PennyAjax2/penny.py (Page 1 of 1)

```
#!/usr/bin/env python

#-----------------------------------------------------------------------
# penny.py
# Author: Bob Dondero
#-----------------------------------------------------------------------

import json
import flask
import database

#-----------------------------------------------------------------------

app = flask.Flask(__name__)

#-----------------------------------------------------------------------

@app.route('/', methods=['GET'])
@app.route('/index', methods=['GET'])
def index():

    return flask.send_file('index.html')

#-----------------------------------------------------------------------

@app.route('/searchresults', methods=['GET'])
def search_results():

    author = flask.request.args.get('author')
    if author is None:
        author = ''
    author = author.strip()

    if author == '':
        books = []
    else:
        books = database.get_books(author) # Exception handling omitted

    json_doc = json.dumps(books)
    response = flask.make_response(json_doc)
    response.headers['Content-Type'] = 'application/json'
    return response
```

blank (Page 1 of 1)

```
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```

PennyAjax2/index.html (Page 1 of 2)

```
<!DOCTYPE html>
<html>
   <head>
      <title>Penny.com</title>
   </head>

   <body>

      <hr>
      Good <span id="ampmSpan"></span> and welcome to
      <strong>Penny.com</strong>
      <hr>

      <h1>Author Search</h1>
      Please enter an author name:
      <input type="text" id="authorInput" autoFocus>
      <hr>
      <div id="resultsDiv"></div>

      <hr>
      Date and time: <span id="datetimeSpan"></span><br>
      Created by <a href="https://www.cs.princeton.edu/~rdondero">
      Bob Dondero</a>
      <hr>

      <script>

         'use strict';

         function getAmPm() {
            let dateTime = new Date();
            let hours = dateTime.getHours();
            let amPm = (hours < 12) ? 'morning' : 'afternoon';
            let ampmSpan = document.getElementById('ampmSpan');
            ampmSpan.innerHTML = amPm;
         }

         function getDateTime() {
            let dateTime = new Date();
            let datetimeSpan =
               document.getElementById('datetimeSpan');
            datetimeSpan.innerHTML = dateTime.toLocaleString();
         }

         function escape(s) {
            s = s.replace('&', '&amp;');
            s = s.replace('<', '&lt;');
            s = s.replace('>', '&gt;');
            s = s.replace('"', '&quot;');
            s = s.replace("'", '&apos;');
            return s;
         }

         function convertToHtml(books) {
            let html = '';
            for (let book of books) {
               html += escape(book.isbn) + ': ';
               html += '<strong>';
               html += escape(book.author);
               html += '</strong>: ';
               html += escape(book.title) + '<br>';
            }
            return html;
         }

```

PennyAjax2/index.html (Page 2 of 2)

```
         function handleResponse() {
            if (this.status !== 200) {
               alert('Error: Failed to fetch data from server');
               return;
            }
            let books = JSON.parse(this.response);
            let html = convertToHtml(books);
            let resultsDiv = document.getElementById('resultsDiv');
            resultsDiv.innerHTML = html;
         }

         function handleError() {
            alert('Error: Failed to fetch data from server');
         }

         let request = null;

         function getResults() {
            let authorInput = document.getElementById('authorInput');
            let author = authorInput.value;
            let encodedAuthor = encodeURIComponent(author);
            let url = '/searchresults?author=' + encodedAuthor;
            if (request !== null)
               request.abort();
            request = new XMLHttpRequest();
            request.onload = handleResponse;
            request.onerror = handleError;
            request.open('GET', url);
            request.send();
         }

         function setupHeader() {
            getAmPm();
            let apInterval = window.setInterval(getAmPm, 1000);
            window.addEventListener('beforeunload',
               function(e) {window.clearInterval(apInterval);})
         }

         function setupFooter() {
            getDateTime();
            let dtInterval = window.setInterval(getDateTime, 1000);
            window.addEventListener('beforeunload',
               function(e) {window.clearInterval(dtInterval);})
         }

         function setup() {
            setupHeader();
            setupFooter();
            let authorInput = document.getElementById('authorInput');
            authorInput.addEventListener('input', getResults);
         }

         document.addEventListener('DOMContentLoaded', setup);

      </script>
   </body>
</html>
```

PennyAjax3/index.html (Page 1 of 2)

