COMP4021
Internet Computing

Posting Form Data

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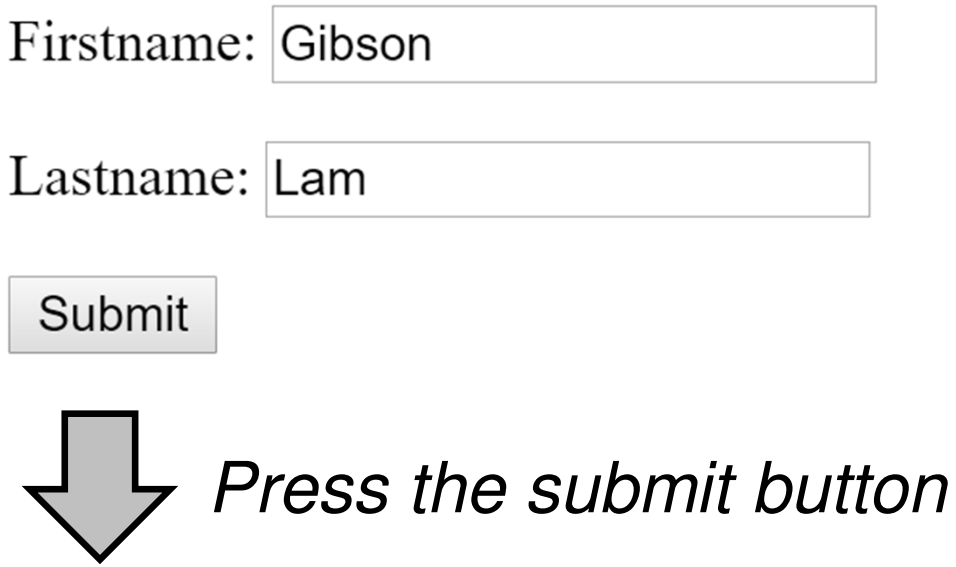
Using the GET Method

- In previous discussions, we looked at using the GET method to send HTML form data to the server
- Form data is sent using a query string put at the end of the URL, e.g.:

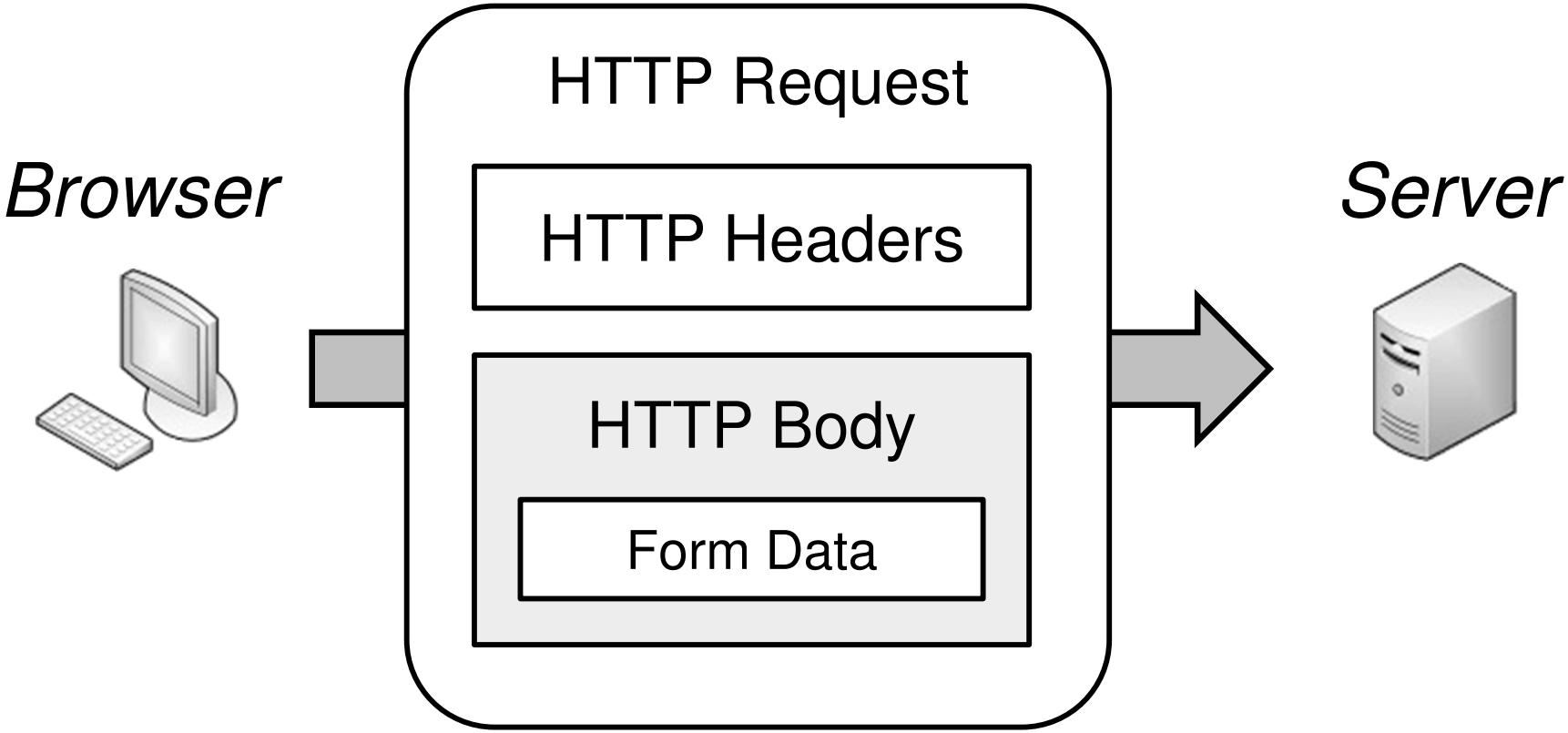



```
.../target?firstname=Gibson&lastname=Lam
```

