Java Web

1. OSI Model and TCP/IP Model
   1. OSI model – open system interconnection model (old one)
      1. 7 layers

7.Application Layer – human computer interaction layer where application can access the network services

* HTTP (Hypertext Transfer Protocol)
* FTP (File Transfer Protocol)
  + - * + POP (Post Office Protocol)
        + SMTP ()
        + DBS

6.Presentation Layer – ensures that data is in usable format and is where data encryption occurs

5.Session Layer – maintains connection and is for controlling ports and sessions

4.Transport Layer – transmits data using transmission protocol: TCP, UDP

3.Network Layer – decides which physical path the data will take

2.Data Link Layer – defines the format of data one the network

1.Physical Layer – transmits tow bit stream

* 1. TCP/IP models
     1. 对比图

1. HTTP (Hypertext Transfer Protocol)
   1. HTTP requests
      1. 图
      2. HTTP version type
      3. A URL
      4. HTTP method
         1. CREATE, PUT, UPDATE…
      5. HTTP request headers
      6. HTTP body (optional)
   2. HTTP response
      1. 图
      2. HTTP status code (details in 3)
         1. 1xx informational
         2. 2xx success
         3. 3xx redirection
         4. 4xx client error
         5. 5xx server error
      3. HTTP response header
      4. HTTP body (optional) – usually render some page, so usually a HTML file
2. HTTP Advanced
   1. HTTP request method
      1. Safe – a HTTP method doesn’t alter the state of the server
      2. Idempotent – if an identical request is made once or several times, the server will be the same state
      3. Cacheable – can be cache
         1. Private browser cache
         2. Shared proxy cache (ISP)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| method | safe | idempotent | cacheable | description |
| GET | yes | yes | yes | Read/retrieve data from the server |
| POST | no | no | no | Create some resources |
| PUT | no | yes | no | Update the whole object |
| DELETE | no | yes | no | Remove |
| PATCH | no | no | no | Partial update |

HEAD, OPTIONS, TRACE, CONNECT are also method but are seldom used.

* 1. HTTP status code
     1. 1xx informational
     2. 2xx success
        1. 200 OK, GEO/PUT/POST method
        2. 201 success and new resources has been created, POST method
        3. 202 accepted, request has been received for processing, but process hasn’t been completed yet
        4. 204 no content, PUT method, usually update the resources without changing the current page displayed to the user
     3. 3xx redirection
        1. 307 temporary redirect
        2. 308 permanent redirect
     4. 4xx client error
        1. 400 bad requests, the server could not understand the request due to invalid syntax
        2. 401 unauthorized -> unauthenticated, the client is not authenticated
        3. 403 forbidden -> the client has no permission
        4. 404 not found, the server cannot find the requested resources
     5. 5xx server error
        1. 500 internal server error
        2. 501 not implemented, request method is not supported by the server
        3. 502 bad gateways, the error response means that the server, while working as a gateway to get a response needed to handle the request, got an invalid response