```
 1: <!DOCTYPE html>
 2: <html>
 3:    <head>
 4:       <title>Penny.com</title>
 5:    </head>
 6:
 7:    <body>
 8:
 9:       <hr>
10:       Good <span id="ampmSpan"></span> and welcome to
11:       <strong>Penny.com</strong>
12:       <hr>
13:
14:       <h1>Author Search</h1>
15:       Please enter an author name:
16:       <input type="text" id="authorInput" autoFocus>
17:       <hr>
18:       <div id="resultsDiv"></div>
19:
20:       <hr>
21:       Date and time: <span id="datetimeSpan"></span><br>
22:       Created by <a href="https://www.cs.princeton.edu/~rdondero">
23:       Bob Dondero</a>
24:       <hr>
25:
26:       <script>
27:
28:          'use strict';
29:
30:          function getAmPm() {
31:             let dateTime = new Date();
32:             let hours = dateTime.getHours();
33:             let amPm = (hours < 12) ? 'morning' : 'afternoon';
34:             let ampmSpan = document.getElementById('ampmSpan');
35:             ampmSpan.innerHTML = amPm;
36:          }
37:
38:          function getDateTime() {
39:             let dateTime = new Date();
40:             let datetimeSpan =
41:                document.getElementById('datetimeSpan');
42:             datetimeSpan.innerHTML = dateTime.toLocaleString();
43:          }
44:
45:          function escape(s) {
46:             s = s.replace('&', '&amp;');
47:             s = s.replace('<', '&lt;');
48:             s = s.replace('>', '&gt;');
49:             s = s.replace('"', '&quot;');
50:             s = s.replace("'", '&apos;');
51:             return s;
52:          }
53:
54:          function convertToHtml(books) {
55:             let html = '';
56:             for (let book of books) {
57:                html += escape(book.isbn) + ': ';
58:                html += '<strong>';
59:                html += escape(book.author);
60:                html += '</strong>: ';
61:                html += escape(book.title) + '<br>';
62:             }
63:             return html;
64:          }
65:
```

PennyAjax3/index.html (Page 2 of 2)

```
66:          function handleResponse() {
67:             if (this.status !== 200) {
68:                alert('Error: Failed to fetch data from server');
69:                return;
70:             }
71:             let books = JSON.parse(this.response);
72:             let html = convertToHtml(books);
73:             let resultsDiv = document.getElementById('resultsDiv');
74:             resultsDiv.innerHTML = html;
75:          }
76:
77:          function handleError() {
78:             alert('Error: Failed to fetch data from server');
79:          }
80:
81:          let request = null;
82:
83:          function getResults() {
84:             let authorInput = document.getElementById('authorInput');
85:             let author = authorInput.value;
86:             let encodedAuthor = encodeURIComponent(author);
87:             let url = '/searchresults?author=' + encodedAuthor;
88:             if (request !== null)
89:                request.abort();
90:             request = new XMLHttpRequest();
91:             request.onload = handleResponse;
92:             request.onerror = handleError;
93:             request.open('GET', url);
94:             request.send();
95:          }
96:
97:          let timer = null;
98:
99:          function debouncedGetResults() {
100:            clearTimeout(timer);
101:            timer = window.setTimeout(getResults, 500);
102:         }
103:
104:         function setupHeader() {
105:            getAmPm();
106:            let apInterval = window.setInterval(getAmPm, 1000);
107:            window.addEventListener('beforeunload',
108:               function(e) {window.clearInterval(apInterval);})
109:         }
110:
111:         function setupFooter() {
112:            getDateTime();
113:            let dtInterval = window.setInterval(getDateTime, 1000);
114:            window.addEventListener('beforeunload',
115:               function(e) {window.clearInterval(dtInterval);})
116:         }
117:
118:         function setup() {
119:            setupHeader();
120:            setupFooter();
121:            let authorInput = document.getElementById('authorInput');
122:            authorInput.addEventListener('input', debouncedGetResults);
123:         }
124:
125:         document.addEventListener('DOMContentLoaded', setup);
126:
127:      </script>
128:   </body>
129: </html>
```

PennyAjax4/index.html (Page 1 of 2)

```
<!DOCTYPE html>
<html>
   <head>
      <title>Penny.com</title>
   </head>

   <body>

      <hr>
      Good <span id="ampmSpan"></span> and welcome to
      <strong>Penny.com</strong>
      <hr>

      <h1>Author Search</h1>
      Please enter an author name:
      <input type="text" id="authorInput" autoFocus>
      <hr>
      <div id="resultsDiv"></div>

      <hr>
      Date and time: <span id="datetimeSpan"></span><br>
      Created by <a href="https://www.cs.princeton.edu/~rdondero">
      Bob Dondero</a>
      <hr>

      <script src=
         "https://cdn.jsdelivr.net/npm/mustache@4.2.0/mustache.min.js">
      </script>

      <!-- <script src="/static/mustache.min.js"></script> -->

      <script>

         'use strict';

         function getAmPm() {
            let dateTime = new Date();
            let hours = dateTime.getHours();
            let amPm = (hours < 12) ? 'morning' : 'afternoon';
            let ampmSpan = document.getElementById('ampmSpan');
            ampmSpan.innerHTML = amPm;
         }

         function getDateTime() {
            let dateTime = new Date();
            let datetimeSpan =
               document.getElementById('datetimeSpan');
            datetimeSpan.innerHTML = dateTime.toLocaleString();
         }

         function convertToHtml(books) {
            let template = `
               {{#books}}
                  {{isbn}}:
                  <strong>{{author}}</strong>:
                  {{title}}
                  <br>
               {{/books}}
            `;
            let map = {books: books};
            let html = Mustache.render(template, map);
            return html;
         }

         function handleResponse() {
```

PennyAjax4/index.html (Page 2 of 2)