An example query string

Using the POST Method

- The POST method works differently
- Form data is sent to the server as part of the HTTP body



The HTML Form Example

- Here is the same form example with the form method changed to using POST:

Firstname:

Lastname:

Submit

The display of the form is the same as before

```
<form method= "post"  action="/target">
  <p>Firstname:
  <input type="text" name="firstname"></p>
  <p>Lastname:
  <input type="text" name="lastname"></p>
  <p><input type="submit"></p>
</form>
```

Posting the Form

- When sending the form using the POST method, the query string is put inside the HTTP body, like this:

```
POST /target HTTP/1.1
...
Content-Length: 29
Content-Type: application/x-www-form-urlencoded
...

firstname=Gibson&lastname=Lam
```

The length of the form data

The content type of the form data

An example query string

Getting POST Data in Express

- You can read the query parameters in an Express server from forms that use the POST method
- To do that, you need to use the `urlencoded` middleware, as shown below:

```
app.use(
    express.urlencoded({extended: true})
);
```

Using an 'extended' handler for the data

Getting the Query Parameters

- After using the middleware, the query parameters are then available as a JavaScript object from `req.body`
- The following example can get the form data sent from the previous HTML form:

```
app.post("/target", (req, res) => {
  const { firstname, lastname } = req.body;
  ...
});
```

The form data is stored here

Handling File Uploads

- Handling file upload in a form is quite different from handling normal input fields
- The HTML form is set up differently so that file content, which can be large, is sent within an HTTP request
- On the server side, you need to use an external npm package as an Express app does not handle file uploads appropriately

The HTML Form

- Here is how you write the `<form>` tag when you need to upload files:

The encoding type of the form; must be set to multipart/form-data

```
<form enctype="multipart/form-data"
      method="post" action="/upload">
```

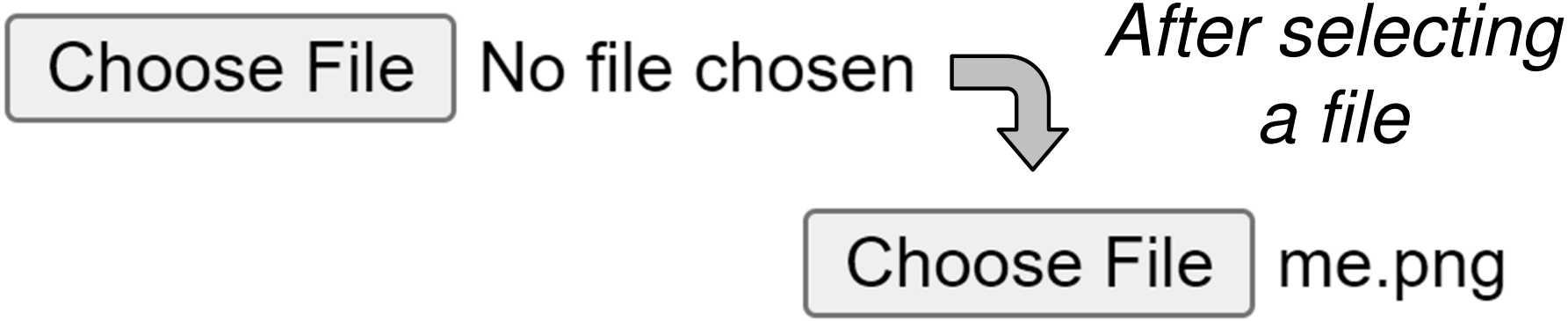
You must use the POST HTTP method

The File Upload Input Fields

- A file upload input field is a form element, which is written like this:

