"This is interesting, 70% of the respondents to our survey said they don't respond to surveys."

CSE 154

LECTURE 18: FORMS AND UPLOADING FILES

Exercise: Baby name web service JSON

- Modify our `babynames.php` service to produce its output as JSON. For the data:

```
Morgan m 375 410 392 478 579 507 636 499 446 291 278 332 518
```

- The service should output the following JSON:

```
{
  "name": "Morgan",
  "gender": "m",
  "rankings": [375, 410, 392, 478, 579, 507, 636, 499, 446, 291, 278,
332, 518]
}                                                              JSON
```

Emitting JSON data manually

```
...
header("Content-type: application/json");
print "{\n";
print "  \"books\": [\n";
foreach ($books as $book) {
  print "  {\"author\": \"{$book['author']}\", \"title\":
\"{$book['title']}\"}\n";
}
print "\n";
```

- specify a content type of `application/json`
- messy, just like when manually printing XML (not recommended)

PHP's JSON functions

PHP includes the following global functions for interacting with JSON data:

json_decode(*string*)	parses the given JSON data string and returns an equivalent associative array object (like JSON.parse in JavaScript)
json_encode(*object*)	returns JSON equivalent for the given object or array or value (like JSON.stringify in JavaScript)

- `json_encode` will output associative arrays as objects and normal arrays as arrays

PHP JSON example

```php
<?php
$data = array(
  "library" => "Odegaard",
  "category" => "fantasy",
  "year" => 2012,
  "books" => array(
    array("title" => "Harry Potter", "author" => "J.K. Rowling"),
    array("title" => "The Hobbit", "author" => "J.R.R. Tolkien"),
    array("title" => "Game of Thrones", "author" => "George R. R. Martin"),
    array("title" => "Dragons of Krynn", "author" => "Margaret Weis"),
  )
);

header("Content-type: application/json");
print json_encode($data);
?>
```
PHP

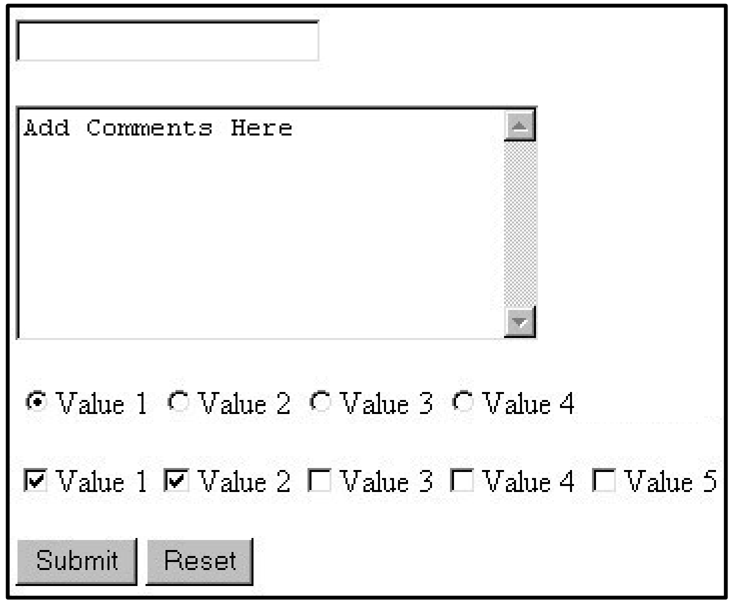
PHP JSON example - output

```
{
  "library": "Odegaard",
  "category": "fantasy",
  "year": 2012,
  "books": [
    {"title": "Harry Potter", "author": "J.K. Rowling"},
    {"title": "The Hobbit", "author": "J.R.R. Tolkien"},
    {"title": "Game of Thrones", "author": "George R. R. Martin"},
    {"title": "Dragons of Krynn", "author": "Margaret Weis"},
  ]
}
```

JSON

HTML forms

- **form**: a group of UI controls that accepts information from the user and sends the information to a web server
- the information is sent to the server as a **query string**
- JavaScript can be used to create interactive controls (seen later)