```
            if (this.status !== 200) {
               alert('Error: Failed to fetch data from server');
               return;
            }
            let books = JSON.parse(this.response);
            let html = convertToHtml(books);
            let resultsDiv = document.getElementById('resultsDiv');
            resultsDiv.innerHTML = html;
         }

         function handleError() {
            alert('Error: Failed to fetch data from server');
         }

         let request = null;

         function getResults() {
            let authorInput = document.getElementById('authorInput');
            let author = authorInput.value;
            let encodedAuthor = encodeURIComponent(author);
            let url = '/searchresults?author=' + encodedAuthor;
            if (request !== null)
               request.abort();
            request = new XMLHttpRequest();
            request.onload = handleResponse;
            request.onerror = handleError;
            request.open('GET', url);
            request.send();
         }

         let timer = null;

         function debouncedGetResults() {
            clearTimeout(timer);
            timer = window.setTimeout(getResults, 500);
         }

         function setupHeader() {
            getAmPm();
            let apInterval = window.setInterval(getAmPm, 1000);
            window.addEventListener('beforeunload',
               function(e) {window.clearInterval(apInterval);})
         }

         function setupFooter() {
            getDateTime();
            let dtInterval = window.setInterval(getDateTime, 1000);
            window.addEventListener('beforeunload',
               function(e) {window.clearInterval(dtInterval);})
         }

         function setup() {
            setupHeader();
            setupFooter();
            let authorInput = document.getElementById('authorInput');
            authorInput.addEventListener('input', debouncedGetResults);
         }

         document.addEventListener('DOMContentLoaded', setup);

      </script>
   </body>
</html>
```

PennyJQuery/index.html (Page 1 of 2)

```
<!DOCTYPE html>
<html>
   <head>
      <title>Penny.com</title>
   </head>

   <body>
      <hr>
      Good <span id="ampmSpan"></span> and welcome to
      <strong>Penny.com</strong>
      <hr>

      <h1>Author Search</h1>
      Please enter an author name:
      <input type="text" id="authorInput" autoFocus>
      <hr>
      <div id="resultsDiv"></div>

      <hr>
      Date and time: <span id="datetimeSpan"></span><br>
      Created by <a href="https://www.cs.princeton.edu/~rdondero">
      Bob Dondero</a>
      <hr>

      <script src=
         "https://cdn.jsdelivr.net/npm/jquery@3.7.1/dist/jquery.min.js">
      </script>

      <script src=
         "https://cdn.jsdelivr.net/npm/mustache@4.2.0/mustache.min.js">
      </script>

      <script>

         'use strict';

         function getAmPm() {
            let dateTime = new Date();
            let hours = dateTime.getHours();
            let amPm = 'morning';
            if (hours >= 12)
               amPm = 'afternoon';
            $('#ampmSpan').html(amPm);
         }

         function getDateTime() {
            let dateTime = new Date();
            $('#datetimeSpan').html(dateTime.toLocaleString());
         }

         function convertToHtml(books) {
            let template = `
               {{#books}}
                  {{isbn}}:
                  <strong>{{author}}</strong>:
                  {{title}}
                  <br>
               {{/books}}
            `;
            let map = {books: books};
            let html = Mustache.render(template, map);
            return html;
         }

         function handleResponse(books) {
```

PennyJQuery/index.html (Page 2 of 2)

```
            let html = convertToHtml(books);
            $('#resultsDiv').html(html);
         }

         function handleError(request) {
            if (request.statusText !== 'abort')
               alert('Error: Failed to fetch data from server');
         }

         let request = null;

         function getResults() {
            let author = $('#authorInput').val();
            let encodedAuthor = encodeURIComponent(author);
            let url = '/searchresults?author=' + encodedAuthor;
            if (request !== null)
               request.abort();
            let requestData = {
               method: 'GET',
               url: url,
               success: handleResponse,
               error: handleError
            };
            request = $.ajax(requestData);
         }

         let timer = null;

         function debouncedGetResults() {
            clearTimeout(timer);
            timer = window.setTimeout(getResults, 500);
         }

         function setupHeader() {
            getAmPm();
            let apInterval = window.setInterval(getAmPm, 1000);
            $(window).on('beforeunload',
               function(e) {window.clearInterval(apInterval);})
         }

         function setupFooter() {
            getDateTime();
            let dtInterval = window.setInterval(getDateTime, 1000);
            $(window).on('beforeunload',
               function(e) {window.clearInterval(dtInterval);})
         }

         function setup() {
            setupHeader();
            setupFooter();
            $('#authorInput').on('input', debouncedGetResults);
         }

         $('document').ready(setup);

      </script>
   </body>
</html>
```