http://web.stanford.edu:80/class/cs142/project3.html

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Due: Thursday, October 19, 2017 at 11:59 PM

# Setup

Although this project has you run code in your browser, you need to have Node.js install on your system to run the code quality checker JSHint. If you haven't already installed Node.js and the npm package manager, follow the installation instructions (install.html) now.

Once you have Node.js installed, create a directory project3 and extract the contents of this zip file (downloads/project3.zip) into the directory.

You can fetch the code quality tool, JSHint (http://web.archive.org/web/20171227021106/http://jshint.com/about), by running the following command in the project3 directory:

```
npm install
```

This will fetch JSHint into the node\_modules subdirectory.

You will be able to run it on all the JavaScript files in project3 directory by running the command:

```
npm run jshint
```

The code you submit should start with "use strict"; and run JSHint without warnings.

## Problem 1: JavaScript Date Picker (25 points)

For this problem, you will be implementing two interactive DatePicker displays (http://web.archive.org/web/20171227021106/https://www.google.com/search? tbm=isch&q=datepicker&gws\_rd=ssl) using a combination of HTML, CSS, and JavaScript.

In your project3 directory create a file DatePicker.js that implements a JavaScript class named DatePicker that can be used as in the following example:

```
var datePicker = new DatePicker("div1", function (id, fixedDate) {
   console.log("DatePicker with id", id,
       "selected date:", fixedDate.month + "/" + fixedDate.day + "/" + fixedDate.year);
});
datePicker.render(new Date("July 4, 1776"));
```

The constructor takes an argument consisting of the id attribute for an existing div and a date selection callback function. When a date is selected the callback function should be called with the id argument and an object containing the properties month, day, year with the number encoding of the date (e.g. {month: 1, day: 30, year: 2016} is the encoding of January 30, 2016).

The object should have a render method that takes one argument consisting of a particular month (the object can refer to any time within the month). When render is invoked it replaces the contents of the date picker's div with HTML that displays a small http://web.stanford.edu;80/class/cs142/project3.html

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About this

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one column for each day of the week.

- Weeks run from Sunday on the left to Saturday on the right. The calendar must contain a header row displaying abbreviations for the days of the week, such as "Su", "Mo", etc.
- Each day of the month is displayed as a number.
- Some weeks may contain days not in the selected month. These days should be displayed as the number in their month, but in a dimmed fashion to indicate they are not part of the current month.
- All weeks displayed should contain at least one day belonging to the current month. Most months will display 5 weeks, but some months may display 4 or 6 depending on the days. The number of rows in your calendar should not be fixed.
- The calendar must display the name of the month and year at the top of the calendar. In addition, it must display controls such as "<" and ">" that can be clicked to change the calendar's display to the previous or next month.
- Clicking on a valid day of the current month should invoke the callback specified on the constructor with the arguments described above. Clicking on days belonging to months other than the current month should not invoke the callback.

Once you have created the JavaScript class, we have provided a file datepicker.html containing two empty div elements, plus a bit of JavaScript code that invokes the DatePicker class to display a date picker in each of the divs. One of the date pickers initially displays the current month and the other displays the month of January 2009. It should be possible to change the month of each date picker *independently* using the controls on that date picker.

The provided html file has no styling so please create a stylesheet with the filename datepicker.css to apply styling to the calendars and make them look nice. The corresponding link tag that requires the css file has already been added for you in the html file.

## Problem 2: Simple Table Template Processing (15 points)

Create a file TableTemplate.js that implements a JavaScript class named TableTemplate with a **static** method fillIn.

Requirements for the fillin method:

- This method takes three arguments consisting of the id attribute for a , a dictionary object, and a string columnName .
- The method must first examine the header row of the table and and replace any text of the form {{property}} with the corresponding property of the dictionary object. It then fills in all {{property}} elements in the column specified by columnName if there exists such a column.
- The method assumes that the first row of the table holds the column names. You are guaranteed that the column names of the input table are unique.
- If no columnName argument is specified, the method should process the entire table.
- If the specified columnName is not matched, the method should return without replacing any text in the columns. Note that you should still replace template strings in the header row regardless of whether the specified columnName is matched.

For example if you find a to element in the matching column (assuming column) | Column | Colu

dict is a dictionary of strings, should generate the table on the right:

{{PartNumber}}	{{Length}}	Part N	umber Length
{{n14926}}	{{n47}}	14926	{{n47}}
{{n773}}	{{n3_5}}	773	{{n3_5}}
{{n9318}}	{{n10}}	9318	{{n10}}
{{n3045}}	{{n4}}	3045	{{n4}}

original table

filled-in table

If the template specifies a property that is not defined in the dictionary object the template should be replaced with an empty string. Your system need only handle properly formatted templates. Its behavior can be left undefined in the case of nested templates (e.g.,  $\{\{foo \{\{bar\}\}\}\}\}$  or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{foo \{\{bar\}\}\}\}\}\}$  or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{foo \{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{foo \{\{bar\}\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{bar\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{bar\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}\}$ ) or unbalanced  $\{\{\{\}\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}$ ) or unbalanced  $\{\{\{\}\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}$ ) or unbalanced  $\{\{\{\}\}\}$  in the case of nested templates (e.g.,  $\{\{\{bar\}\}\}\}$ ).

You should use your cs142-template-processor.js solution from project 2 to help you implement the fillin method. See the script tag ordering in the html file in the project3 directory to see how your cs142-template-processor.js code would be loaded.

Beware that browsers insert a element around all of the elements in a table, if the table doesn't already contain a .

Once your function has processed the entire table you should examine the visibility of the table and if it is hidden update it to be visible.

Once you have created the JavaScript class, open the file <code>cs142-test-table.html</code> in your browser. This file represent an HTML page containing a sample template table that that will run your code and shows what your output should look like.

### Additional Requirements, Hints, etc.

- You may not use jQuery or any other JavaScript library package in this project (or anywhere else in CS 142). If you were developing a real website then you should definitely take advantage of existing JavaScript libraries, but for this class we want you to learn about the low-level foundational JavaScript/DOM features.
- You may, however, use any JavaScript built-in functions. For example, you may find the following built-in functions useful in this project:

**6** 

- Methods of the Date class.
- parseInt, parseFloat, isNaN.
- You may find some of the following DOM element properties useful in this project:
  - o cells
  - firstChild
  - o nextSibling
  - o rows

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console.log statements around your code so you can see which code is being executed.

- You may also find the debugger statement useful in debugging. If the text "debugger; "is executed in a JavaScript program, it causes the program to drop into the JavaScript debugger. This is analagous to a breakpoint, except that your code can control when it triggers.
- If nothing seems to be happening in your JavaScript code, it's possible that your code contains an error that is causing it to be aborted. To find out if this is happening, open the JavaScript console to see if there are any errors.
- The JavaScript console and Chrome DevTools will be your best friends for the remaining projects. We encourage you to spend some time this project learning how these tools work. Feel free to stop by any of the office hours for a hands-on demonstration.

# Style Points (10 points)

Your JavaScript must be clean (appropriate use of classes, no global variables other than constructor functions, etc.), readable, and JSHint warning-free.

#### Deliverables

Use the standard class submission mechanism (submit.html) to submit the entire project3 directory.

Designed by Raymond Luong for CS142 at Stanford University

Powered by Bootstrap (http://web.archive.org/web/20171227021106/http://getbootstrap.com/) and Jekyll

(http://web.archive.org/web/20171227021106/https://jekyllrb.com/) – learn more (website.html)