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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
<b>200</b>	<b>OK</b>
<b>201</b>	<b>Created</b>
<b>204</b>	<b>No Content</b>
<b>400</b>	<b>Bad Request</b>
401	Unauthorized
403	Forbidden
<b>404</b>	<b>Not Found</b>
<b>**409</b>	<b>Conflict</b>
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