Flask + Ajax: A brevet control time calculator

"Asynchronous javascript and ~~xml~~ json"
(but 'ajaj' is hard to pronounce)

Also: from real-world specifications to precise logic, and a first look at testing
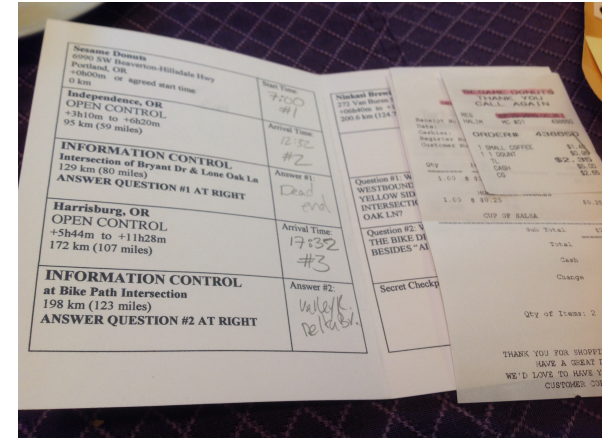
The problem: brevet control times

Brevets are timed rides with 'control[e]s'

Each control has an 'opening' and a 'closing'

time; rider must obtain proof of passage within those times

Route designer sets limits based on rules from Audax Club
   Parisien (ACP) or Randonneurs USA (RUSA)

ACP rules at http://www.rusa.org/octime_alg.html

Calculator for route designers at
   http://www.rusa.org/octime_acp.html

We're replacing this:

ACP Brevet Time Calculator

This form calculates the opening and closing times for an ACP brevet. A description of the algorithm can be found here.

STEP 1: Indicate the brevet distance, starting date, and starting time.

Brevet distance: 200 ▾ km
Starting Date (YYYY/MM/DD):
Starting Time (24 Hour Format, HH:MM):

STEP 2: Choose units and output style.

Input distances are in: ● miles ○ km
Display output distances in: ● miles ○ km ○ both
Display output dates as: ● MM/DD ○ DD/MM

STEP 3: Enter the actual distance to each checkpoint. The location field is optional; if entered, it will appear in the table generated.

Checkpoint No.	Distance	Location (Optional)
1	0 (Start)	
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		
25		

STEP 4: Submit the form.

[Calculate Times]   [Clear Entries]

Notes:

- Times are shown in a 24-hour format; for example, 2:00 AM is shown as 02:00 and 5:45 PM is shown as 17:45.
- It is assumed that all checkpoints are located within the same time zone.
- The output is displayed as simple text for easy cutting and pasting.
- After generating the table, use your browser's **Back** or **Previous** button to return to this form.

Instead of filling in the whole form and then pressing 'submit', we want to calculate times interactively as the form is filled.

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-- PBP: Paris-Brest-Paris
-- Others

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-- Rules
-- RBAs
-- Records

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The pieces

```
@app.route("/calc")
def index():

  return flask.render_template('calc.html')

...

@app.route("/_calc_times")
def calc_times():
   ... compute the times ...
  return jsonify(result= ... )
```

```
<html> <head>
<title>ACP Controle Times</title>
...

<div class="row">
 <div class="col-md-2">
   <input type="text" class="form-control"
    name="miles" value="Distance in miles"/>
 </div>
...

$('input[name="miles"]').change(
     function(){
         var e_miles = $(this).val();
         ...
```

Testing brevet calculator

Project requires a test suite

Not necessarily for the user interaction ...

Use test cases to debug your understanding of the requirements as well as your calculations