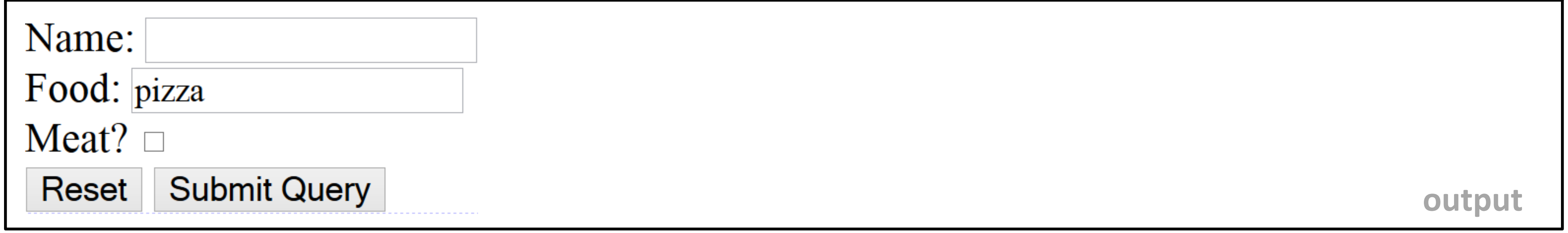
HTML form: <form>

```
<form action="destination URL">
  form controls
</form>                                                    HTML
```

- required action attribute gives the URL of the page that will process this form's data
- when form has been filled out and submitted, its data will be sent to the action's URL
- one page may contain many forms if so desired

Reset buttons

```
Name: <input type="text" name="name" /> <br />
Food: <input type="text" name="meal" value="pizza" /> <br />
<label>Meat? <input type="checkbox" name="meat" /></label> <br />
<input type="reset" />
```
HTML

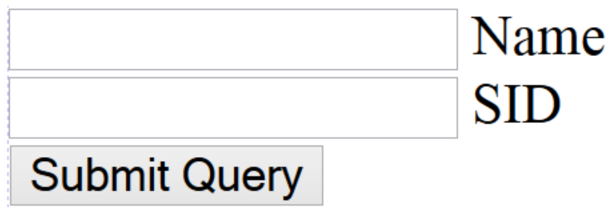


output

- when clicked, returns all form controls to their initial values
- specify custom text on the button by setting its value attribute

Hidden input parameters

```html
<input type="text" name="username" /> Name <br />
<input type="text" name="sid" /> SID <br />
<input type="hidden" name="school" value="UW" />
<input type="hidden" name="year" value="2048" />
```
HTML


Name
SID

output

- an invisible parameter that is still passed to the server when form is submitted

- useful for passing on additional state that isn't modified by the user

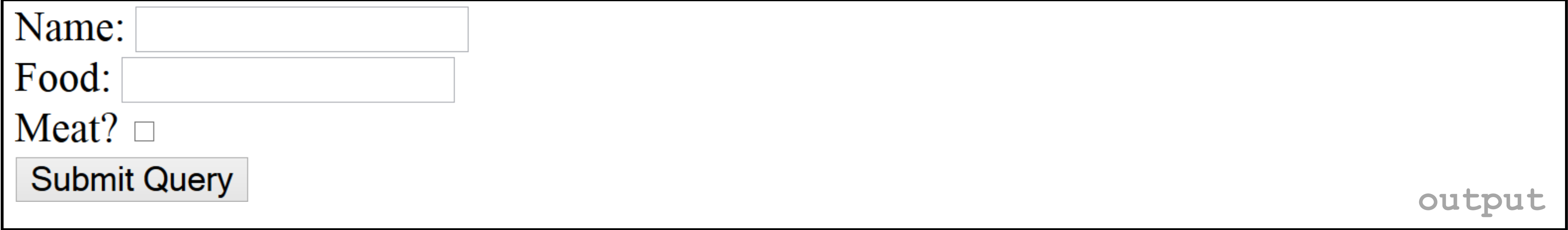
HTTP GET vs. POST requests

- GET : asks a server for a page or data
  - if the request has parameters, they are sent in the URL as a query string
- POST : submits data to a web server and retrieves the server's response
  - if the request has parameters, they are embedded in the request's HTTP packet, not the URL
- For submitting data to be saved, POST is more appropriate than GET
  - GET requests embed their parameters in their URLs
  - URLs are limited in length (~ 1024 characters)
  - URLs cannot contain special characters without encoding
  - private data in a URL can be seen or modified by users

