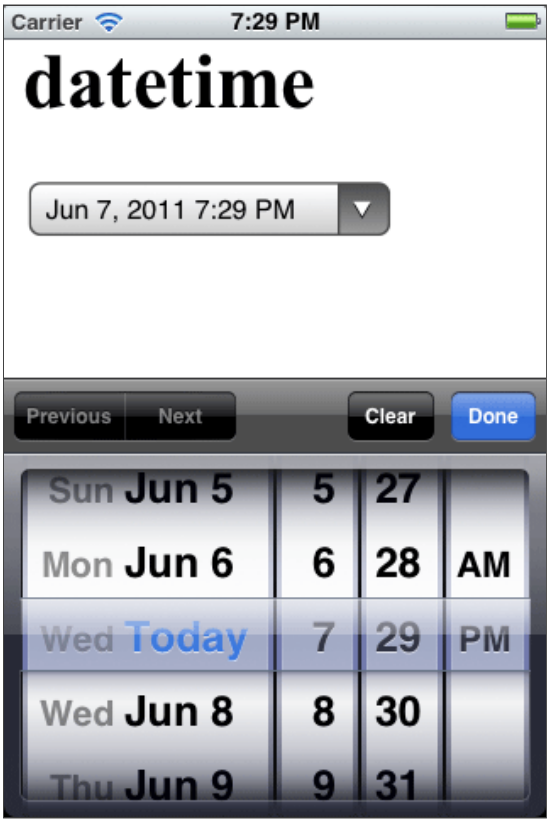
`<input type="time">`:



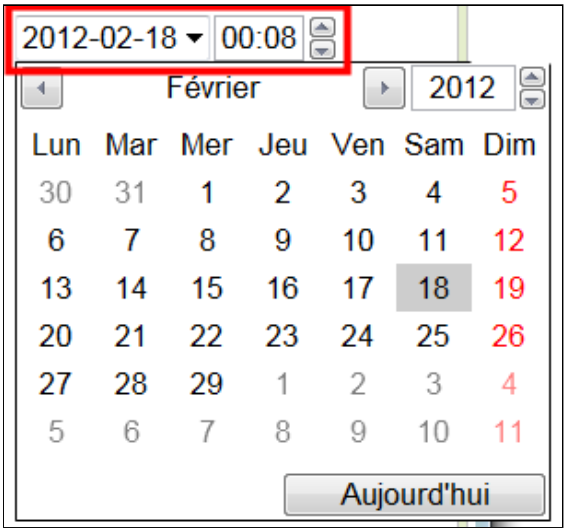


`<input type="datetime">`

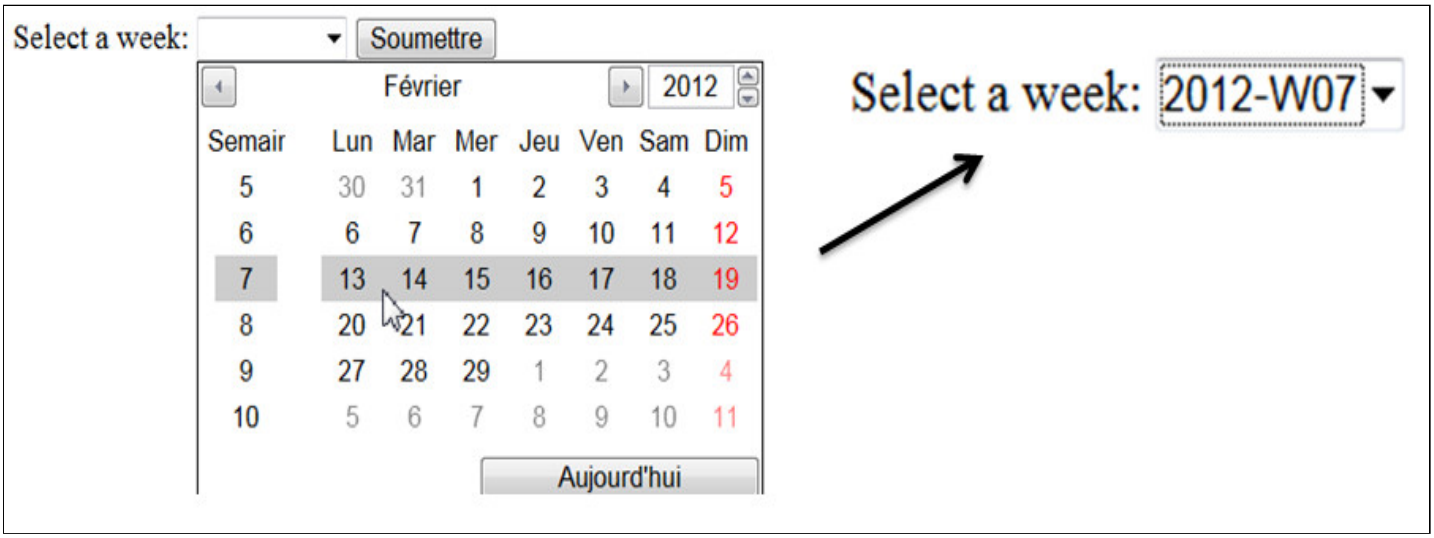





```
<input type="datetime-local">
```



<input type="week">:



<input type="month">:

CURRENT SUPPORT

These new input types are not yet supported by all browsers in their desktop version (while mobile support is 100% today for major browsers**).**

Managing dates in all different languages/formats is a difficult task that browser developers had to address. Furthermore, Web designers do not like the fact that you cannot really control the

look and feel of this element (same critics as for the`<input type="color">` element, see previous section). These are certainly the reasons why browser implementers did not put a very high priority to implementing these widgets.

However, for simple date picking (especially on mobiles), these elements are very practical ones as is, and many polyfills are available, bringing compatibility to browsers that do not support it yet.

There is also a growing set of Web Components for picking date/time. For example, see http://customelements.io/ and enter the "date" keyword in the search field.

So far, as of early 2015, Safari, Internet Explorer and FireFox desktop browsers still do not support this input type, as shown on the table below:

Date and time input types - LS

Global 61.35%

Form field widget to easily allow users to enter a date or a time, generally by using a calendar/time input widget.

Current aligned | Usage relative | Show all

IE	Firefox	Chrome	Safari	Opera	iOS Safari *	Opera Mini *	Android Browser *	Chrome for Android
		31						
		36						
		37						
		38					4.1	
8	31	39					4.3	
9	35	40	7				4.4	
10	36	41	7.1		7.1		4.4.4	
11	37	42	8	27	8.3	8	40	41
TP	38	43		28				
	39	44		29				
	40	45						

See the up-to-date version of the above table and check for the mobile support.

POLYFILLS / ALTERNATIVE SOLUTIONS

There are many polyfills available. Remember that including a polyfill means that if the target browser supports the native implementation, the polyfill will be ignored and the native implementation will be used instead. Polyfills use alternative JavaScript based widgets only as a fallback.

Popular polyfills are:

- https://css-tricks.com/progressively-enhancing-html5-forms/, a solution that uses Yepnope, Modernizer and the JQuery UI,
- Web Experience Toolkit date polyfill, open sourced by the Canadian government,
- Jon Stipe's polyfill,
- Others are available, just use your favorite search engine :-)

KNOWLEDGE CHECK 5.4.3 (NOT GRADED)

Which attributes are useful to constrain the user to choose a specific day in the week like Monday, Tuesday, etc.?

- [ ] min
- [ ] max
- [ ] step
- [ ] only
- [ ] value

Note: Make sure you select all of the correct options - two answers are correct.