

This exam is due on Friday, December 13, at midnight. Write up your solutions to the problems in either a PDF file or a text file. Zip up a copy of your solution document and call the zip file `CS404Exam2Surname.zip` and submit it using Blackboard.

Everyone should work on this exam individually. You should turn in your own solution to each problem. If you have any questions about these problems, please write me an email.

1. (15 points) Explain why when a browser is told to GET a single URL, like

`http://www.purduecal.edu/`

that single URL can easily lead to many actual HTTP GET requests.

2. (20 points) Describe two techniques that a web server might use to determine if a resource is an executable that should be handled using the CGI protocol.
3. (20 points) Data can be sent to a CGI program using either a GET request or a POST request.
  - (a) What is one advantage of using a GET request?
  - (b) What is one advantage of using a POST request?
4. (15 points) Give three different ways that a HTTP client can tell when it has received all the data in an entity body.

5. (30 points) For this problem, use the program `HTTPClient.java` in the folder

```
"Network Communication\7. HTTP Protocol & Application Servers\"
```

Compile the program to send GET requests using HTTP/1.1 and to include the request headers

```
Accept-Encoding: gzip
Connection: keep-alive
If-Modified-Since:
```

where the last header should use the date for now. For each part below, record as part of your answer all the response headers from each server.

(a) Use `HTTPClient.java` to request the URL.

```
http://www.nytimes.com/
```

In its response, the web server uses two techniques meant to increase the speed of processing http requests. What are the two techniques? Which specific response headers are related to these techniques?

(b) Use `HTTPClient.java` to request the URL.

```
http://www.purduecal.edu/
```

In its response, the web server uses two techniques meant to increase the speed of processing http requests. What are the two techniques? Which specific response headers are related to these techniques?

(c) Use `HTTPClient.java` to request the URL.

```
http://math.purduecal.edu/~rlkraft/cs40400/cs40400.html
```

In its response, the web server uses two techniques meant to increase the speed of processing http requests. What are the two techniques? Which specific response headers are related to these techniques?