Good Design
Modern Interfaces
API

- Enterprises exchanging electronic documents
- Formalize documents -> XML
- Web Services
- Exposing core business functions
Large Systems

• Integration
• Client/Server
Good Software Design

• low coupling
• high cohesion
OOD

• encapsulation
• interfaces
Database design

- functional dependency
- normalization
Good API design

• Define a good Domain model
• Abstract core functions
• From DB: CRUD
• From OO: interfaces
HTTP

- Transfer objects between systems
- Reliable
- bi-directional
- in-order byte stream
<table>
<thead>
<tr>
<th>Method</th>
<th>Request</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>GET</td>
<td>twitter.com</td>
<td>200 OK</td>
</tr>
<tr>
<td>POST</td>
<td>jot</td>
<td>200 OK</td>
</tr>
<tr>
<td>GET</td>
<td>resolve.json?urls%5B</td>
<td>200 OK</td>
</tr>
<tr>
<td>GET</td>
<td>_utm.gif?utmwt=5.3</td>
<td>200 OK</td>
</tr>
</tbody>
</table>

**Response Headers**
- **Age**: 2696972
- **Cache-Control**: private, no-cache, no-cache=Set-Cookie, proxy-revalidate
- **Content-Length**: 35
- **Content-Type**: image/gif
- **Date**: Mon, 17 Dec 2012 14:59:13 GMT
- **Expires**: Wed, 19 Apr 2000 11:43:00 GMT
- **Last-Modified**: Wed, 21 Jan 2004 19:51:30 GMT
- **Pragma**: no-cache
- **Server**: GFE/2.0
- **X-Firefox-Spdy**: 3
- **x-content-type-options**: nosniff

**Request Headers**
- **Accept**: image/png, image/*;q=0.8,image/*;q=0.5
- **Accept-Encoding**: gzip, deflate
- **Accept-Language**: en-US,en;q=0.5
- **Connection**: keep-alive
- **Host**: ssl.google-analytics.com
- **Referer**: https://twitter.com/
- **User-Agent**: Mozilla/5.0 (Macintosh; Intel Mac OS X 10.7; rv:17.0) Gecko/20100101 Firefox/17.0
<table>
<thead>
<tr>
<th>C</th>
<th>post</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>get</td>
</tr>
<tr>
<td>U</td>
<td>put</td>
</tr>
<tr>
<td>D</td>
<td>delete</td>
</tr>
</tbody>
</table>
Best Practices

- think about “resources”
- elements & collections
- map out the 4 methods for each
- Prefer Nouns, Plural, Concrete
- Use Parameters for more advanced queries