

CGI 2

Recall

CGI Standard
Environment variables
Security concerns
Dumpenv.pl

Today

Forms
GET/POST

Form -- Fields, Submit, Bindings

Fields that the user can fill in -- text fields, lists, checkboxes, ...

Submit

Takes up the state the user has put into the various fields, and sends it to a CGI on the server. The data is encoded as a series of name=value "bindings"

Bindings

A name=value syntax used to encode what the user has entered in the form.

CGI Environment

Recall Environment variables -- combination of client and server info for the CGI to use.

QUERY_STRING-- holds the bindings with the GET method

Forms

An HTML form accepts user input (text fields, checkboxes...) on the client side, and sends the data to a CGI on the server side when the "submit" button is selected.

```
<form action = cgi-url method = get/post>....</form>
```

On submission, sends data to server script named in the action. If the action is omitted, sends data to the URL which produced the form.

The data is encoded as attribute/value pairs (bindings) with each space changed to a '+', bindings separated by '&', and non alpha-numeric characters encoded with the "%xx" form where xx is the hex code for the character.

```
person=Chuck+Jones&age=35&topping=anchovies
```

Each form element has a name which is used to identify it in the bindings such as "person" and "age" in the above example.

JavaScript can be used to make a form a little more reactive before the submit -- we may study JavaScript a little at the end of the quarter.

The MIME type for the above (+, =, &) encoding is application/x-www-form-urlencoded. Some browsers also support an ENCTYPE=multipart/form-data

submission where the form is encoded like a MIME mail enclosure and then submitted by the Post method.

GET

GET method.

Attribute/value pairs attached to URL after the ?. This is the simple approach - ok for small amounts of data. Has the advantage that CGI operations can be bookmarked. Easier to debug, since you can see the data.

<http://blah.com/cgi-bin/foo.pl?person=Chuck+Jones&age=35>

POST

POST method.

The bindings are sent from the client to the server on the connection socket. The client sends the usual request stuff but with POST instead of GET, followed by a blank line, followed by the encoded data. The script reads the encoded data from its standard input.

dumpform.pl

Returns to you the name=value bindings from a form submission -- use for debugging.

Accepts both GET and POST submissions

<http://www-cs-faculty.stanford.edu/cgi-bin/nick/dumpform.pl?a=b>

See the last page of the handout

Input Fields -- Name and Type

Name and type are required for each field, except the submit button which is type only.

The type is the sort of control

The name is how the data will be identified in the bindings.

type=text

<p>

```
<input type=text name=insult size = 40 value="This sucks">
```

name

name=insult defines the name used to return the data binding, not shown in client HI.

mapping

Maps to insult=*whatever-they-type-in-the-field* when sent to server.

size

Width in characters of the input box

maxLength

max length in characters of the entered string

value="This sucks"

to sets default text

type=password

similar but doesn't show characters on screen

type=checkbox

On-or-off

```
<input type=checkbox name=rude checked>Rude Mode
```

mapping

Maps to rude=on if checkbox is checked, otherwise nothing. There's no automatic title around the checkbox, so you need to include your own title as HTML near the checkbox.

value=

If there's a value binding, that is used instead of the string "on"

type=radio

One-of

All have the same name and different values.

One can be checked

```
<p>
```

```
Insult Size:
```

```
<input type=radio name=size value = "small">Small
```

```
<input type=radio name=size value = "medium" checked>Medium
```

```
<input type=radio name=size value = "large">Large
```

mapping

Maps to size=medium

<select> Pop-Up

```
Color:<br>
```

```
<select name = "color">
```

```
<option>red
```

```
<option selected>blue
```

```
<option>green
```

```
<option>purple
```

```
<option>pink
```

```
</select>
```

size=10

presents the options in a list

multiple

<select multiple ...> allows multiple selections which map to animal=Stoat&animal=Goat

<option>

Contains option tags followed by text

value=

Can have value= within an option, otherwise uses text as value "selected" pre-selects one