Form POST example

```
 <form action="http://foo.com/app.php" method="post">
   <div>
     Name: <input type="text" name="name" /> <br />
     Food: <input type="text" name="meal" /> <br />
     <label>Meat? <input type="checkbox" name="meat" /></label>
<br />
     <input type="submit" />
   <div>
 </form>
```

HTML



output

The htmlspecialchars function

htmlspecialchars	returns an HTML-escaped version of a string

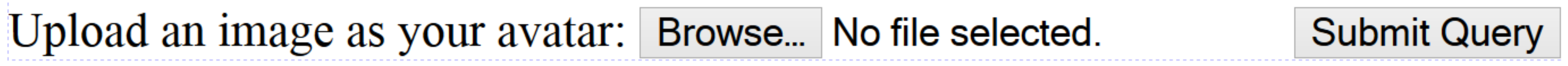
- text from files / user input / query params might contain <, >, &, etc.
- we could manually write code to strip out these characters
- better idea: allow them, but escape them

```
$text = "<p>hi 2 u & me</p>";
$text = htmlspecialchars($text);   # "&lt;p&gt;hi 2 u &amp; me&lt;/p&gt;"
```

Uploading files

```
<form action="http://webster.cs.washington.edu/params.php"
      method="post" enctype="multipart/form-data">
  Upload an image as your avatar:
  <input type="file" name="avatar" />
  <input type="submit" />
</form>
```

HTML



Upload an image as your avatar: Browse... No file selected. Submit Query

output

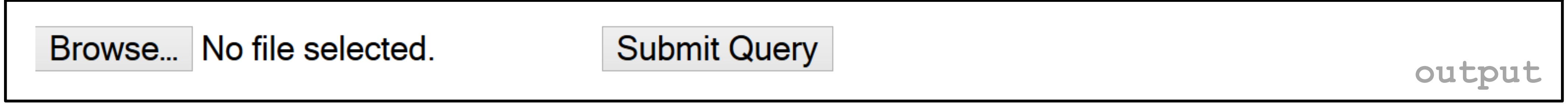
- add a file upload to your form as an input tag with type of file
- must also set the enctype attribute of the form

Processing an uploaded file in PHP

- uploaded files are placed into global array $_FILES, not $_POST
- each element of $_FILES is itself an associative array, containing:
  - name : the local filename that the user uploaded
  - type : the MIME type of data that was uploaded, such as image/jpeg
  - size : file's size in bytes
  - tmp_name : a filename where PHP has temporarily saved the uploaded file
    - to permanently store the file, move it from this location into some other file

Uploading details

```html
<input type="file" name="avatar" />
```
HTML



- example: if you upload borat.jpg as a parameter named avatar,
  - $_FILES["avatar"]["name"] will be "borat.jpg"
  - $_FILES["avatar"]["type"] will be "image/jpeg"
  - $_FILES["avatar"]["tmp_name"] will be something like "/var/tmp/phpZtR4TI"

Processing uploaded file, example

```php
$username = $_POST["username"];
if (is_uploaded_file($_FILES["avatar"]["tmp_name"])) {
     move_uploaded_file($_FILES["avatar"]["tmp_name"],
     "$username/avatar.jpg");
  print "Saved uploaded file as $username/avatar.jpg\n";
} else {
  print "Error: required file not uploaded";
}                                                           PHP
```

- functions for dealing with uploaded files:
  - is_uploaded_file(filename)
  - returns TRUE if the given filename was uploaded by the user
  - move_uploaded_file(from, to)
  - moves from a temporary file location to a more permanent file
- proper idiom: check is_uploaded_file, then do move_uploaded_file