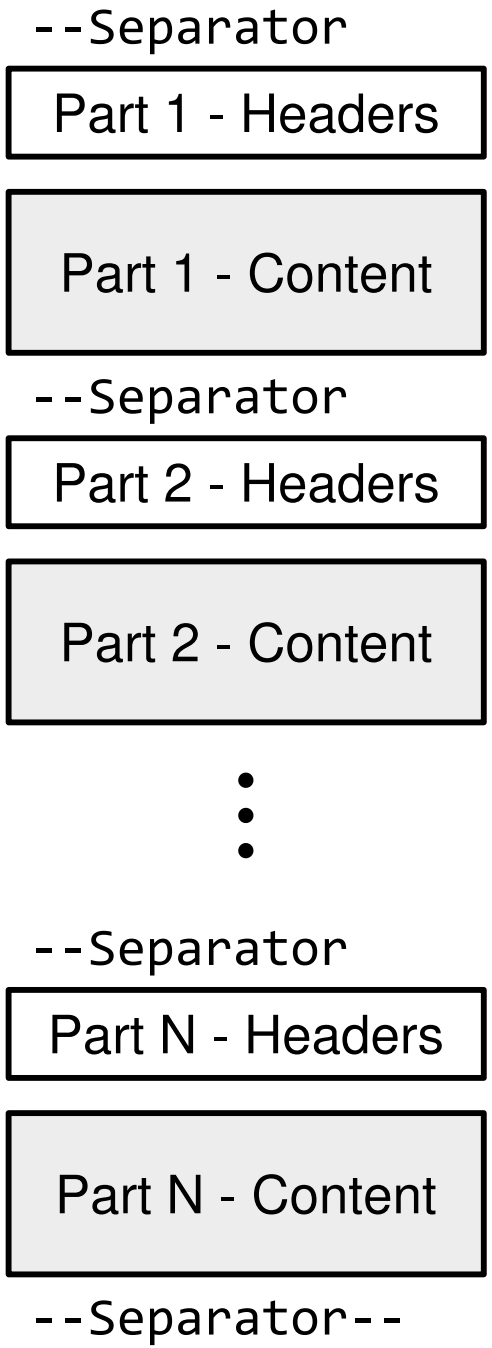
```
<input type="file" name="myimage">
```

- The element contains a button and the display of the selected file so that the user can browse for the required file by clicking on the button:



The Encoding Type

- The encoding type to send the form data is `multipart/form-data`
- It is a MIME type which allows multiple parts of content to be transmitted in the same output
- On the right is the arrangement to put together N content parts



An Example Multi-Part Request

- Here is an HTTP POST request containing a file:

```
POST /upload HTTP/1.1
...some HTTP headers...
Content-Type: multipart/form-data;
              boundary=Boundary-1234567890

--Boundary-1234567890
Content-Type: image/png
Content-Disposition: form-data;
                     filename="me.png";
                     name="myimage"

...content of the file...
--Boundary-1234567890--
```

The part contains the file content

Handling Multi-Part in Express

- The Express package does not include functions for handling multi-part form data
- You need to install external packages to do that, such as the `multer` package
- You can install `multer` using npm, i.e.:

```
C:\Users\Gibson>npm install multer
```

Processing a File in Express

- In your Express server, you first need to create the middleware, like this:

```
const multer = require("multer");
const upload = multer({ dest: "uploads/" });
```

- However, you don't usually use the middleware through the Express app

The folder you want to put the uploaded files

Using Multer in a Path

- In your server path, you can use `multer` if there is any file uploaded to the path, e.g.:

```
app.post("/upload",
        upload.single("myimage"),
        (req, res) => {
    ...Work with the file
       using req.file...

});
```

Use multer for this path only

The name of the form data containing the file

The Uploaded File

- You get the information of the uploaded file using `req.file`
- Below shows an example content of it:

```
{
  fieldname: 'myimage',
  originalname: 'me.png',
  encoding: '7bit',
  mimetype: 'image/png',
  destination: 'uploads/',
  filename: '3fe1d8b16093c246fc5814f70aa74ba6',
  path: 'uploads\\3fe1d8b16093c246fc5814f70aa74ba6',
  size: 269795
}
```

You can get the file from here

Copying the Uploaded File

- After receiving the file, you can choose to copy it somewhere, for example:

This example copies the file to the 'public' folder

```
fs.copyFile(req.file.path,
            "public/" +
             req.file.originalname);
```

- And delete the temporary file afterwards:

```
fs.unlink(req.file.path);
```