The World Wide Web (WWW)

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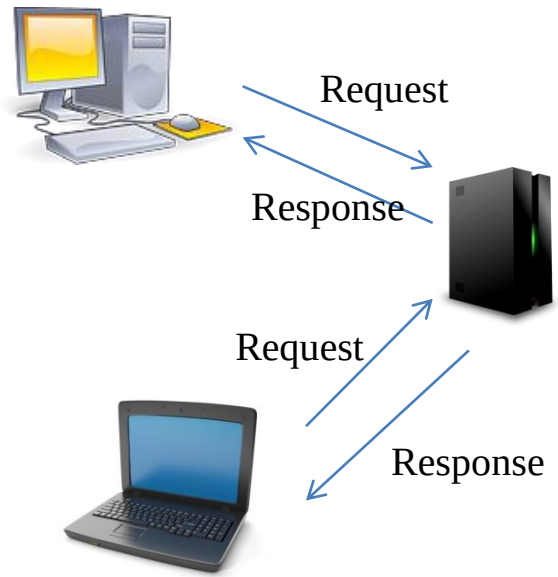
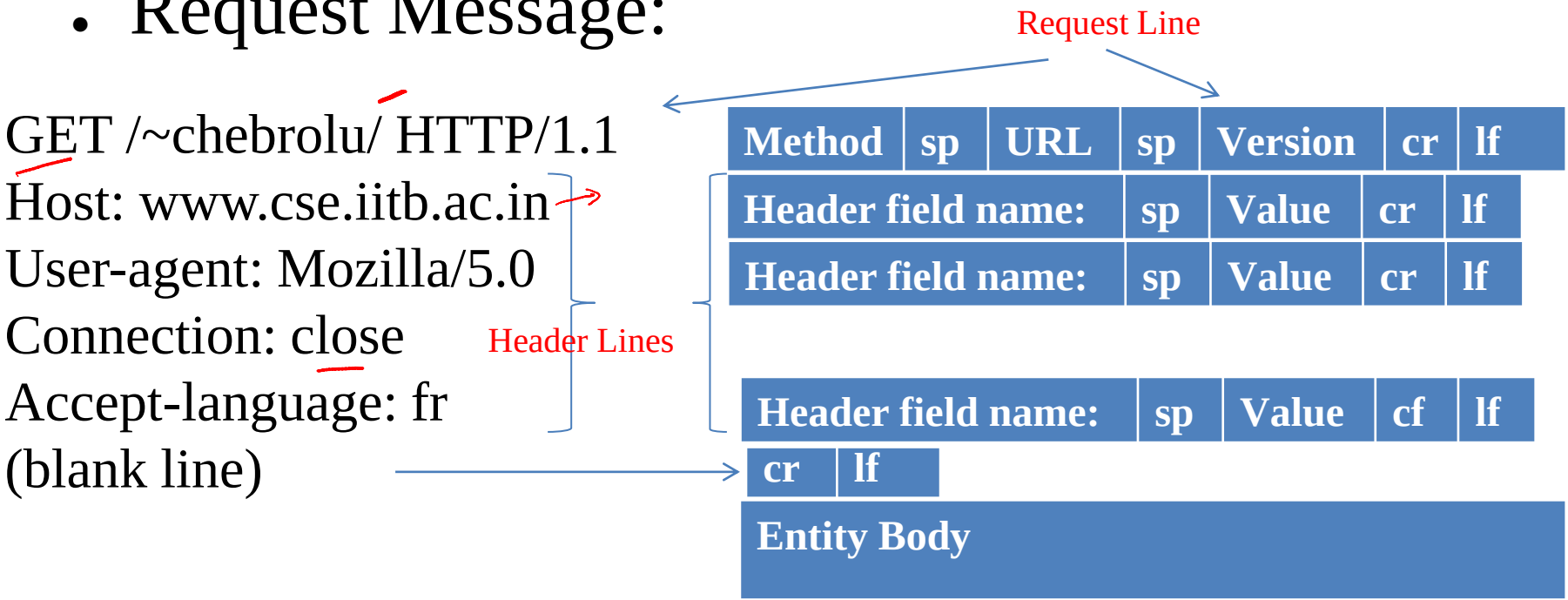
Hyper Text Transfer Protocol (HTTP)

- The protocol employed by Web application
- Based on client-server model
  - Client (browser) requests web objects
  - Server responds with status code and requested object (if present
- Non-persistent and persistent connections



