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REST

REpresentational State Transfer

- Uses **HTTP** protocol
- *Stateless* communication (no memory about prior requests)
- Scalable
- Resource is identified by **URL** e.g. `http://example.com/customers/1234`
- Data Exchange can use *text*, *XML*, *JSON*, *HTML*

Resource Linkage

Example: Order 1234: 23 products with id 44533 ordered by customer with id 4711

```
{
  "orderId":      1234,
  "amount":      23,
  "productRef":   "http://example.com/products/44533",
  "customerRef":  "http://example.com/customers/4711"
}
```

Standard Method Call Semantics

method	path	body	semantics
GET	order		return all orders
GET	order/1		return order with ID 1
POST	order	{ "product": "milk", "amount": 2 }	create new order based on body data
PUT	order/1	{ "product": "milk", "amount": 13 }	update order with ID 1 based on body data
DELETE	order/1		delete order with ID 1

method	path	body	semantics
PATCH	order/1	{ "amount": 13 }	partially update order with ID 1 based on body data

HTTP methods

- **GET**: retrieve information
- **POST**: submit data (often create resource)
- **PUT**: update resource
- **DELETE**: delete resource
- **PATCH**: partially update resource (only send changed parts)

Most Important Status Codes

- **100 range**: information
- **200 range**: indicates **success**
- **300 range**: redirects
- **400 range**: indicates **client error**
- **500 range**: indicates **server error**

Error Code	Meaning
200	OK
201	Created
204	No Content
400	Bad Request
401	Unauthorized
403	Forbidden
404	Not Found
409	Conflict
500	Internal Server Error
501	Not Implemented
503	Service Unavailable

Server Interface As Table

operation	HTTP method	path	request body	reply body	status codes
getOrder(int id): Order	GET	order/:id		Order	200, 404

operation	HTTP method	path	request body	reply body	status codes
createOrder(Order): Order	POST	order	Order	Order	201