HTML Templates

The Problem

- We want to serve custom HTML

- In HW2-Obj4 you're sending different content based on the query string

  - There are 8 different images that can be requested

  - There are 256 unique combinations of images that can be requested

  - Are you going to write 256 different HTML files?

  - What about the user's name? Write 256 HTML files for each possible name? Write and serve millions of HTML files and still miss countless names

HTML Templates

- Instead of writing complete HTML files

  - Write an HTML template

- An HTML template is an "incomplete" HTML file that is used to generate complete pages

- Use additional markup to add placeholders in the HTML

- Replace the placeholders with data at runtime

HTML Templates

- Example template with 3 placeholders

- The title, description, and image_filname will be replaced later

  - Provide values for these 3 placeholders to serve a response

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>This page was generated from a template</title>
</head>
<body>

<h1>{{title}}</h1>

<p>{{description}}</p>

<img src="{{image_filename}}"/>

</body>
</html>
```

HTML Templates

- To substitute the placeholders
  - Use any string manipulation that gets the job done
  - Find/replace is the simplest solution
  - May want more advanced approaches if you want to add more functionality

```html
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    <title>This page was generated from a template</title>
</head>
<body>

<h1>{{title}}</h1>

<p>{{description}}</p>

<img src="{{image_filename}}"/>

</body>
</html>
```

Common Template Features

- Loops

- To add loops to your templates

  - Choose syntax for the start and end of the loop

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>This page was generated from a template</title>
</head>
<body>

{{loop}}
<h6>{{content_from_data_structure}}</h6>
{{end_loop}}

</body>
</html>
```

Common Template Features

- Use string manipulation to find the start and end tags

- Iterate over your data

  - Add the contained HTML with the placeholder replaced for each value of your data

```html
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{{loop}}
<h6>{{content_from_data_structure}}</h6>
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</body>
</html>
```

Common Template Features

- Conditionals

- Can use similar approach as loops

- Choose syntax for the start and end of each block in the conditional

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>This page was generated from a template</title>
</head>
<body>

{{if cookie_set}}
<h6>Welcome back!</h6>
{{else}}
<h6>Welcome!</h6>
{{end_if}}

</body>
</html>
```

Common Template Features

- Search for your tags

- Extract and evaluate the conditional

  - Choose how this will be evaluated

- Add the appropriate block of HTML to the page

```html
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<h6>Welcome back!</h6>
{{else}}
<h6>Welcome!</h6>
{{end_if}}

</body>
</html>
```

HW2 Template

- You need a page that will display the user's name and their requested images

- Add each image as the src in its own img element

  - The browser will request these images in separate HTTP requests using your objective 3 paths

- General strategy:

  - Write an HTML template with a loop containing an img element with a variable for the src attribute

  - Iterate over all the requested image names and use the filenames as the content for the loop

- The syntax for your template is up to you

Examples