HTTP Message Format

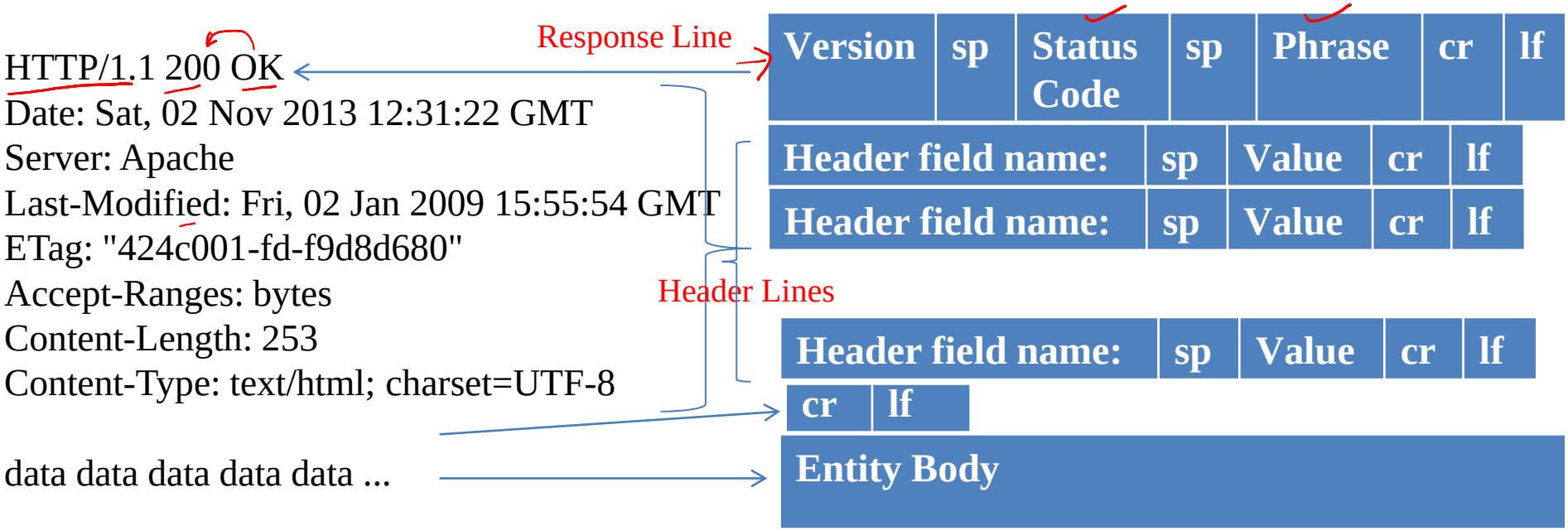
- Two types of messages: Request and Response
- Request Message:



Methods

Method	Description
GET	Request for a web object
HEAD	Request for header fields (no body); Useful for debugging, get time of last modification
PUT	Upload an object to a specified path on a web server; body of request contains the object; used with web publishing tools
POST	Similar to PUT, except that object contained in body is “appended”; often used when user fills forms;
DELETE	Remove the object
TRACE	Asks server to echo incoming request; Useful for debugging
CONNECT	Used to facilitate secure connection when using Proxy servers
OPTIONS	Query server about its properties or that of an object
PATCH	Similar to PUT except permits partial modification to an object instead of a full replacement

Response Message Format



Sample Status Code and Phrases

Status Code	Phrase	Description
200	OK	Request successful, information enclosed
301	Moved Permanently	Object moved; new url under Location:
400	Bad Request	Request could not be understood
404	Not Found	Requested object not found on server
503	Service Unavailable	Server is currently unavailable (overloaded)
505	HTTP Version not supported	Server does not support the HTTP version

Page Display

- Web pages contain a variety of objects (jpeg, mp3, mpeg, doc, pdf, etc)
- Should we build interpreters as part of the browser?
  - Too many file types out in Internet
- Solution: Server indicates type of object via MIME type
- If MIME type is not built-in, browser consults a table which specifies the viewer

Plugins/Helpers

- Plugins: Code-module which run within the browser
  - Plugin is removed from browser's memory after job done
  - E.g. Flash player, java plugin
- Helper Applications: A complete program that runs as a separate process
  - E.g. Acrobat reader for pdf; Microsoft word for .doc

Dynamic Web Pages

- Earlier web pages were mostly static (html with images embed)
- These dates, content is generated based on demand
  - E.g. user clicks proceed to checkout, page to display should contain list of items in cart
- Dynamic content creation is handled via scripts embed within web pages (dynamic HTML)
  - E.g. PHP (hypertext preprocessor), JSP (JavaServer Pages); JavaScript (use tag <script> in HTML)

Demo

telnet www.cse.iitb.ac.in 80

GET /~chebrolu/ HTTP/1.1

HOST: www.cse.iitb.ac.in

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Summary

- Web had had a tremendous impact on our lives
- Follows a client-server model
  - Persistent and non-persistent connections
- Looked at HTTP message format (request and response)
- Ahead: Other miscellaneous yet important aspects of web