Mapping

Maps to color=blue

<textarea>

Big text area for typing...

```
<textarea name = "comments" rows = rows cols = columns> ...</textarea>
<br><textarea name=comments rows=4 cols=60 wrap>
```

type=hidden

```
<input type = "hidden" name = "secret" value ="blorg">
```

Maps to secret=blorg in data, but doesn't show in client HI — a good way to store information in the form for later reading by your CGI.

type=submit

Submit the data to the action url. If it is given a name (optional), the clicked button is given a binding in the submission — handy if you have multiple buttons and you need to know which was clicked.

```
<input type=submit name=optional value="Submit Insult Request">
```

Trick: if there's a single text field in the form, hitting return can also do a submit -- this feature varies among browsers.

type=reset

Clear all fields in client HI

I have never in my life gotten any use out of this button

```
<input type = "reset" value = "button-title">
```

HTML Form Example

```
<html>

<head>
<title>Sample Form</title>
</head>

<body bgcolor=white>

<!-- form tag -->
<form
  action=http://www-cs-faculty.stanford.edu/cgi-bin/nick/dumpform.pl
  method=get>

<h1>Insult Generator</h1>

<!-- text input -->
<p>
First name:
<input type=text name = "first-name" size = 40 value="Bob">

<!-- checkbox -->
<p>
<input type=checkbox name=rude>Rude mode
```

```
<p>
Insult Size:
<br><input type=radio name=size value = "small">Small
<br><input type=radio name=size value = "medium" checked>Medium
<br><input type=radio name=size value = "large">Large

<!-- selection pop-up list -->
<p>
Preferred Animal:
<select name = "animal">
<option>Stoat
<option selected>Goat
<option>Weasel
</select>

<!-- selection scrollable list -->
<p>
Color:<br>
<select name = "color" size=8>
<option>red
<option selected>blue
<option>green
<option>purple
<option>pink
<option>yellow
<option>striped
<option>brown
<option>mauve
<option>dotted
<option>speckled
<option>puce
<option>orange
<option>tan
<option>black
<option>white
<option>gray
</select>

<!-- hidden field -->
<input type=hidden name=secretcode value="Keyser Soze">

<!-- text area -->
<p>
Comments:
<br><textarea name=comments rows=4 cols=60 wrap>
</textarea>

<!-- submit button -->
<p>
<input type=submit name=optional value="Submit Insult Request">

</form>

</body>
</html>
```

The image shows a Netscape browser window titled "Netscape: Sample Form". The address bar contains the file path "file:///NULL/Classes/193i%2099-3/form.html". The browser's menu bar includes "Back", "Forward", "Reload", "Home", "Search", "Netscape", "Images", "Print", "Security", and "Sh". Below the menu bar are several icons: "WebMail", "Contact", "People", "Yellow Pages", "Download", and "Find Sites".

Insult Generator

First name:

Rude mode

Insult Size:

Small
 Medium
 Large

Preferred Animal:

Color:

- red
- blue
- green
- purple
- pink
- yellow
- striped
- brown

Comments:

The browser's status bar at the bottom shows various system icons, including a clock, a network icon, and a printer icon.

The screenshot shows a Netscape browser window titled "Netscape: Form Bindings". The address bar contains the URL: `http://www-cs-faculty.stanford.edu/cgi-bin/nick/dumpform.pl?first-name=Bob&rude=on`. The browser's menu bar includes Back, Forward, Reload, Home, Search, Netscape, Images, Print, Security, and Show. Below the menu bar are several icons: WebMail, Contact, People, Yellow Pages, Download, and Find Sites. The main content area displays the heading "Your Key/Value Bindings..." followed by a table of form bindings.

rude	on
secretcode	Keyser Soze
animal	Goat
first-name	Bob
comments	This dress exacerbates the genetic betrayal that is my legacy.
optional	Submit Insult Request
size	medium
color	yellow

The browser's status bar at the bottom shows various icons including a printer, a globe, and a search icon.