Project 3: HTTP Pseudo Streaming

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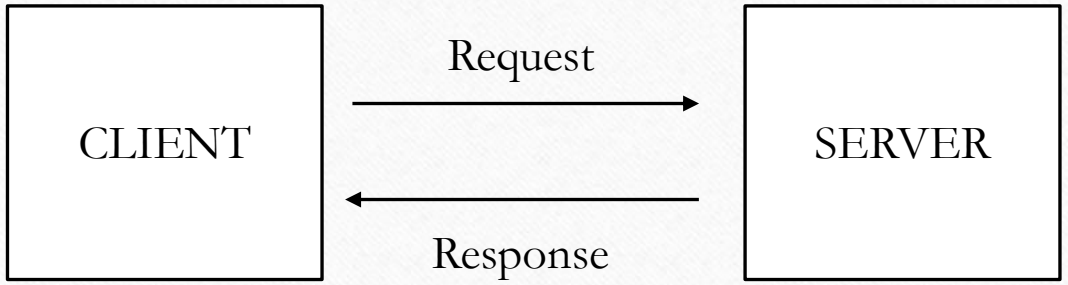
BASICS

- What is a HTTP Server ?
  - A computer program or a software that provides contents needed for web browsers like images, videos, text file etc.
  - It’s a Request/Response Model:



HTTP Protocol - Hypertext Transfer Protocol

- Is an application layer protocol
- Used to virtually transmit files and other data on the World Wide Web like HTML files, image files, query results.
- Uses TCP/IP

URI – Universal Resource Identifier

- An URI is a sequence of characters that identifies a logical or physical resource.

Example:

- https://www.cmu.edu/
- https://www.cmu.edu/academics/index.html

Project Implementation

- For our project: Localhost must act as webserver

Example: http://localhost:8012/index.html

HTTP/1.1

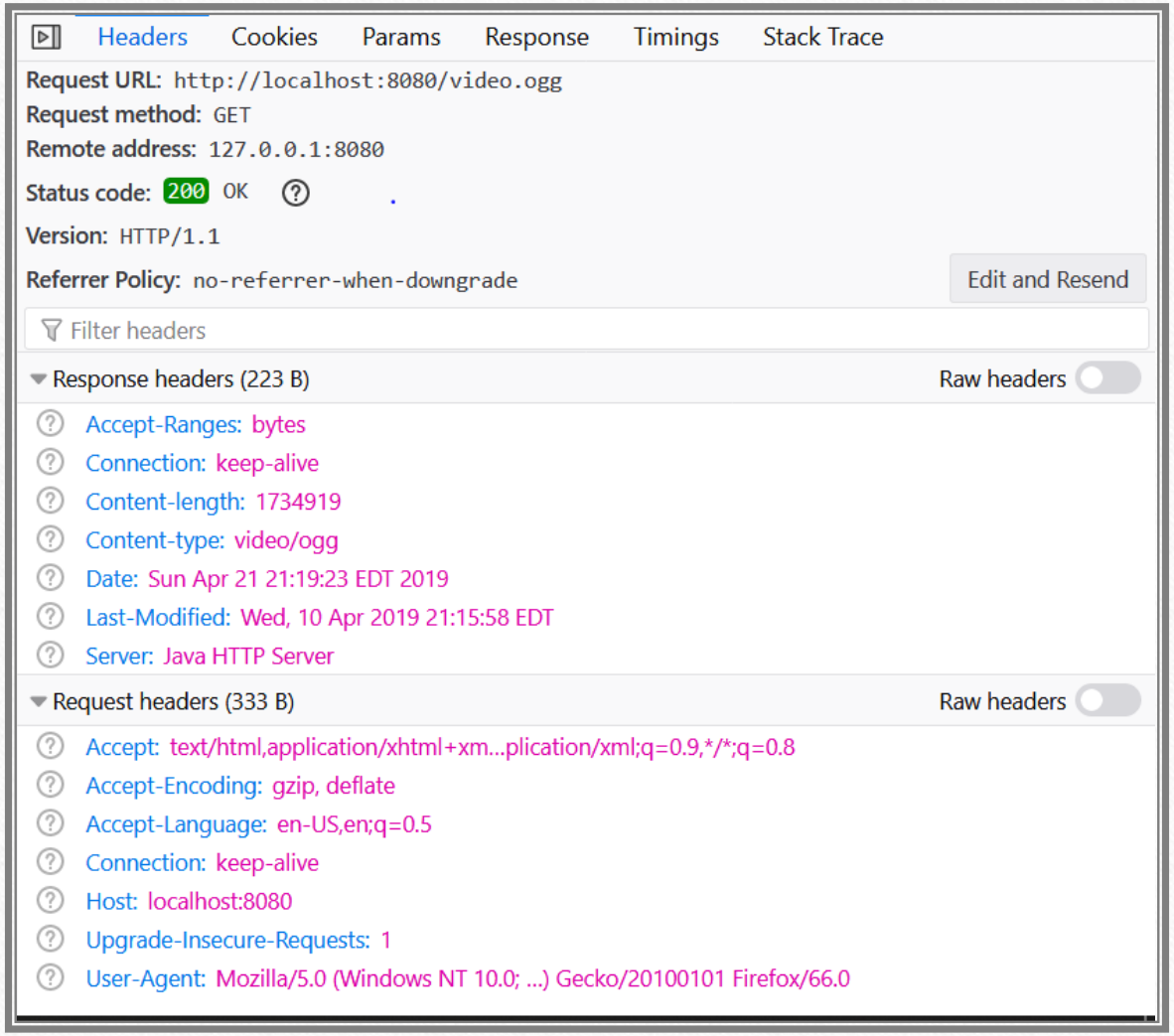
Will need to implement HTTP/1.1 GET Method for:

- 404 Not Found
- 200 OK
- 206 Partial Content – Range Requests

http://techslides.com/demos/sample-videos/small.mp4

Very Important:

- Your server should keep the connection alive after receiving a request



Content-Type

- Below are example of content type that your web server needs to handle:
  - text/plain (.txt)
  - text/html (.htm, .html)
  - image/gif (.gif)
  - image/jpeg (.jpg, .jpeg)
  - video/webm (.mp4, .webm, .ogg)
- Refer Handout to cover all types

Project 3: Deliverables

- vodserver <#port no>
  - By default all the content files will need to be stored in a directory called “content” relative to the directory from where the server files are called.
  - /.../project1 $> vodserver #port
  - On browser: http://<server-ip-address>:<server-port>/video/video.webm
  - folder from where files needs to be accessed: /.../project1/content/video/video.webm
- Makefile
- Design document

Grading

Items	Points (100 – **441** + 110 – **741**)
Logistics	
- Successful submission & compilation	10
- Design documents	10
Server Correctness	
- Handle standard HTTP GET	10
- Handle HTTP error (404)	10
- Handle HTTP Byte-range request	20
- Play video from browser	10
- Allowing video seek from browser	10
Server Performance	
- < 10% CPU utilization when idle	5
- Handle 10 clients simultaneously	15
Required for 18-741 only (bonus for 18-441)	
- Handle 5000 concurrent clients!	10

Closing Comments

- Firefox 9+ Browser will be used for testing.
- If you are using Chrome, the browser will use multiple connections for a single video transfer.
- Understand the headers that need to be created.
- Your server should be able to easily handle concurrent connections.
- More details in the write up.
- Use Piazza/Office Hours for any clarifications